As my high school algebra teacher used to say, "Show me your math." If I don't know what steps you took, I don't know what steps you didn't take.

And that means asking yourself the really hardest questions. Does the data really show this, or do the results make us feel more successful and comfortable?

So, in the final stages of the project, the Health Media Collaborative was able to discover that 87 percent of tweets about highly graphic and offensive quit smoking ads expressed fear. But did they conclude that they actually got people to quit smoking?

No, it's science, not magic.

So, to unlock the power of data, you don't have to blindly grapple with Orwell's vision of a totalitarian future, Huxley's vision of a petty future, or a terrifying cocktail of both.

All we have to do is treat critical thinking with respect and take inspiration from examples like health media collaborations. And as superhero movies say, let us use our powers for good.

thank you.

(applause)

I experienced my first coup when I was four years old.

Due to the coup, my family had to leave their native Ghana and emigrate to Gambia.

Fortunately, six months after we arrived, they also staged a military coup.

I vividly remember waking up in the middle of the night, gathering everything I could and walking to the safe house for about two hours.

We slept under the bed for a week, afraid of bullets flying through the window.

I moved to Botswana when I was 8 years old.

This time it was different.

There was no coup.

Everything went fine. great education.

They had such a good infrastructure that fiber optic telephone systems even existed in those days, long before they spread to the West.

The only thing they didn't have was they didn't have their own national television station. So I remember watching TV in neighboring South Africa to see Nelson Mandela in prison being given a chance to appear in court if he renounced the fight against apartheid.

But he didn't. He refused until he actually achieved his goal of liberating South Africa from apartheid.

And I remember feeling that one great leader could make such a big difference in Africa.

And when I was 12, my family sent me to high school in Zimbabwe.

At first, this was also wonderful, and the economic growth and infrastructure development were also wonderful, and it seemed like a model for economic development in Africa.

I finished high school in Zimbabwe and went on to college.

Six years later, I returned to the countryside.

Everything was different.

It was shattered into pieces.

Millions of people migrated, the economy fell into chaos, and 30 years of progress seemed to suddenly vanish.

Why is the country deteriorating so quickly?

Most would agree that it's all because of leadership.

One man, President Robert Mugabe, is almost solely responsible for the destruction of this country.

Now, all these experiences growing up in different parts of Africa have done two things for me.

First, I fell in love with Africa.

Everywhere I went, I experienced the incredible beauty of the continent, witnessed the resilience and spirit of its people, and then wanted to dedicate the rest of my life to making this continent great.

But I also realized that this leadership issue needed to be addressed if Africa was to be made great.

You know, the coups and corruption I saw in all these countries where I lived, Ghana, Gambia, Zimbabwe, contrasted with the great examples of good leadership I saw in Botswana and South Africa.

I realized that whether Africa rises or falls depends on the quality of its leaders.

Now, of course, some might think that leadership is important everywhere.

But if there's one takeaway from my talk today, it's this. In Africa, more than anywhere else in the world, the difference that one great leader can make is far greater. And here's why.

This is because African institutions such as the judiciary, constitution, and civil society are weak.

This is the general rule of thumb I believe. When a society has strong institutions, one great leader can make a limited difference, but when an organization is weak, a single great leader can make or break a country.

Let's be a little more specific.

You become the President of the United States.

You think, "Wow, we've arrived."

I am the most powerful man in the world. ”

So you decide, maybe let me pass the law.

All of a sudden, Congress taps you on the shoulder and says, "No, no, no, no."

You say, "Let's try this method."

The Senate comes along and says, "Well, we don't think you can do that."

You'll probably say, 'Let me print some money.

I think the economy needs a stimulus. ”

The central bank governor will think you are crazy.

You could be impeached for that.

But when you become president of Zimbabwe and say, 'You know, I really like this job.

I want to stay there forever.” (Laughter) Well, you can do that.

You decide you want to print money.

You call the central bank governor and say, "Double the money supply."

He'll say, "Okay, sir, is there anything else I can do?"

This is the power that African leaders have and this is why they make the biggest difference on the continent.

The good news is that the quality of African leadership is improving.

In my opinion, we have three generations of leaders.

Generation 1 are those who emerged in the 50's and 60's.

People like Kwame Nkrumah from Ghana and Julius Nyerere from Tanzania.

Their legacy is that of giving Africa independence.

They freed us from colonialism, so let's give them credit.

A second generation followed.

These are the people who have brought nothing but havoc to Africa.

Think war, corruption, and human rights violations.

This is the stereotype of the typical African leader we commonly think of. Mobutu Sese Seko from Zaire and Sani Abacha from Nigeria.

The good news is that most of these leaders have moved on and been replaced by the third generation.

They are like the late Nelson Mandela, Paul Kagame and most of the leaders we see in Africa today.

Now these leaders are by no means perfect, but one thing they've done is clean up much of the mess of the second generation.

I call them the stabilizer generation because they stopped fighting.

They have become much more accountable to their citizens, have improved their macroeconomic policies and have seen for the first time that Africa is growing, in fact it is the second fastest growing economic region in the world.

So these leaders are by no means perfect, but by and large they are the best we have seen in the last 50 years.

So where do we go from here?

I believe that the next generation after this, the fourth generation, will have a unique opportunity to change the continent.

Specifically, it can do two things that the previous generation couldn't do.

The first thing they need to do is bring prosperity to the continent.

Why is prosperity so important?

Because no one in previous generations has been able to tackle this problem of poverty.

Africa today has the fastest growing population in the world, but it is also one of the poorest.

By 2030, Africa's workforce will surpass China's, and by 2050 Africa will have the largest workforce in the world.

With a billion people in need of jobs in Africa, if we don't grow the economy fast enough, we will be sitting on a time bomb for Africa and the world as a whole.

Let me give you the example of one person who lives true to this tradition of creating prosperity. I'm Leticia.

Letitia is a young woman from Kenya who had to drop out of school at the age of 13 because she could not afford her family's school fees.

So she started a business raising rabbits as they were a delicacy in this part of Kenya where she is from.

The business was so successful that within a year I was earning enough to employ and send 15 women to school. We were also able to fund an additional 65 children through these women to attend school.

The profits she generated were used to build a school that now educates 400 children in the community.

And she just turned 18.

(Applause.) Another example is Eric Rajaonally.

Eric is from Madagascar.

Now, Eric realizes that agriculture is key to creating jobs in rural Madagascar, but he also realizes that fertilizers are very expensive for most farmers in Madagascar.

Madagascar has a special bat that produces highly nutritious poop.

In 2006, Eric quit his job as a chartered accountant to start a company that makes fertilizer from bat droppings.

Today, Eric has built a multi-million dollar revenue generating business that employs 70 people full time and an additional 800 during the bat dropping season.

Now, what I love about this story is that it shows that opportunities to create prosperity can be found almost anywhere.

Eric is known as Batman.

(Laughter) And who would have thought that bat poop alone could create a multi-million dollar business that employs so many people?

The second thing this generation has to do is create an institution.

They need to build these institutions so that we are never ransomed again by a few people like Robert Mugabe.

Now, all this sounds great, but where do you get this 4th gen?

Do we just sit and expect them to show up by chance, or do we expect God to give them to us?

No, I don't think so.

It is too important a matter for us to leave it to chance.

We believe there is a need to create national African institutions to identify and develop these leaders in a systematic and practical way.

We have been doing this for the last ten years through the African Leadership Academy.

Leticia is one of our young leaders.

There are currently 700 horses ready for the African continent, with 6,000 to be built over the next 50 years.

However, there is one thing that bothers me.

About 4,000 applications were received annually for the 100 young leaders accepted into the academy. So we have seen a huge hunger for this leadership training that we are offering.

But we couldn't satisfy it.

So today, I am publicly announcing for the first time the expansion of this vision of the African Leadership Academy.

We are building 25 new universities in Africa to prepare the next generation of African leaders.

With 10,000 leaders on each campus at a time, we will be educating and developing 250,000 leaders at any one time.

(Applause.) Over the next 50 years, this institution will produce three million transformative leaders for our continent.

My hope is that half of them will become the entrepreneurs we need, creating the jobs we need, and the other half will go to work in government or the non-profit sector, building the institutions we need.

But they don't just learn academics.

They also learn how to be leaders and develop entrepreneurial skills.

So think of this as the Ivy League of Africa. Instead of getting in on your SAT score, how much money you have, or where your family comes from, the main criteria for getting into this university will be your potential to transform Africa.

But what we do is just one group of organizations.

We cannot change Africa alone.

My hope is that many other African institutions will blossom and all these institutions will come together with a common vision of developing Africa's next generation of leaders, the fourth generation, and teach them this common message. It is to create jobs and build institutions.

Nelson Mandela once said, "Sometimes a generation is called upon to be great.

You too can be part of that great generation. ”

If we carefully identify and develop the next generation of African leaders, I believe that this coming fourth generation will be the greatest generation that Africa, and indeed the whole world, has ever seen.

thank you.

(applause)

I suspect that every African aid worker at one time or another has gone through a time when he wants to get all the money for his project (perhaps a school or training programme). You stuff it in a suitcase, board a plane that flies over the poorest villages in the country, and start throwing that money out the window.

Because to seasoned aid workers, the idea of ​​putting cold, hard cash into the hands of the poorest people on the planet sounds not crazy, but truly satisfying.

We had that moment just in time for our 10th year anniversary, and luckily that's when we realized that this idea actually exists and might be exactly what an aid system needs.

Economists call this an unconditional cash transfer, and it's true. Cash is given unconditionally.

Developing country governments have been doing this for decades, but only now more evidence and new technologies are allowing this to be a model for aid delivery.

It's a very simple idea.

So why did I spend ten years doing anything else for the poor?

To be honest, I believed that money could be used to do more good for the poor than the poor could do for themselves.

I had two hypotheses. One is that poor people are poor because they are not educated and are not making good choices. Second, they need someone like me to find out what they need and deliver it.

After all, the evidence shows otherwise.

In recent years, researchers have studied what happens when you give cash to the poor.

Dozens of studies show across the board that people are using cash transfers to improve their lives.

Pregnant women in Uruguay are buying better food and giving birth to healthier babies.

Sri Lankan men invest in their own businesses.

Researchers who studied our work in Kenya found that people invested in assets ranging from livestock to equipment to home improvements, and that their income from business and farming increased one year after the cash was sent.

These studies did not find that people spent more on drinking or smoking, or that people worked less.

In fact they work more.

Now, these are all material needs.

In Vietnam, elderly recipients used cash transfers to pay for coffins.

As someone who doubts Maslow was wrong, I am very humbled by this choice to prioritize spiritual needs.

I don't know if they chose to give them food, equipment, or coffins. The question then arises: How well can we allocate resources for the poor?

Are we worth that cost?

Again, let's look at the empirical evidence of what happens when we give people what we choose.

One highly informative study looked at a program in India that gives livestock to the so-called ultra-poor and found that 30 percent of beneficiaries sold their livestock for cash.

The real irony is that for every $100 worth of assets this program gave someone, they spent another $99 on it.

What if, instead, we could use technology to put cash directly into the hands of the poor, whether from aid agencies or from us?

Three out of four Kenyans now use mobile money. Mobile money is basically a bank account that you can use on any mobile phone.

Senders can pay a 1.6 percent fee and send money directly to the recipient's account at the click of a button, bypassing middlemen.

Just like the technology that is disrupting the industries of our own lives, so too is the payment technology in poorer countries that can disrupt aid.

The infection is spreading so quickly that it is hard to imagine how it could reach billions of the world's poorest people this way.

That's what we started with GiveDirectly.

We are the first organization dedicated to providing cash transfers to the poor.

We sent cash to 35,000 people in rural Kenya and Uganda in lump sum payments of $1,000 per family.

So far we have been looking for the poorest people in the poorest villages, but in this part of the world they live in houses of mud and thatch, not cement and steel.

Let's say it's your family.

We will come to your door with an Android smartphone.

Hear your name, take a picture and a photo of your hut, and get your GPS coordinates.

That night, all data is sent to the cloud and each data is checked by an independent team, using satellite imagery for example.

Then we'll come back and sell you a basic cell phone if you don't already have one, and we'll send you the money in a few weeks.

What seemed impossible five years ago can now be done efficiently and without corruption.

The more cash we give to the poor, and the more evidence that it works, the more we need to rethink everything else we give.

Too often today the logic behind aid is "we are at least doing some good".

When we are content with that as our standard, when we tell ourselves that it is better to give help than not to help at all, we tend to invest inefficiently in ideas, writing reports, airline tickets, SUVs, etc. that we think are innovative.

What if the logic was, would it give better results than giving cash directly?

Organizations will need to prove that they are doing better for the poor than they can for themselves.

Of course, giving cash doesn't create public goods like fighting disease or building strong institutions, but it can raise the bar on how to help individual families improve their lives.

I believe in assistance.

I believe most aid is better than just throwing money off planes.

I am also convinced that much of the aid today is no better than giving directly to the poor.

I hope that someday.

thank you.

(applause)

George and Charlotte Bronsky, a couple in the Bronx, New York City, have invented something.

In 1965 they patented what they called a "device to assist women in giving birth."

This device consists of a large round table and some machines.

When the woman is ready to give birth to her child, she lies on her back and is strapped to a table that rotates at high speed.

The child jumps out by centrifugal force.

If you look closely at their patents, you might notice a thing or two where their design isn't quite right, especially if you have an engineering background or talent. (Laughter) Dr. Ivan Schwab of California is one of the leading figures in answering the question, "Why don't woodpeckers get headaches?"

And it turns out the answer is because their brains are packaged differently inside their skulls than the way us human brains are packaged.

They, the woodpeckers, typically peck or bang their heads on pieces of wood thousands of times each day. every day!

And as far as anyone knows, it doesn't matter in the slightest.

How does this happen?

Their brains don't move around like ours.

Their brains are packed very tightly, at least against frontal blows.

Until the last few years, especially in this country, when people became curious about what happens to the brains of soccer players who repeatedly hit their heads, the study didn't get much attention.

And the woodpecker probably has something to do with it.

A few years ago, there was an article in the British medical journal The Lancet titled ``A man who pricked his finger and continued to smell putrefaction for five years''.

Dr. Caroline Mills and her team accepted this patient, but had no idea what to do.

The man cut his finger and was working on some chicken and then it started smelling really bad.

It was so bad that when he entered the room with the doctors and nurses, they couldn't bear to be in the room with him.

It was excruciating.

They tried every drug and every treatment imaginable.

A year later, it still smelled putrid.

Two years later, it still smelled putrid.

Three years later, four years later, it still smelled of putrefaction.

After 5 years, it disappeared spontaneously.

It's a mystery.

In New Zealand, Dr. Leanne Perkin and her team experimented with her city's old traditions.

They live in a city with huge hills the size of San Francisco.

And in winter it is very cold and very freezing.

Injuries abound.

They tested this tradition by asking people heading to work in the morning to stop and try something.

Try one of the two conditions.

In the city, it is a tradition to wear socks on the outside of the boots in winter.

And what they discovered by experiment, and when they saw it, it was very raw, but it was true.

If you wear your socks on the outside instead of the inside, you have a much better chance of surviving without slipping or falling.

Now, I hope you agree that each of these things I just described deserves some sort of prize. (Laughter) And that's what they got, they each got an Ig Nobel Prize.

In 1991 I started the Ig Nobel Prize ceremony with many others.

We present prizes to 10 people each year.

Prizes are determined based on one criteria. It's very simple.

It's about making people laugh and then thinking.

What you did made people laugh and then think.

Whatever it is, there's something about it that when people first encounter it, their only reaction is to laugh.

And a week later, it's still spinning in their heads and they just want to tell their friends about it.

That's the quality we look for.

Every year, the Ig Nobel Prize has nearly 9,000 new nominees.

Of those, 10% to 20% are always self-nominated.

These self-nominated candidates are rarely elected.

Winning an award, even if you wanted to, is numerically very difficult.

Even if you don't like it, it's numerically very difficult.

When we choose an Ig Nobel Prize winner, we contact them very quietly.

We offer them the opportunity to decline this great honor if they wish.

To our delight, nearly everyone who offered a prize won.

What do you get if you win the Ig Nobel Prize?

Well, you get a few things.

You can win the Ig Nobel Prize.

The design is different every year.

These are always hand made using very cheap materials.

You're looking at a photo of the prizes we gave out last year, 2013.

Most prizes in the world also award cash or money to the winner.

We don't have money, so we can't give them.

In fact, although the winners have to pay their own money to attend the Ig Nobel Prize ceremony, most of them do.

But last year we managed to scrape together some money.

Last year, ten Ig Nobel Prize winners each received $10 trillion from us.

10 trillion dollar bill from Zimbabwe. (Laughter) You may remember that Zimbabwe had a little adventure during the years of inflation.

They ended up printing banknotes worth as much as $100 trillion.

By the way, this person in charge runs the National Bank there and has won the Ig Nobel Prize in Mathematics.

Another perk is an invitation to a ceremony at Harvard University.

And when you get there, you'll find yourself in Harvard's largest assembly hall and classrooms.

The 1,100-seat venue is jam-packed, with hundreds of Nobel laureates waiting on stage to shake hands and present the Ig Nobel Prize.

That's the heart of the ceremony.

The winners are kept secret until that moment, and even the handshake Nobel Prize winners don't know who they are until announced.

Here are just a few of the other medical awards we have awarded.

Remember, we are giving away 230 prizes.

There are many people walking among you.

Maybe you have too.

About 30 years ago, a paper was published entitled "Injuries from Falling Coconuts".

This book was written by Dr. Peter Barth, a Canadian.

Dr. Bath came to the ceremony and explained that he wanted to see the world as a young doctor.

So he went to Papua New Guinea.

Once there, he started working at the hospital. And I was curious what would happen to the people I brought to the hospital.

When he checked the records, he found that a surprising number of people had been admitted to the hospital with injuries from falling coconuts.

A common occurrence is that people come from the highlands where there are not many palm trees to visit relatives on the coast where there are many palm trees.

And they think coconut trees are the perfect place to stand and lie down.

A coconut weighing two pounds can fall on a 90-foot-tall coconut tree at any moment.

A European team of doctors has published a series of papers on colonoscopy.

In one way or another, you are all familiar with colonoscopies.

Or, in some cases, one way or another.

In these papers, they explained to fellow physicians performing colonoscopies how to minimize the chances of a patient exploding when performing a colonoscopy. (Laughter) One of the authors, Dr. Emmanuel Ben Sussan, flew in from Paris to the ceremony and explained this history. In the 1950s, colonoscopy was becoming a common technique for the first time, and people were wondering how to do it successfully.

And there were some difficulties at first.

The basic problem, which you know very well, is that you're looking in a long, narrow, dark space.

Therefore, you will need more space.

Add gas to inflate it and you'll have room to look around.

Now, it adds to the gas already inside, methane gas.

Oxygen was often the first gas used.

So they added oxygen to the methane gas.

And they wanted to be visible, they needed light, so they introduced a light source, but in the 1950s it was very hot.

So there was methane gas with combustibility, oxygen and heat.

They stopped using oxygen immediately. (Laughter) Patients seldom explode now, but they still do.

Lastly, I would like to talk about the award given to Dr. Elena Bodner.

Dr. Elena Bodner invented a bra that can be quickly separated into a protective face mask in an emergency.

One to save your life and one to save the life of a lucky bystander. (Laughter) You might wonder why someone would do this.

Dr. Bodner came to the ceremony and explained that she grew up in Ukraine.

She was one of the doctors who treated victims of the Chernobyl meltdown.

And later they discovered that many of the worst medical problems stem from the particles people breathe.

So, ever since then, she's always wondered if there's an easy mask she can get anywhere when the unexpected happens.

A few years later she emigrated to America.

she had a baby One day she saw her little son on the floor, picking up her bra and putting it over her face.

The idea was born from there.

She came to the Ig Nobel Awards ceremony with the first prototype of a bra and demonstrated: (laughter) (applause) [“Paul Krugman, Nobel Prize in Economics (2008)”] [“Wolfgang Ketterle, Nobel Prize in Physics (2001)”] I own an emergency bra myself. (Laughs) This is my favorite bra and I'm happy to share it with you if you need it.

thank you.

(applause)

I have a confession to make.

I am adventurous and when I was little, I preferred looking out the window at the trees and the birds in the sky to looking at the two-dimensional chalkboard where time stopped and sometimes died.

My teachers thought there was something wrong with me because I wasn't paying attention in class.

They didn't find anything particularly wrong with me, except that I'm slightly dyslexic due to being left-handed.

But they didn't test for curiosity.

For me, curiosity is a connection with the world and the universe.

It's about seeing what's around the next coral head, or what's around the next tree, and learning more about not only our environment, but ourselves.

Well, it's a dream come true, I'd like to explore the oceans of Mars, but until I get there, I think the oceans still hold a lot of secrets.

In fact, if we think of our planet as a cosmic oasis and break it down into living spaces, the volume of the ocean is over 3.4 billion cubic kilometers, of which we've explored less than 5 percent.

This made me realize that submarines, ROVs, and even scuba diving are tools to go deeper, longer, and farther.

But if we're going to explore the last frontier on this planet, we need to live there.

If possible, you should build a log cabin at the bottom of the ocean.

So when I visited a TED [award winner] named Dr. Sylvia Earle, there was a huge curiosity in my mind.

Maybe you've heard of her.

Two years ago she staked out the last undersea oceanographic laboratory and tried to save it and petition us not to dump it and bring it back to land.

There are only a dozen scientific laboratories on the ocean floor.

There is only one left in the world. It is located 9 miles offshore and 65 feet deep.

It's called Aquarius.

Aquarius is, in a way, a dinosaur, an ancient robot chained to the bottom, this Leviathan.

In another sense, it's a legacy.

So on that visit, I realized that if I wanted to experience what it was like to be an Aquanaut, I was short on time.

After months of torture and two years of preparation, this habitat awaiting us felt like a new home as we swam towards it.

And the point of descending into this habitat and living there was not to stay indoors.

It wasn't about living in something the size of a school bus.

It was to give us the luxury of time to roam, explore, and learn more about this last ocean frontier.

I had a megafauna visit me.

This spotted eagle ray is a common sight at sea.

But the reason why this is so important, why this photo is being published, is that this particular animal brought a friend and they started to get interested in us, who moved into our neighborhood and are doing something with plankton, instead of the pelagic animals they used to be.

We were studying all kinds of animals and creatures, and they were getting closer and closer to us. Thanks to the luxury of time, these animals, reef dwellers, began to get used to us, and the normally passing pelagic creatures stopped.

This particular animal actually circled for 31 full days during our mission.

So Mission 31 wasn't about breaking records.

It was about the connection between man and the sea.

We had plenty of time, so we were able to study animals like sharks and groupers that we had never seen before in groups.

It's like watching a dog and a cat get along well.

You can even interact with animals much larger than us, such as the endangered goliath grouper, which still lives only in the Florida Keys.

Of course, like our neighbors, the goliath grouper barks at us when we get tired after a while. This bark is so powerful that it can actually stun prey in an instant before sucking it all in.

For us, it just says go back to their habitat and leave them alone.

Well, this was no mere adventure.

Actually, there was an important caveat there.

We did a lot of science, but again, we had plenty of time, so we were able to do more than three years of science in 31 days.

In this particular case, I was using PAM, or let's see if I understand this correctly, a pulse amplitude modulated fluorometer.

And scientists from FIU, MIT, and the Northeast have been able to see what reefs are doing when we're not around.

Pulse Amplitude Modulated Fluorometer (PAM) measures coral fluorescence associated with water contaminants and climate change related issues.

We used all sorts of other state-of-the-art tools, such as this sonde, or what I like to call a sponge proctologist. This allows the sonde itself to test the metabolic rate of the barrel sponge, or [marine] sequoia in this particular case.

This will give us a better picture of what is happening underwater and how those dynamics affect us on the ground with regard to climate change-related issues.

And finally, we examined the behavior of predators and prey.

And the behavior of predators and prey is interesting. Because when we get rid of some of the predators on reefs around the world, the prey, the forage fish, behave quite differently.

What we have noticed is that not only have they stopped tending to reefs, diving in, grabbing a little algae and returning home, they are starting to spread and disappear from certain reefs.

Well, in those 31 days, I was able to write over 10 scientific papers on each of these topics.

But the point of adventure isn't just learning, it's being able to share that knowledge with the world. And thanks to a few engineers at MIT, we were able to capture slow-motion video at up to 20,000 frames per second in a tiny box worth $3,000 using a prototype camera called the Edgertronic.

available to all of us.

And while that particular camera gives us insight into animal behavior that is very common, we can't even see it in the blink of an eye.

Here's a quick video showing what this camera does.

You can see silky bubbles coming out of the helmet.

This gives us insight into some animals, such as hermit crabs, that we sat next to for 31 days but usually never paid attention to.

Now, using cutting-edge technology that isn't really marine is not always easy.

Sometimes I had to put the camera upside down, cordon it back to the lab, and actually pull the trigger from the lab itself.

But what it does give us is the foresight to observe and analyze the most amazing behaviors that the human eye can't see, such as this manta shrimp trying to catch its prey, from a scientific and engineering perspective within about 0.3 seconds.

Its punch is as powerful as a .22 caliber bullet, making it impossible to catch a bullet in flight with your eyes.

Now, however, we can see Christmas tree bugs attracting and fanning out in ways that are invisible to the eye, or in this case, fish spewing out grains of sand.

This is a real goby, but in real time, it's so fast that it doesn't even show a fanning motion.

One of the most precious gifts we have received underwater was having Wi-Fi, and for 31 straight days we were able to connect with the world in real time from the bottom of the ocean and share all these experiences.

Quite literally, I'm on Skype in a classroom with 70,000 students on one of six continents, and I connect to some of these experiences every day.

In fact, I posted a picture of a goliath grouper sleeping on the bottom taken with a smartphone from underwater.

we had never seen it before.

And I dream of the day when an underwater city will be built. Perhaps, just maybe, with adventure and pushing the boundaries of knowledge, and sharing that knowledge with others, we can solve all sorts of problems.

My grandfather used to say, "People protect what they like."

Father: How can people protect what they don't understand?

And I've been thinking about this all my life.

nothing is impossible.

We need to dream, we need to be creative, we need to be adventurous to work miracles in the darkest of times.

And whether it's climate change, ending poverty, or giving back to future generations what we've taken for granted, it's about adventure.

And maybe there will be underwater cities, and maybe some of you will become future Aquanauts.

thank you very much.

(applause)

At TED, humans take center stage, but I want to speak for how the bodies, minds and spirits of animals shape us.

A few years ago, I was lucky enough to meet a tribal elder on an island not far from Vancouver.

His name is Jimmy Smith. He told me a story told among his peers who call themselves the Kwikwastinuk.

Once upon a time he told me that all animals on earth are one.

Though different on the outside, they were the same on the inside, and would sometimes gather in sacred caves deep in the forest to celebrate their unity.

Upon arrival, everyone removes their skins.

The raven shed its feathers, grew its fur, stripped its scales, and danced.

But one day, a human came to a cave and laughed because he couldn't understand what he saw.

Embarrassed, the animals fled, and this was the last time they appeared like this.

The ancient understanding that all animals are under separate identities has been a powerful inspiration to me.

I like getting over fur, feathers and scales.

I want to get under your skin

Whether it's a giant elephant or a tiny tree frog, my goal is to connect with them eye-to-eye with us.

You may be wondering, have I ever taken a picture of a person?

of course. There's always a person in my photos, whether it's a turtle, a cougar, or a lion.

You must learn how to see through their disguises.

As a photographer, I try to go beyond the differences in genetic makeup to understand all that we have in common with all other living things.

When using the camera, they shed their skin just like the cave animals to reveal their true selves.

As animals endowed with the power of rational thought, we can marvel at the complexity of life.

As inhabitants of a struggling planet, it is our moral responsibility to deal with the dramatic loss of biodiversity.

But as human beings with hearts, we can all rejoice in the unity of life, and maybe we can change what once happened in that sacred cave.

Let's find out how to join the dance.

thank you.

(applause)

The three are at a dinner party.

Married Paul sees Linda.

Linda, meanwhile, has her eye on John, who is not married.

Do Married People See Unmarried People?

Think about it for a moment.

Most people answer that they don't have enough information to tell.

And most people are wrong.

Linda must either be married or unmarried. I have no other choice.

So in both scenarios, a married person is looking at an unmarried person.

When presented with an explanation, most people change their minds and accept the correct answer, even though they were very confident in their initial response.

Now let's look at another case.

A 2005 study by Brendan Nyhan and Jason Leifler examined American attitudes about the justification of the Iraq war.

The researchers presented participants with news stories showing that no weapons of mass destruction had been found.

However, many participants not only continued to believe that weapons of mass destruction had been found, but became even more convinced of their original views.

So why do arguments change people's minds in some cases and backfire in others?

An informed argument about your audience will be more compelling, considering what they believe, who they trust, and what they value.

Mathematical and logical arguments, like dinner party brain teasers, work because they start from the same common belief, even if people come to different conclusions.

In 1931, an unknown young mathematician named Kurt Gödel presented a proof that a logically complete mathematical system is impossible.

Despite decades of work by brilliant mathematicians like Bertrand Russell and David Hilbert, the proof was accepted because it relied on axioms already agreed upon by everyone in the field.

Of course, many disagreements involve different beliefs and cannot simply be reconciled logically.

When outside information is involved in these beliefs, the question often becomes which sources or authorities people trust.

One study asked people to estimate some statistics related to the extent of climate change.

Participants were asked questions such as, "Between 1995 and 2006, what year was one of the 12 hottest years since 1850?" After providing their responses, they were presented with data from the Intergovernmental Panel on Climate Change. In this case, the answer was shown to be 11 out of 12 years.

Equipped with these reliable statistics from reliable official sources, people are more likely to accept the reality that the planet is warming.

Finally, for disagreements that cannot be finally resolved by statistics or evidence, you may need to understand your audience's values ​​in order to make a persuasive argument.

For example, researchers have conducted numerous studies asking people from various political backgrounds to rank their values.

Liberals in these studies, on average, rank fairness (here meaning whether everyone is treated the same) over loyalty.

In subsequent studies, researchers tried to persuade liberals to support military spending with a variety of arguments.

Equity-based arguments, such as the military providing employment and education to people from disadvantaged backgrounds, were more persuasive than loyalty-based arguments, such as the military uniting the nation.

These three elements (beliefs, authoritative sources, and values) may seem like a simple formula for finding agreement and consensus.

The problem is that we tend to think first of all about arguments that rely on our own beliefs, authoritative sources, and values.

Even when it doesn't, it can be difficult to pinpoint what exactly people who have not yet agreed with us value.

The best way to find out is to simply talk to them.

As the discussion progresses, you will be exposed to counterarguments and counterarguments.

They can help make your arguments and reasoning more convincing, and may even lead you to change your mind.

Let's talk about a little girl named Nagma.

Nagma lived in a refugee camp with her parents and eight brothers and sisters.

Her father got up every morning in hopes of being picked for a construction job and earning $50 in a good month.

The winter was very harsh and unfortunately Mr. Nagma's brother died and his mother became seriously ill.

Desperate, her father went to borrow $2,500 from a neighbor.

After waiting for several months, the neighbor became very impatient and demanded a refund.

Unfortunately, Mr. Nagma's father had no money, so the two agreed on a jirga.

Simply put, a jirga is a form of mediation used in Afghanistan's informal justice system.

Usually presided over by a religious leader or village elder, the jirga is popular in rural areas like Afghanistan, where there is a deep-rooted resentment of formal institutions.

At the jirga, the men sat together and decided that the best way to pay off the debt would be for Nagma to marry her neighbor's 21-year-old son.

she was 6 years old.

Stories like Nagma are unfortunately all too common now, and from our comfort homes we may see these tales as another devastating blow to women's rights.

Anyone who has seen Afghanistan in the news might view it as a failed state.

However, although Afghanistan has a legal system and the jirga is based on long-standing tribal customs, the law must be observed even in the jirga, not to mention extremely immoral and illegal to have children to pay off debts.

In 2008, I went to Afghanistan for a justice funding program. I originally went there for a nine-month program to train Afghan lawyers.

During those nine months, I traveled around the country, talking to hundreds of people trapped and talking to many companies that are also operating in Afghanistan.

And in these conversations, we began hearing about the connections companies have with people and how laws to protect them are underutilized, while serious and illegal punitive measures are being abused.

This prompted me to seek justice. For me, justice means using the law for its intended purpose: protection.

The role of law is to protect.

As a result, I decided to open a private practice and became the first foreigner to file a lawsuit in an Afghan court.

During this time, I also studied a lot of law, talked to a lot of people, and read a lot of judicial precedents, and I realized that the lack of justice is not just a problem in Afghanistan, but a global problem.

And I originally avoided representation in human rights litigation. That's because I was very concerned about how it would affect me personally and professionally. However, we decided that the need for fairness was so great that we could not continue to ignore it.

So I also started pro bono representation of people like Nagma.

Well, I came to Afghanistan, and in over ten years of being a lawyer, I've represented everything from CEOs of Fortune 500 companies to ambassadors to little girls like Nagma, and I've had a lot of success.

And the reason for my success is very simple. Because I work the system from the inside out and use the law the way it was intended.

I find it difficult to achieve justice in places like Afghanistan. There are three reasons.

The first reason, simply put, is that people are not very educated about what their legal rights are, and I feel this is a global problem.

The second problem is that even when laws are in place, they are often superseded or ignored by tribal customs, like the first jirga that sold the nagma.

And the third problem in achieving justice is that even if there are existing laws that are legally good, there are no people or lawyers willing to fight for them.

that's my job. I make use of existing and often unused legislation to the benefit of my clients.

We all need to build a global human rights culture and become investors in the global human rights economy, and working with this mindset can vastly improve justice globally.

Now let's go back to Nagma.

After hearing this story, several people contacted me to pay off their $2,500 debt.

And it's not that simple. You can't just throw money at this problem and think it will go away.

Not so in Afghanistan.

So I said I would join them, but in order to join they said that I would have to call the second jirga, the jirga of appeal.

So, to make it happen, I had to gather the village elders, I had to gather the tribal and religious leaders.

Nagma's father, a neighbor, and his son had to agree.

And I thought if I was going to be involved in this thing, they would have to agree that I would preside over it too.

So after hours of talking, continuing to track them down, and about 30 cups of tea, they finally agreed they could sit down for a second Jirga and we did.

And what was different about the second Jirga was that this time it put the law at its center, and it was very important to me that everyone understood that Nagma has a right to be protected.

And at the end of this jirga, the judge reversed the original sentence, ordered the $2,500 debt paid, and all signed a written order admitting their actions were illegal and going to jail if they did it again.

Most — (Applause) Thank you.

And most importantly, the engagement was broken and Nagma was free.

Protecting Nagma and her right to freedom protects us.

Well, my job involves above-average risk.

I was temporarily detained.

I was accused of running a brothel and accused of being a spy.

A grenade was thrown into my office.

But it didn't go away.

However, I have found that in my work, the rewards far outweigh the risks, and my clients are taking far greater risks than I am. Because they have much more to lose if the case never goes to trial, or worse, they are punished for having me as their attorney.

Every time I handle a case, I find that my clients stand behind me as much as I stand behind them, and that's what drives me forward.

Laws are of paramount importance to protect us all.

Journalists are very important in making sure that information is made available to the public.

We receive information from journalists, but we often forget how that information was provided.

This photo is from the British press corps in Afghanistan.

It was taken by my friend David Gill a few years ago.

According to the Committee to Protect Journalists, thousands of journalists have been threatened, injured, killed and detained since 2010.

Many times, when we get this information, we forget who it affects and how the information was given to us.

Especially in places like Afghanistan, the work of many journalists, both domestically and internationally, is very remarkable. It's important to never forget that. Because they protect not only our right to receive that information, but also the freedom of the press, which is essential in a democratic society.

Matt Rosenberg is an Afghan journalist.

He works for the New York Times and unfortunately wrote an article a few months ago that displeased government officials.

As a result, he was temporarily detained and illegally deported from the country.

I was Matt's agent and, after negotiations with the government, I was able to legally accept that he was, in fact, illegally deported and that there is a freedom of the press in Afghanistan with consequences if it is not upheld.

And I am happy to say that as of a few days ago, the Afghan government officially invited him into the country and withdrew his expulsion order.

(Applause.) Censoring one journalist threatens other journalists and quickly silences countries.

Protecting journalists and press freedom is important. Because it makes governments more accountable to us and more transparent.

Protecting journalists and their rights to information protects us.

Our world is changing. We now live in a different world and what was once an individual problem is now a global problem for all of us.

Two weeks ago, Afghanistan had its first democratic transfer of power and the election of President Ashraf Ghani, which is huge and I am very optimistic about him and hope he will bring much needed changes to Afghanistan, especially in the legal profession.

we live in another world.

We live in a world where my eight-year-old daughter only knows black presidents.

It's very possible that the next president will be a woman, but as she gets older she may wonder if a white man can be president?

(Laughter) (Applause) Our world is changing, and we must change with it. What was once a personal problem has become a problem for all of us.

According to UNICEF, more than 280 million boys and girls are currently married before the age of 15.

Two hundred and eighty million.

Child marriage perpetuates a vicious cycle of poverty, poor health and lack of education.

At the age of 12, Sahar got married.

She was forced into this marriage and sold by her brother.

When she went to her in-laws' house, they forced her into prostitution.

Because she refused, she was tortured.

She was severely beaten with a metal rod.

they burned her body.

They tied her up in the cellar and starved her to death.

They used pliers to pull out her nails.

At one point she was able to escape from this torture chamber to a neighbor's house. And once there, instead of protecting her, they dragged her back to her husband's house, where she was tortured even worse.

When I first met Sahar, thankfully, Women for Afghan Women gave her a safe haven.

As a lawyer, I try to be strong with all my clients. Because it is very important to me. But it was very difficult to see how hurt and very weak she was.

It took several weeks before we realized what really happened when she was in that house, but eventually she started to open up to me. And when she opened up, what I heard was that she didn't know what her rights were, but she knew she had a certain level of protection by the government, but that was betraying her. So we were able to talk about her legal options.

So we decided to take this case to the Supreme Court.

Now this is very important. Because this is the first time a domestic violence victim has been represented by a lawyer in Afghanistan, the law has been in the bill for years but has never been applied as far as Sahar province.

In addition to this, we also decided to sue her for civil damages again using a law that had never been used before, but we used it in her case.

So we were arguing in the Supreme Court before 12 Afghan judges, me, an American female attorney, and Sahar, a young woman who, when we met, could not speak more than a whisper.

She got up and found her voice and my daughter told them she wanted justice and she got it.

In the end, the court unanimously agreed — (applause) — that her step-parents should be arrested for what they did to her, that her fucking brother should be arrested for selling her, and that she was entitled to civil damages.

Sahar has shown us that by using the law in its intended way we can attack existing bad practices, and that by defending Sahar we are defending ourselves.

Having worked in Afghanistan for over 6 years, many of my family and friends think my job is like this.

(Laughs) But what I'm actually doing is like this.

We can all do something now.

I'm not saying we should all buy a plane ticket and go to Afghanistan, but we can all contribute to the global human rights economy.

We can build a culture of transparency and accountability to the law and hold governments more accountable to us as we do to them.

A few months ago, a South African lawyer came to my office and said:

I wanted to see what the madman looked like. ”

The law is ours, regardless of ethnicity, nationality, gender or race, the law is ours and fighting for justice is not an act of madness.

Businesses should also work on this program.

Corporate investment in human rights is a capital gain for business, and the rule of law benefits us all, whether corporate, NGO or private.

And by working together with a collective mindset of citizens, the public and private sectors, we can create a global human rights economy and enable all of us to be global investors in human rights.

Only then can we achieve justice together.

thank you.

(applause)

I'm here to introduce Photo Kites.

It's a tethered flying camera.

Before I do that, I'd like to talk a little bit about where it came from and what motivated it.

I was born in Russia. Three years ago, in 2011, there were elections for the Russian Federation.

Massive fraud was reported and people joined the protests, which seemed unlikely for Russia.

And for whatever reason, no one really knew how important these protests were, as the world's media largely ignored them.

Well, there's a group of photographers who kind of fly flying cameras for fun, and they usually shoot things like the Sphinx and the Pyramids, and I happened to be around the corner, so they flew their cameras and took some snapshots and panoramas of this demo.

When I saw a completely independent existence, a completely random occurrence and image of it, it really struck me.

Here is one of those panoramas.

So, in one image, you can get a good idea of ​​the scale of this event - the number of people, the colors, the banners, etc.

This cannot be considered unimportant.

All in one image, which was really cool for me.

And in the future, I think flying cameras are already pretty ubiquitous in journalism and many other professions, but if you wait a few months, a few years, I think it will become a real must for many professions.

And it makes sense. What a unique point of view.

For example, nothing conveys this scale more accurately in context.

However, there are some hurdles and they are very basic and basic.

One is a pilot.

To capture this image, they flew a 5-kilogram device with a camera, a single-lens reflex camera, underneath it.

It's pretty heavy, spinning, and has a lot of sharp objects.

It's a little uncomfortable to fly, perhaps even for the pilot.

In fact, on the back of the pilot's shirt you can see the words "No questions asked until landing" in Russian and English. Because people are curious and go to beat you. And because you lose focus and something happens.

And these guys are great. they are professional. They are very careful with their actions.

So in the protest, as you may have noticed, they flew over the river, so it was very safe.

But this doesn't necessarily apply to everyone or in all conditions, so it should be easier to maneuver.

Another problem is regulation, or rather lack of proper regulation.

Coming up with common sense laws to regulate flying cameras is difficult for many good reasons.

So we already have cameras.

Everyone here surely has a smartphone with a camera, right?

they are increasing.

I hear that someone wearing Google Glass has been attacked.

In fact, two weeks ago, I heard that a hobby drone pilot was attacked for flying near a beach.

Here are some personal opinions that I didn't expect.

Just yesterday I was attacked by a man who claimed to be filming me.

I was here checking my email. It's an easy way to get feedback on your talk.

But I think there is a better solution.

I think we have to break through this situation.

We need to come up with responsible solutions that can provide that perspective while addressing privacy issues and security and accountability issues.

And this is one of the potential solutions.

This is a photo kite.

Well, it's a quadrocopter, but what's special is that it has a lead.

It's literally a dog lead. very convenient.

And the great thing is that there is nothing like a joystick or anything to make it fly.

Just turn it on and point it in the direction you want to fly.

Add a little twist.

That's the way we communicate.

That's it.

(Applause) The dialogue is very simple.

It's like a personal flying pet.

It always maintains a certain angle to you and actually follows naturally when I move around with it.

And of course you can develop this further.

So this lead is loaded with some extra electronics.

can be turned on.

And now, if you have a dog like that, it's like telling your dog to "fly lower." So you can press the button and operate it fairly easily.

I just moved the position.

And it's really safe.

I don't know about all of you in the front row — (laughter) — but I have to agree that, at least in principle, you feel safer because you have a physical connection.

Is it difficult to do a live demo?

Things always go wrong.

But no matter what, this stuff actually prevents this stuff from getting into you.

Moreover, it is immediately clear that I am the person responsible for this device.

No need to look for the one controlling it.

Well, I would say it's pretty easy, but I think a very good way to prove it is to get a second one and fire it up.

If we can do this live on stage, we can show you all how to operate these devices in less than five minutes.

Now we have two eyes in the sky. (Applause.) And now it's important to get them back.

(Laughter) So my question to you is this is a great solution, very accessible and secure.

what do you use it for?

What would you use such a camera for in your life?

thank you.

(applause)

When Homer's Iliad was first written down in the 8th century BC, the story of the Trojan War was already old.

From existing oral lore, audiences knew tales of long sieges, epic duels outside the city walls, and cunning trickery that ultimately won the war.

In the end, this magnificent city was burned to the ground, never to rise again.

But did it ever exist?

By the time the field of archeology began to take shape in the 19th century, many had become skeptical of the epic, believing it to be pure fiction, a founding myth imagining a heroic era bygone.

But some scholars believed that behind the superhuman feats and miracles of God, there must have been a grain of historical truth: the actual war and the place where it happened.

Frank Calvert was one such believer.

He spent his youth traveling and learning about ancient civilizations until he accompanied his brother Frederick on a diplomatic mission to the Canakkale region of northwestern Anatolia.

It was here that Homer described a Greek camp at the mouth of the Scamander River.

It was here that Frank made a fateful contact with journalist and geologist Charles McLaren.

Locals and travelers have long speculated that Troy may have stood on the surrounding hills.

But McLaren was one of the first to publish a detailed topographic survey of the area.

He believed he had found the place. Known as Hisarluk, which means "fortress" in Turkish, it is a 32-metre-high mound. Shortly after meeting him in 1847, the Calvert family purchased 2,000 acres of farmland, including part of the hill.

Before they could explore further, the Crimean War broke out and their archaeological ambitions were thwarted for several years.

After the war ended, Frank Calvert began surveying the site, but lacked the funds to conduct a full excavation.

Here comes Heinrich Schliemann, a wealthy German businessman and amateur archaeologist.

At Calvert's invitation, Schliemann visited the site in 1868 and decided to excavate it.

Eager to find the ancient city, Schliemann dug a huge trench to the foot of the hill.

There he discovered a treasure trove of precious artefacts, jewellery, and metalwork, including two crowns and a copper shield.

Schliemann took full credit for this discovery and announced that he had found the treasure of Troy and its king Priam.

But the real treasure lay elsewhere.

Archaeologists later investigated the site and found that the mound consisted of at least nine cities, each built on top of the last ruins.

The strata discovered by Schliemann date back to the Mycenaean period, more than 1,000 years too early for Homer.

But the mounds do contain evidence of a thriving Bronze Age city, with charred stones, broken arrowheads and mutilated bones suggesting a violent end.

It was Troy VII, contained in the Middle Layer, but was devastated a second time by Schliemann's careless excavation.

Covering an area of ​​about 200,000 square meters and housing up to 10,000 people, the settlement flourished until around 1180 BC.

Located at the southern entrance to the Dardanelles, the site would have been a formidable strategic location for both defense and trade.

The most important thing is that the ruins of a huge castle wall remain. Probably the very same wall from which Priam and Hector once watched the Greeks approach.

Of course, it is difficult to be certain that these sites are the true remains of ancient Troy, and scholars still debate whether the Trojan War as portrayed by Homer actually took place.

But there is enough evidence for UNESCO to recognize Hisarlik as a Trojan site.

Whatever it is, with persistence, a little faith, and a lot of research, archaeologists are uncovering the long-buried secrets of the lost ancient city.

I have two stories to tell you today.

One way is to use market-based pricing to influence demand and use wireless technology to significantly reduce emissions in the transportation sector.

And second, choosing the right wireless technology presents incredible opportunities. How can we create new engines for economic growth and dramatically cut carbon emissions in other sectors?

I'm really scared.

To avoid catastrophic impacts, we need to reduce CO2 emissions by 80% in 10-15 years.

And I am amazed that I am standing here to tell you that.

What are the catastrophic effects? If climate change increases by 3 degrees Celsius, 50 percent of species will become extinct.

it's not a movie. This is real life.

And what really worries me is that when people talk about cars, and I know that to some extent, the media, the politicians, the people in this room, they're all thinking, 'Let's get a fuel efficient car'.

If we start now, 10 years from now, when the opportunity ends, these fuel-efficient vehicles will reduce our fossil fuel needs by 4%.

That's not enough.

But now let's talk about something more fun.

Here are some ways to make a dramatic difference.

So Zipcar, a company I founded seven years ago, is an example of what is called car sharing.

What Zipcar is doing is parking cars in dense urban areas so that members can book by the hour and by the day, rather than using their own car.

How do Zipcar users feel?

This means that you only pay for what you need.

All the time the car sits idle, I'm not paying for it.

So you can choose the perfect vehicle for your trip.

Well, this is the woman who booked MiniMia and had a great day.

When I meet customers, I can ride in a BMW.

You can drive a Toyota Element when you go on a surfing trip.

And I think the other thing worth noting is that car ownership has the highest status.

Not only do I have cars at my disposal in seven cities around the world, but Heaven does not allow me to maintain them, deal with repairs, or have anything to do with it.

It's like the car you've always wanted that your mom said you couldn't have.

It has all the good stuff and nothing bad.

So what are the social consequences of this?

As a social result, Zipcar today has 100,000 members driving 3,000 cars parked in 3,000 parking spaces.

Instead of driving 12,000 miles a year as the average city dweller does, they drive 500 miles a year. are they happy?

The company has more than doubled in size since I founded it.

People love the company. And it is better. they like it

So how did people get from 12,000 to 500 miles a year?

Because they said, "$8-10 an hour, $65 a day."

If you go to buy ice cream, do you really want to pay $8 for ice cream?

Maybe I was buying ice cream while doing other errands. ”

So people react very quickly to prices.

Finally, Zipcar would never be possible without technology.

It required something as simple as 30 seconds to book a car, pick it up and drive it.

And for me, a service provider, I can never provide a car even for an hour if there is some transaction cost.

So, conceptually, this can never happen without these wireless technologies.

So here's another example. This company is GoLoco. We are planning to launch a company within three weeks. I would like to realize what I have done with car sharing in ride sharing.

This applies to people across America.

Today, 75% of trips are in single cars, but 12% of commutes are carpools.

And by applying social networks and online payment systems, we can completely change the way people think about ridesharing and make travel more efficient.

So, looking to the future, people will come to see carpooling as an incredible social event of the day.

How did you come to TED? You went with other TEDsters.

How wonderful! Why would you want to go to your car alone?

How did you do your grocery shopping? You went with your neighbors. It was a great social time.

It will greatly change the way we feel about travel, and I think it will improve our freedom of movement.

Where shall we go today, who shall we go with?

I see and feel these things.

And a social benefit: the percentage of single-seater cars, as I said earlier, is 75 percent. I think we can bring it down to 50 percent.

Of course, parking demand is down, so are congestion and carbon emissions.

Of course, the final part about this is that this is made possible by wireless technology.

And what makes people want to do this is the cost of driving.

The average American spends 19% of their income on their cars, and there is now no outlet for pressure to cut those costs.

A final example of this is congestion pricing, very famously done in London.

That's when you charge people a premium to drive on busy roads.

Overnight congestion decreased by 25% in London the day it launched congestion pricing. It has persisted for four years of implementing congestion pricing.

Again, do people like the results?

Ken Livingston was re-elected.

So, again, we find that price plays a big role in people's willingness to reduce their driving behavior.

The number of miles we drive has tripled since 1970 and doubled since 1982.

That system has a lot of slack. With proper pricing you can get it back.

Congestion pricing is being debated in major cities around the world, where wireless is also enabled.

It was not my intention to set up toll booths all over London and open and close the gates.

And what is congestion pricing? This is a technical and psychological trial for what is called road pricing.

And road pricing is an area we all need to work on. Because today we pay for the maintenance and wear and tear of our cars with gas taxes.

Improving the fuel economy of a car reduces the income it earns from the gas tax, so it needs to be charged according to the distance traveled.

Whatever happens with congestion pricing, those technologies will also happen with road pricing.

Why do we travel so much?

Traveling by car is cheap, so you spend too much.

We need to provide this better market feedback.

And once we have it, you will decide how many miles you will drive, how you will travel, where you will live and work.

And wireless technology makes this real-time loop possible.

Now let's move on to the second part of the story. So when does this congestion pricing start? Road pricing is coming.

when will we do it? Are we going to wait 10 to 15 years for this to happen, or are we finally going to have the political will to make it happen within the next two years?

Because it becomes a tool that will change the way we use it overnight.

And what wireless technology will it use?

This is my big vision.

We have the tools to help bridge the digital divide, respond to emergencies, keep transportation moving, provide new engines of economic growth, and dramatically reduce carbon emissions across all sectors.

And this is a scene from "The Graduation." Remember this moment?

You will be handsome young men and I will be a wise businessman.

"I just want to say one thing to you, just one."

"Are you sure?" "Are you listening?" "Yes, I am."

"Ad Hoc Peer-to-Peer Self-Configuring Wireless Networks"

(Laughter) These are also called mesh networks.

And in mesh, every device contributes to and expands the network. I'm sure you've heard about this a bit before.

Here are some examples.

We'll hear from Alan Kay later today.

These laptops communicate with all the children in the classroom, school and village when they open them.

And what is the cost of that communication system?

Zero dollars a month.

Here's another example. In New Orleans, video cameras were mesh-enabled to monitor crime in downtown French Quarter.

When the hurricane hit, the only communication system that survived was the mesh network.

Volunteers flew in, added tons of devices, and for the next 12 months, the only wireless in New Orleans was the mesh network.

Another example is Portsmouth, UK.

They mesh-enable 300 buses to communicate with these smart terminals.

By looking at the terminal, you can see exactly where the bus is on the street, when it's coming, and buy tickets in real time.

Again, all mesh enabled. Monthly communication fee: 0 yen.

The advantage of mesh networks is the use of very low cost devices.

Zero ongoing communication costs. Highly scalable. You can keep adding them, or like Katrina, you can keep subtracting them. Communication is possible as long as there are some.

they are resilient. That redundancy is built into this great distributed design.

What are the surprising weaknesses?

No one in Washington is lobbying for this wireless network to be built in the city because the cost of ongoing communication is zero. Also, no one in these municipalities is trying to build a wireless network.

So the examples I gave are islands in a mesh network, and networks are interesting because they are big.

How do you build a big network?

Are you ready to be a "graduate" again?

This time you play a handsome young man, but I will be a sexy woman.

These are the next two lines from the movie.

"Where did you do it?" "In his car."

So when we stick to this idea... (laughter) what would I, Robin Chase, think if every car across America had a mesh network device? Please try to imagine.

There may be free wireless communication systems from coast to coast.

I just want you to think about that.

And why does this happen? Because we set congestion pricing, we set road pricing, and gas taxes become road pricing.

These things happen.

What wireless technology do you use?

It might be better to use a good one. when will we do it?

We probably shouldn't wait 10 or 15 years for this to happen.

we should move it forward.

So, I want to launch a wireless internet interstate wireless mesh system and demand that this network be open standards and accessible to everyone.

Today, the transportation sector is creating wireless devices that are single-purpose devices within closed networks (you probably have Fast Pass or Easy Lane).

What's the point?

Only a few bits of data are transferred when doing road management and road tolling.

We have an incredible amount of surplus capacity.

So we can provide the lowest cost means of intercontinental communication over radio, we can build resilient national communication systems, and we have new tools to create efficiencies in all areas.

Imagine what would happen if the cost of getting information anywhere from anywhere was close to zero.

What the tool can do: You can create an economic engine.

Information should be free, access to information should be free, and people should be charged a carbon tax.

I think this is a stronger tool than the Interstate Act. I think this is as important as electrification and it will change the world for the economy.

And if I had my mentor, I would have an open source version in addition to the open standard.

And this open-source version means that if we do a great job, it could soon be available worldwide.

So back to my earlier thoughts.

Imagine if all these buses in Lagos were part of a mesh network.

When I accepted Larry Brilliant's TEDTalk award this morning, I thought about his incredible network. Imagine if there was an open source mesh communication device that could be put into these networks and make it all happen.

And if we can get over the fact that this small portion will be free, we can do it.

You can make billions of dollars on top of that, but this particular communication part has to be open source.

So let's take control of this nightmare. Let's introduce a gas tax immediately. Nationwide transition to toll roads with this wireless mesh. Demand that the mesh be an open standard and open to all. Of course, with mesh networking.

thank you. (applause)

I just met you on the bus. I want to get to know each other, but I have to get off at the next stop. So, tell us about yourself: 3 things that define who you are, 3 things that help you understand who you are, and 3 things that get to the heart of who you are.

And what I'm wondering is, is one of those three things leaving me with some trauma?

Cancer survivor, rape survivor, holocaust survivor, incest survivor.

Have you noticed that we tend to identify ourselves by our scars?

And where I've seen this survivor identity have the greatest impact is in the cancer community.

I have been a hospice and hospital pastor for nearly 30 years, so I have been involved in this community for a long time.

Then in 2005, I was working at a large cancer center when I got the news that my mother had breast cancer.

And five days later, I got the news that I had breast cancer.

My mom and I can compete — (Laughter) — but I wasn't going to compete with her on this one.

And in fact, I found it very convenient to work in a place that, if you had to get cancer, would treat it.

But this is what I've heard from many outraged people.

what?

you are a pastor

should be immune.

Maybe I should have just gotten off with a warning instead of actually being ticketed. I am in the military.

So I was treated at the cancer center where I worked. It was amazingly convenient, I had chemotherapy, had a mastectomy, and had a saline implant inserted. So before I say another word, just for now, this is fake. (Laughter.) I found that I had to get it out of the way. Because I see someone say, "Oh, I know this."

So when I move or gesture, they say, "No, that's it."

So I understand now.

I learned a lot as a patient, but one of the things that surprised me was how little of my experience with cancer was medical.

Most of it is about emotions and beliefs, the loss and discovery of your identity, and the discovery of strengths and resilience you didn't know you had.

It's about realizing that the most important things in life are relationships, not things, and about laughing in the face of uncertainty and learning that the way out of almost everything is to say, "I have cancer."

So, another thing I've learned is that I don't have to take on "cancer survivor" as my identity, but is there a powerful force pushing me to do so?

Now, don't get me wrong.

Thanks to cancer-related organizations and the promotion of early screening, cancer awareness, and cancer research, cancer has normalized. This is great.

We can now talk about cancer without raising a whisper.

We can talk about cancer and support each other.

But sometimes it feels like people are going a little too far and start telling us how we feel.

So, about a week after the operation, we had a guest.

Perhaps that was our first mistake.

And remember, at this point in my life, I've been a pastor for over 20 years, and issues like death and death and the meaning of life, these are all things that have haunted me forever.

So at dinner that night, our guest put his hands over his head and said, 'Deb, you're going to learn what's really important.

Yes, you are about to make a big change in your life and now you will start thinking about your own death.

Yes, this cancer is a wake-up call for you. ”

Now, these are the best words to come out of someone talking about their experience, but if someone tells you how you feel, it quickly turns into shit.

The only reason I didn't kill him with my bare hands was because I couldn't raise my right arm.

But I said some really bad words to him and then some normal words. That made my husband say 'she's on drugs'.

(laughter) And after the treatment, I felt like everyone was telling me what my experience meant.

"Oh, this means you're going for a walk."

"Oh, so you're coming to the luncheon."

"That means wearing pink bows, pink T-shirts, headbands, earrings, bracelets and pants."

panties. No, seriously google it.

(Laughter) How does it raise awareness?

Only my husband can see my pants.

(Laughter.) He's already quite aware of cancer.

That's when I felt like, oh my god, this has taken over my life.

At that point, I told myself to make a case for my experience.

don't let me argue.

We all know that finding meaning is the way to deal with trauma, loss, and life-changing experiences.

But the problem is that no one can tell us what our experience means.

We have to decide what that means.

And it doesn't have to be in a huge, extroverted sense.

We all don't need to set up foundations or organizations, write books, or make documentaries.

Meaning can be quiet and introverted.

Maybe we make small decisions that can make a big difference in our lives.

Many years ago I had a wonderful young patient who was loved by his staff. So it was kind of a shock to us to find out that he had no friends.

He lived alone, came in alone to get chemo, was treated, and walked home alone.

And I asked him too. "Hey, why didn't you bring your friend?" I said.

And he said, "I really don't have any friends."

But I had a lot of friends on the infusion floor.

We all loved him and people were in and out of his room all the time.

So during his final chemo, we sang him a song and put a crown on his head and blew bubbles and I asked him and I said, "So what are you going to do now?"

He replied, "Make friends."

And he did.

He started volunteering and made friends there, started going to church and made friends there, and invited me and my husband to a party at his apartment for Christmas. The place was full of his friends.

Claim your experience.

don't let me argue.

He decided that the meaning of his experience was to know the joy of friendship and learn to make friends.

So what about you?

How are you going to find meaning in your silly experiences?

It could be something recent, or something you've carried around for a really long time.

Because meaning is dynamic, it's never too late to change it.

What it means today may not mean what it means a year from now, or ten years from now.

It's never too late to be someone other than just a survivor.

Do you know how silent these words sound?

survivor.

No movement, no growth.

Claim your experience.

don't let me argue. Then I believe you will be trapped and unable to grow or evolve.

But sometimes, of course, external pressures aren't what give us survivor identities.

Sometimes they just like perks.

Sometimes there are rewards.

But you get stuck there.

Well, one of the first things I learned as a pastor intern was the three C's of pastoral work: comfort, clarify, and confront or challenge when necessary.

Well, we all love comfort and cleansing so much.

There are not many conflicts.

Another thing I loved about being a pastor was seeing my patients a year or even years after treatment. Because it was really amazing to see how patients changed, how their lives evolved and what happened.

So one day, when I received a page in the clinic lobby from a patient I had seen the previous year, I was thrilled. She was there for a one-year follow-up with her two adult daughters, whom I also knew.

So I went down to the lobby and they were overjoyed because she had all the test results and NED: no evidence of illness.

I assumed that meant it wasn't completely dead.

So they were overjoyed and we sat down to visit and it was so strange. Because I was seeing her weekly as a pastor, and within two minutes, she began telling me the story of her diagnosis, surgery, and chemotherapy, even though I knew the story.

And she used words like suffering, suffering, struggling.

"I felt like I was crucified," she concludes.

At that point, her two daughters got up and said, "Let's go get some coffee."

and they left.

Before you go to your next destination, tell us three things about yourself.

People were getting off the bus before she got to number 2 or 3.

So I gave her a tissue and hugged her. And I said, "Get off the cross," because I really cared about this woman.

Then she said, "What?"

And I repeated, "Get off the cross."

And to her credit, she accepted this identity and was able to talk about why she sticks to it.

It got her a lot of attention.

People were looking after her for a change of pace.

But now it's backfired.

It was pushing people away.

People left the store for coffee.

She felt crucified by her experience, but she did not want that crucified self to die.

Now, you probably think I'm a little harsh with her. So I must say that I speak from my own experience.

Years ago I was laid off from the job I loved and never stopped talking about my innocence and dishonesty and betrayal and deceit, until people started to leave me, just like this woman, and I finally realized that I wasn't just processing my emotions, I was feeding them.

I didn't want that crucified me to die.

But we all know that in any resurrection story, you have to die first.

In Christian narratives, Jesus died in his tomb for a whole day before being resurrected.

And I believe that for us, being in the grave means working deep within ourselves, around our wounds, to heal ourselves.

That crucified self must die in order for a new self, a truer self, to be born.

We must let go of the old stories so that new stories, more true stories, can be told.

Claim your experience. don't let me argue.

What if there were no survivors, that is, if people simply decided to claim their trauma as an experience instead of taking it on as an identity?

Perhaps it will be the end of being trapped in a wound and the beginning of an amazing self-exploration, discovery and growth.

Perhaps it is the beginning of defining ourselves by who we have become and are becoming.

So maybe survivors weren't one of the three items you tell me.

no matter.

I just want you all to know that I am really happy that we are on this bus together and that this is my stop.

(applause)

This is Anna Hazare. Anna Hazare may be the most cutting-edge digital activist in the world today.

And you wouldn't know it just by looking at him.

Hazare is a 77-year-old Indian anti-corruption and social justice activist.

And in 2011, he launched a major campaign to address India's routine corruption, a subject that India's elite prefer to ignore.

So, as part of this campaign, he used all the traditional tactics used by good Gandhi organizers.

There he went on hunger strike, and through the hunger, Hazareth realized that hunger strikes weren't enough, perhaps this time in the 21st century.

So he started his mobile activity.

So the first thing he did was tell people: "Okay, if you want to support my anti-corruption campaign, why don't you text me?"

So he did this, gave people shortcodes, and about 80,000 people did it.

Well, that's pretty admirable.

But then he decided to change his tactics a little.

He said, "Could you leave me a missed call?"

Now, if you've lived in the Global South, you know that missed calls are a very important part of the world's mobile culture.

I see people nodding their heads.

People leave missed calls all the time. If you're running late for a meeting and just want to let the other person know you're leaving, you'll leave a missed call.

If you're dating someone and just want to say "I miss you," leave a missed call.

Just a note here for dating tips, in some cultures, if you want to please your lover, you call and hang up. (Laughter) So why do people leave missed calls?

The reason, of course, is that you're trying to avoid the charges associated with making phone calls and sending text messages.

So, let's speculate a bit how many people actually did this when Hazare asked people to leave missed calls.

35 million.

This is therefore one of the largest coordinated actions in human history.

It's amazing.

And this reflects the extraordinary strength of India's emerging middle class and the power their mobile phones bring.

But he took advantage of it, and Mr. Hazare ended up getting a huge CSV file of mobile phone numbers, which he used to deploy real people power in the field, sending hundreds of thousands of people to the streets of Delhi to denounce India's routine corruption across the country.

That's a really shocking story.

So this is me when I was 12 years old.

I hope you can see the similarities.

And I was also an activist, and I've been an activist my whole life.

I had a really interesting childhood, traveling the world meeting world leaders and aristocrats and discussing third world debt and demilitarization as it was called then.

He was a very serious child. (Laughter) And back then, in the early '90s, I had my own very cutting edge technology tool, the fax machine.

Fax was the tool of my activity.

And at the time, this was the best way to reach many people at once.

Here's an example of a fax campaign I ran.

It was the eve of the Gulf War and I thought that if I could organize a worldwide campaign to flood the Intercontinental Hotel in Geneva where James Baker and Tariq Aziz were meeting on the eve of the war, and flood the faxes, the war could be stopped.

Well, not surprisingly, that campaign was a complete failure.

There are many reasons for this, but there is no doubt that a single sputtering fax machine in Geneva was somewhat bandwidth constrained in its ability to send messages to many people.

So I discovered some even better tools.

I co-founded Avaaz, which uses the internet to mobilize people, now has about 40 million members, and now runs Purpose, the home of this kind of tech-powered movement.

So what is the moral of this story?

Is the moral of the story like the fax hidden in the cell phone?

Is this another story of technological determinism?

Well, I would argue that it actually means more than that.

I would argue that something more fundamental than just new technology has changed in the last 20 years.

I would argue that a fundamental shift in the balance of power in the world has taken place.

Ask activists how they make sense of the world, and they'll say, "Look where the power is, who has it, and how it's changing."

And I think we all feel that something big is happening.

So Henry Timms and I (Henry is also a fellow builder of the movement) started talking one day and wondering how we could make sense of this new world.

How can we describe it and provide a framework to make it more useful?

It's because we've found that many of the lessons we've been discovering in the movement actually apply to different sectors of society around the world.

So I would like to introduce the framework of the meeting of old and new forces.

And I want to talk about what is the new power of today.

The new force is the deployment of public participation and peer coordination to create change and change outcomes. These are two important factors.

And we see new powers all around us.

He is Beppe Grillo. He is a populist Italian blogger who won over 25 percent of the vote in the recent Italian elections using only minimal political machinery and a few online tools.

This is Airbnb. In just a few years, the company has fundamentally disrupted the hotel industry without owning a single square foot of real estate.

This is a Kickstarter that has been shown to raise over $1 billion from over 5 million people.

Well, we know a lot about all these models.

What is surprising, however, is what these new models have in common, the structural features, and how they differ from the older power models.

Let's take a look at this.

Old powers are held like currency.

The new force works like an electric current.

Old power is held by a few.

The new power is created by the many, not held by the few.

The old power is all about downloads, the new power is uploads.

And you'll find a set of traits that you can track, whether it's media, politics, or education.

We talked a little bit about what the new power is.

Let's talk for a moment about what isn't new power.

New Power is not your Facebook page.

I assure you that if you have a social media strategy, you will be able to download as much as you did when you had the radio.

Ask Syrian dictator Bashar al-Assad and he affirms that his Facebook page does not embrace the power of participation.

New powers are not inherently positive.

In fact, this is not a prescriptive argument we are making, and while new power has many good things, it can also produce bad results.

More participation, more collaboration of peers can skew results, but there are some things, for example in the medical profession, that new forces would like to stay away from.

And third, the emerging powers are not the inevitable winners.

In fact, not surprisingly, as many of these new power models scale, we will see a massive backlash from the old power forces.

Look at this really interesting epic struggle going on between Edward Snowden and the NSA right now.

You can see that only one of the two people on this slide is currently in exile.

It is therefore not at all clear whether the emerging powers will be the inevitable winners.

With that said, keep one thing in mind. We are at the beginning of a very steep curve.

So you're thinking about some of these new power models, right?

These were like someone's garage idea a few years ago, but now they're wreaking havoc across the industry.

The interesting thing about the new power is the way it powers itself.

Once you experience a new power, you tend to expect and desire it even more.

After using peer-to-peer lending platforms like Lending Tree and Prosper, you realize you don't need a bank, and nobody needs a bank.

And the experience tends to encourage you, making you want to participate more in more aspects of life.

And this creates a set of values.

We talked about the models that new forces have created: Airbnb and Kickstarter.

What about values?

Here's an early sketch of what the new power values ​​might look like.

The new power values ​​emphasize transparency above all else.

It's akin to a religious belief in transparency, the belief that if you shine a light on something, it will get better.

And remember, in the 20th century, this was not true at all.

People thought that gentlemen should sit behind closed doors and make comfortable pacts.

The value of the new power of informal and networked governance.

For better or worse, the people of the emerging powers would never have invented the United Nations as it is today.

New Power emphasizes participation, and New Power is all about doing it yourself.

In fact, what's interesting about the new power is that it avoids some of the specializations and specializations that were all the rage in the 20th century.

So what's interesting about these new power values ​​and new power models is what they mean for organizations.

So we've basically been thinking about new power values ​​and new power models and thinking a bit about how we can plot organizations 2 vs 2 to see where different people sit.

We started with an analysis of the United States, but let me show you some interesting findings.

So, let's start with Apple.

In this framework, we actually described Apple as an old power company.

That's because Apple's ideology—the dominant ideology—is that of the Cupertino perfectionist product designer.

It is just that beautiful and perfect things come down to us in perfect form.

And as a company, we don't value transparency.

In fact, it's very secretive.

Today Apple is one of the most successful companies in the world.

So, this shows that the old power strategies can still be pursued successfully.

But one could argue that the model has real vulnerabilities.

I think another interesting comparison is between the Obama campaign and the Obama presidency.

(Applause.) Now, I like President Obama, but he ran with new power, right?

And he said to the people, we are the one we were waiting for.

And he used crowdfunding to propel his campaign.

But when he took office, he ruled more or less like any other president.

This is a very interesting trend. What will happen when the new forces become stronger?

So this is a framework that you should consider and consider where your organization fits within it.

And think about what it should be like in 5 or 10 years.

So what if you're an old power man?

Well, if you're out there thinking that with the old powers, this wouldn't happen to us.

Then see the Wikipedia Encyclopedia Britannica entry.

Let me tell you, this is very sad.

But if you are an old power man, the most important thing you can do is to occupy yourself before others occupy you.

Imagine the most skeptical group sitting at the center of the organization asking the toughest questions, and they can see everything in the organization.

And ask them if they like what they're seeing and if we need to change our model.

What if it's a new faction?

Are the new forces just riding a wave of glory?

I would argue no.

I would argue that there are some very real challenges for this nascent emerging power.

Let's stay for a moment with the example of Occupy Wall Street.

"Occupy" was an example of this amazing new power, the purest example of a new power.

Still, it could not be integrated.

So while the energy it generated was great for the memetic phase, they were so eager to participate that they accomplished nothing.

And indeed, this model means that the challenge for new powers is how to leverage institutional powers without being institutionalized.

At the other end of the spectrum is Uber.

Uber is an amazing, scalable new power model.

The network is getting denser by the day.

But what's really interesting about Uber is that it hasn't really embraced the new power numbers.

These are the true words of the Uber CEO recently. he says: "Once you get rid of the man in the car," I mean the driver, "Uber will be cheaper."

Now new power models live and die by the strength of the network.

It all depends on whether the drivers and consumers who use the service actually believe in the service.

Because these are about networking, not practicing top-down perfectionism.

So the challenge, and why this should come as no surprise, is that Uber drivers are now unionized.

that's abnormal.

Uber drivers are starting to use Uber.

And the challenge for Uber, although this is not an easy situation for them, is that they are trapped in the broader superstructure that really is the old power.

They have raised over $1 billion in capital markets.

Those markets expect financial gains, and the way to get financial gains is by extracting more value from users and drivers and delivering that value to investors.

So the big question about the future of new power, in my opinion, is, "Will the old power rise any time soon?"

So will the new power elite only become oppressed by the old power?

Or will the new power base fight back?

Will the next big Uber be co-owned by Uber drivers?

I think this is going to be a very interesting structural question.

Finally, let's think about the new power being more than just an extension of what makes the consumer experience a little better.

My call to action for new strength is not to be isolated.

There are major structural problems in today's world that could benefit enormously from the participation and peer coordination of the masses who are well aware of how these new power players produce.

And we urge them to direct that energy and power toward the big problems economists might call the public goods problem, which are often beyond the markets where investors can easily find them.

And if we can do that, I think we might be able to fundamentally change the human sense of one's own agency and power. Because I think the nicest thing about the new powers is that people feel more powerful. Not only that, but we may be able to change the way people relate to each other, to authority and to institutions.

And for me, it's definitely worth a try.

thank you very much.

(applause)

I grew up diagnosed as shy with phobias and stuttered like at least 20 other people in a room this size.

Will you be brave enough to raise your hand?

And it remains with us. It really sticks in our minds. Because sometimes when we are treated like that, we feel invisible and people talk to us.

And when I started observing people, and that was pretty much all I did, I realized that some people really want attention and approval.

Remember, I was young then.

So what did they do?

What we still do is probably done too often.

we talk about ourselves.

But others I observed had what I called the reciprocity mindset.

In each situation they found a way to talk about us and create that "we" idea.

So my idea of ​​rethinking the world is to see it as a world where we all create greater opportunities with and for others.

There is no greater opportunity or call to action for us today than to leverage the best people more often for greater good, and to become an opportunity maker to achieve what we could not have done on our own.

And I want to talk to you about that. Because more than giving, more than giving, there is the ability to do something smart together for the greater good that can lift and scale both of us.

That's why I'm sitting here.

But I also want to point out another thing. Each of you is better than everyone else at something.

This refutes the popular notion that if you're the smartest person in the room, you're in the wrong room.

(Laughter) So let me tell you about a Hollywood party I went to a few years ago. There I met this up-and-coming actress and immediately started talking about something we were both passionate about: public art.

And she was a fervent believer that every new building in Los Angeles should have public art.

She wanted regulation for that and started enthusiastically. Who's from Chicago? — She started talking enthusiastically about the bean-shaped reflection sculpture in Millennium Park. Then people approached the sculpture, smiled at its reflection, posed, stomped, took selfies with it, and laughed.

And as she spoke, an idea came to my mind.

I said, 'I know someone who has to see you.

He will be out of San Quentin in the next few weeks." (Laughter) "And he shares your ardent desire that art should captivate and enable people to connect."

He had been alone for five years, and I met him after I gave a speech at San Quentin.

He was training every day.

(Laughter) I think she was after me at that point.

I said, "He will be an unexpected ally."

That's not all. I have James He is an architect and professor and loves to create places. Place-making is a place where there are mini-plazas and urban sidewalks, where art is scattered, where people paint, and where people sometimes gather and talk.

I think they will be good allies.

And it was.

they met together. they were ready.

They spoke before the Los Angeles City Council.

And the city council members not only passed the ordinance, but then asked the half to come down and pose with them.

They were amazing, compelling, and believable.

I can't buy that.

What I want you to think about is what kind of opportunity makers we might be. Because it's our ability to connect and bring out the best in each other, rather than wealth, fancy titles, or a lot of connections.

I'm not saying this is going to be easy, and I'm sure many of you have done the wrong things about who you want to connect with, but what I'm saying is that this is an opportunity.

I started thinking about this when I was a reporter for The Wall Street Journal, when I was in Europe and was supposed to be covering trends and trends beyond business, politics and lifestyle.

So I had to make connections in a completely different world than mine. Because otherwise I wouldn't have been able to spot trends.

And third, we had to put ourselves in the shoes of our readers so that they could understand how these trends impacted their lives.

That's the job of an opportunity maker.

And here's the oddity. Unlike the growing number of Americans who work, live, and play with people who think exactly like themselves as we become more and more rigid and extreme, the Opportunity Makers are actively seeking out situations and building relationships with people who are different from themselves. In doing so, we build trust that allows us to solve problems better and faster, and invite and hire the right teams to seize more opportunities.

They are fascinated by differences rather than embarrassed by them. This is a big shift in mindset, and once you feel it, you'll want more of it.

The world requires us to think collectively, and I believe we should.

It is especially important now.

Why is it important now?

Because drones, drugs, data collection, etc. can be devised, devised by more people for beneficial purposes in cheap ways, and as you can see in the daily news, they can also be used for dangerous purposes.

It demands a higher mission from each of us.

But here's the bonus. As an organization and as an individual, perhaps your greatest opportunity isn't just your first opportunity with someone else.

After that experience, we learned to trust each other.

It's about coming up with the unexpected that you didn't expect later.

For example, Marty was the husband of that actress I mentioned, and he watched them practice and immediately started talking to my friend Wally, an ex-con, about how they practiced.

And he thought, "I have a racquetball court."

Maybe that person can tell me.

Many of the people working there are members of my court.

They are frequent travelers.

They could practice in their hotel room and no equipment was provided.

Wally was hired.

Not only that, but years later he was teaching racquetball.

Years later, he was teaching racquetball teachers.

What I'm saying is that when you connect with people around common interests and actions, you're attuned to unexpected events in the future, and I think that's what we're looking at.

We're opening ourselves up to those opportunities, and in this room we have major players in technology -- major players uniquely positioned to do this and scale our systems and projects together.

So here's what I'm asking of you.

Recall the three characteristics of a chance maker.

Chance makers continue to hone their best strengths and become pattern seekers.

Because they are involved in a world different from their own, they are trusted and able to see patterns in them, and communicate to connect around sweet spots of common interest.

So what I want to ask you is that the world is hungry.

From my first-hand experience, I truly believe that the world longs for us to band together as chance makers and mimic that behavior, as many of you are already doing. I know it firsthand, but I hope to reimagine a world that leverages more of our greatest talents together to accomplish greater things together than we could achieve alone.

Remember, as Dave Liniger once said, ``You won't be successful by entering a potluck with just a fork.''

(laughs) Thank you very much.

thank you. (applause)

About 12 years ago, I left my banking career to make the world a safer place.

This included traveling to national and global advocacy and meeting some of the best and brightest people in the world.

In the process, I became a civil society diplomat.

Civil society diplomats do three things. It is about expressing public concerns, not being bound by national interests, and influencing change through civic networks as well as national networks.

And if you want to change the world, you need more people.

But many still wonder: Can civil society really make a difference?

Can citizens influence and shape national and global policy?”

I never thought I'd ask myself this question, but I'm here to share some lessons from two powerful civil society movements I've been involved with.

They are involved in gun control and drug policy issues that I am passionate about.

And these are the key issues here.

Latin America is ground zero for both countries.

For example, Brazil -- this beautiful country that hosts TEDGlobal has the world's ugliest record.

We are the number one champions of homicidal violence.

One in ten people killed worldwide is Brazilian.

This equates to more than 56,000 violent deaths each year.

Most of them are young black boys who have lost their lives with guns.

Brazil is also one of the world's largest drug consumers, and the war on drugs has been particularly painful here.

About 50% of street murders in Brazil are linked to the drug war.

The same is true for about 25 percent of people in prison.

And Brazil isn't the only country affected by the twin problems of guns and drugs.

Almost every country and city in Latin America is facing difficulties.

Latin America is home to 9% of the world's population, but accounts for 25% of the world's violent deaths.

These are not issues we can run away from.

It was certainly impossible.

So the first campaign I joined started here in 2003 to change Brazil's gun control and create a weapons buyback program.

In just a few years, we have not only changed domestic laws that make it much more difficult for civilians to buy guns, but we have also recovered and destroyed nearly half a million weapons.

It was one of the largest share buyback programs in history -- (applause) -- but we've also had some setbacks.

In 2005, it lost a referendum to ban the sale of guns to civilians.

The second initiative also started domestically, but today it is a global movement to reform the international drug control regime.

I am the Executive Coordinator of what is called the World Drug Policy Commission.

The Commission is a high-level group of world leaders assembled to identify a more humane and effective approach to the drug problem.

Since its founding in 2008, it has broken drug taboos.

From the United States and Mexico to Colombia and Uruguay, change is happening across the Americas.

However, rather than give a full explanation of these two movements, I would like to share just four key insights.

I call them lessons for changing the world.

Of course there are many more, but these are the ones that stand out to me.

The first lesson is to change and control the narrative.

As obvious as it may seem, a key element of civil society diplomacy is first to change the narrative and then to control the narrative.

As any veteran politician understands this, civil society groups generally do not do very well.

In the case of drug policy, our greatest success has been shifting the discussion from promoting the war on drugs to putting people's health and safety first.

In a cutting-edge report we just released in New York, we also showed that criminal syndicates and cartels are the groups profiting the most from this $320 billion market.

So to undermine the power and interests of these groups, the conversation needs to change.

We need to legalize illegal drugs.

But before I get too excited, I'm not saying drugs should be at your disposal.

What I am talking about, and what the World Commission is advocating, is creating a highly regulated market where different drugs are subject to varying degrees of regulation.

When it comes to gun control, it succeeded in changing the narrative, but not so much as control.

And this leads to the next lesson. Never underestimate your enemy.

If you want to be successful in changing the world, you need to know who you're playing against.

We need to learn their motivations and perspectives.

In the case of gun control, we really underestimated our opponents.

We were overjoyed after our gun recovery program was a huge success.

We have the support of 80 percent of Brazilians, and we thought this would help us win the referendum to ban gun sales to civilians.

But we were completely wrong.

During 20 days of televised public debates, our opponents brought their case against us.

I ended up losing in the popular vote.

It was really bad.

The National Rifle Association, yes, the American NRA, came to Brazil.

They flooded our campaigns with propaganda that, as you know, ties the right to own a gun to the idea of ​​freedom and democracy.

They just threw everything at us.

They used our national flag, our national anthem.

They advocated for women's rights and exploited images of Mandela, Tiananmen Square and even Hitler.

They played on people's fears and triumphed.

In fact, their campaign almost completely ignored guns.

Their focus was individual rights.

But I ask you. Which right is more important, the right to life or the right to have a deadly gun?

(Applause.) We thought people would vote to save lives, but in a country with a recent history of military dictatorship, the opposition's anti-government messages resonated and were unprepared to respond.

Lesson learned.

We have had greater success when it comes to drug policy.

If you asked most people ten years ago if it was possible to end the war on drugs, they would have laughed.

After all, there are huge gendarmerie prisons and financial institutions that benefit from this war.

Today, however, the international drug control regime is beginning to crumble.

Governments and civil society are experimenting with new approaches.

The Global Drug Policy Commission was well aware of the existence of the opposition, so rather than fighting them, our chairman, former Brazilian President Fernando Enrique Cardoso, reached out to leaders across the political spectrum, from liberals to conservatives.

This high-level group agreed to openly discuss the strengths and weaknesses of drug policy.

This logical, informed and strategic discussion reveals the sad truth about the war on drugs.

The war on drugs has failed by every measure.

Medicines have never been cheaper and more accessible, and consumption is increasing globally.

But to make matters worse, it also produced massive unintended negative consequences.

While it is true that others have made these claims before, we have created change by anticipating what the opposition will say and leveraging powerful voices that would have probably resisted change a few years ago.

Lesson 3: Use data to drive the discussion.

Guns and drugs are an emotional issue, and as we painfully learned during the gun referendum campaign in Brazil, sometimes it's impossible to cut through the emotions and get to the facts.

But this doesn't mean we shouldn't try.

Until recently, we had no idea how many Brazilians were killed by guns.

Amazingly, it was a local soap opera called "Mulheres Apaixonadas," or "Women in Love," that sparked Brazil's nationwide gun control movement.

In one high-rated episode, the lead actress of a soap opera was killed by a stray bullet.

Brazilian grannies and housewives were outraged, and for life-imitating art, this episode also included footage of an actual gun control march we organized here, outside Copacabana Beach.

The televised deaths and marches had a great impact on public opinion.

Within weeks, our Congress approved the disarmament bill that had been dormant for many years.

We were then able to use the data to show the success of law reform and gun collection programs.

What I mean is that in just one year, we have proven that we have saved over 5,000 lives.

(Applause.) And in the case of drugs, to undermine the fear and stigma surrounding this issue, we have successfully collected and presented data that shows that today's drug policies cause far more harm than drug use itself, and that people are beginning to realize that.

My fourth insight is, "Don't be afraid to gather strange bedmates."

What we learned in Brazil, which is not only true in my country, is the importance of bringing diverse and eclectic people together.

If you want to change the world, it helps to have different aspects of society on your side.

We've got great people together in both the gun and drug cases.

We mobilized the elite and had tremendous media support.

We have brought together victims, human rights activists and cultural icons.

We have also collected professional classes such as doctors, lawyers and scholars.

What I have learned in the last few years is that we need coalitions of those who are willing to make change and those who are not.

For drugs, we needed liberals, anti-temperists, legalizers, and liberal politicians.

They may not agree with everything. In fact, they disagree on almost everything.

But the legitimacy of this campaign rests on their diverse perspectives.

Over ten years ago, I dreamed of a bright future working for an investment bank.

I was as far removed from civil society diplomacy as you can imagine.

But I took a chance.

I changed direction and in the process helped found a social movement that I believe made parts of the world safer.

Each of us has the power to change the world.

Civil society is at the center of the blueprint for change, no matter what the issue, no matter how fierce the struggle.

thank you.

(applause)

So, after thinking about the first word to say today, I decided to say "Colombia."

The reason is, I don't know how many people have visited Colombia, but Colombia is just north of the border with Brazil.

It's a beautiful country with extraordinary people like me and others -- (laughter) -- and incredible flora and fauna.

It's filled with water. It has everything to make it the perfect place.

However, there are some problems.

You may have heard some of them too.

We have the world's oldest surviving guerrillas.

The fact that it has been going on for more than 50 years means that I have never had a peaceful day in my own country in my lifetime.

This guerrilla, and a major group, the FARC guerrillas, the Revolutionary Armed Forces of Colombia, have financed their war through kidnapping, extortion, drug trafficking and illegal mining.

Terrorism happened. There were random bombs.

That's why it's no good. that's not very good.

And looking at the human toll from this war over the past 50 years, more than 5.7 million people have been displaced.

The region has one of the largest displacements in the world, with more than 220,000 people killed in the conflict.

So it's like the Bolivarian War again.

Many people have died unexpectedly.

We are currently in the midst of peace talks and have been working to resolve this issue peacefully, but as part of that we decided to try something completely horizontal and different: Christmas lights.

What the hell is this guy going to talk about with the Christmas lights? you say

We're talking about giant trees planted in nine strategic passageways in the jungle covered in Christmas lights.

These trees helped demobilize 331 guerrillas, about 5 percent of the guerrilla force at the time.

These trees were lit up at night, and next to them was a sign that said, 'If it's Christmas in the jungle, you can go home.

demobilization.

At Christmas, anything is possible. ”

So how do we know that these trees worked?

Well, we got 331. That's fine, but I also know that many guerrillas haven't seen them, but I also know that many have heard about them. We know this because we are constantly talking to demobilized guerrillas.

Let's go back four years before the tree was born.

Four years before the trees were cut down, we were approached by the government to help develop a communication strategy to keep as many guerrillas out of the jungle as possible.

The government had a military strategy, a legal strategy, and a political strategy. So we decided to embark on this one right away. Because it's an opportunity to use what we do and the tools we have to influence the outcome of the conflict.

But we didn't know much about it.

I didn't understand it in Colombia. Living in an urban area, you're so far away from where the war is actually going on that you don't really understand it. And we asked the government to give us access to as many demobilized guerrillas as possible.

And we spoke to about 60 of them before we felt we fully understood the problem.

we talked They talked about why they joined the guerrillas, why they left the guerrillas, what their dreams were, and what their grievances were. And out of those conversations came the underlying insights that guided this entire campaign. That is, the guerrillas are as much prisoners of the organization as the people they hold hostage.

And at first we were so moved and so surprised by these stories. So I figured the best way to talk to the guerrillas might be to let them talk to themselves. So in the first year we recorded about 100 different stories and played them on radio and television. In doing so, they made it possible for the guerrillas in the jungle to hear stories, their stories, or stories similar to theirs. And when they heard that, they decided to go out.

I would like to talk about one of them.

This person you see here is Giovanni Andrés.

Giovanni Andres was 25 when this photo was taken.

He had been with the guerrillas for seven years and had only recently been demobilized.

Here is his story: He was drafted when he was seventeen, and some time later this beautiful girl was drafted into his squadron and they fell in love.

Their conversations were about what would happen to their families, what would their children's names be, what would life be like when they left the guerrillas.

However, it turns out that romance is strictly forbidden in the lower ranks of the guerrilla, and the two are discovered to be in love, and they are separated.

He flew away and she was left behind.

She was so familiar with the area that one night she just walked out on guard, went to the army, and was demobilized. She was one of the lucky ones we speak of. We were so moved by this story that we created a radio spot. And by chance, many kilometers away in the far north, he found out that he had heard her voice on the radio. When he heard her voice on the radio, he said, "What am I doing here?"

She had a ball to get out of. i need to do the same. ”

And he did.

He walked for two days and nights, risking his life to get out. All he wanted was to see her.

All he had in mind was to see her.

The story was that they actually met.

I know you're wondering if they met.

they met.

She was scouted at 15 and retired at 17, so there were many other complications, but they eventually met.

I don't know if they are together now, but we can find out. (Laughter) But all I can say is that our radio strategy worked.

The problem was that it was operating in the guerilla lower echelons.

It didn't work out for the commander. A commander is a difficult person to recruit. Because it's easy to recruit, but you can't get older commanders.

So we decided to adopt the same strategy.

Have the commander talk to the commander.

And we even asked former guerrilla commanders to take microphones and fly in helicopters to tell people who had fought them: 'I have a better life', 'I am doing well', 'This is not worth it'.

But as you can imagine, it was very easy to fight back. Because what were the guerrillas trying to say?

"Yes, otherwise you will be killed."

It was so easy that suddenly I was left with nothing. Because the guerrillas spread the word that all these things were done because if they didn't do it they would be in danger.

And someone, a good guy on our team came back and said, "You know what I noticed?"

Since this war began, I have noticed a peak in demobilization around Christmas. ”

It was unbelievable. Because that made us think we needed to talk to humans, not soldiers.

We needed to move away from talking about government to army, army to army, we needed to talk about universal values ​​and about humanity.

And then the Christmas tree appeared.

This photo I have here depicts a plan for a Christmas tree. The man you see there with the three stars, he's Captain Juan Manuel Valdes.

Captain Valdez was the first high-ranking official to provide us with helicopters and the assistance we needed to put up the Christmas tree, and the words he said at that meeting will never be forgotten by me.

He said, "I want to do this because being generous makes me feel strong and makes my people feel strong."

And remembering him makes me very emotional. Because he later died in battle and we really miss him. But I wanted you all to meet him. Because he was a really, really important person.

He did a great job helping us put up our first Christmas tree.

What happened after that was that the guerrillas who came out during Operation Christmas Tree said, "That's very nice, the Christmas tree is very cool, but guess what? We're not really walking anymore.

We use the river ”

So rivers are jungle highways, this is what we learned, most of the recruitment was in and around river villages.

So we went to these river villages and asked people, and perhaps some of them were direct acquaintances of the guerrillas.

We asked them, "Can you send a message to the guerrillas?"

Over 6,000 messages were collected.

Inside was a note that read, "Get out."

Some of them were toys. There were also sweets inside.

Even people took off jewelry, little crosses and religious objects and put them in these floating balls that we floated down the river for them to pick up at night.

And we sent thousands of these down the river, and if they didn't arrive, we retrieved them later.

However, many of them were picked up.

This resulted in a demobilization every 6 hours on average. This was unbelievable and it was 'Let's go home for Christmas'.

Then the peace process began, and once the peace process began, the whole guerrilla mentality changed.

And it has changed because it makes you think, "If there is a peace process, maybe this will end."

I plan to go out someday. ”

And their fear completely changed, their fear wasn't "Am I going to be killed?"

Their fear was, "Will I be rejected?"

Will I be rejected when I get out of this situation? ”

So what we did last Christmas was find 27 guerrilla mothers and ask them to send us pictures of their children when they were still the only ones who could recognize them, so that their lives wouldn't be in danger. And I asked her to send me a motherly message as much as possible. It said, "Before you became a guerrilla, you were my child, so go home and wait."

You can see the photos here. Here are some.

(Applause.) Thank you.

And these pictures were put in different places and a lot of pictures came back and it was really, really beautiful.

And we are determined to cooperate with society.

So we made mothers around Christmas.

Now let's talk about the rest of the people.

And I don't know if you know this, but we had the World Cup this year and Colombia played really great and it was a moment of unity for Colombia.

And what we did was tell the guerrillas, "Get out of the jungle, for we have reserved a place for you."

So this was TV, and all sorts of media were saying, 'We've got a place for you.

Commercial Soldier says: "I'm securing your spot in this helicopter so you can get out of this jungle and enjoy the World Cup."

Former football players, radio announcers, everyone had their place reserved for the guerrillas.

So, 17,000 guerrillas have been demobilized since we started this effort a little over eight years ago.

No -- (Applause) Thank you.

By no means do I want to say that it relates only to our work, but what I do know is that our work and the work that we are doing has helped many to start thinking about demobilization and may have helped many to make their final decisions.

If that's true, advertising remains one of the most powerful change tools available to us.

And I say, not just on my behalf, but on behalf of all my colleagues in the advertising industry that I see here, and all the teams that have worked with me to make this happen, if you want to change the world, or achieve peace, call us.

We would love to help you.

thank you.

(applause)

As you know, it is a great honor for me to work in one of the world's biodiversity hotspots, the Mascarene Islands in the Indian Ocean.

These islands (Mauritius, Rodriguez and Réunion), along with Madagascar, are blessed with unique flora found nowhere else in the world.

Today we will talk about five of them, their characteristics and what makes these plants so unique.

Look at this plant

I call it Benjoin in the local dialect. The botanical name is Terminalia benzo, subspecies benzo.

This subspecies is endemic to Mauritius and is characterized by being heterotic.

What does dysmorphic mean?

That is, the leaves of the same plant have different shapes and sizes.

Now these plants evolved within specific ecosystems far from the mainland.

Often these particular features evolved as a response to the threat posed by the local fauna, in this case grazing turtles.

Turtles are notorious for having poor eyesight, so they tend to avoid unfamiliar plants.

This evolved foil thus protects and protects plants from these rather cute animals and of course ensures their survival.

Now, the question you're probably asking yourself is why is she telling us all these stories?

The reason is that we tend to overlook the variety and diversity of the natural world.

These particular habitats are unique and home to a great many plants.

We do not realize how precious and valuable these resources are, yet we continue to destroy them through our indifference.

We are all familiar with the macro-effects of urbanization, climate change and resource exploitation, but if that last plant, or even animal, disappears from our planet, we will lose an entire subset of our planet's biology, and with it forever important plants that have medicinal properties and may contain ingredients that impact cosmetics, nutrition, pharmaceuticals, and even ethnoveterinary medicine.

And here we have a very typical example of the iconic dodo. It originated in Mauritius and, of course, is now known to be a symbol of extinction.

We know that plants play a fundamental role.

First of all, plants give us nourishment and also give us the oxygen we breathe, but they are also a source of important biologically active components that we need to study very carefully. This is because plants have evolved important knowledge, cultural traditions and important plant-based medicinal resources in human societies for thousands of years.

Here are the data points: 1.4 percent of the Earth's surface is home to 40 percent of higher plant species and 35 percent of vertebrate species, representing 25 biodiversity hotspots in the world, and this 1.4 percent of the Earth's surface already provides 35 percent of the ecosystem services on which vulnerable people depend.

As you can see, the island of Mauritius, where I work and live, belongs to one such biodiversity hotspot, and I study the island's unique plants for biomedical applications.

Now let's go back to the plants I first introduced. Of course, it is a plant with different leaf shapes and sizes, Terminalia benzo (subspecies benzo), a plant that lives only in Mauritius.

Today, locals used a decoction of the leaves against infections.

Now, our study, the scientific validation of this traditional information, has shown that the very leaf extract exhibits active, potent activity against a wide range of bacteria that can be pathogenic to humans.

So, could this plant be the answer to antibiotic resistance?

As you know, antibiotic resistance is proving to be a major global challenge.

We may never know for sure, but one thing is certain: we don't want this plant to disappear.

But the harsh reality is that this plant is actually considered vulnerable in its natural habitat.

Let's look at another example here.

This shrub here is known locally as Beaume de l'Isle Plate.

The botanical name is Psiadia arguta.

A rare plant native to Mauritius.

It used to grow on the mainland, but was pushed off the mainland by the great pressures of urbanization, and we managed to bring it back from extinction by developing exoplants, and now it grows wild.

Now, I should point out right away that not all plants can be developed in vitro.

We humans are happy in our comfort zone, but these plants also don't respond to the need to maintain the ecosystem. Native plants do not respond to such drastic changes in ecosystems, yet we know what challenges climate change is posing for these plants, for example.

Today, locals are using the leaves again as traditional medicine for respiratory ailments.

Now, our preliminary research results on leaf extracts have shown that precisely these leaves contain components that are very similar in structure and chemical structure to the drugs sold over the counter against asthma.

Therefore, no one knows what benefit humanity will have if this plant decides to reveal all its secrets.

Now, I come from a developing country where we are forever facing the problem of population explosion.

Africa is a continent that is getting younger, and every time we talk about population explosion, we talk about the problem of food security as two sides of the same coin.

Well, this plant right here, the baobab, may be part of the answer.

It is an underutilized and neglected food factory.

It defines the landscape of West Africa, where it is known as the Tree of Life. I will explain later why Africans consider it the Tree of Life.

Interestingly, there are many legends associated with this plant.

Intended to overwhelm lesser plants due to their enormous size, the gods did not like their arrogance and uprooted them and planted them upside down, thus giving rise to their special shape.

And if we look at this tree again in the context of Africa, in West Africa this tree is known as the Palabar tree because it performs great social functions.

Now, if you have a problem in your community, meeting with a chief or tribesman under a parabar tree is synonymous with trying to find a solution to that particular problem, and it also strengthens trust and respect among members of the community.

From a scientific point of view, there are eight types of baobabs in the world.

One is endemic to Africa, one to Australia and six to Madagascar.

The one I showed you is Adansonia digitata from Africa.

Now, this beautiful white flower opens at night, is pollinated by bats, and mysteriously produces a fruit known as the Monkey Apple.

Monkeys are not stupid animals.

they know what is good for them.

Now, when you open the baobab fruit, you can see the white powdery pulp. It is very nutrient rich and contains more protein than breast milk.

Yes, it has more protein than breast milk.

And this is one reason nutrition companies around the world are looking to this fruit to offer what we know as fortified foods.

The oil obtained from the seeds is very stable and is sought after in the cosmetic industry for the production of body lotions, etc.

And if you look at the trunk, the trunk, of course, protects the water often drawn by thirsty travelers, and the leaves are used in traditional medicine against infectious diseases.

Now you know why Africans consider it the Tree of Life.

This is a complete plant, indeed, the enormous size of these trees hides great potential not only for the pharmaceutical, nutritional and cosmetic industries.

The only African species presented here is Adansonia digitata.

With six species still living in Madagascar, we don't know what the potential of this plant is, but one thing we do know is that this flora is believed to be endangered.

Let me take you back to Africa and introduce you to one of my favorite plants, the resurrection plant.

Here we see that Jesus also has competition.

(Laughter) Now, this plant here has developed an amazing tolerance to drought, being able to withstand up to 98% dehydration in a year without damage, and still be able to regenerate and flower almost completely over night, 24 hours.

Well, we humans are always looking for the elixir of youth.

We don't want to get old, but that's only natural.

Why should you do that, especially if you can afford it?

This will give you an idea of ​​what the plants used to look like.

Now, if you are an inexperienced gardener, the first thing you do when visiting a garden is to uproot this plant as it is dead.

But this is what happens when you water it.

Really awesome.

Now, if we look at our aging process, the aging process is actually a loss of water from the top of the epidermis, resulting in wrinkles as we know them, and women in particular are very conscious of it.

And in fact, this plant has given cosmetic chemists a very important ingredient that is actually discovering how to slow down the aging process and at the same time strengthen cells against the onslaught of environmental toxins.

Well, these four examples I just gave are just a small reminder of how our health and survival are closely linked to the health and resilience of ecosystems, and why we need to pay close attention to biodiversity conservation.

Every forest is cut down, every swamp is filled in, and with it comes a potential laboratory that we can never take back.

For me, who is from Mauritius and misses the dodo, I know what you mean.

Let's end with one final example.

Conservation issues usually focus on rare endemic plants, but we also need to consider what we call exotic plants, plants that grow in a wide variety of habitats around the world.

you know why? This is because the environment plays a very important role in changing the composition of the plant.

So let's take a look at this plant here, centella asiatica. It's weed.

We call it weed.

Centella asiatica now grows in a variety of habitats around the world, including Africa and Asia, and the plant helped Madagascar solve a terrible disease called leprosy in the 1940s.

Currently, Centella is grown all over the world, including in Africa and Asia, but the highest quality Centella comes from Madagascar. That's because Centella contains three key ingredients sought by pharmaceutical and cosmetic companies.

And cosmetic companies are already using it in the production of regeneration creams.

Now, there is an ancient saying that for every disease known to man there is a plant that cures it.

Well, you may not believe the ancient saying.

Now that our technology has become so powerful, you might think they are outdated.

Therefore, you might consider Centella asiatica to be an insignificant, unobtrusive weed that cannot be overlooked even if destroyed.

But as you know, there is no such thing as weed.

it's a plant.

It is a living biological laboratory that may have the answers to any questions we may have, but we must ensure that it has a right to live.

thank you.

(applause)

If there is power in design, it is the power of synthesis.

The more complex the problem, the greater the need for simplicity.

So, I would like to introduce three examples that tried to apply the comprehensive power of design.

Let's start with the global challenge of urbanization.

It is true that people are heading to cities.

This is good news, even if counter-intuitive.

There is evidence that people are better off living in cities.

But there is a problem that I should call the "3S" threat. The scale, speed and lack of means to respond to this phenomenon are unprecedented in history.

Please try to imagine. Of the 3 billion people living in cities today, 1 billion are below the poverty line.

By 2030, 2 billion of the 5 billion people living in cities will be below the poverty line.

That means we'll have to spend $10,000 per family over the next 15 years to build a city that can accommodate 1 million people a week.

A city of 1 million people will receive $10,000 a week.

If we don't solve this equation, people won't stop coming to the city.

They will come anyway, but they will live in slums, ghettos, informal settlements.

What should I do then? Well, the answer may come from the favelas and the slums themselves.

A hint might be in this question we were asked 10 years ago.

We were asked to use a grant of $10,000 to take in 100 families that were squattering half a hectare in the center of the city of Iquique in northern Chile. With that subsidy, I had to buy land, build infrastructure, and build a house of no more than 40 square meters.

By the way, the price of the land is three times what public housing usually pays, because it is located in the center of the city.

Due to the difficulty of the question, we decided to involve the family in the process of understanding the constraints and began a participatory design process to test what was available on the market.

A detached house can accommodate up to 30 households.

Tenement house, 60 households.

["100 Families"] The only way to accommodate them all is to make the building taller, and if we dare to propose this as a solution, they have threatened to go on a hunger strike because they cannot expand their tiny apartment.

So the conclusion with the family was that we have a problem, which is important, not our conclusion.

We needed to innovate.

So what did we do?

Well, a middle-class family lives decently on about 80sqm, but if you don't have the money, what the market does is reduce the size of your home to 40sqm.

We said instead of thinking of 40 square meters as a small house, why not think of it as half a good house?

Rephrasing the problem as halves of a good house instead of a small house, the key question is which half to do.

And we thought that the half that families could not do on their own needed to be publicly funded.

We identified five design criteria that belonged to the hard half of the house, and returned to the family to do two things. It's about working together and sharing tasks.

Our design was somewhere between a building and a house.

As a building, you can buy expensive land in a good location, and you can expand it as a house.

We knew that if families could maintain their networks and jobs without being pushed to the frontier while acquiring housing, expansion would begin quickly.

So we moved from our first public housing to a middle-class residence built by the family itself within weeks.

This was my first project in Iquique 10 years ago.

This is the last project in Chile.

Same principle for different designs: you provide the frame, and the family takes over from then on.

Therefore, the purpose of design to understand and answer the '3S' threat, scale, speed and rarity is to guide people's own ability to build.

You can't solve the million people a week equation unless you use people's own power to build it.

So with proper design, slums and ghettos may not be a problem, but really the only possible solution.

The second case is how design can contribute to sustainability.

In 2012 we participated in the Angelini Innovation Center competition. The aim was to create a suitable environment for knowledge creation.

To that end, it is recognized and we agreed that knowledge creation, people exchange and direct contact are important.

But for us, the question of a suitable environment was a literal question.

We wanted to create a work space with the right light, the right temperature, and the right air.

So we asked ourselves if a typical office building would help in that sense.

So what does that building normally look like?

It is a collection of overlapping floors, with a central core with elevators, stairs, pipes, wires, etc., on the outside of which is a glass crust, and direct sunlight creates a huge greenhouse effect inside.

In addition, suppose the person who works on the 7th floor walks by the 3rd floor every day, but has no idea what the people there are doing.

So we figured we might need to turn this plan inside out.

What we did is let's create an open atrium, a hollow core and the same floor aggregate. However, I put walls and clumps around it so that when the sun hits it, it affects the walls instead of directly affecting the glass.

Having an open atrium inside allows you to see what others are doing in the building and gives you a better way to control the light. Placing a mass and walls around it also prevents direct sunlight from radiating.

You can also open the windows for ventilation.

We created openings sized to serve as outdoor spaces throughout the height of the building.

None of this is rocket science.

No advanced programming required.

It's not a technology issue.

This is just quaint, primitive common sense, and using common sense has increased the typical energy consumption for cooling glass towers from 120 kilowatts per square meter per year to 40 kilowatts per square meter per year.

So with the right design, sustainability is all about applying common sense rigorously.

A final case I would like to share is how design can provide more comprehensive solutions to natural disasters.

As you may know, in 2010 Chile was hit by a magnitude 8.8 Richter earthquake and tsunami, and we were called to work on rebuilding the constitution in the south of the country.

We were given 100 days and 3 months to design almost everything from public buildings to public spaces, street networks, transportation, housing and mainly how to protect cities from future tsunamis.

This was new in Chilean urban design and several alternatives were being considered.

First: Prohibit installation in the hypocenter.

The $30 million was mainly spent on land acquisition.

This is exactly what is being discussed in Japan at the moment, and while it might work if you have a disciplined population like the Japanese, Chile knows that the land will be squatted anyway, so this alternative was unrealistic and undesirable.

Second option: Build big walls and heavy infrastructure to resist the wave energy.

This alternative was politically favorable as it meant a $42 million contract and did not require eminent domain, so it was conveniently lobbied by major construction companies.

But Japan has proven that it is futile to try to resist the forces of nature.

So this alternative was irresponsible.

As with the housing process, finding a solution to this problem required engaging the community, so we started a participatory design process.

(Video) [Spanish] Loudspeaker: What kind of city would you like?

Please vote for the constitution.

Go to an open house and voice your options.

Join!

Fisherman: I am a fisherman.

25 fishermen work for me.

where should i take you? to the forest?

M: So why can't you give a specific defense?

Of course it worked.

Man 2: I am a constitutional historian.

So you came here to tell me I can't keep living here?

My whole family lives here, I raised my children here, and my children will also raise their children here.

And so will my grandchildren and others.

But why impose it on me?

you! You are forcing this on me!

You do not have permission to build in danger zones.

He himself says so.

Man 3: No, no, no, snow...

Alejandro Aravena: I don't know if you read the subtitles, but the body language tells you that participatory design isn't hippie romantic, let's dream together about the future of the city.

It's actually — (applause) it's not really, even though the family is trying to find the right answer.

Mainly I'm trying to identify exactly what the right question is.

There is nothing worse than answering the wrong question well.

So after this process it was very clear that we would flip here and walk away, or even go further and ask, "What else do you care about?"

What other problems do you want us to address now that you have to rethink cities from the ground up?

And what they said is no problem to protect the city from future tsunamis, I really appreciate it, but the next tsunami will come in what, 20 years?

However, every year there is a problem of flooding caused by rain.

Additionally, we are in the middle of the woodlands of the country, and the public areas are the worst.

Poor and in short supply.

And the origin of the city, our identity, is actually not related to the collapsed buildings, but to the river, the banks of which are privately owned and therefore inaccessible to the public.

So we thought we needed to create a third alternative. Our approach is against geographic threats, and we have geographic answers.

What if there is a forest between the city and the sea that does not resist the energy of nature but dissipates it by creating friction?

A forest that could layer water and prevent flooding?

It could pay off the historic debt of public space and ultimately provide democratic access to the river.

Thus, at the conclusion of participatory design, alternatives were politically and socially validated, but still remained at a cost of $48 million.

So when we researched the public investment system, we found that three ministries had three projects in the exact same place without knowing the existence of the others.

Their total: $52 million.

In short, the collective power of design seeks to make more efficient use of the city's scarcest resource: coordination, not money.

Doing so could save $4 million, which is why we are building forests today.

(Applause.) Therefore, whether it is the forces of self-construction, the forces of common sense, or the forces of nature, all these forces need to be transformed into form, and that form is not modeled and shaped by cement, bricks, or wood.

it is life itself.

The collective power of design is nothing more than an attempt to place the force of life in the innermost core of architecture.

Thank you very much.

(applause)

Dre Ulhaan: The theater is built on Copacabana, the most famous beach in the world, but 25 kilometers from here in Rio's North Zone is the community of Vila Cruzeiro, where about 60,000 people live.

Now, people here in Rio mostly know Vila Cruzeiro from the news, but unfortunately the news from Vila Cruzeiro is often not good news.

But Vila Cruzeiro is also where our story begins.

Jeron Koolhaas: Ten years ago we first traveled to Rio to shoot a documentary about life in the shanty towns.

Well, we learned that favelas are informal communities.

They emerged over the years when immigrants from rural areas came to cities seeking jobs, such as cities within cities known for problems such as crime, poverty, and violent drug wars between police and drug cartels.

What left an impression on me was that it was a community built by the people who lived there, and there was no master plan, just like a huge construction underway.

In our native Netherlands, everything is planned.

There are also rules about how to follow the rules.

(laughs) DU: So, on the last day of shooting, we arrived at Villa Cruzeiro. I sat down with a drink and looked down at this hill of houses. Most of these houses looked unfinished and had bare brick walls. However, some houses were plastered and painted. And suddenly this idea came to me. What would it look like if all these houses were plastered?

And we envisioned one big design, one big work of art.

Who would expect something like that in a place like this?

So we wondered if it was possible.

So at first I started counting houses, but soon I couldn't count anymore.

But somehow the idea took hold.

JK: I had a friend.

He runs an NGO in Vila Cruzeiro.

His name was Nanko and he liked the idea too.

He said, "Everyone here loves to plaster and paint their houses.

It's time to finish the house. ”

So he introduced us to the right people and Vitor and Maurinho became our crew.

We chose 3 homes in the center of the community to start with. I made several designs, but everyone liked this design of a boy flying a kite the most.

So we started painting and the first thing we did was paint everything blue and we thought it looked pretty good already.

But they hated it. The people who lived there really hated it.

They said, 'What have you done?

You painted our house exactly the same color as the police station. ”

(Laughter) In a favela, it's not a good thing.

It's the same color as a prison cell.

So we rushed ahead and drew a picture of the boy. And I thought I was done. we were really happy. But it still didn't work. Because little children came up to us and started saying, "Look, there's a boy flying a kite, where's his kite?"

We said, "Oh, that's art."

See, you have to imagine a kite. ”

(Laughter.) And they said, "No, no, no, I want to see the kites."

So we quickly set up the kite high up on the hill so we could actually see the kite with the boy flying it.

So the local news started writing about this. It was great. Even the Guardian then wrote about it: "Infamous slums turned open-air galleries."

JK: So, encouraged by this success, we returned to Rio for our second project. And we met on this street.

It was covered with concrete to prevent landslides, and I could see something like a river, and I imagined a Japanese-style river with carp running upstream.

So we decided to paint the river and invited Rob Admiral, a tattoo artist who specializes in the Japanese style.

Little did we know that Giovanni, Robinho and Vitor, who lived nearby, would spend almost a year painting the river.

And when Elias, one of the men who lived on the street, offered to come and live in his house with his family, we moved into the neighborhood. It was great.

Unfortunately, in the meantime, another war broke out between the police and drug cartels.

(Video) (Gunshot) We learned that people in the community are really united during this difficult time, but we also learned a very important factor: the importance of barbecue. (Laughs) Barbecue turns you from a guest into a host, so I decided to have a barbeque almost every other week and got to know everyone in the neighborhood.

JK: But we still had an idea for this hill.

DU: Yeah, yeah, we were talking about the scale of this. Because the painting is incredibly large and insanely detailed, the process almost drove us completely insane.

But in the process, I thought maybe all the time we spent in the neighborhood might actually be more important than the painting itself.

JK: So after a long time, this hill, this idea is still there, and we started sketching and modeling and came up with something.

We thought the ideas and designs needed to be a bit simpler than the last project so we could paint with more people and cover more homes at the same time.

And I had the chance to try it in a community called Santa Marta in the center of Rio. I created the following design for this place and got people to buy into it. I've found that if the idea is ridiculously big, it's easy to get people to buy in. (Laughter) And then the people of Santa Marta came together and turned that square into this square in a little over a month.

(Applause.) And somehow this image got around the world.

DU: So we got an unexpected call from the Philadelphia Mural Arts Program asking if this idea, our approach, would actually work in North Philadelphia, one of the poorest neighborhoods in the United States.

So we immediately said yes.

I had no idea how to do it, but it seemed like an interesting challenge, so I did exactly what I did in Rio, moved to a neighborhood, and started barbecuing.

(Laughter) So the project took almost two years to complete. We created individual designs for every house on our painted boulevard. We then created these designs together with local shop owners, building owners and a team of a dozen young men and women.

They were hired, trained as painters, and together they turned their entire neighborhoods—the streets—into a giant patchwork of colors.

(Applause.) And finally, the City of Philadelphia thanked each one of them and gave them credit for their achievements.

JK: So you painted the whole street?

What if we did this whole hill now?

We started looking for funds, but instead ran into the question, "How many houses are you going to paint?"

how many square meters is that?

How much paint are you going to use and how many people are you going to hire?

And we've spent years planning our fundraising and trying to answer all these questions, and we figured that in order to answer all those questions, we need to know exactly what we're going to do before we can actually get there and start.

And it's probably wrong to think so.

If we go somewhere else and spend time there, we lose some of the magic we learned that projects can grow organically and have a life of their own.

DU: So what we did is we decided to take this plan out of all the numbers and ideas and assumptions and go back to the basic idea of ​​turning this hill into a giant work of art.

Instead of looking for funds, they launched a crowdfunding campaign, and in just over a month, more than 1,500 people had gathered, raising over $100,000.

So for us, this was a great moment. Because now — (applause) — we finally have the freedom to take all the lessons we've learned and create a project built from the ground up, the same way a favela was built, without a master plan.

JK: So we went back and hired Angelo. He is a local artist from Vila Cruzeiro, very talented and knows almost everyone there. and hired Elias. Elias is a former landlord and architectural master who invited us to his home.

Together with them we decided where to start.

We chose this location in Vila Cruzeiro, and the houses are being plastered as we speak.

And the good thing about them is that they decide which house to build next.

They print T-shirts, put up banners that explain everything, and even talk to the press.

Read more about Angelo here.

DU: So while this is happening, we're spreading this idea around the world.

So I have been invited to do workshops in Curacao for example, as well as the project I did in Philadelphia, and I am currently planning a large scale project in Haiti.

JK: So the favela is not only where this idea started. It was also a place where you can work without a basic plan. Because these communities are informal. This was my inspiration. And in a communal effort, you can work with people like an orchestra, playing 100 instruments together to create a symphony.

DU: So we would like to thank everyone who wanted to be a part of this dream and supported us along the way, and we are considering continuing.

JK: Yes. And I hope that in the near future, when these walls start to paint, more people will join us and join us in this big dream. And perhaps one day the entire Villa Cruzeiro will be dyed in color.

Du: Thank you.

(applause)

I hope you can understand my English.

Terrible in the morning, worst in the afternoon.

(Laughter) Over the years, I've given several speeches that begin with the words, "Cities are not the problem, they're the solution."

And I am more and more convinced that it is not only the solution for the country, but also the solution to the climate change problem.

But we take a very pessimistic approach to the city.

I've worked in cities for about 40 years, and with every mayor trying to say their city is too big, and other mayors saying they don't have the resources, my experience is that any city in the world can improve in less than three years.

There is no question of scale. It's not a matter of scale, nor a matter of financial resources.

Every city problem requires its own co-responsibility equation and design.

First, I would like to introduce some of the characters in the books I made for teenagers.

The best example of quality of life is the turtle. Because turtles are an example of living together and working together.

And can you imagine how sad she would be if we cut out the turtle cask when she realized it resembled an urban tessitura?

And that's what we do in cities. I live here, work here, and spend my leisure time here.

And most people leave the city and live outside the city.

Well, another character is Otto the car.

He was invited to a party, but he never wanted to leave.

There are chairs on the table, still drinking, and he drinks a lot. (laughs) And he coughs a lot. Very selfish. He only carries one or two people and always demands more infrastructure.

highway.

He is very demanding.

Meanwhile, the Accordion, a friendly bus, holds 300 people. 275 in Sweden. 300 Brazilians. (Laughter) Speaking of design, every city has its own design.

Curitiba, my city: The metropolitan area has a population of 3 million, and the city itself has a population of 1.8 million.

Rio, Curitiba: It's like two birds kissing.

Oaxaca, San Francisco -- Market Street, Van Ness, Waterfront, it's that easy.

And every city has its own design.

However, in order to realize it, it is sometimes necessary to propose a scenario and propose a design. That is, an idea that everyone or the majority will work with to make it happen.

That is the structure of the city of Curitiba.

And it's an example of living together and working together.

And this is where the density is higher. It is a place with good public transportation.

This system started in 1974. Initially carrying 25,000 passengers per day, it now handles 2,200,000 passengers per day.

And it took 25 years to another city...

This is Bogota and they have done a very good job.

And now 83 cities around the world are implementing what is called Curitiba's BRT.

And one, it's not just about your city. Every city has a very important role in coexisting with humanity as a whole, in addition to the usual problems.

This means that two major issues of mobility and sustainability have become very important for cities.

And this is an articulated bus, a biarticulated one.

And we are very close to my house.

If you ever come to Curitiba please come and have a coffee.

And that is the evolution of the system.

What made the difference in the design was the ride tube. Ride tubes give buses the same performance as subways.

That's why what I'm trying to say is like urbanizing the bus.

The design of the bus looks something like this, and you pay before entering the bus to get on.

For disabled people, this can be used as a normal system.

My point is that the main contributor to our carbon footprint is more than 50% from automobiles, and if we rely solely on automobiles...

-- That's why green buildings aren't enough when we talk about sustainability.

That's not enough, it's a new material.

That's not enough, new energy sources.

City concept and city design are also important. And how to teach children.

I will talk about this later.

Our idea of ​​mobility seeks to connect all systems.

In 1983 we proposed a way to connect the metro and buses to the city of Rio.

Subway, of course, objected.

And 23 years later, they asked us to develop it. We are developing this idea.

And you can see how different it is from the system's image of Rio, the frequency of the minute.

And this is not Shanghai. It is not colored during the day and looks like this at night.

We designed this in '83 before we said it was a Norman Foster design.

Here's the model and how it works. So it's the same system. Vehicle is different. And that's the model.

My point is, I'm not trying to prove which transport is better.

My point is that all systems must be combined, but on one condition. Whether you have a subway, or a ground system, or any kind of system, never compete for the same space.

Coming back to cars, I always said cars are like mother-in-law. You should have a good relationship with your mother-in-law, but she cannot control your life.

So, if the only woman in your life is your mother-in-law, you have a problem. (Laughter.) So the old quarry, the open university, the botanical garden, all the ideas about how to transform through design are all about how we teach our kids.

And children are taught how to separate garbage for 6 months.

And then the children teach their parents.

And now 70% has been achieved, which is the highest waste separation rate in the world for 20 years.

seven zero.

(Applause.) So tell the children.

My point is, if we want a sustainable world, we need to do all that is being said, but don't forget cities and children.

I work in museums and mixed-use cities. Because you can't make an empty spot for 18 hours a day.

We need to make arrangements to live and work together all the time.

Try to understand the departments in the city that can fulfill different roles during the 24 hours.

Another problem is that cities are like our family portraits.

Even if we don't like our uncle's nose, we don't tear up our family portraits. Because this portrait is you.

These are reference materials that can be found in any city.

This is a major pedestrian mall. We did it in 72 hours. Yes it should be fast.

These are references taken from our ethnic contributions.

This is an Italian portal, a Ukrainian park, a Polish park, a Japanese square, a German park.

Suddenly the Soviet Union split.

And there are people [indistinct] from Uzbekistan, Kazakhstan, Tajikistan, so the program has to be stopped.

(laughs) Don't forget. Creativity begins when you cut zero from your budget.

Remove the two zeros and it's even better.

And here is the Wire Opera Theater. We did it in 2 months.

Park - An old quarry converted into a park.

Once upon a time, quarries created nature, and sometimes we took it in and changed us.

And every part can be transformed. Any frog can turn into a prince.

So you have to work quickly in cities.

Planning takes time. And I suggest urban acupuncture.

By that I mean me with some focused ideas that help the normal planning process.

This is an acupuncture note, that is, the note of I.M. Pei. Some small things can make a city better.

New York's smallest and most beautiful park: 32 meters high.

So I would like to end by just saying that you can always propose new materials, new sustainable materials, but remember that you don't have enough time to plan and you have to work quickly to the end.

And I think that creativity and innovation are starting.

And we can't know all the answers.

So when you start, you can't be arrogant about having all the answers, but it's important to start and get contributions from people. People can tell you if you're not on the right track.

Finally, I would like to help you sing a sustainable song.

OK？

Please give me 2 minutes.

You make the music and the rhythm.

♫ Tonchi too! Tonchi too! Tonchi too! ♫ ♫ Tonchi too! Tonchi too! Tonchi too! ♫ ♫ It's possible! It's possible! I can do it! I can do it! ♫ ♫ Use less cars! Please make this decision! ♫ ♫ Avoid your carbon footprint! It's possible! It is possible! ♫ ♫ You can do it! I can do it! ♫ ♫ Live closer to work! ♫ ♫ Work closer to home! Save energy in your home! ♫ ♫ It's possible! It's possible! I can do it! ♫ ♫ You can do it! Please separate your garbage! ♫ ♫ Organic, Schmoe Organic! Save more! Waste less! It is possible! ♫ ♫ You can do it! Please, do it now! ♫ Thank you.

(applause)

What has the war on drugs brought to the world?

Look at the murders and mayhem in Mexico, Central America, and many other parts of the globe, the global black market estimated at $300 billion a year, the overcrowded prisons in the United States and elsewhere, the police and military drawn into a no-win war that violates basic rights, and more people than ever before using drugs while just hoping they don't get caught in the crossfire.

This is my country fifty times the history of Prohibition and Al Capone.

That's why, as Americans, it's especially upsetting that we've been the driving force behind this global war on drugs.

Think about why so many countries criminalize drugs you've never heard of, why the United Nations drug treaties put crime above health, and why most of the world's money to combat drug abuse goes to punishment agencies rather than aid agencies, and you get a picture of good old America.

Why did you do this?

Some believe that this is not really a drug problem, especially in Latin America.

It is simply a hoax to further America's real political interests.

But by and large, that's not all.

We do not want gangs and guerrillas funded by illegal drug funds to terrorize and occupy other countries.

No, actually, America is really crazy when it comes to drugs.

So remember, we were the ones who thought alcohol could be banned.

So think of our global war on drugs not as a rational policy, but as an international projection of domestic mental illness.

(Applause.) But here's the good news.

Now it is the Russians who are leading the war on drugs, not us.

Most politicians in my country want the war on drugs to end now and put less people in jail, not more. And as an American, I am proud to be leading the world in reforming marijuana policy.

With marijuana now legal for medical purposes in nearly half of the 50 states, millions of people now able to purchase marijuana and pharmaceuticals from government-licensed dispensaries, more than half of our compatriots say it's time to legally regulate and tax marijuana, more or less like alcohol.

That's what Colorado and Washington are doing, and I'm sure Uruguay and others will follow suit.

that's my job. Work to end the drug war.

I think it all started when I was raised in a fairly religious and moral household, and as the eldest son of a rabbi, I went to college and smoked marijuana there. (Laughter) And I also liked to drink, but it was clear that alcohol was actually more dangerous. But me and a friend could get arrested just for smoking a joint.

Well, that hypocrisy continued to haunt me, so I wrote my doctoral dissertation on international drug control.

I spoke to the State Department.

Got security clearance.

I interviewed hundreds of DEA and other law enforcement officers across Europe and the Americas and asked, "What do you think the answer is?"

Well, in Latin America, "You can never stop the supply.

The answer lies in the United States, in shutting down demand. ”

So when I go home and talk to the anti-drug people there, they say, 'You know, Ethan, you can't shut off demand completely.

The answer is there. supply must be stopped. ”

Then I went and talked to the customs guys who were trying to stop drugs at the border and they said, 'We're not going to stop drugs here.

The answer is there, cut off supply and demand. ”

And everyone involved in this problem thought that the answer lies in the areas they know least.

So I started reading everything I could about psychotropic drugs. History, science, politics, it's all there. The more I read, the more I understood how my country's politics and laws got you here, whereas a thoughtful, enlightening, and intelligent approach got you here.

And that disparity hit me like an incredible intellectual and moral puzzle.

Perhaps there has never been a drug-free society.

Virtually all societies have taken psychoactive substances to deal with pain, boost energy, socialize, and even commune with God.

Our desire to change our consciousness may be as fundamental as our desire for food, companionship, and sex.

Our real challenge, therefore, is to learn how to coexist with drugs in a way that minimizes their harm and, in some cases, maximizes their benefits.

Another thing I've learned is that the reason some drugs are legal and others aren't has very little to do with science or health or the relative risks of the drugs, but almost everything to do with who uses or is perceived to use a particular drug.

In the late 19th century, when most drugs that are now illegal were legal, the main consumers of opiates, such as in my country, were middle-aged white women, who used opiates for pain relief at a time when few other pain relievers were available.

And no one thought to criminalize it at the time because no one wanted to put grandma in jail.

But when hundreds of thousands of Chinese began to show up in my country, working hard on the railroads and in the mines and lounging in the evenings with a few opium pipes as they did in the old country, I saw the first anti-drug laws in California and Nevada enacted by the racist fear that the Chinese would turn white women into opium-addicted sex slaves.

The first cocaine ban was similarly inspired by the racist fear that black men would smell the white powder and forget their place in Southern society.

And the first marijuana bans were all out of fear of western and southwestern Mexican immigrants.

And what has been true in my country is also true in many other countries, both in the origin of these laws and in their enforcement.

I'm exaggerating a bit when I say this, but if cocaine's primary smokers were wealthy older white men, and Viagra's primary consumers were poor young black men, smokeable cocaine would be readily available with a doctor's prescription, and selling Viagra would result in 5 to 10 years in prison.

(Applause.) I used to be a professor who taught about this.

Now, I am an activist, a human rights activist, but what drives me is the embarrassment of living in a great country that has almost 25% of the world's imprisoned population when it is less than 5% of the world's population.

I have met people who have lost loved ones to drug-related violence, imprisonment, overdoses, AIDS, etc., because our country's drug policy emphasizes criminalization over health.

Good people who have lost their jobs, their homes, their freedoms, and even their children to the state, not because they hurt anyone, but simply because they chose to use one drug instead of another.

So is legalization the solution?

I'm at a loss about that. Three days a week I would say yes, but three days a week I would say no. And on Sundays it is agnostic.

But since it is Tuesday today, let me just say that legally regulating and taxing most of the currently criminalized drugs would radically reduce the problem of crime, violence, corruption, the black market, adulterated and unregulated drugs, improve public safety, and free up taxpayer resources for more profitable ends.

So the market for marijuana, cocaine, heroin, and methamphetamine is a global commodity market, just like the global market for alcohol, tobacco, coffee, sugar, and many others.

If there is demand, there will also be supply.

Knocking out one source inevitably reveals another.

People tend to think of bans as the ultimate form of regulation, but in reality it represents an abandonment of regulation in which criminals fill the void.

That is why putting criminal law and the police at the forefront of trying to control the dynamic global commodity markets spells disaster.

And what we really need to do is bring the underground drug market to the surface as much as possible and regulate it as wisely as possible to minimize both the harm of drugs and the harm of prohibition.

Now, for marijuana, that obviously means legally regulating and taxing it just like alcohol.

The benefits of doing so are enormous and the risks are minimal.

Will more people use marijuana?

Perhaps young people will not be legalized, and frankly they already have the most access to marijuana.

I think I will be old.

People in their 40s, 60s and 80s probably prefer a little marijuana to evening drinks and sleeping pills, think it can help treat arthritis and diabetes, and maybe even spice up a long-term marriage. (Laughter) And that could be a net public health benefit.

For other drugs, see Portugal. No one has been jailed for drug possession in Portugal and the government is serious about treating addiction as a health problem.

Look at Switzerland, Germany, Holland, Denmark, England. There, people who have been addicted to heroin for many years and have repeatedly tried and failed to quit can get pharmaceutical heroin and support services in clinics. As a result, illicit drug abuse, illness, overdoses, crime and arrests have all fallen, health and well-being have improved, taxpayers have benefited, and many drug users have even forgotten their addiction.

Look at New Zealand. Recently, legislation was enacted to allow the legal sale of certain recreational drugs as long as their safety is established.

Look here in Brazil and some other countries. There, ayahuasca, a remarkable psychotropic substance, is legally purchased and consumed as long as it is done within a religious context.

Look at Bolivia and Peru. There, all kinds of products made from coca leaves, the raw material of cocaine, are legally sold over the counter without any obvious harm to people's public health.

So, don't forget, Coca-Cola contained cocaine until 1900, but as far as we know it wasn't as addictive as Coca-Cola is today.

Instead, think about cigarettes. Nothing is more addictive or deadly than cigarettes.

When researchers ask heroin addicts what the most difficult drug to quit is, most say tobacco.

However, in my country and many others, half of the people who were ever addicted to tobacco continue to quit without anyone being arrested, put in prison, or sent to a "treatment program" by a prosecutor or judge.

These were tax increases, time and place restrictions on sale and use, and effective anti-smoking campaigns.

Now, would making smoking outright illegal reduce it further? Probably.

But imagine the drug war nightmare it will bring.

So there are two challenges we face today.

The first is the policy challenge of developing and implementing alternatives to ineffective prohibitionist policies, despite the need to improve control and coexistence of currently legal drugs.

But the second challenge is more difficult. Because it's about us.

The obstacles to reform are not only in the power of the prison-industrial complex and other vested interests that want to maintain the status quo, but also within each of us.

What stands in the way of real reform is our fear and our lack of knowledge and imagination.

And I think ultimately it boils down to the desire of children, and every parent, to put their baby in a bubble, and the fear that drugs will somehow burst through that bubble and endanger young children.

In fact, the entire drug war can sometimes seem justified as one big act for child protection, but any young person would tell you otherwise.

So I want to say to the teens.

First, don't use drugs.

Second, don't use drugs.

Third, if you're on drugs, there are a few things you should know. My basics as a parent to you are to come home safely at dawn and grow up to be a healthy, good adult.

That's my drug education mantra. "Safety first".

This is what I have dedicated my life to building organizations and movements of people who believe we need to turn our backs on past failed bans and embrace new drug policies based on science, compassion, health and human rights. There will be people across the political spectrum and all other spectrums, our drug lovers, our drug haters, and our drug ignorers, but we all believe this war on drugs is this backwards and heartless. The disastrous war on drugs must end.

thank you.

(Applause.) Thank you. thank you.

Chris Anderson: Congrats Ethan — what a great response.

It was a powerful story.

But it's not completely standing oh. I think some of you here, and probably some of you watching online, probably know someone who had a teenager or a friend who got sick, or someone who died of a drug overdose.

You have probably been approached by these people before.

what do you say to them

Ethan Nadelman: Chris, the most amazing thing that's happened lately is that I've met more and more people who actually lost siblings and children to drug overdoses, and 10 years ago they just wanted to say, 'Let's line up all the drug dealers and shoot them.

And what they came to understand was that the war on drugs did nothing to protect their children.

On the contrary, their children are more likely to be at risk.

And they are now becoming part of this drug policy reform movement.

There are other people who have children, one addicted to alcohol, another addicted to cocaine or heroin, and they ask themselves: Why is this kid trying to get better one step at a time and having to constantly face prisons, police and criminals?

We all know that no one is defending the war on drugs.

CA: Certainly in the United States there is a political impasse on most issues.

Is there a realistic chance that something will actually change on this issue in the next five years?

JA: I think that's pretty remarkable. Now, journalists are calling me and saying, 'Ethan, it seems like there are only two political issues going on in America right now: marijuana law reform and same-sex marriage.

what are you doing right ”

And indeed, with Republicans in Congress and state legislatures expanding their bipartisan power and gaining the support of the Democratic majority to authorize legislation, it has grown from being something of a third rail, one of the most terrifying problems in American politics, to one of its most successful.

CA: Ethan, thank you so much for coming to TEDGlobal. JA: Chris, thank you so much.

K: Thank you. JA: Thank you. (applause)

[This talk contains adult language. Viewers are advised to exercise caution.] Travel back to Greece in 800 BC and you will find failed merchants forced to sit in the market with baskets over their heads.

In pre-modern Italy, unsuccessful business owners with outstanding debts were taken naked to public squares and forced to bang their buttocks against special stones while being jeered at by crowds.

In 17th-century France, failed entrepreneurs were hauled into the heart of the market and the beginning of bankruptcy was publicly announced.

And to avoid immediate imprisonment, they had to wear green hoods so everyone knew they were failures.

Of course, these are extreme examples.

But it is important to remember that excessive punishment of those who fail will stifle the innovation and business creation that drives economic growth in any country.

Time has passed and today we don't publicly humiliate a failed entrepreneur.

And they don't publish their failures on social media.

In fact, I think we can all relate to the pain of failure.

However, we do not share the details of those experiences.

Dear friends, I have been there too.

I had a failed business, and the story was very difficult to share.

In fact, it took seven years and required a fair amount of vulnerability and the help of friends.

This is my failure story.

When I was studying business in college, I met a group of indigenous women.

They lived in a poor rural area of ​​Puebla, central Mexico.

They made beautiful handmade products.

And when I met them and saw their work, I decided I wanted to help too.

Some friends and I co-founded a social enterprise whose mission is to help women generate income and improve their quality of life.

We did everything based on the books, like we learned in business school.

We got investors and spent a lot of time building businesses and training women.

But we soon realized that we were newbies.

The handmade items didn't sell well, and the funding plan was completely unrealistic.

In fact, we worked for years without a paycheck, hoping for a miracle to happen and magically find a great buyer to turn our business profitable.

But that miracle never happened.

I ended up having to go out of business and it broke my heart.

I started everything to make a positive impact on the lives of artisans.

And I feel that I have done the opposite.

I felt so guilty that for years I decided to hide this failure from my conversations and resumes.

I didn't know any other failed entrepreneur, and thought I was the only loser in the world.

Seven years later, one night, I was out with some friends talking about the life of an entrepreneur.

And, of course, there was the issue of failure.

I decided to tell my friend about my business failure.

And they shared similar stories.

At that moment, an idea in my mind clearly emerged. “All my friends were failures,” he said.

(Laughter) When I thought about it more seriously, that night I realized that A: I wasn't the only one losing in the world, B: we all have hidden failures.

Please tell me if that is not true.

That night was like an exorcism for me.

I realized that sharing our failures made us stronger, not weaker.

And by opening up about my weaknesses, I was able to connect with others in a deeper and more meaningful way and accept life lessons that I could not learn before.

As a result of this experience sharing stories of businesses that went wrong, we decided to create a platform of events for others to share their failure stories.

And we named it "Fuckup Night".

Years later, we also established a research center dedicated to failure stories and their impact on business, people and society. We like cool names, so we named it "Failure Lab."

It's amazing how entrepreneurs can actually enjoy the experience when they take the stage to share their failure stories.

It doesn't have to be a moment of embarrassment or embarrassment, like it used to be.

An opportunity to share lessons learned and build empathy.

I also discovered that when team members share their failures, magic happens.

Bonds grow and collaboration becomes easier.

Through events and research projects, we discovered some interesting facts.

For example, men and women react differently after a business failure.

The most common reaction for men is to start a new business in another field within a year of the failure, while women decide to postpone starting a new business in favor of finding work.

Our hypothesis is that this happens because women are more likely to suffer from impostor syndrome.

We feel that being a good entrepreneur requires something else.

But more often than not, I've seen women have everything they need.

You just have to take the first step.

And it is more common for men to feel that they know enough and need to put it into practice elsewhere.

Another interesting finding is that there are regional differences in how entrepreneurs deal with failure.

For example, the most common reaction after a business failure in the Americas is to go back to school.

While in Europe, the most common reaction is to seek out a therapist.

(Laughter) I don't know which reaction is better after a failed business, but that's something to study in the future.

Another interesting finding is that public policy has a significant impact on failed entrepreneurs.

For example, in my country, Mexico, the regulatory environment is so strict that closing a business can take a lot of time and a lot of money.

Let's start with money.

In the best possible scenario, where there are no issues with partners, providers, customers and employees, formal closure would cost $2,000.

That's a lot of money in Mexico.

Those earning minimum wage must work for 15 months to save this amount.

Now let's talk about time.

As you may know, in most developing countries the life expectancy for a business is two years.

In Mexico, it takes two years to officially close a business.

What if the life expectancy of a business is very close to how long it will take to go out of business if things go wrong?

Of course, this prevents business creation and encourages the informal economy.

In fact, econometric research proves that more new companies enter the market when the process of declaring bankruptcy takes less time and money.

For this reason, we have proposed a set of public policy recommendations for procedures to formally close operations in Mexico in 2017.

For a full year, we worked with entrepreneurs and legislatures across the country.

And the good news is that we were able to contribute to the reform of the law.

yay!

(Applause.) The idea is that when this new regulation takes effect, entrepreneurs will be able to close their businesses through a faster and cheaper online process.

(sigh) The night we invented Fuckup Night, we never imagined the movement would get this big.

We are currently in 80 countries.

At that moment, our only intention was to bring the topic of failure to the table.

To make my friend understand that I have to talk about my failures.

It is not a cause for humiliation as it used to be, nor a cause for celebration as some say.

Actually, I have something to confess.

I cringe every time I hear Silicon Valley types and students brag about failing so quickly and as if it's no big deal.

Because I think there is a dark side to the slogan "fail fast".

Of course, failing early is a great way to accelerate learning and avoid wasting time.

But I fear that presenting entrepreneurs with rapid failure as their only option encourages laziness.

Maybe we're advertising that entrepreneurs give up too easily.

I am also concerned that a culture of rapid failure may be minimizing the devastating impact of business failure.

For example, when my social enterprise failed, the worst part was having to go back to the Indigenous community and tell the women it was my fault that the enterprise failed.

To some, this may look like a great learning opportunity for me, but the truth is that the closure of this business meant so much more.

It meant that women could not get the income they really needed.

To this end, I would like to propose one thing.

What I would suggest is that just as we put aside the idea of ​​publicly humiliating a failed entrepreneur, we also need to put aside the idea that failing fast is always best.

And I would like to propose a new creed. That is to fail mindfully.

We need to remember that businesses are made up of people and they don't magically appear and disappear with no consequences.

When companies go bankrupt, people lose their jobs.

And others will lose money.

And for social and green enterprises, the demise of this business can have detrimental effects on the ecosystems and communities they were meant to serve.

But what does it mean to fail mindfully?

It means recognizing the impact and consequences of that business failure.

Recognize lessons learned.

And be aware of your responsibility to share those learnings with the world.

thank you.

(applause)

Vincent Moon: How can we represent the world in the most different way possible using computers, cameras and microphones?

How is it possible, perhaps, to use the Internet to create new forms of cinema?

And indeed, why record?

Well, with this simple question in mind, I started making films ten years ago, initially with my friend Christophe Abrick.

He had a website, La Blogothèque, dedicated to independent music.

We were into music.

We wanted to express music in a different way. We wanted to capture the music we love, the musicians we admire, as far away from the music industry and the clichés that come with it as possible.

We have started publishing our weekly sessions on the Internet.

We'll look at some excerpts below.

From a grizzly bear taking a shower to Cigar Ros playing in a Parisian café.

From Phoenix playing by the Eiffel Tower to Tom Jones in a New York hotel room.

Ride the Olympia elevator from Arcade Fire down the Brooklyn stairs to Beirut.

On a night in the south of France from Mr. R.E.M, we sat around a table in the car heading for the National.

From Bon Iver playing with friends in a Montmartre apartment, to Yesayer spending long nights, and many more obscure and very famous bands.

We put all these movies on the internet for free and wanted to share all those movies and express the music in a different way.

We wanted to use all these new technologies to create a different type of intimacy.

At that time, in fact ten years ago, no such project existed on the Internet. I think that's why the project we were making, Take Away Shows, was such a success, reaching millions of viewers.

After a while, my mood changed a bit and I wanted to go somewhere else.

I felt the need to travel, discover other music, explore the world, and go elsewhere. And actually, what I had in mind was also the idea of ​​some kind of Nomad movie.

How can the use of new technology and roads be combined?

How do you edit a movie on a bus crossing the Andes?

So I went on a trip around the world for five years.

At the time, I started working on the digital film and music label collection Petites Planètes, which was also a tribute to French filmmaker Chris Marker.

We'll be looking at a few more excerpts from these new films in the future.

From northern Brazilian techno brega diva Gaby Amarantos to Chechen female ensembles.

From experimental electronic music by One Man Nation in Singapore to Brazilian icon Tom Ze singing on his rooftop in São Paulo.

From the great Armenian rock band The Banvir to traditional songs in a restaurant in Tbilisi, Georgia.

From the great retro-pop band White Shoes from Jakarta, Indonesia to the revolutionary band Daka Braka from Kiev, Ukraine.

From Tomi Lebrero and his bandoneon and his friends in Buenos Aires, Argentina, to many other places and musicians around the world.

My hope was to realize it as a trek.

It wouldn't have been possible to make that many films without a big company behind me and no structure.

I was traveling alone with a backpack – inside it was a computer, a camera and a microphone.

Actually alone, but only with locals, I met my team on the spot, who is not professional at all, and I traveled from one place to another, making the film as if it were a journey.

I truly believed that cinema was a very simple thing. If you want to make a movie, they'll give you a place to stay overnight.

When I give you a movie moment, you recommend Capirinha to me.

Well, there are other drinks depending on where you are.

In Peru, we drink pisco sour.

Well, when I arrived in Peru, I actually had no idea what to do there.

In fact, I only had one phone number for one person.

After 3 months, I have traveled around the country and recorded 33 films. It was only the help of locals who were always asking the same questions. “What is important to record here today?”

Working without any structure in that kind of life allowed me to react to the moment and decide, oh, it's important to make this now.

It is important to record the person as a whole.

This is important for creating this exchange.

When I went to Chechnya, the first person I met looked at me and said, "What are you doing here?"

are you a journalist? NGOs? Politics?

what kind of problem are you studying? ”

Well, actually, I was there to research Sufi rituals in Chechnya. The amazing Sufi culture of Chechnya, completely unknown outside the region.

As soon as people realize that I give those movies to them, I will put those movies online for free under a Creative Commons license, but I also intend to actually give them to people and let them do what they want with it.

I just want to express them in beautiful light.

I just want to portray them in a way that their grandchildren will look at their grandfather and think, "Wow, my grandfather is as cool as Beyoncé." (Laughter) That's really important.

(Applause) This is really important. Because it makes people see their culture and their land differently.

They will think differently about it.

It may be a way to maintain some kind of diversity.

Why are you recording?

Hmm. In the very good words of American philosopher Hakim Bey, "Every recording is the tombstone of a live performance."

It's a very good sentence to keep in mind now that the image is saturated.

What does that mean?

where shall i go

I was researching. I still had this thought in mind. "What the heck does that mean?"

I was researching music, pulling it out, trying to get closer to its origins.

Where did all this come from?

I am French. I had no idea what I was going to discover, but it's very simple. In the beginning everything was sacred and music was spiritual healing.

How can I get closer with my little tool, the camera, and not only capture the trance, but also find the equivalent cinetrance in perfect harmony with people?

That's the new research I'm doing now on spirituality, the new spirit around the world.

Perhaps some more excerpts will be added.

From the funeral of Tana Toraja in Indonesia to Easter ceremonies in northern Ethiopia.

From Jatilan, a popular trance ritual in Java, to Umbanda in northern Brazil.

Chechen Sufi ceremonies at Mass in Armenia's holiest church.

From Sufi singing in Ethiopia's sacred halal sites to ayahuasca ceremonies with Shipibo in the Amazon hinterlands of Peru.

Then there is my new project, which I am currently working on here in Brazil, called "Híbridos".

I'm doing it with Priscilla Telmon.

It explores new spirituality around the country.

This is my quest, a little quest of what I call experimental ethnography, trying to bring together all the different genres and bring back a kind of complexity.

Why Record?

i was still there

I truly believe that movies teach us to see.

How we show the world will change the way we see the world. And we live in a time when the mass media are doing a terrible, terrible job of representing the world in violence, extremism, nothing but glamor, simplification of everyday life.

I think we record it to bring back some kind of complexity.

To reinvent life today, we need to create new forms of imagery.

And it's so easy.

thank you very much.

(Applause) Bruno Giussani: Vincent, Vincent, Vincent.

Merci. We have to prepare for the next performance. And I have a question for you. Here are the questions: You show up in a place like the one you just showed us, with a camera. I think you are welcome, but you are absolutely not always welcome.

You step into private moments of sacred ceremonies, villages, towns and groups of people.

How do you break barriers when you show up with lenses?

VM: I think you destroy it with your body rather than your knowledge.

That's what taught me to travel and to trust my body's memory more than my brain's memory.

I truly believe that respect is about moving forward, not going backwards, and by devoting your body to the moment, the ceremony, the place, people will welcome you and understand your energy.

BG: You mentioned that most of the videos you make are actually one-shots.

I don't do a lot of editing.

That is, I had them edited at the beginning of the session for reasons such as length.

Otherwise, you just catch what's happening in front of you without much planning, right?

around?

VM: My thinking is that as long as you don't make the cut, in a way, as long as you let the audience see it, more and more viewers will feel and get closer to that moment, that moment, that place.

I really think it's a matter of respect for the viewer, and just let the time flow instead of cutting all the time from one place to another.

BG: Please tell us briefly about your new project "Híbridos" here in Brazil.

Right before coming to TEDGlobal, you were actually traveling across the country for TEDGlobal.

Please tell me a few.

VM: "Hybridos" — far from being a cliché, I truly believe that Brazil is the greatest religious country in the world, the greatest spirituality and spiritual experimentation.

This is a big project I'm working on this year, investigating different regions in Brazil, different forms of cults, trying to understand how people coexist with spirituality today.

BG: The man that Vincent is about to introduce on stage is one of his past video subjects.

When did you shoot a video with him?

VM: Four years ago, four years ago when I first traveled.

BG: So that was one of your first works in Brazil?

VM: Well, it was one of the first in Brazil.

I shot this film in his hometown of Recife.

BG: So let me introduce him. Who are we waiting for?

VM: I'll keep it very short.

It is a great honor for me to welcome one of the greatest Brazilian musicians of all time to the stage.

Please welcome Nana Vasconcelos.

BG: Nana Vasconcelos!

(Applause) (music) Nana Vasconcelos: Let's go to the jungle.

(applause)

The first patient to be treated with antibiotics was an Oxford police officer.

When I was working in the garden on my day off, I was injured by a rose thorn.

The small wound became infected.

Over the next few days his head was swollen with an abscess and in fact his eye was so badly infected that it had to be removed. And by February 1941, the poor man was on the brink of death.

He was at the Radcliffe Clinic in Oxford. Luckily for him, a small team of doctors led by Dr. Howard Frawley had succeeded in synthesizing penicillin, which had been discovered twelve years earlier by Alexander Fleming but had never actually been used to treat humans, in very small amounts. In fact, no one even knew if the drug would work or if it contained impurities that could kill patients, but Florey and his team wondered if it needed to. If you use it, it would be better to use it on people who are likely to die anyway.

So they gave Albert Alexander, an Oxford police officer, the drug, and within 24 hours he began to feel better.

His fever went down and his appetite returned.

By the second day he was feeling much better.

He was starting to run out of penicillin, so they took the urine and ran it across the road to resynthesize the penicillin from the urine and give it back to him, and it worked.

On day 4, he is steadily recovering.

It was a miracle.

The poor man died on the fifth day when he ran out of penicillin.

So the story didn't end so well, but luckily millions of other people, like this kid who was treated again in the early 1940s, were dying of sepsis again, but as you can see, recovered within just six days thanks to this silver bullet penicillin.

For millions of people, global health has changed.

Now, antibiotics have been used in such patients, sometimes rather lightly to treat simple cold and flu patients where antibiotics would not have worked, and sometimes in sub-therapeutic doses, i.e., in low concentrations, in large doses to speed up the growth of chickens and pigs.

Just to save a few pennies on the price of meat, we've spent tons of antibiotics on animals, not for treatment or sick animals, but primarily for growth promotion.

Well what did it lead us to?

Basically, the massive use of antibiotics worldwide puts so much selective pressure on bacteria that resistance is now a problem. This is because we currently select only resistant strains.

I'm sure you've read about this in the newspapers and seen it in all sorts of magazines, but I hope you understand the importance of this issue.

This is serious.

The next slide I'm going to show you is about carbapenem resistance in Acinetobacter.

Acinetobacter is a nuisance in hospitals, and carbapenems are almost the strongest class of antibiotics available for this worm.

You can see that in 1999 this was mostly a resistance pattern of less than about 10% across the country.

Let's see what happens when we play the video.

I don't know where you live, but it's definitely worse now than it was in 1999, wherever you are. That is the problem of antibiotic resistance.

This is a global problem that affects both rich and poor countries, and at its core, you might wonder if it's just a health problem.

If we taught doctors how to use less antibiotics and taught patients how to demand less antibiotics, perhaps this wouldn't really be a problem, and perhaps drug companies should work more on developing more antibiotics.

Now, it turns out that there is something fundamental about antibiotics that sets them apart from other drugs. It means that if I misuse or use antibiotics, not only will I be affected, but others will be affected as well, in the same way if I choose to drive to work or take a plane to go somewhere. The costs I impose on others due to global climate change spill over everywhere, and I don't always take these costs into account.

This is what economists might call the commons problem, and the commons problem is exactly what we face in the case of antibiotics. We don't take that into account, and neither do we, including individuals, patients, hospitals and the entire healthcare system, the costs that antibiotics impose on others by the way they are actually used.

Now, this is a similar problem to another area we all know: fuel use and energy issues. Of course, energy use not only depletes energy, but also contributes to local pollution and climate change.

And usually for energy there are two ways to deal with the problem.

One is that we can make better use of the oil we have. This is like making better use of existing antibiotics, and we can do this in a variety of ways that we will discuss shortly. But the other option is the "drill, baby, drill" option, and if it's antibiotics, go find a new antibiotic.

Now, these are not separate things.

They are related because investing heavily in new wells reduces the incentives for oil conservation in the same way that it does for antibiotics.

The opposite will also happen. In other words, proper use of antibiotics does not necessarily require investment in new drug development.

And if you think you've hit the perfect balance between those two options, you might consider the fact that this is actually the game we're playing.

This game is actually one of coevolution, and in this particular diagram, coevolution takes place between a cheetah and a gazelle.

Cheetahs have evolved to run faster. Because I can't eat lunch without running faster.

Gazelle has evolved to run faster because if it doesn't run faster it will have lunch.

Well, here is the game in which we are fighting bacteria. However, we are gazelles, not cheetahs. Bacteria would have had children and grandchildren during this little conversation, finding ways to be resistant through choice and trial and error, trying again and again.

So how do we stay ahead of bacteria?

We have the drug discovery process, we screen molecules, we have clinical trials, and once we have a drug, we have the FDA regulatory process.

And once we get through all of them, we try to stay one step ahead of germs.

Now, this is clearly not a game that can be continued, nor can it be won simply by innovating to stay ahead.

We need to slow down the pace of co-evolution, and there are ideas we can borrow from Energy to help us think about how to do this in the case of antibiotics as well.

Now, if you think about how we deal with energy pricing, we take emissions taxes into account, for example. This means that we are imposing the cost of pollution on the people who actually use that energy.

We might consider doing something similar for antibiotics. Then antibiotics might actually be used properly.

There are clean energy subsidies, which aim to switch to fuels that are less polluting or perhaps fossil fuels that don't require them.

Now, the analogy here is that maybe we should stop using antibiotics, but when you think about it, what are the good alternatives to antibiotics?

Well, anything that reduces the need for antibiotics has proven effective. This could include improving infection control in hospitals and vaccinating people, especially against seasonal flu.

And seasonal influenza is probably the biggest driver of antibiotic use in this country and many others, and that could really help.

A third option could involve things like tradable permits.

These seem far-fetched, but given the fact that many people with infections may not be supplied with antibiotics, you might consider the fact that those who can actually use some of these antibiotics may need to be allocated more than others. Some of which may need to be based on clinical need, but may also need to be based on pricing.

And yes, consumer education works.

Very often people overuse or overprescribe antibiotics without necessarily knowing they are doing so, but feedback mechanisms have been found to be beneficial both in energy and energy. If you tell someone they are using a lot of energy at their peak, they tend to cut back, and a similar example is done with antibiotics.

A hospital in St. Louis essentially listed the surgeon's name in order of the amount of antibiotics they had used in the previous month. This was purely informational, not humiliating, but essentially to inform surgeons to rethink the way they use antibiotics.

Now, there is much that can be done on the supply side as well.

If you look at the price of penicillin, it costs about 10 cents per day.

It's a pretty cheap drug.

If you take drugs like linezolid and daptomycin that have been introduced since then, they get pretty expensive, so the idea of ​​paying $180 a day might seem steep to a world used to paying 10 cents a day for antibiotics.

But what does it actually tell us?

This price tells us that we should not take cheap and effective antibiotics for granted in the near future, and perhaps the price indicates that we need to pay more attention to conservation.

This price is probably a signal that we need to start looking at other technologies in the same way that gas prices signal and drive the development of, say, electric vehicles.

Price is an important signal and should be heeded, but while such a high price may seem unusual for an antibiotic, it is nothing compared to the daily price of some antibiotics. Antibiotics may save the patient's life forever, whereas antibiotics may only save the patient's life for a few months or perhaps a year.

So this is a whole new paradigm shift, and it's also a scary shift because in many parts of the country and much of the world, the very idea of ​​paying $200 a day for antibiotic treatment is unthinkable.

So you have to think about it.

There are now backstop options, and this is another alternative technology that people are working on.

This includes bacteriophages, probiotics, quorum sensing and synbiotics.

Now these are all useful avenues to pursue, and even more lucrative when the price of new antibiotics starts to rise. We know the market is really responding and the government is now looking at ways to subsidize new antibiotics and their development.

But there are challenges here.

We are not just throwing money at the problem.

What we want to be able to do is invest in new antibiotics in a way that actually promotes proper use and sales of new antibiotics, and that's the real challenge here.

Now, back to all these technologies, you probably remember the line from that famous dinosaur movie, "Nature will find a way."

So if these are permanent solutions, they are not.

We really need to remember that whatever the technology, nature will find some way around it.

You might think that this is just a problem with antibiotics and bacteria, but it turns out that many other areas have exactly the same problem, such as multidrug-resistant tuberculosis, which is a serious problem in India and South Africa.

Because second-line drugs are so expensive, thousands of patients have died, and in some cases have XDR-TB even when those drugs don't work.

Viruses are becoming resistant.

Agricultural pest. malaria parasite.

Many people in the world are now essentially dependent on the drug artemisinin for the treatment of malaria.

Resistance to artemisinin is already emerging and, if widespread, would jeopardize the single drug we currently need to treat malaria worldwide in a safe and effective manner.

Mosquitoes develop resistance.

If you have children, you probably know about head lice. If you're from New York City, you know bed bugs are their specialty.

Therefore, they are also resistant.

And we need to bring examples from across the pond.

It turns out that rats are also resistant to the poison.

Now, what all of this has in common is that humans have only had the technology to control nature in the last 70, 80, or 100 years, and have essentially squandered their ability to control it so quickly. Since we did not realize that natural selection and evolution could not find a way to recover, we need to completely rethink how we use the means of controlling organisms, and in the case of biological organisms, how we encourage their development and adoption. Prescribing antibiotics and using these valuable resources.

And we need to start thinking of them as natural resources now.

And we are at a crossroads.

The option is to go through that rethink and carefully consider the incentives to change the way you do business.

Another world is one in which even blades of grass are potentially deadly weapons.

thank you.

(applause)

They told me that I was a traitor to my profession, that I should be fired, that I should have my medical license revoked, and that I should go back to my country.

my email was hacked.

I took credit for someone "Twitterbombing" my account on a discussion forum for other doctors.

Now, I wasn't sure if this was a good thing or a bad thing, but the answer was, "I'm sorry it wasn't a real bomb."

I never thought that I would do something that would incur the wrath of other doctors so much.

It was my dream to become a doctor.

I grew up in China, and my earliest memory is being hospitalized with severe asthma and going to the hospital almost every week.

I had a doctor named Dr. Sam who always looked after me.

She was about the same age as my mother.

She had wild curly hair and always wore a bright yellow floral dress.

She was one of the doctors who asked me if you fell and broke your arm, why don't you smile because it's your humerus. get it?

See, you will moan, but you always feel better after seeing her.

Well, we all have childhood heroes that we want to be like when we grow up, right?

Yes, I also wanted to be like Dr. Sam.

When I was eight years old, my parents and I immigrated to the United States, and our story became the quintessential immigrant story.

My parents cleaned my hotel room, washed the dishes, and filled the gas so I could follow my dreams.

Well, my parents were very happy the day I finally learned enough English and I entered medical school and took my vows of healing and service.

But one day everything changed.

My mother called me to say she was sick, coughing, choked and tired.

Well, I knew that my mother was the kind of person who never complained about anything.

For her to tell me something was wrong, I thought something must be really wrong.

And it turned out she had stage IV breast cancer. By that time, the cancer had spread to his lungs, bones, and brain.

But my mother was brave and hopeful.

She underwent surgery, radiation, and lost her address book while undergoing her third round of chemotherapy.

She tried searching the internet for an oncologist's phone number and found that, but also something else.

On several websites, he was listed as a highly paid speaker for pharmaceutical companies, and in fact often spoke on behalf of the same chemotherapy that had been prescribed to her.

She called me in a panic and I didn't know what to believe.

Perhaps this was the right chemo for her, but maybe it wasn't.

It scared her and made her suspicious.

When it comes to healthcare, trust is essential, but when that trust is lost, all that's left is fear.

There is another side to this fear.

As a medical student, I was caring for a 19-year-old boy who had been run over by an SUV while cycling back to his dormitory.

He had seven broken ribs, a shattered hip bone, and was bleeding in his abdomen and brain.

Now imagine his parents flying in from Seattle, 3,000 miles away, to find their son in a coma.

I mean, you want to know what's going on with him, right?

They requested that we attend bedside rounds where we would discuss his condition and plans. I thought it was a reasonable request and it also gave them a chance to show how hard we worked and how much we cared.

But my doctor said no.

He gave all sorts of reasons.

It might get in the way of the nurse.

Perhaps they will block student questions.

He even said, "What if they find a mistake and sue us?"

Behind every excuse was a deep fear, and I learned that to be a doctor you had to put on a white coat and build a wall to hide behind.

There is a hidden epidemic in medicine.

Naturally, patients come to the doctor in fear.

Please try to imagine. I woke up with this terrible stomach ache, went to the hospital, and lay in this strange place. You're sitting on a stretcher in this hospital, wearing this flimsy gown, and strangers come poking and poking you.

I don't know what will happen.

I don't even know if the blanket I ordered 30 minutes ago will arrive.

But it's not just patients who are terrified. I'm scared of doctors too.

We fear our patients will find out who we are and what medicine is all about.

So what should we do?

We wear white coats and hide behind them.

Of course, the more we hide, the more people will want to know what we're hiding.

Further heightened fear leads to mistrust and inadequate medical care.

We don't just have fear of disease, we have the disease of fear.

Can we bridge this disconnect between what patients need and what doctors should do?

Can we overcome the disease of fear?

Let me ask you another question. If hiding is not the solution, what if we do the opposite?

What if doctors could be completely transparent with their patients?

Last fall, I conducted a research study to find out what people want to know about their health care.

I wanted to study everyday people, not just hospital patients.

So two of my medical students, Suhavi Tucker and Laura Johns, literally took their research to the streets.

They went to banks, coffee shops, senior centers, Chinese restaurants, train stations.

what did they find?

Now, when we asked people, "What would you like to know about your health care?"

People understand that healthcare is a personal interaction between them and their doctor, so they asked what they wanted to know about their doctor.

When asked, "What do you want to know about doctors?"

People gave 3 different answers.

Some people want to know if their doctor is competent and accredited to practice medicine.

Some want to make sure doctors are unbiased and make decisions based on evidence and science, not who pays.

Surprisingly for us, many people want to know different things about doctors.

Jonathan, a 28-year-old law student, says he wants to find someone who is comfortable working with LGBTQ patients and who specializes in LGBT health.

Celina, a 32-year-old accountant, says it's important that doctors share her values ​​when it comes to reproductive choices and women's rights.

Home center owner Frank, 59, doesn't even like going to the doctor and wants to find someone who puts prevention first and is comfortable with alternative treatments.

Respondents said one after another that the relationship between doctors and patients is a very intimate one, meaning that in order to show doctors their bodies and tell them their deepest secrets, they first want to understand their values.

Just because doctors must see all patients does not mean that patients must see all doctors.

People want to know their doctor first so they can make an informed choice.

As a result, I launched a campaign called "Who's My Doctor?"

It calls for complete transparency in medicine.

Participating physicians voluntarily disclose conflicts of interest on their public website, as well as information about where they attended medical school and what specialties they belong to.

We are going beyond the government with the Sunshine Act on partnering with pharmaceutical companies, and we are also discussing how to receive compensation.

Incentives are important.

If you see a doctor for back pain, you might want to know if spinal surgery is paid $5,000, while a physiotherapist's visit is paid $25, or if they get paid the same no matter what they recommend.

Then go one step further.

We add our own values ​​around women's health, LGBT health, alternative medicine, preventative health and end-of-life decisions.

We pledge to our patients that we are here to serve you. So you have a right to know who we are.

We believe transparency can solve fear.

I expected some doctors to agree and some to disagree, but I didn't expect the huge backlash that followed.

Within a week of starting Who's My Doctor?

Medscape's public forums and several online physician communities have had thousands of posts on this topic.

Here are some.

From a Gastroenterologist in Portland: "I have dedicated 12 years of my life to being a slave.

There are loans and mortgages.

I rely on lunch from pharmaceutical companies to provide for my patients. ”

Well, times can be tough for everyone, but tell a patient who makes $35,000 a year to support a family of four that they need a free lunch.

Charlotte Orthopedic Surgeon: "I think it's an invasion of privacy to reveal my source of income.

My patients do not disclose their income to me. ”

However, the patient's source of income does not affect your health.

From a New York City psychiatrist: "Soon we'll have to figure out whether we prefer cats to dogs, the model of car we drive, and the toilet paper we use."

How you feel about Toyota or Cottenelle doesn't affect a patient's health, but your opinion about women's rights of choice, preventive medicine, and end-of-life decisions can.

And my favorite is a quote from a Kansas City cardiologist. "Is there more government mandates?

Dr. Wen must return to his home country. ”

Well, I have two good news for you.

First of all, this is meant to be optional, not mandatory. And second, I'm American and I'm already here.

(Laughter) (Applause) Within a month, my employer received a call asking me to fire him.

I received a letter to my undisclosed home address threatening to contact the medical board and sanction me.

Friends and family advised me to stop this campaign.

After the bomb threat, I was done.

But then I heard this story from a patient.

On social media, TweetChat generated 4.3 million impressions, with thousands of people writing messages encouraging me to keep going.

"If doctors are so embarrassing, they shouldn't be doing it," he wrote.

“Elected officials are required to disclose campaign contributions.

Attorneys must disclose conflicts of interest.

Why shouldn't doctors do that? ”

And finally, many wrote or said, "Let us patients decide what is important in choosing a doctor."

In our first trial, over 300 physicians made a full transparency pledge.

What a crazy new idea, right?

But actually this is not a completely new concept.

Remember my doctor in China, Dr. Sam? He had goofy jokes and wild hair.

She was my doctor, but she was also my neighbor in the building across the street.

I went to the same school as her daughter.

My parents and I trusted her. Because we knew who she was and what she stood for. And she didn't have to hide from us.

Until just a generation ago, this was the norm in the United States as well.

You knew your GP said he was a father of two teenage boys, quit smoking a few years ago, and attended church regularly, but you only see him twice a year. Once at Easter and once when my mother-in-law comes to town.

You knew what he was thinking, so there was no need to hide it from you.

But the disease of fear is rampant, and patients suffer the consequences.

I know this firsthand.

My mother battled cancer for eight years.

She was a planner and often thought about how she wanted to live and how she wanted to die.

Not only did she sign an advance directive, she wrote a 12-page document about how she had suffered enough and that the time had come to end.

One day when I was a resident, I got a call that she was in the intensive care unit.

She was being intubated and put on a respirator when I got there.

"But this is not what she wants," I said, "and we have the documents."

The ICU doctor looked me in the eye, pointed at my then 16-year-old sister, and said, "Do you remember when you were that age?"

How would you like to have grown up without a mother?"

Her oncologist was also there and said, 'This is your mother.

Will I really be able to face myself for the rest of my life if I don't do everything for her? ”

I knew my mother very well.

I understood her instructions very well, but I was a doctor.

Letting her die in peace was the hardest decision I ever made. I carry the words of those doctors with me every day.

We can bridge the gap between what doctors do and what their patients need.

we can get there. Because we've been there before and know that transparency leads us to that trust.

Research shows that being open also benefits doctors, and that openness in medical records and speaking out about medical errors increases patient trust, improves health, and reduces medical errors.

As the disease model moves from contagious to behavioral, openness and trust will become increasingly important.

Germs may not care so much about trust and intimacy, but trust needs to be established for people to tackle difficult lifestyle choices and issues like quitting smoking, managing blood pressure, and managing diabetes.

Here's what other transparent doctors have said:

Denver internist Brandon Combs: "This brings us closer to our patients.

The kind of relationships I've built are the reason I went into medicine. ”

Denver internist Aaron Staple: "I tell my patients that I'm completely open.

I hide nothing from them.

this is me. Tell us about yourself.

we are working on this together. ”

Houston Family Physician Mei Nguyen: "My colleagues are amazed at what I'm doing.

They ask me how I can be so brave.

I said that's my job, not being brave. ”

I want to think about it for the last time today.

It's scary when it's completely transparent.

You feel naked, bare, and vulnerable, and that vulnerability, that humility, is very beneficial to medical practice.

When doctors are willing to step off their pedestals, take off their white coats, and show patients who we are and what medicine is, we begin to overcome the disease of fear.

That's when you build trust.

It is then time for us to change the medical paradigm from one of secrecy and covertness to one of complete openness and engagement with patients.

thank you.

(applause)

On January 4, 1934, a young man submitted a report to the United States Congress. Eighty years later, that report still shapes the lives of everyone in this room, and it still shapes the lives of everyone on this planet.

The young man was not a politician, businessman, civil rights activist, or faith leader.

He was an economist who could hardly be considered a hero.

His name was Simon Kuznets and the report he filed was called "National Income, 1929-1932".

Now, you might think this is a pretty dry and boring report.

And you are completely right.

Dry as bones.

But this report is the foundation of how we judge a country's success today, what we're best known for: Gross Domestic Product, or GDP.

For the past 80 years, GDP has defined and shaped our lives.

And today I want to talk about another way to measure our nation's success, another way to define and shape our lives for the next 80 years.

But first, we need to understand how GDP came to dominate our lives.

Kuznets' report was released at a moment of crisis.

The U.S. economy was plunged into the Great Depression, and policy makers struggled to cope.

They were struggling with not knowing what was going on.

They had no data, no statistics.

So what the Kuznet report gave them was reliable, year-by-year data on what the US economy was producing.

Armed with this information, policy makers were finally able to find a way out of the recession.

And Kuznets' invention turned out to be so useful that it spread all over the world.

And today, countries produce GDP statistics.

But Kuznets himself issued a warning in that initial report.

It's in the preface.

On page 7 he states that "the welfare of a nation can therefore be inferred little from the measure of national income as defined above".

It's not the nicest soundbite in the world, and it's decked out in the economist's cautionary words.

But his message was clear. GDP is a useful tool for measuring economic performance.

It doesn't measure our happiness.

And it shouldn't guide every decision.

But we ignored Mr. Kuznets' warnings.

We live in a world where GDP is the measure of global economic success.

Our politicians boast that GDP will rise.

Markets move based on which countries rise and which fall, and trillions of dollars of capital move around the world. All of these are measured in GDP.

Our society is the engine that generates more GDP.

But we know GDP is flawed.

It ignores the environment.

Bombs and prisons also count as progress.

Happiness and community cannot be counted.

And nothing is said about fairness or justice.

Is it any wonder that our world, marching to the beat of GDP, is on the brink of environmental disaster, filled with anger and conflict?

We need a better way to measure society, a scale based on reality that matters to real people.

Do you have enough to eat?

Can you read and write?

am i safe?

do i have a right?

Do I live in a society without discrimination?

Will my future, and the future of my children, be protected from environmental destruction?

These are questions that GDP cannot answer, questions it cannot answer.

Of course, there have been efforts in the past to exceed GDP.

But we believe we are now living in a moment that is poised for a measurement revolution.

we are ready. We saw how our obsession with economic growth led us so far in the financial crisis of 2008.

We saw in the Arab Spring that countries like Tunisia were supposed to be economic superstars, but were fraught with discontent.

Today, we have the technology to collect and analyze data in ways Kuznets could never have imagined, so we are ready.

Today I would like to introduce you to the Social Progress Index.

This is a measure of the well-being of a society and is completely separate from GDP.

It's a whole new way of seeing the world.

The Social Progress Index begins by defining what it means to be a good society based on three dimensions.

First, does everyone have basic survival needs (food, water, shelter, security)?

Second, does everyone have access to the building blocks to improve their lives, such as education, information, health, and a sustainable environment?

And third, will everyone have access to opportunities to pursue their goals, dreams and ambitions without obstacles?

Are they given rights, freedom of choice, freedom from discrimination and access to the world's most advanced knowledge?

Together these 12 building blocks form the framework of social progress.

And for each of these 12 factors, there are indicators to measure a country's performance.

It is not a measure of effort or intention, but an actual achievement.

We don't measure how much a country spends on health care, we measure people's length and quality of life.

We don't measure whether governments pass anti-discrimination laws, we measure whether people experience discrimination.

But what you want to know is who's on top, right? (Laughter.) It knew, it knew, it knew.

All right, I'll show you.

I will introduce it with this figure.

Now let's put what I've done here on the vertical axis of social progress.

Higher is better.

And for comparison, just for fun, the horizontal axis is GDP per capita.

There are more if you go further to the right.

In other words, New Zealand is the most socially advanced country in the world, the number one socially advanced country.

(Applause.) Well done! Never been; must go.

(Laughter) Unfortunately, the least socially advanced country is Chad.

I haven't been; maybe next year.

(Laughter) Or maybe the year after that.

Well, I know what you're thinking.

"Oh, but New Zealand's GDP is higher than Chad's!"

That's a good point, well done.

But let me introduce you to two other countries.

We have the United States here. It is considerably wealthier than New Zealand, but has a lower level of social progress.

And here is Senegal. Senegal has a higher level of social progress than Chad, but the same level of GDP.

what happened? Well, look.

Let us introduce you to the rest of the world's 132 countries. Each is represented by a dot.

Let's go. lots of dots.

Now, obviously you can't do everything. So here are some highlights. The highest ranked country in the G7 is Canada.

My country, England, is kind of half-hearted and kind of boring, but don't worry about that. At least we beat France.

(laughter) And if you look at emerging countries, the top of the BRICS is, happily, Brazil.

(Applause) Come on, cheer us on!

Go Brazil!

They beat South Africa, Russia, China and India.

Obscured on the right, you can see the dots of countries with large GDPs but less social progress. That's Kuwait.

Just above Brazil is Costa Rica, a superpower for social progress.

It has the same level of social progress as some Western European countries, albeit with a much lower GDP.

Now that the slides are getting a little messy, I'd like to step back a bit.

Let's remove these countries and fit a regression line.

This shows the average relationship between GDP and social progress.

The first thing to notice is that there is a lot of noise around the trend line.

And what this shows, what this shows empirically, is that GDP is not doomed.

At every level of GDP per capita, there are greater opportunities for social progress and less risks.

The second thing to notice is that the curve is very steep for poor countries.

What we can see from this is that if poor countries can increase their GDP even a little and reinvest it in doctors, nurses, water supplies, sanitation, etc., they can expect great social progress commensurate with their GDP.

This is good news, and this is what we have seen over the last 20, 30 years, where economic growth and good policies in poor countries have lifted many people out of poverty.

But if you go further up the curve, you'll see it flatten out.

For every dollar of GDP added, society progresses less and less.

And with more and more of the world's population living in this part of the curve, it means that GDP is becoming less and less useful as a guide for our development.

Let me give you an example from Brazil.

This is Brazil. Social progress is about 70 out of 100 and GDP per capita is about $14,000 per year.

And look, Brazil is crossing the line.

Brazil is doing pretty well in terms of turning GDP into social progress.

But where will Brazil go next?

Suppose Brazil adopts an audacious economic plan to double its GDP over the next decade.

But that's only half the plan.

This is less than half the plan. Because where does Brazil want to go in social progress?

Dear Brazilians, it is possible to boost growth and increase GDP even as social progress stagnates and retreats.

We do not want Brazil to become like Russia.

What you really want is for Brazil to generate social progress more efficiently from its GDP and become a country similar to New Zealand.

What this means is that Brazil needs to prioritize social progress in its development plans and understand that it grows with social progress, not just growth.

That is the role of the Social Progress Index. Reframe the development discourse not just in GDP, but in terms of inclusive and sustainable growth that truly improves people's lives.

And it's not just about countries.

Earlier this year, we collaborated with our friends here at Amazon, a non-profit organization here in Brazil, to launch the first local level Social Progress Index.

We did it for the Amazon region.

With a region the size of Europe and a population of 24 million, it is one of the most disadvantaged regions in the country.

And here is the result, which is classified in about 800 different municipalities.

And with this detailed information about the actual quality of life in this part of the country, Imazon and other partners in government, business and civil society can work together to build development plans that help truly improve people's lives while protecting the precious global asset of the Amazon rainforest.

This is just the beginning. Create a social progress index for any state, region, city or municipality.

We all know and love TEDx. This is Social Pogress-x.

This is a tool that anyone can easily use.

Contrary to what we sometimes say, GDP was not handed down from God on stone tablets. (Laughter) It's a measurement tool invented in the 20th century to meet 20th century challenges.

In the 21st century, we are facing new challenges such as aging population, obesity and climate change.

Addressing these challenges requires new measurement tools, new ways to assess progress.

Imagine if we could measure what nonprofits, charities, volunteers and civil society organizations really contribute to our society.

Imagine if companies competed not only on the basis of their economic contribution, but also their contribution to the progress of society.

Imagine if we could hold politicians accountable for really improving people's lives.

What if governments, businesses, civil society, me and you could work together to make this century a century of social progress?

thank you.

(applause)

Imagine this. On Monday morning, you're in your office and you're getting used to the day's work, when a familiar man from across the hall walks into your cubicle and steals your chair.

Don't say anything, just roll away.

It provides no information as to why he took your chair out of all the other chairs out there.

I don't acknowledge the fact that I might need a chair to do my job today.

I can't stand it. It will stink.

You'll follow the man back to the cubicle and say, "Why my chair?"

Well, Tuesday morning, when you're in the office, you see an invitation to a meeting on your calendar.

(Laughter.) And it's from this woman you know down the hall, and the subject line refers to some project you've heard a little about.

But no agenda.

I have no information as to why I was invited to the conference.

You still accept the meeting invitation and join the meeting.

And when this very unproductive session is over, you go back to your desk and you stand at your desk and say, "Oh, I wish I could have those two hours back, just like I wanted my chair back."

(Laughter) Every day we allow our colleagues who are very, very nice people to steal from us.

What I'm talking about is much more valuable than office furniture.

I'm talking about time. your time.

In fact, I believe we are in the midst of a terrifying new disease pandemic known as MAS (Mindless Accept Syndrome).

(Laughter) The main symptom of Mindless Acceptance Syndrome is accepting a meeting invitation the moment it appears on your calendar.

(Laughter) It's an unconscious reflex - din, click, bin - it's on your calendar, 'If you don't go, you're already late for the meeting.' (Laughter) Meetings matter, right?

And collaboration is key to the success of any company.

And when meetings are well run, they have really positive and actionable results.

But between globalization and the spread of information technology, the way we work has changed really dramatically in the last few years.

And we are miserable. (Laughter) And we're miserable not because the other person can't run a good meeting, but because of MAS, ignorance syndrome, a wound we've inflicted on ourselves.

In fact, I have proof that MAS is a global epidemic.

Let me tell you why.

A few years ago I posted a video on YouTube. In that video I acted out every terrible conference call you've ever been on.

It lasts about five minutes, but it's got all the bad stuff in a really bad meeting.

I have a moderator who doesn't know how to run a meeting.

Some participants have no idea why they are there.

In this joint train wreck, everything falls apart.

And everyone leaves very angry.

It's kind of interesting.

(laughs) Let's take a look.

(Video) Our goal today is to reach agreement on a very important proposal.

As a group, we have to decide — thump — hello anyone who joined recently?

Hello, I'm Joe. I am working from home today.

(laughs) Hello, Joe. Thank you for joining us today.

I just said that there are many people who want to answer the phone, so I will skip the roll call and go talk to them right away.

Our goal today is to reach agreement on a very important proposal.

As a group, we have to decide — thump — (laughter) Hi, has anyone joined recently?

no? I thought I heard a beep. (laughs) Sound familiar?

Yeah, it's familiar to me too.

Two weeks after putting it online, half a million people in dozens of countries watched the video.

And three years later, it's still getting thousands of views every month.

It's now close to 1 million.

And in fact, some of the world's largest companies, which you may have heard of but I won't name names, have asked permission to use this video in their onboarding sessions to teach new hires how not to hold meetings in their offices.

And even if this figure (one million views, used by all these companies) isn't enough proof that you have a global problem with meetings, there are thousands of comments posted online after the video went live.

Thousands of people wrote things like, "Oh, today was my day!"

"That was my day!"

"This is my life."

One man said, "It's funny because it's true.

Eerily, sadly, depressingly true.

You made me laugh until I cried.

and cried. And I cried even more. ”

(laughter) This poor fellow said, 'I'm going to retire or die, sigh.'

These are real quotes and really sad.

A common theme in all these comments online is the basic belief that we can do nothing but attend meetings, suffer through this inadequate meeting, and keep living to meet the next day.

But the truth is that we are not helpless at all.

In fact, a cure for MAS is right in our hands.

It's literally available right away.

That's what I call "No MAS!"

(Laughter) If I remember high school Spanish, this meant something like, "Enough, stop!"

Here's how No MAS works: It's very simple.

First, the next time you receive an invitation to a meeting that doesn't contain much information, click the Tentative button.

It's okay, it's allowed, that's why it's there.

It's right next to the accept button.

Or a "maybe" button, or whatever button is not readily accepted.

Then contact the person who invited you to the meeting.

Tell them how excited you are to support their work, ask them about the purpose of the meeting, and let them know how you can help them reach their goals.

And if you do this often enough and respectfully, people may start to be a little more thoughtful about how to organize meeting invitations.

And you will be able to decide more carefully whether to accept it or not.

People may actually start sending agendas. Imagine!

Or maybe you just want to send a quick email and not have a conference call with 12 people discussing a situation.

People may start changing their behavior just because you changed their behavior.

And your chair may be back, too. (laughs) No mass!

thank you.

(applause).

I don't tell many people about this, but I have thousands of secret worlds going on at the same time in my head.

I am also autistic.

People tend to diagnose autism with very specific checkbox descriptions, but really, it's a complete variation on who we are.

For example, my brother has very severe autism.

he is non-verbal He cannot speak at all.

But I love to talk.

Autism is often associated with a love of math and science, but I know many people with autism who love to be creative.

But that's a stereotype, and stereotypes of things are often, if not always, wrong.

For example, many people immediately think of "Rain Man" when they think of autism.

It's a popular belief that everyone with autism is Dustin Hoffman, but that's not true.

But it's not just for people with autism.

I've seen it with LGBTQ people, women, POC people.

People are so afraid of diversity that they try to put everything in small boxes with very specific labels.

This actually happened to me in real life. I googled "people with autism...".

Then you'll get suggestions on what to enter.

I googled "people with autism...".

And the top result was "Devil".

This is the first thing people think of when they think of autism.

they know

(Laughter) One of the things that I can do with autism, which is more of an ability than a disability, is that I have a very vivid imagination.

Please allow me to explain.

Most of the time I feel like I'm walking in two worlds.

There is the real world, the world we all share, and the world of my mind, which is often much more real than the real world.

For example, I don't try to fit myself into a small box, so it's very easy for me to free my mind.

That's one of the best things about being autistic.

I don't have the energy to do that.

Find something you want to do, find a way to make it happen, and work on it.

If I had tried to frame myself, I wouldn't be here and I wouldn't have achieved half of what I have.

However, there is also a problem.

There's a problem with being autistic, there's a problem with being too imaginative.

School in general can be a problem, but adding to the list of problems is having to explain to teachers every day that a class is unexplainably boring and that you are secretly taking refuge in a world in your head that you are not participating in.

(Laughs) Also, when the imagination takes root, the body starts to move on its own.

If something very exciting happens in my inner world, I just have to run.

I have to rock back and forth and sometimes scream.

This gives me so much energy that I must have an outlet for all that energy.

But I've been doing it ever since I was a kid, when I was a little girl.

My parents thought it was cute so they didn't bring it up, but when I started school they didn't really agree that it was cute.

Maybe you don't want to be friends with a girl who starts screaming during algebra class.

This kind of thing doesn't usually happen in this day and age, but maybe people don't want to befriend an autistic girl.

People may not want to be associated with someone who doesn't or doesn't fit the label of normal.

But that's fine with me. Because it can sort the wheat out of the chaff, find out which people are real and true, and choose them as friends.

But when you think about it, what is normal?

what do you mean?

Imagine if that was the best compliment you ever received.

"Wow, you are really normal."

(Laughter) But the compliment is 'you are extraordinary' or 'you are out of the box'.

It's "you are amazing".

So if people want to be these beings, why do so many people strive to be normal?

Why do people pour their bright lights into molds?

People are so afraid of diversity that they try to force everyone to be normal, even those who are unwilling or unable to be normal.

There are camps out there trying to "normalize" LGBTQ people and people with autism, and it's terrifying that people do that in this day and age.

All in all, I wouldn't trade my autism and imagination for the world.

I have autism so I have a documentary for the BBC and am writing a book. This is great. One of my greatest accomplishments, and what I consider to be accomplishments, is finding a way to communicate with my younger brothers and sisters who, like I said, don't speak the same language. they can't speak

And people often disrespect people who don't speak the language, which is silly, because my brother and sister are the best siblings you could ever hope for.

They are the best, I love them so much and I care about them more than anything else.

I leave one question here. If you can't get inside someone's mind, autistic or not, why not celebrate their uniqueness and cheer whenever someone unleashes their imagination instead of punishing deviations from the norm?

thank you.

(applause)

Well, hello.

How many people participated in the ALS Ice Bucket Challenge?

(Applause) Whoa!

Well, I have to say from the bottom of my heart, thank you so much.

Did you know that the ALS Association has raised $125 million to date?

Whoa! (Applause.) Back in the summer of 2011.

My family and children were all grown up.

We were officially burglarized and decided to go on a family vacation.

Jen, her daughter, and her son-in-law are from New York.

My youngest son, Andrew, came from home in Charlestown where he worked in Boston. Our son Pete also joined us because he played baseball at Boston College, was a professional baseball player in Europe, and is now back home selling group insurance.

Then one night, Pete and I were having a beer and Pete looked at me and said,

"I feel like I haven't reached my full potential," he said.

I don't feel like this is my mission in life. ”

And he said, "By the way, mom, the intercity league team I'm playing on has made the playoffs, so I have to leave my vacation early. I can't let the team down, so I have to go back to Boston."

But I'm not as passionate about my job as I am about baseball. ”

So Pete slipped out of the family vacation, and to his mother's heart, he left too, and we followed four days later to see the next playoff game.

We were in a playoff game and Pete was at bat when a fastball came and hit his wrist.

Oh Pete.

Thus his wrist was completely limp.

So for the next six months, Pete returned home to Southey, continued his passionless work, and visited doctors to find out what was wrong with this wrist that would never come back.

Six months later, in March, he called me and my husband and said, "Oh, Dad, Mom, there's a doctor who found that wrist diagnosis.

Would you like to come with me to the doctor's office? ”

I said, "Of course I will."

That morning Pete, John and I all got up, got dressed and got in the car. Three separate cars as I was due to go to work after a doctor's visit to find out what happened to my wrist.

We walked into the neurologist's office, sat down, four doctors walked in, and the chief neurologist sat down.

And he said, "Pete, we've gone through all the tests, and I have to say, this is not a sprained wrist, a broken wrist, a nerve injury in the wrist, an infection, or Lyme disease."

And this deliberate elimination was going on, and I thought to myself, where is he going with this?

Then he put his hands on his knees, looked straight at my 27 year old and said: "I don't know how to tell a 27-year-old Pete, you have ALS."

If?

I had a friend whose 80 year old father had ALS.

I looked at my husband, he looked at me, then we looked at the doctor and we said, 'ALS?

Well, what kind of treatment is it? Alright, let's go.

what do we do Alright, let's go. "

And he looked at us and said, "Mr. and Mrs. Frates, I'm sorry to say this, but there is no cure, no cure."

We were the worst culprits.

We didn't even realize that 75 years after Lou Gehrig, no progress had been made against ALS.

So we all went home, Jen and Dan flew home from Wall Street, Andrew flew home from Charlestown, and Pete went to British Columbia. I picked up my then girlfriend Julie and took her home. Six hours after the diagnosis, we are sitting over family dinner and making small talk.

I don't even remember making dinner that night.

But then our leader, Pete, set the vision and talked to us as if we were his new team.

He said, "Ladies and gentlemen, don't panic."

“We are looking forward, not looking back,” he says.

A great opportunity to change the world.

I will change this unacceptable situation of ALS.

We move the needle of our times and make it happen in front of philanthropists like Bill Gates. ”

That's it. We were given orders.

So days, months went by, and within a week our brothers and sisters and family came to us and they had already started building Team Frate Train.

Uncle Dave, he was a webmaster. Uncle Artie, he was an accountant. Aunt Danna, she was a graphic artist. And my youngest son, Andrew, quit his job, moved out of his Charlestown apartment, and said, "I'm going to take care of Pete and be his caregiver."

Then all the people Pete has inspired throughout his life, his classmates, his teammates, his colleagues, Pete's circle all began to cross each other and Team Freight Train was born.

Six months after his diagnosis, Pete received an advocacy award at a research summit.

He stood up and gave a very eloquent speech. At the end of the speech, there was a panel, and the panel had pharmaceutical executives, biochemists, and clinicians, and I was sitting there listening to them, and most of the content just kind of stuck in my head.

I avoided all science classes as much as I could.

But I was watching them, listening to them, and they said, 'I do this, I do that,' and there was a real unfamiliarity between them.

So at the end of their talk, panel, there was a question and answer session and Dawn and I raised our hands to take the mic and looked at them and said,

Thank you for working with ALS.

It means a lot to us. ”

I said, "But I must tell you that I am observing your body language and listening to what you are saying.

There doesn't seem to be much collaboration going on here.

Not only that, but where are the flipcharts with action items, follow-ups and accountability?

What are you going to do after you leave this room? ”

And when I turned around, there were about 200 pairs of eyes staring at me.

And at that point I realized I was talking about elephants in the room.

Thus began my mission.

So over the next few years, Pete, we've had some highs and some lows.

Pete was given compassionate use medication.

It was hope in a bottle for the entire ALS community.

It was in a phase III trial.

And six months later, the data came back saying it was ineffective.

We were supposed to have therapy abroad, but the rug was pulled out from under us.

So for the next two years we just watched a little bit of my son being taken away from me every day.

Two and a half years ago, Pete was hitting a home run on the baseball field.

Today Pete is completely paralyzed.

He can't keep his head up anymore.

He is forced to live in an electric wheelchair.

He can no longer swallow or eat.

he has a feeding tube

he can't speak

He speaks using eye-gaze technology and speech generators, and we monitor the condition of his lungs. Because his diaphragm will eventually fail, and it will then decide whether or not to put him on a ventilator.

ALS takes away every part of the human body, but leaves the brain intact.

On July 4, 2014, the 75th anniversary of Lou Gehrig's inspirational speech, Pete was asked by MLB.com to write an article for Bleacher Report.

And it was very important because he wrote it using eye gaze technique.

After 20 days, the ice began to fall.

On July 27, Pete's roommate in New York City wore a Quinn for the Win shirt representing Pat Quinn, another known ALS patient in New York, while B.C.

"And I nominate..." and he sent it to Boston.

And it was July 27th.

Over the next few days, our newsfeeds were filled with family and friends.

Even if you haven't gone back yet, the nice thing about Facebook is that it shows the date so you can go back.

You have to see Uncle Artie's human, Bloody Mary.

Mind you, this was one of the best pieces, probably the second day.

By the 4th day or so, I got a text message from Uncle Dave, the webmaster, even though he's not on Facebook. It was like, “Nancy, what the hell is going on?”

Uncle Dave was hit every time he visited Pete's website and his cell phone was exploding.

So we all sat down and realized the money was coming in. How wonderful!

So we knew that awareness would lead to funding, but we didn't know it would be done in just a few days.

So we got together, put the best 501(c)(3) on Pete's website, and off we went.

Well, week one is Boston media.

Second week, national media.

It was the second week that a neighbor opened our door, threw a pizza on the kitchen floor and said, "I think you guys need food there."

(laughter) Week 3, Celebrities — Entertainment Tonight, Access Hollywood.

Week 4, Global — BBC, Irish Radio.

Has anyone seen "Lost in Translation"?

My husband worked for Japanese TV.

It was interesting.

(Laughter) And those videos, popular videos.

Glacier video by Paul Bissonnette, great.

What about the Nuns of Salvation in Dublin?

who saw it?

It's really great.

J.T., Justin Timberlake.

That's when we knew it was a real A-list celebrity.

When I go back to the text, it says "JT! JT!" My sister sent me a text message.

Angela Merkel, Chancellor of Germany.

can't believe it.

ALS sufferers, do you know what their and their families' favorites are?

Everyone.

This "rare" disease was misunderstood and underfunded, so we just sat and watched people say "ALS, ALS" over and over.

It was incredible.

Opponents, let me give you some statistics.

Well, the ALS Association believes it will be $160 million by the end of the year.

ALS TDI in Cambridge raised $3 million.

Well, what do you think?

They were conducting clinical trials of drugs in development.

The fundraising was expected to take three years.

2 months.

It will be released after 2 months.

(Applause.) And YouTube reported that over 150 countries have posted ice bucket challenges for ALS.

And Facebook, 2.5 million videos, and I had an amazing adventure visiting the Facebook campus last week and I said to them, 'I know what my home was like.

I can't imagine what it was like around here. ”

All she said was "amazing".

What is my family's favorite video?

Bill Gates.

Because the night Pete was diagnosed, he told us he had ALS in front of philanthropists like Bill Gates, and then he did it.

Goal #1, check it out.

Now about treatment and healing.

(Applause) Okay. After all this ice flow, I realized that it wasn't just a bucket of ice water over my head. And there are a few things to remember.

First and foremost, when you wake up each morning, you can choose to live your day positively.

Who would blame me if I was in a fetal position and wore a cover every day?

No, I don't think anyone can blame me, but Pete encouraged us to wake up every morning and be positive and positive.

In fact, I had to quit the support group. Because everyone there was claiming that spraying chemicals on the lawn caused ALS. I was like, "I don't think so," but I had to run away from the negative thoughts.

Second, a person in the midst of a challenge must be willing to have the mental strength to expose themselves.

Pete still goes to baseball games, sits in the dugout with his teammates, and has a gravity feed bag hanging in his cage.

You will see children hanging there.

"Pete, is that okay?" "Yeah."

And they put it directly into his stomach.

Because he wants them to see that this is real and that he never, never gives up.

And the third thing I'd like to leave you with: If you ever run into a situation that seems too unacceptable, I want you to dig as deep as you can, find the best mother bear, and go after it.

(Applause.) Thank you.

(Applause.) I know I'm about to elope, but I have to leave this one alone. It's a gift my son gave me.

I have had the honor of being the mother of Pete Frates for 29 years.

Pete Frates has inspired and guided me throughout my life.

He gave away kindness, but all that kindness came back to him.

He now roams the surface of the earth and knows why he is here.

What a wonderful gift!

The second thing my son gave me was that he gave me a mission in life.

Now I know why I am here.

I'm going to save my son, and if I don't make it in time for him, I'm going to work so other mothers don't go through what I'm going through.

And third, and last but not least, the gift my son gave me as an exclamation point in the miraculous month of August 2014. The girlfriend he picked up the night of his diagnosis is now his wife, and Pete and Julie gave me their granddaughter, Lucy Fitzgerald Frates.

Lucy Fitzgerald Frates arrived on August 31, 2014, two weeks earlier than the exclamation point.

So — (applause) — I'll leave you with the words of inspiration that Pete would have used for his classmates, colleagues, and teammates.

Be passionate

Be sincere.

Be diligent.

And don't forget to be great.

thank you. (applause)

Imagine yourself as a soldier running through the battlefield.

Well, you were shot in the leg and the femoral artery was severed.

Well, this bleeding is quite shocking and can kill you within 3 minutes.

Unfortunately, by the time the doctor actually gets to you, it can take five minutes or more to apply pressure and stop that type of bleeding, using what the doctor wears on his belt.

Now, not only is this a big problem for the military, it's a big problem that pervades the entire medical field. How do we actually observe wounds and adapt to the body to stop them quickly?

So what I have been working on for the past four years is the development of smart biomaterials. This is a material that actually works with the body to help wounds heal and to help wounds heal normally.

So before doing this, we need to take a closer look at how the body actually works.

Now, everyone here knows that the body is made up of cells.

Cells are therefore the most basic unit of life.

But not many people know otherwise.

However, it turns out that cells actually reside within a complex network of fibers, proteins, and sugars known as the extracellular matrix.

Now, the ECM is actually this mesh that holds the cells in place and provides structure to the tissue, but it also gives the cells a place to live.

It allows you to feel where and what they are doing, and tells you how to act and how to behave.

And indeed, it turns out that the extracellular matrix is ​​different from any part of the body.

So my skin ECM is different from the liver ECM, and the ECMs of different parts of the same organ are indeed different. So it's very difficult to develop products that respond to the local extracellular matrix, and that's exactly what we're trying to do.

For example, consider the rainforest.

There is a canopy, understory and forest floor.

All these parts of the forest now consist of different plants, and different animals make their home there.

Similarly, the extracellular matrix is ​​also incredibly diverse three-dimensionally.

Moreover, the extracellular matrix is ​​involved in all wound healing, so if we imagine amputating the body, this very complex ECM needs to be remodeled in order to actually form again, and in fact a scar is one in which not enough extracellular matrix has been formed.

Now, behind me is an animation of the extracellular matrix.

As you can see, cells reside within this complex mesh and change the extracellular matrix as they move through the tissue.

As such, all other techniques currently on the market can only manage a two-dimensional approximation of the extracellular matrix. This means that it does not fit the organization itself.

So when I was a freshman at New York University, I discovered that small pieces of plant-based polymers could actually be taken out and reassembled over a wound.

So if you have a bleeding wound like the one behind me, you can actually put our material on top of it and it will reassemble into local tissue, just like Lego blocks.

That means that if you put it on the liver, it will look like liver, and if you put it on the skin, it will look like leather.

So when you apply the gel, it actually remodels into this local tissue.

Now, there are many uses for this, but the basic idea is that this product can be placed anywhere and reassembled in no time.

Now, this simulates an arterial bleed, or blood warning, at twice the human arterial pressure.

So this type of bleeding is very traumatic and as I said before it actually takes more than 5 minutes under pressure before the bleeding actually stops.

Now, by the time I introduce the bleeding itself, our material is able to stop that bleeding, and it actually continues and reassembles into this piece of flesh to work the body to heal, and the blood actually realizes it's happening, produces fibrin, and produces a very fast clot in less than 10 seconds.

So now this technology — thank you.

(Applause) Well, we're working hard to have this technology in the hands of veterinarians by January, and hopefully next year.

But really, I want you to imagine yourself again as a soldier running through the battlefield.

Now, you get shot in the leg, and instead of bleeding within 3 minutes, you just take a small pack of gel from your belt, push a button, and you stop yourself from bleeding, and you're on your way to recovery.

thank you very much.

(applause)

Over the next 30 years, we could reduce violent deaths worldwide by 50%.

All we have to do is reduce the number of killings by 2.3 percent per year, and we can reach that goal.

Can't believe it?

Well, the leading epidemiologists and criminologists around the world seem to think we can do that, and I think so too, but only if we focus on cities, especially the most vulnerable ones.

See, I've been thinking about this a lot.

For the past 20 years, I have worked in countries and cities torn apart by conflict, violence, terrorism, or an insidious combination of all.

I tracked gun smugglers from Russia to Somalia, worked with warlords in Afghanistan and Congo, and counted bodies in Colombia, Haiti, Sri Lanka and Papua New Guinea.

But you don't have to be at the forefront to feel our planet spinning out of control.

There is a sense that international instability is the new normal.

But I want you to take a closer look. I think you can see that the geography of violence is changing. Because it is the cities of Aleppo, Bamako, Caracas, Erbil, Mosul, Tripoli and Salvador, rather than our nation-states that are plagued by conflict and crime.

Violence is spilling over into big cities.

Perhaps this is to be expected?

After all, most people today live in cities, not in the countryside.

Just 600 cities, including 30 megacities, account for two-thirds of the world's GDP.

But when it comes to cities, the North dominates the discussion: North America, Western Europe, Australia and Japan, where violence is actually at historically low levels.

As a result, city enthusiasts talk about the triumph of the city, the triumph of the creative class, and the mayor who rules the world.

Well, I hope mayors will one day rule the world, but you know, I don't hear any conversation about what's going on in the South.

And by South, I mean Latin America, Africa and Asia. There, in some cases, violence accelerates, infrastructure becomes excessive, and governance is an aspiration, not a reality.

Now some diplomats and development experts, pundits are talking about the 40 to 50 fragile states that will shape security in the 21st century.

I believe it is the fragile city that determines the future of order and chaos.

Because war and humanitarian action will be focused in our cities, and the battle for development will be won or lost in our cities' shantytowns, shantytowns and favelas, whether you define it as eradicating poverty, universal health care or stopping climate change.

I would like to talk about four megarisks that I believe define modern vulnerability. If we can solve these, I think we can do something about the deadly violence problem.

So let's start with the good news.

In fact, we are living in the most peaceful moment in human history.

Stephen Pinker and others have shown that the intensity and frequency of conflicts are indeed at record lows.

Now, Gaza, Syria, Sudan, Ukraine, these conflicts are gruesome and terrifying, but they are relatively small gains in a 50-year long decline.

Moreover, the number of homicides has decreased dramatically.

Manuel Eisner and others have shown an astonishing decline in murder over the centuries, especially in the West.

Most northern cities are 100 times safer today than they were just 100 years ago.

These two facts, fewer armed conflicts and fewer homicides, are one of the most amazing achievements in human history, and they should really excite us, if unheard of.

Well, you should.

There is only one problem. It is that these two scourges still remain.

As you know, 525,000 men, women, boys and girls die violently every year.

Studies I've done with Keith Krause and others have shown that between 50,000 and 60,000 people die violently in combat zones.

About 500,000 of the rest have died outside the conflict zones.

In other words, ten times more people die outside the war than during it.

Furthermore, the violence has spread southward into Latin America and the Caribbean, parts of Central and Southern Africa, and parts of the Middle East and Central Asia.

40 of the world's 50 most dangerous cities are here in Latin America, and 13 are in Brazil. And most dangerous is San Pedro Sula, Honduras' second largest city, which boasts a staggering murder rate of 187 per 100,000 inhabitants.

This is 23 times the world average.

Now, if violence is being refocused geographically, it is being reconfigured for the new geography of the world. Because, as Thomas Friedman likes to say, the world is not flat when it comes to cities.

Spicy.

The dominance of the city as the primary mode of urban life has been one of the most extraordinary demographic reversals in history, and it has all happened very quickly.

Everyone knows the numbers, right?

There are 7.3 billion people in the world today. There will be 9.6 billion people by 2050.

But consider the following facts. In the 1800s, 1 in 30 people lived in a city, today that number is 1 in 2, and tomorrow virtually everyone will live in a city.

And this expansion of urbanization will not be even or equitable.

Most of it, 90 percent, will happen in the South, in the cities of the South.

So urban geographers and demographers say no, it's not the size or density of a city that necessarily predicts violence.

With a population of 35 million, Tokyo is one of the world's largest and one of the safest urban metropolises.

No, what matters is the speed of urbanization.

I call this turbo-urbanization and it is one of the main drivers of vulnerability.

When you think of the staggering expansion of these cities and think of turbo-urbanization, think of Karachi.

In 1947, Karachi was a bustling, bustling city with a population of about half a million.

Today, with a population of 21 million, it accounts for three-quarters of Pakistan's GDP and is also one of the most violent cities in South Asia.

Dhaka, Lagos, Kinshasa, these cities are now 40 times the size they were in the 1950s.

Now let's look at New York.

It took 150 years for the Big Apple to be home to 8 million people.

In São Paulo, Mexico City, it took 15 times to reach the same interval.

So what are these medium cities, big cities, megacities, and hyper cities?

what is their profile?

Well, for one thing, they're young.

What we see in much of it is the rise of youth.

Well, this is actually good news.

It has been implicated in reducing child mortality.

However, we must pay attention to the excitement of young people.

What this basically means is that the proportion of young people living in vulnerable cities is much higher than the proportion living in healthier and wealthier cities.

In some vulnerable cities, 75 percent of the population is under 30.

please think about it. 3 out of 4 are under the age of 30.

It's like Palo Alto on steroids.

If you look at Mogadishu for example, the average age in Mogadishu is 16.

So are Dhaka, Delhi and Kabul.

And what about Tokyo? It's 46.

The same is true for most Western European cities.

Now, young people aren't the only ones who necessarily anticipate violence.

It is one of many factors, but the combination of youth, unemployment, lack of education, and being male, which is the biggest factor, is a lethal proposition.

All these risk factors are statistically correlated with youth and tend to be associated with increased violence.

Now, if you're a parent of a teenage son, you know what I mean?

Imagine your son without any structure and his unruly friends frolicking outside.

Come on, deprive parents, deprive education, limit educational possibilities, sprinkle small doses of drugs, alcohol, and guns, and sit back and watch the fireworks.

The effect is disconcerting.

Life expectancy here in Brazil is 73.6 years.

If you live in Rio, sorry, shave two right away.

But if you're young, uneducated, unemployed, black, and male, life expectancy drops to under 60.

There's a reason youth and violence are the biggest killers in this country.

Well, our city isn't all about doom and gloom.

After all, cities are centers of innovation, dynamism, prosperity, excitement and connection.

It's a place where smart people gather.

And the young people I mentioned earlier are more digitally savvy and tech conscious than ever before.

And this explosion of internet and mobile technology means that the digital divide between and within nations is shrinking.

But, as we've heard many times before, these new technologies have a double-edged edge, right?

Consider the case of law enforcement.

Police around the world are beginning to use remote sensing and big data to predict crime.

Some police officers can predict criminal activity before it happens.

Future Crime Scenarios are here today and we need to be careful.

We must manage public safety issues against individual privacy rights.

But police aren't the only ones innovating.

We hear that the extraordinary work of civil society groups engaged in collective regional and global action is leading to digital protests and real revolution.

But what worries us most is the criminal gangs that have gone online and are beginning to colonize cyberspace.

In Ciudad Juarez, Mexico, where I work, groups like the Zetas and the Sinaloa Cartel have taken over social media.

They use it to recruit, sell their products, coerce, blackmail, and kill.

Violence is becoming virtualized.

So this is only a partial sketch of a rapidly changing, dynamic and complex situation.

So there are many other megarisks that will define modern vulnerability, especially income inequality, poverty, climate change and impunity.

But we face a tough dilemma: some cities thrive and lead global growth, while others falter and set back global growth.

If you're going to change course, you need to start a conversation.

We can't just focus on well-performing cities like Singapore, Kuala Lumpur, Dubai, and Shanghai.

We must bring these vulnerable cities into the conversation.

One way to do that might be to start partnering vulnerable cities with healthier and wealthier cities to begin a process of learning, collaborating and sharing practices about what works and what doesn't.

Great examples of this can be found in El Salvador and Los Angeles. The mayors of San Salvador and Los Angeles are working together by getting former gang members to work with current gang members, providing tutoring and education, and helping promote ceasefires and truces in the process. San Salvador, once the most violent city in the world, has seen its murder rate drop by 50 percent.

You can focus on hot spots as well as hot cities.

Place and place are fundamentally important in shaping violence in our cities.

Did you know that 1-2 percent of vulnerable city street numbers can predict up to 99 percent of violent crimes?

Consider the example of São Paulo, where I work.

Brazil's most dangerous city turned into one of the safest. It did this by doubling down on intelligence gathering, hotspot mapping and police reform, and in the process reduced homicides by 70% in just over a decade.

We also had to focus on hot people.

Tragically, being young, unemployed, uneducated and male increases the risk of being killed or murdered.

We must break this chain of violence and intervene early with our children, our youngest children, and value them instead of blaming them.

I see great work being done in Kingston, Jamaica and here in Rio as well, to prioritize education, employment and recreation for these high-risk groups, resulting in less violence in their communities.

We must also make cities safer, more inclusive and livable for all.

As a matter of fact, social cohesion is important.

Mobility is important in our cities.

We have to get out of this model of isolation, exclusion and walled cities.

My favorite example of how to do this is from Medellín.

When I lived in Colombia in the late 1990s, Medellín was the murder capital of the world, but it did so by reversing its policy and intentionally investing in low-income, most violent neighborhoods and integrating it with middle-class neighborhoods through a network of cable cars, public transport, and top-notch infrastructure, and in the process, reduced homicides by 79 percent in less than 20 years.

And finally technology.

Technology holds great promise, but there are also dangers.

We've seen examples of extraordinary innovation here, much of it coming from this room, police working on predictive analytics.

Citizens are working on new crowdsourced solutions.

My group is also working on developing applications to increase accountability to the police and improve public safety.

But be careful.

If I had to give you just one message, it would be this. Nothing is inevitable in deadly violence and we can make cities safer.

Ladies and gentlemen, we have a once-in-a-lifetime opportunity to cut homicidal violence in half in our lifetime.

So I have only one question. What are you waiting for?

thank you.

(applause)

It's a simple way of thinking about nature.

Since we haven't talked much about nature in the last few days, I would like to say a few words about nature.

I would like to say a word to the soil, bees, plants and animals. And I want to tell you about a very simple tool that I found.

That said, it's really just a literary conceit. It's not the technology.

I think it is very powerful in changing our relationship with the natural world and other species on which we depend.

And the tools, as Chris suggested, are very simple: looking at us and the world through the eyes of plants and animals.

This wasn't my idea, someone else came up with it, but I tried to bring it to some new places.

Please tell me where you got it.

Like many of my ideas and many of the tools I use, I found it in the garden too. I am a very avid gardener.

Then one day about seven years ago. I was planting potatoes. It was the first week of May. This was New England, when the apple trees were blooming and trembling. Those are just the white clouds above.

I was here, planting clumps, cutting and planting potatoes, and bees were working on this tree. Bumblebee, just vibrating this.

And one of the things I really like about gardening is that it doesn't require concentration, it doesn't really hurt you unlike woodworking, and it gives you plenty of room to think.

And that afternoon, working with the bumblebees in the garden, I asked myself, "What do I and the bumblebees have in common?"

How were our roles similar and different in this garden?

And then I realized that we actually have quite a bit in common. We were both spreading genes in one species and not in another. And, as you can probably imagine from the bee's point of view, we both thought we were in control.

I was deciding what kind of potato I wanted to plant -- Yukon Gold or Yellowfin or whatever -- and I was calling up those genes from seed catalogs around the country, bringing them in, and planting them.

And the bee surely decided, "I'm going to that apple tree, I'm going to that flower, I'm going to collect nectar, and I'm going to leave."

We have a grammar that suggests it is us. Bees, like me, are sovereign masters of nature.

I plant potatoes, weed gardens, and domesticate seeds.

But that day I thought: What if the grammar was nothing more than a selfish vanity?

Because the bee, of course, thinks that he or she is responsible, but we know that all too well.

As for what is going on between the bee and the flower, we know that the bee is manipulated by the flower.

And when I say manipulated, I'm talking in the Darwinian sense, right?

In other words, bees have evolved very specific traits such as color, scent, taste and pattern to attract them.

And the bee was tricked into sucking the nectar, dusting its feet, and leaving for the next flower.

The bees are not dictating.

And then I realized that neither was I.

I was tempted by the potato to try to plant it, spread its genes, and expand its habitat a bit more, rather than someone else.

Then I had an idea. “What if we looked at us from the perspective of other species working on us?”

And suddenly agriculture appeared to me not as an invention or human technology, but as a co-evolutionary development in which a group of very clever species, mostly edible grasses, had found ways to exploit us and basically deforest the world.

It's a grass race, right?

And suddenly everything looked different.

And suddenly mowing the lawn that day was a completely different experience.

I always thought so - and I actually wrote this in my first book. This was a book about gardening. The lawn was a cultured nature, a totalitarian landscape, and when we mowed the lawn, we were brutally suppressing the seed, never allowing it to be sown, let it die, or have sex with it.

And it was the lawn.

But then I realized, "No, this is exactly what the grass wants us to do."

I'm a duck I am a lawn duck and their life goal is to beat the trees competing for sunlight. ”

So we keep the trees from coming back by having us mow the lawn, and that happens very quickly in New England.

So I started thinking about things this way and wrote a book about it called The Botany of Desire.

And I realized that just as we can infer all sorts of interesting things about a bee's taste and cravings by looking at a flower, we can infer that he likes sweetness, that he likes this color over another, that he likes symmetry, and so on. What can we learn about ourselves by doing the same?

That some kind of potato, some kind of drug, sativa and indica cannabis crosses tell us something about us.

And isn't this an interesting way of looking at the world?

Now, the test of any idea--I said it was literary vanity--is what it brings us.

And when we talk about nature, which is my real subject as a writer, how does that fit the Aldo Leopold test?

So, does it make us better citizens of the biological community?

Instead of destroying the biota, why not let us do things that support and perpetuate the biota?

And I would argue that this idea does this.

So, besides some interesting insights into human desires, let's see what we can get out of looking at the world this way.

As an intellectual matter, seeing the world from another species' point of view helps us deal with this strange anomaly. That said, this is in the realm of intellectual history, 150 years ago there was the Darwinian Revolution...

Hmm. mini me. (Laughter) We have this intellectual, this Darwinian revolution, who, thanks to Darwin, understands that we are but one species among many races. Evolution works on us as it does on everyone else. We not only act, but we are also acted upon. We are in the very fabric, the fabric of life.

But strangely, 150 years later, we still haven't absorbed this lesson. None of us really believe this.

We are still Cartesians, children of Descartes, believing that subjectivity, consciousness distinguishes us. The world is divided into subject and object. Nature on one side and culture on the other.

As soon as you start looking at things from a plant's point of view or an animal's point of view, you realize that the real literary conceit is the idea that nature is opposed to culture, that consciousness is everything, and that's also very important.

Seeing the world from another species' point of view is a cure for the disease of human arrogance.

We suddenly realize that consciousness, the human consciousness that we cherish and nature's highest achievement, is really just a set of tools to get along in the world.

And it's kind of natural to think it's the best tool.

But you know, one comedian said, "Who told me that consciousness is such a good thing and that it's so important?"

Well, consciousness. ”

So when you look at plants, you realize there are other tools, and they are just as interesting.

Here are two examples of lima beans, also from the garden. Do you know what happens when lima beans are attacked by spider mites?

Spider mites release this volatile chemical and go out into the world to evoke another species of mites, which then come in to attack the spider mites and protect the lima beans.

So what do plants have, we have consciousness, tool making, language, but plants have biochemistry.

And they have perfected it to a level far beyond our imagination.

Its complexity and sophistication are truly astonishing, and I believe that this is exactly the scandal of the Human Genome Project.

As you know, we went into our research thinking we had 40,000 or 50,000 human genes, but we ended up with only 23,000.

As a basis for comparison, rice: 35,000 genes.

So who are the more sophisticated species?

Well, we are all equally sophisticated.

We have evolved along different paths for as long.

So a way to make us feel Darwinian, a way to cure arrogance.

As a writer, as a storyteller, what I really do is tell stories that make people feel what we know and actually help them think about the environment.

Now, another use of this is practical.

And now I will take you to the farm. Because I used this idea to develop our understanding of the food system and what we really learned is that we are all controlled by corn right now.

And the story you heard about ethanol today is, for me, corn's final victory over decency. (Laughter) (Applause) That's part of the corn world domination plan.

(Laughter.) And you know, the amount of corn that's being planted this year has dramatically increased from last year, and we've decided that ethanol will help, so there's going to be that much more habitat.

So it helped me understand industrial agriculture. Of course, it is a Cartesian system.

It's based on the idea that we subject other species to our will and that we are responsible, that we build these factories and have these technological inputs from which we extract food and fuel and whatever else we want.

Let us take you to a completely different kind of farm.

This is a farm located in the Shenandoah Valley, Virginia.

I went looking for a farm where these ideas of looking at things in terms of species were actually in action and found it in one man. The farmer's name is Joel Salatin.

And I spent a week as an apprentice on his farm, and it gave me some of the most hopeful news about the relationship between nature and humans that I've come across in my 25 years of writing about nature.

It is this. This farm is called Polyface. in short...

The idea is to have six different animals and some plants growing in this very elaborate symbiotic arrangement.

Anyone who knows anything about this is cows, pigs, sheep, turkeys... permaculture.

what else does he have?

All six different species (rabbits, in fact) provide ecological services to each other, where one manure becomes lunch for the other and they take care of each other's pests.

It is a very elaborate and beautiful dance, and I would like to introduce a part of it in close-up. It's the relationship between his cows and chickens, the laying hens.

Let me show you what you can get with this approach.

And, as we will see, this is about more than just growing food. This is a different way of thinking about nature, a way to get away from the zero-sum notion, that either nature wins or we win, that nature diminishes to get what we want.

So one day a cow went into a cage.

The only technology involved here is this cheap electric fence. Relatively new, connected to a car battery. Even I was able to haul a quarter acre paddock and set it up in 15 minutes.

One day the cows will graze. they move, okay?

They devour everything and graze intensively.

He waited three days before we towed with something called the Eggmobile.

The Eggmobile is a highly unstable machine that looks like a prairie schooner made out of planks, but it houses 350 chickens.

Three days later, he towed it into the paddock, opened the slab and refused, and 350 hens drifted down the slab, clattering like chickens, chattering and heading straight for the beef patties.

What they are doing is very interesting. They dig up cow meat for maggots, larvae and fly larvae.

And the reason he waited three days is because he knew that on the fourth or fifth day the larvae would hatch and he would have a big fly problem.

But it's the form of protein that chickens prefer, so he waits that long to grow them to be as big, juicy and delicious as possible.

The chickens do a little breakdancing and push around the manure to catch the larvae, scattering manure in the process.

A very useful second ecosystem service.

And thirdly, while they are in this paddock they are of course defecation like crazy and their very nitrogen rich manure is fertilizing this field.

Then move on to the next grass, and in just a few weeks, the grass will enter this booming period.

And in four or five weeks he can do it again.

You can regraze, mow grass, bring in other species such as lambs, and make hay for the winter.

Well, I want you to take a closer look at what happened there.

So this is a very productive system.

And all I have to tell you is he's getting 40,000 pounds of beef on 100 acres of land. 30,000 pounds of pork. 25,000 dozen eggs. 20,000 broilers. 1,000 turkeys. 1,000 rabbits—a huge amount of food.

You've probably heard the question, "Can we feed the world organically?"

Now, let's see how much food we can produce on 100 acres if we do something like this...

Again, give each species what they want and let their desires and physiology come to fruition.

put it in play.

But now look at it from the grass perspective.

What happens to the grass when you do this?

When ruminants eat grass, the grass is cut from this height to this height and immediately does something very interesting.

Anyone who gardens knows that there is something called the root-to-bud ratio. For the plant to be satisfied, there must be a rough balance between root mass and leaf mass.

Therefore, if a large amount of leaves is lost, the roots will fall out. They kind of cauterize them and the roots die.

And the seeds (earthworms, fungi, bacteria) in the soil basically chew up those roots and break them down, resulting in new soil.

This is how soil is made.

Created bottom-up.

This is how grasslands were created, the relationship between bison and grass.

And what I realized when I figured this out is if you ask Joel Salatin who he is, he'll tell you he's not a chicken farmer, or a sheep farmer, or a cattle rancher. he is a grass farmer Because grass is really the linchpin seed of such a system. Come to think of it, this completely contradicts the tragic idea of ​​nature we have in our heads. In other words, nature diminishes in order to get what we want.

More is for us, not more for nature.

Here all the food comes from this farm and at the end of the season it actually enriches the soil, increases fertility and increases biodiversity.

That's very hopeful.

Many farmers are doing this now.

This goes far beyond the still Cartesian system of organic farming, more or less.

And it tells us that if you start thinking about other species, about soil, even if there is nothing but this perspective - because there is no technology involved except fences. Fences are very cheap and could quickly spread across Africa – we could get the food we need from the planet and actually heal it in the process.

It's a way of bringing the world to life, and that's what makes this perspective so interesting.

When we really start to feel Darwin's insights in our bones, what we can do with these ideas alone becomes very hopeful.

thank you very much.

Sight is the most important and prioritized sense we have.

We are constantly observing the world around us, and we quickly identify and understand what we are seeing.

Let's start with an example that demonstrates that fact.

Show a picture of a person for 1-2 seconds. I would like you to check what kind of emotion is expressed on the person's face.

Prepare?

please. Follow your intuition.

have understood. what did you see

In fact, over 120 individuals were surveyed, with mixed results.

People didn't agree on what emotion his face showed.

Maybe you felt uncomfortable.

That was the most frequent response we received.

But if you asked the person on the left, they might have said regret or skepticism, and if you asked the person on the right, they might have said hope or empathy or something else entirely.

So we are all staring at the same face again.

Perception is subjective, so you may see something completely different.

What we think we see is actually filtered through our own mind's eye.

Of course, there are many other examples of how we see the world through our mind's eyes.

Here are just a few.

So, for example, people who are on a diet seem to have bigger apples than people who do not count calories.

A softball player who has just gotten out of a slump will see the ball look smaller compared to someone who has had a hot night at bat.

And indeed, our political beliefs can also affect how we view other people, including politicians.

So my research team and I decided to test this question.

In 2008, Barack Obama ran for president for the first time, and a month before the election, we surveyed hundreds of Americans.

What the survey found is that some people, some Americans, think these photos best reflect Obama as he really is.

Of these people, 75% voted for Obama in the actual election.

But some thought these photos best reflected Obama as he really was.

Of those, 89% voted for McCain.

We presented many photos of Obama one at a time, so people didn't realize that what we varied from photo to photo was whether his skin tone was artificially lightened or darkened.

So how is that possible?

Why is it that when I look at people, things, and events, I see things that are very different from what other people see?

There are many reasons, one of which is that we need to understand a little more about how the eye works.

Therefore, vision scientists know that the amount of information we can see at any given point in time, the amount of information we can focus on, is actually relatively small.

What we can see very clearly, clearly, and accurately corresponds to the surface area of ​​the thumb of an outstretched arm.

Everything else around it is blurred, obscuring much of what we see.

But we need to be clear and understand what it is that we are seeing, and it is our minds that can help fill that gap.

As a result, perception becomes a subjective experience that we ultimately see through our own mind's eyes.

As a social psychologist, questions like this fascinate me.

I am fascinated by the times when people don't make eye contact.

Why do some see the glass as literally half full, while others see it as literally half empty?

What makes the world look so different about what a person thinks and feels?

And does it matter?

So, to begin addressing these questions, my research team and I decided to take a deep dive into an issue that is gaining international attention: our health and fitness.

People all over the world struggle with weight control and there are various strategies to help them lose weight.

For example, we set our best goal of exercising after the holidays, but in reality, the vast majority of Americans find their New Year's resolutions broken by Valentine's Day.

We tell ourselves this is the year to get back in shape, and we tell ourselves in a very encouraging way, but that alone is not enough to get us back to our ideal weight.

why?

Of course, there is no simple answer, but I would argue that one reason is that our mind's eye can work against us.

Some people literally think exercise is harder, while others literally think exercise is easier.

So, as a first step in testing these questions, we collected objective measures of individual physical fitness.

We measured their waist circumference and compared it to their hip circumference.

A high waist-to-hip ratio indicates more physical misfit than a low waist-to-hip ratio.

After collecting these measurements, we told participants that they would walk to the finish line carrying extra weight in a sort of race.

But before that, I asked them to estimate the distance to the goal.

I thought that the perception of distance would change depending on the state of the body.

So what did we find?

Well, waist-to-hip ratio predicted distance perception.

In fact, unfit and unfit people felt they had a much longer distance to the goal than healthy people.

People have changed their perception of the environment according to their own body condition.

But so are our hearts.

In fact, our body and mind work together to change the way we see the world around us.

So we suspect that people with strong motivation and strong goals for exercise actually think they are closer to the finish line than those with weaker motivation.

Therefore, we conducted a second study to test whether motivation influences our perceptual experience in this way.

Again, we collected objective measurements of people's fitness, measured their waist circumference and hip circumference, and had them complete some other fitness tests as well.

Based on the feedback we gave them, some participants said they no longer had the desire to exercise.

They had already met their fitness goals and felt like they weren't going to do anything else.

These people were unmotivated.

However, based on our feedback, some people say they are very motivated to exercise.

They had a strong goal of reaching the finish line.

But once again, I asked him to estimate the distance before walking him to the finish line.

How far was the goal line?

And again, similar to previous studies, waist-to-hip ratio was found to predict distance perception.

A weaker person is farther away than a healthy person, and the finish line can be seen farther away.

But importantly, this only happened to those who had no desire to exercise.

On the other hand, people with a high desire to exercise felt that the distance was short.

Even those in the worst shape felt closer, if not slightly closer, to the finish line than those in better shape.

That said, how far the finish line looks can change depending on our bodies, but those who worked on a manageable goal they could reach in the near future and believed they could reach that goal actually found the exercise easier.

So we wondered if there was a strategy we could use and teach people that would change their perception of distance and make exercise feel easier.

So we turned to the visual science literature to figure out what to do, and based on what we read, we came up with a strategy to 'keep your eye on the prize'.

So this is not an inspirational poster slogan.

This is the actual instruction on how to look over your environment.

The people we trained with this strategy were told to focus their attention on the goal line, avoid looking around, imagine a spotlight on the goal, and imagine that everything around the goal is blurry and difficult to see.

I figured this strategy would make the exercise look easier.

This group was compared with the baseline group.

We asked this group to naturally look around their surroundings.

You'll notice the finish line, but you might also notice trash cans on your right and people and streetlights on your left.

We thought that people using this strategy would feel the distance farther.

So what did we find?

Was this strategy successful in changing their perceptual experience when they were made to estimate distances?

yes.

Those who kept their eyes on the prize were 30% more likely to see the finish line than those who naturally looked around.

I thought this was great.

We were really excited because this strategy meant it would help make the exercises look easier, but the big question was whether this would actually help them improve.

Will it also improve the quality of your exercise?

So next, we told the participants that they would be walking to the finish line with extra weight.

Added a weight equal to 15% of their body weight to their ankles.

We told them to raise their knees and walk faster to the goal.

Like most exercises that actually improve fitness, this exercise is specifically designed to be moderately difficult, but not impossible.

That raises a big question. Did keeping your eye on the prize and focusing on the finish line change your practice experience?

It happened.

Those who kept their eyes on the prize later told us that it took 17% less effort to perform this exercise than those who naturally looked around.

It changed their subjective experience of exercise.

It also changed the objective nature of their movement.

In fact, those who kept their eyes on the prize moved 23% faster than those who naturally looked around.

To put this into perspective, a 23% price increase is like trading a 1980 Chevrolet Citation for a 1980 Chevrolet Corvette.

we were so excited about this. This meant that strategies that were inexpensive and easy to use for people, regardless of their body type or whether they were struggling to get there, would make a big difference.

Keeping an eye on the prize made it easier for people to see and feel the exercises, even when they were working harder because they were moving faster.

We know there's more to health than just walking a little faster, but keeping your eye on the rewards might be one additional strategy you can use to promote a healthy lifestyle.

For those of you who are still not convinced that we all see the world through our own mind's eyes, let me leave you with one final example.

Here is a picture of a beautiful street in Stockholm and two cars.

The car behind looks much bigger than the car in front.

But in reality these cars are the same size, but from our point of view they are not.

Does that mean that our eyes are going crazy and our brains are confused?

No, it doesn't mean that at all.

That's how our eyes work.

We may see the world differently and it may not match reality, but that does not mean that one of us is right and the other is wrong.

We all see the world through our mind's eyes, but we can teach ourselves to see it differently.

So I can remember the days that went terribly wrong for me.

I'm fed up, grumpy, tired, very late, and a big black cloud hangs over my head. On days like this, everyone around you seems depressed.

My co-workers look annoyed when I ask for an extension of the deadline, my friends look annoyed when I'm late for lunch because the meeting drags on, and my husband looks disappointed at the end of the day saying I'd rather sleep than go to the movies.

And on days like this, when everyone seems upset and angry at me, I try to remind myself that I can see them in a different light.

Perhaps a colleague was confused, perhaps a friend was concerned, and perhaps a husband was feeling sympathy instead.

Therefore, we all see the world through our own mind's eyes. Some days the world may seem like a dangerous, challenging and insurmountable place, but it doesn't have to look that way all the time.

We can teach ourselves to see the world differently, and we might if we find ways to make the world look more beautiful and easier.

thank you.

(applause)

Now I am an ethnobotanist.

It's a scientist working in the rainforest to document how people use local plants.

I have been doing this work for a long time, and what I want to tell you is that these people know these forests and medicinal treasures better than we do, and will continue to do so.

But also these cultures, indigenous cultures, are disappearing much faster than the forests themselves.

And the Amazon rainforest's greatest and most endangered species is neither the jaguar nor the harpy eagle, but an isolated and uncontacted tribe.

Well, 4 years ago I injured my leg in a climbing accident and went to the doctor.

She gave me heat, she gave me cold, she gave me aspirin, narcotic pain relievers, anti-inflammatories, cortisone injections.

It didn't work.

A few months later, I was in the northeastern part of the Amazon, and when I entered a village, a shaman told me, "You're limping."

And I will never forget this.

He looked me in the face and said, "Take off your shoes and give me the machete."

(Laughter.) He walked up to a palm tree, cut a fern, threw it into the fire, put it on my leg, threw it in a pot of water, and made me a cup of tea.

Pain disappeared in 7 months.

When it came back, I went to see the shaman again.

It's been 3 years since he gave me the same treatment.

Who would you like to treat?

(Applause) Now, don't get me wrong. Western medicine is the most successful healing system ever devised, but it has many holes.

Where is the cure for breast cancer?

Where is the cure for schizophrenia?

Where can I find a cure for reflux esophagitis?

Where can I find a cure for insomnia?

As a matter of fact, sometimes these people can cure us of things we cannot cure, and sometimes they can cure us.

Here you can see a Northeast Amazonian witch doctor treating leishmaniasis, a very nasty protozoan disease that afflicts 12 million people worldwide.

Western treatment is an injection of antimony.

It's painful, expensive, and probably not good for your heart. It's heavy metal.

This man treated his illness with three plants from the Amazon rainforest.

This is a magical frog.

My colleague, the late great Lauren McIntyre, the discoverer of Laguna McIntyre, the headwaters of the Amazon River in the Peruvian Andes, disappeared on the Peruvian-Brazil border some 30 years ago.

He was rescued by an isolated group of Indians called the Matzee.

They beckoned him to follow them into the woods, and he obeyed.

So they took out a basket of palm leaves.

So they took out these green monkey frogs and this is a big sucker and something like this - and they started licking them.

As it turns out, they are highly hallucinogenic.

McIntyre wrote about this, which was read by the editor of High Times magazine.

It turns out that ethnobotanists have friends in all kinds of strange cultures.

This man decided to go to the Amazon and try to spin the water or lick it, and he did just that. “My blood pressure shot through the ceiling, I lost complete control of my body functions, I lost consciousness, woke up in a hammock six hours later, and felt like a god for two days,” he wrote.

(Laughter) The Italian chemist read this and said, "I'm not really interested in the theological aspects of the blue monkey.

What about changes in blood pressure? ”

Now this Italian chemist is working on a new treatment for hypertension based on peptides found in the skin of green monkey frogs, and other scientists are working on treatments for drug-resistant Staphylococcus aureus.

How ironic when these orphaned Indians and their magical frogs prove to be one of the cures.

This is an ayahuasca shaman in the middle of a Yahzi ritual in the northwestern Amazon.

I took him to Los Angeles to meet with Foundation officials looking for funding to preserve the culture.

The man looked at the medicine man and said, "You didn't go to medical school, did you?"

Sherman said, "No, it's not."

"So what do we know about healing?" he said.

Sherman looked at him and said, 'Did you know? If you have an infection, go to the doctor.

But much of human suffering is illness of the heart, mind, and spirit.

Western medicine can't reach that far. i will fix them ”

(Applause.) But learning about new drugs from nature isn't all rosy.

This is a Brazilian copperhead whose venom was being studied here at the University of São Paulo.

It was later developed as an ACE inhibitor.

This is the frontline treatment for high blood pressure.

Hypertension causes more than 10% of all deaths on the planet every day.

It's a $4 billion industry based on Brazilian snake venom, but Brazilians haven't made a dime.

This is not acceptable business practice.

Rainforests are said to be the greatest representation of life on earth.

There is a saying in Suriname that I dearly love. "The rainforest has answers to questions we haven't asked yet."

But as we all know, it is rapidly disappearing.

Here in Brazil, in the Amazon, around the world.

I took this photo from a small plane flying over the eastern boundary of the Xingu Indigenous Reserve in Mato Grosso, northwest here.

In the top half of the photo you can see where the Indians live.

The line through the center is the eastern boundary of the reserve.

Indian upper body, white lower body.

The top half is a silver bullet, the bottom half is just a herd of lean cows.

The top half of the carbon is sequestered in forests and the bottom half of the carbon resides in the atmosphere causing climate change.

In fact, deforestation is the second source of carbon released into the atmosphere.

But when talking about destruction, it's important to keep in mind that the Amazon is the most powerful of all landscapes.

It's a place of beauty and wonder.

The world's largest anteater lives in the rainforest and weighs 90 pounds.

The Goliath bird-eating spider is the largest spider in the world.

You can also find it on Amazon.

A Harpy Eagle's wingspan is over 7 feet.

and Black Cayman. These monsters can weigh more than half a ton.

They are known to be cannibals.

Anaconda, the largest snake, capybara, the largest rodent.

A specimen from here in Brazil weighed 201 pounds when you tip the scales.

Visit the northeastern Amazon, home of the Acriyo tribe, where these creatures live.

Uncontacted people play a mysterious and symbolic role in our imagination.

They are the people who know nature best.

They are truly people who live in perfect harmony with nature.

Some would dismiss these people as primitive by our standards.

"They don't know how to start a fire, or they didn't know when they were first contacted."

But they know much more about the forest than we do.

The Acriyos have 35 words for honey, and other Indians look up to them as the true rulers of the emerald world.

Here you can see the face of my friend Poney.

When I was a Rolling Stones-obsessed teenager in my hometown of New Orleans, Pounay was a woodland nomad who roamed the jungles of the northeastern Amazon in small bands and joined other small nomadic bands in search of game, medicinal plants, and wives.

But it is these people who know what we do not know, and they teach us many lessons.

However, in most of the Amazon forest, indigenous peoples are non-existent.

This is a rock carving used by the indigenous tribes to sharpen the blades of their stone axes.

These cultures, who once danced, made love, sang to the gods, and worshiped the forest, remain only traces carved in stone, as seen here.

Let's move on to the western Amazon, the epicenter of the isolated people.

Each of these dots represents a small, uncontacted tribe, and the big reveal today is that there are thought to be 14-15 isolated groups in the Colombian Amazon alone.

Why are these people isolated?

They know we exist, they know there is an outside world.

This is a form of resistance.

They have chosen to remain isolated, and I believe it is their human right to continue to do so.

Why are these tribes hiding from humans?

Here's why.

Apparently part of this was started in 1492.

At the turn of the last century, however, the rubber trade flourished.

Demand for natural rubber from the Amazon has caused the botanical equivalent of the Gold Rush.

Rubber for bicycle tires, rubber for automobile tires, rubber for Zeppelin airships.

It was a fierce competition to get that rubber. The man on the left, Julio Arana, is one of the true thugs in this story.

His men, his company, and others like them killed, slaughtered, tortured, and slaughtered Indians like the Witotos seen on the right side of the slide.

Even today, stories rarely have a happy ending when people emerge from the forest.

These are nukaku. They made contact in the 80's.

Within a year everyone over the age of 40 died.

And remember, this is an illiterate society.

Elders are libraries.

Every time a shaman dies, it's as if the library burned down.

They were driven from their land.

Drug traffickers have occupied Nukak land, and Nukak live as beggars in parks in eastern Colombia.

Southwest from the land of Nukak, we will guide you to one of the most spectacular landscapes in the world, Chiribiquete National Park.

Once surrounded by three isolated tribes, it is now expanded thanks to the Colombian government and Colombian collaborators.

Bigger than Maryland.

It is a treasure trove of plant diversity.

The plant was first botanically studied in 1943 by my mentor, Richard Schultz, and was found atop Bell Mountain, a sacred mountain in the Caryonas Mountains.

And let me show you what it looks like today.

As you fly over Chiribiquete, you realize that the mountains of the lost world are still missing.

None of them are top scientists.

In fact, no one has climbed to the top of Mount Bell since Schultes in 1943.

And it ends here with Mount Bell, just east of the picture.

Let me show you how it looks today.

Not only is it a treasure trove of botanical diversity, it's home to three isolated tribes, but it's also the world's largest treasure trove of pre-Columbian art, with over 200,000 paintings.

Dutch scientist Thomas van der Hammen described this as the Sistine Chapel of the Amazon rainforest.

However, from Chiribuquete it moves southeast and again enters the Colombian Amazon.

Remember that the Colombian Amazon is bigger than New England.

The Amazon is a large forest, and Brazil is also a large part of it, but not all of it.

If you go to two national parks, Kahuinari National Park and Purée National Park on the Amazon River in Colombia (to the right, on the Brazilian border), there are several groups of isolated and uncontacted people living there.

To the trained eye, these marokas and longhouse roofs reveal cultural diversity.

In fact, these are different tribes.

These regions are isolated, but let us show you how the outside world is invading.

Here we see trade and transport increasing in Putumayo.

As the Colombian civil war subsides, the outside world is emerging.

In the north there is illegal gold mining, and in the east there is gold mining from Brazil.

Commercial hunting and fishing are on the rise.

Illegal logging is coming from the south and we see drug traffickers trying to enter Brazil through the park.

This is why you haven't touched the lone Indians so far.

If this photo looks out of focus because it was taken in a hurry, explain why.

(Laughter) This looks like — (Applause) This looks like an Amazon hangar in Brazil.

This is an art exhibition held in Havana, Cuba.

The group Los Carpinteros.

This is their perception of why uncontacted Indians should not be touched.

But the world is changing.

These are the Mashco Piro people who live on the border of Brazil and Peru, stumbling out of the jungle after being driven out by drug traffickers and lumbermen.

And Peru has a very messy business.

It's called Human Safari.

They take you to a segregated group to take pictures.

Of course, when you give clothes or tools, you also give sickness.

We call these "Inhuman Safaris".

These are the Indians at the Peruvian border again, flooded with missionary-sponsored planes.

They are trying to get in there and convert them to Christians.

we know how it goes.

what should i do?

Introduce technology to contacted tribes rather than uncontacted tribes in a culturally sensitive manner.

It's the perfect blend of ancient shamanic wisdom and 21st century technology.

We've done this in partnership with over 30 tribes to map, manage, and better protect over 70 million acres of ancestral rainforest.

(Applause.) This will allow Indians to control the fate of their environment and culture.

A security post was also set up to prevent outsiders from entering.

They are Indians trained as indigenous park rangers who patrol the border and keep the outside world at bay.

This is a picture of the actual contact.

These are the Chitonawa Indians who live on the border of Brazil and Peru.

They came from the jungle for help.

They were shot and their marokas and tenements burned.

Some of them were slaughtered.

The use of automatic weapons to slaughter uncontacted people is the most despicable and abhorrent human rights abuse on the planet today and must stop.

(Applause.) But let me say this in the end. The job is mentally challenging, but it can also be difficult and dangerous.

Two of my colleagues recently died in a small plane crash.

They served the forest to protect uncontacted tribes.

So, in conclusion, the question is what the future holds.

These are the Urai tribes of Brazil.

What kind of future awaits them? And what kind of future awaits us?

Think differently.

Let's create a better world.

If the climate is changing, let's change it for the better, not for the worse.

Let us live on an earth where vegetation grows abundantly, where isolated people can remain isolated, and where they can preserve their mysteries and knowledge if they wish.

Live in a world where shamans live in forests and heal themselves and us with mystical plants and sacred frogs.

thanks again.

(applause)

I would like to begin with the story of Mary, an African village woman.

Her first memory is of her family fleeing a violent riot orchestrated by the ruling party.

Her brother was murdered by state-backed militias and raped multiple times simply because he belonged to the wrong party.

One morning, a month before the election, Mary's village was once again called to a threatening rally.

At this meeting, one man stood before them and said, "We know who you are, we know who you're voting for, and if you're not going to drop the right paper, we're going to get revenge."

But for Mary, this encounter is different.

She feels different.

This time, she carries a small hidden camera in her dress, a camera that no one else can see, so she is waiting for this encounter.

No one is allowed to film these meetings.

Doing so puts your life in danger.

Mary knows that, but she also knows that the only way to stop them and protect herself and her community is to expose their threats, make them understand that someone is after them, and break through the impunity they feel.

For months, Mary and her friends secretly filmed the ruling party's threats.

(Video) ["Captured by Hidden Camera"] Man: I'm going to talk about the upcoming election.

Nothing prevents us from doing what we want.

If we hear that you are with the [opposition], we will not forgive you.

[“Militia Intimidation Rally”] [Party] can torture you at any time.

Youth can beat you.

["obstruction of a political meeting"] Those who lie that they are back in the [party], they are running out of time.

[“Party Youth Militia”] Some lost their lives in the rebellion.

Some have lost their homes.

If you don't cooperate with [the party], you will live a very bad life.

Oren Jakobovich: These images were broadcast around the world, but more importantly they were broadcast back to the community.

The perpetrators also witnessed them.

They realized someone was chasing them.

they got scared. Immunity has been broken.

Mary and friends saved hundreds of lives by forcing the ruling party to refrain from violence during elections.

Mary is just one of the hundreds of people who have helped my organization document human rights abuses on camera.

My background should have taken me in a different direction.

I was born in Israel into a right-wing family. For as long as I can remember myself, I have wanted to join the Israeli army to serve my country and prove what I believe to be our right to the whole land.

He enlisted in the Israeli army shortly after the First Intifada, the first Palestinian uprising, and was in the stalwart, toughest and most aggressive infantry unit with the biggest guns in his platoon.

Pretty early on, I was an officer, had soldiers in command, and as time went on, I started serving in the West Bank and saw these footage.

I didn't like what I saw.

It took a while, but in the end he refused service in the West Bank and had to serve time in prison.

It was kind of — (applause) — I have to say, it wasn't that bad.

It felt like we were in a hotel, but the food was very bad.

(Laughter) In prison, I kept thinking that I needed to let people know.

People need to understand what the West Bank reality is like.

I need them to hear what I hear and see what I see. But at the same time, I also understood that we need to let the Palestinians themselves, the suffering people, tell their stories, not the journalists and filmmakers who step out of the situation.

I joined an Israeli human rights organization called B'Tselem.

Together, we analyzed the West Bank and extracted 100 families living in the most dangerous locations: near checkpoints, near army bases, and alongside settlers.

We provided them with cameras and training.

Pretty quickly, we started receiving very disturbing images of how colonists and soldiers were mistreated them.

I would like to share two clips from this project.

Both were broadcast in Israel and caused a great deal of controversy.

I must warn you, some may find this very blatant.

The masked men in the first clip are Jewish settlers.

Minutes before the cameras turned on, they approached a Palestinian family who had been farming their land and told them that the land belonged to Jewish settlers and that they had to leave.

Palestinians refused.

Let's see what happened.

The approaching masked men are Jewish settlers.

They are close to Palestinian families.

This is a demonstration in the West Bank.

People in green are Palestinians.

He will be arrested soon.

Here we see him blindfolded and handcuffed.

After a few seconds, he regretted coming to the demo.

He was shot in the leg with a rubber bullet.

he's fine

Not all colonists and soldiers act this way.

We are talking about very few people, but they must be judged.

These and other similar clips prompted the military and police to open an investigation.

Of course, they were also screened in Israel, and the Israeli public was exposed to them as well.

This project has redefined human rights struggles in the occupied territories and we have successfully reduced the number of violent attacks in the West Bank.

The success of this project got me thinking about how the same methodology could be brought to other parts of the world.

Now, we tend to believe that today, thanks to all the technology, smartphones and the internet, we can see and understand most of what is happening in the world and that people can tell their own stories, but that is only partially true.

Even today, despite all the technology we have, less than half of the world's population has access to the internet, and more than three billion people—again, three billion people—consume news censored by those in power.

Around the same time, I was approached by a wonderful man named Uli Furchtmann.

He is also a filmmaker and activist.

We realized that we were thinking along the same lines and decided to start our organization, Videre, together.

While setting up our organization in London, we have been infiltrating where communities have suffered abuse, where mass atrocities are occurring and where reporting is under-reported.

We tried to understand how we could help.

I learned four things.

First of all, we have to work with communities living in rural areas where violations occur far from the public eye.

We need to partner with them and help them understand and document which images are not out there.

The second thing I learned is that they need to be able to shoot in a safe way.

Security should be your first priority.

Where I used to work in the West Bank, you can take out a camera, but you probably won't get shot, but where we wanted to work, if you just try to take out your phone, you're dead, literally dead.

For this reason, we decided to carry out operations covertly when necessary, mainly using hidden cameras.

Unfortunately, I can't show you the hidden camera that I use today. For obvious reasons, these are the cameras I've used before.

You can buy it from the shelf.

Now we're building a bespoke hidden camera like the one Mary wore in her dress to film the ruling party's intimidation meeting.

An invisible camera that blends into the environment and surroundings.

Stock photography now goes beyond the use of hidden cameras.

Safety begins long before activists turn on their cameras.

To keep our partners safe, we strive to understand the risks of every location and every shot before they happen, build a backup plan in case something goes wrong, and make sure everything is in place before we start working.

The third is the importance of verification.

You can get great shots of atrocities, but they're worth nothing if you can't verify them.

Recently, we have seen footage choreographed or imported from other conflicts, like the ongoing Syrian and Gaza wars.

This misinformation destroyed the credibility of the source and undermined the credibility of other credible sources.

We use a variety of methods to verify information and ensure that the material is reliable.

It starts with scrutinizing your partner, understanding who they are, and working very intensively together.

How do you shoot on location?

Photograph street signs, watches, and newspapers.

We're looking at maps, looking at maps, double-checking information, and looking at material metadata as well.

Now, the fourth and most important thing I learned is how to use images to create positive change.

How the material is used is important for its effectiveness.

We are currently working with hundreds of activists on undercover photography.

We work with them to understand the situation on the ground, what images are missing to explain it, who is influencing the situation, and when to release material to advance the struggle.

In some cases, we also post it mainly in local media to raise awareness.

We also work with decision makers to change laws.

In some cases, we also work with attorneys to use as evidence in court.

But often the most effective way to bring about social change is by working within the community.

I would like to give an example.

Fatuma is part of a network of women fighting abuse in Kenya.

Women in her community are constantly harassed while on their way to school or to work.

They are trying to change community behavior from within.

In the next clip Fatuma takes us on a journey to work.

Her voice is overlaid on footage she captures with a hidden camera.

(Video) Fatma Chiusik: My name is Fatma Chiusik.

I am 32 years old, a mother, and Jiwa La Ngombe is my home.

I take the number 11 minibus every morning.

But instead of an uneventful commute, every day begins with fear.

Come with me and feel what I feel with my eyes.

As I walk, I wonder if I will be moved.

got it?

Were you raped by this conductor again?

The men inside are also staring at me, touching, rubbing, and grabbing my body. And now, as I sit in my seat, I wish my head was full of today, my dreams, and the kids at school, but instead I'm afraid when it'll arrive and I'll be fucked again.

OY: Today there is a new dimension in the fight for human rights.

I used to have big guns.

I carry this with me now.

This is a much more powerful and much more effective weapon.

But we must use that power wisely.

Putting the right image in the right hand at the right time can create real impact.

thank you.

(Applause.) Thank you.

(applause)

So tonight, at TED, the intellectual oasis, I'm standing before you as an expert in dragging heavy objects around in the cold.

I've been leading polar expeditions for most of my adult life, and last month I completed the most ambitious expedition I've ever attempted with teammate Tarka Elpiniere.

In fact, I feel like I've been brought straight to the TED stage from four months in the middle of nowhere, mostly moaning and swearing.

So you can imagine that this is a transition that is not completely seamless.

One interesting side effect seems to be a complete loss of my short-term memory.

So I had to write some notes to avoid complaining or swearing too much in the next 17 minutes.

This was the first talk I gave about this expedition, and while we weren't sequencing the genome or building a space telescope, the story is that we gave everything we had to accomplish something that hadn't been done before.

So I hope you can find the material you consider.

It was a journey, an expedition, to Antarctica, the coldest, windiest, driest and highest continent on earth.

It's a charming place. It's a very big place.

It's a continent twice the size of Australia and the size of China and India combined.

As an aside, I have experienced an interesting phenomenon in the last few days. This is what Chris Hadfield might have at TED in a few years, a conversation that goes something like this: "Oh, Antarctica. Great."

My husband and I traveled to Antarctica with Lindblad for our wedding anniversary. ”

Or, "Wow, did you go to the marathon?"

(Laughter.) In fact, our journey consisted of running 69 marathons in a row in 105 days, walking 1,800 miles round trip from the coast of Antarctica to the South Pole and back.

In the process, we broke the record for the longest human-powered polar trip ever, over 400 miles.

(Applause.) For someone from the Bay Area, it was like walking from here to San Francisco, turning around, and walking back again.

The camping trip was long, but I've seen it summarized most concisely on Business Insider Malaysia's sacred page.

["Two explorers have just completed a polar expedition in which they all died the last time they were attempted."] Chris Hadfield has been very eloquent about fear and the odds of success and indeed survival.

Of the nine people who have attempted this journey before us in history, none have made it to the North Pole, and five have died en route.

Captain Robert Falcon Scott.

He led the last team to attempt this expedition.

Scott and his rival, Sir Ernest Shackleton, led expeditions for over a decade, reached the South Pole before anyone else, mapped the interior of Antarctica, and fought to map it. At the time, we could see the moon through telescopes, so it was a place we didn't know as well as the surface of the moon.

Antarctica was largely unmapped a century ago.

Some of you may know the story.

Scott's final expedition, the 1910 Terra Nova expedition, began as a giant siege-style approach.

He assembled a large team of ponies, dogs, and petrol-powered tractors to drop multiple pre-positioned food and fuel reservoirs through which Scott's final five-man team traveled to the pole, where they turned back and skied back to the coast on foot.

Scott and the final five-man team reached the South Pole in January 1912, but were defeated by a Norwegian team led by Roald Amundsen on dog sleds.

Scott's team ended up arriving on foot.

And for more than a century, the journey remains unfinished.

Scott's team of five died on the way home.

And for the last ten years, I've asked myself why.

Why is this still the highest standard?

Scott's team traveled 1,600 miles on foot.

Since then, no one has come close to it.

So this is the high water mark for human endurance, human effort, and human athletic performance in perhaps the harshest climate on earth.

It was as if the marathon record had not been broken since 1912.

And of course, a strange and predictable mix of curiosity, stubbornness, and perhaps arrogance led me to think that I might be the guy to get the job done.

Unlike Scott's expedition, there were just the two of us, and we set off off the Antarctic coast last October, dragging everything ourselves, a process Scott called "man-carrying."

When I say it's like walking back from here to San Francisco, what I really mean is like dragging an order of magnitude heavier than the heaviest NFL player ever.

Our sled initially weighed 200 kilos, or 440 pounds. This was the same weight that Scott's weakest pony would pull.

In the early days it averaged 0.5 mph.

Perhaps the reason no one has ever attempted this journey for over a century is that no one was foolish enough to attempt it.

And while I can't claim that we were exploring in a true Edwardian sense, and while we weren't naming mountains or mapping unmapped valleys, I think in a human sense we were stepping into uncharted territory.

Indeed, it wouldn't surprise me at all to find out in the future that there is an area in the human brain that lights up when you curse yourself.

You've probably heard that the average American spends 90% of their time indoors.

We didn't go indoors for nearly four months.

I didn't even see the sunset.

It was daylight 24 hours a day.

Living conditions were very modest.

Three underwear changes in 105 days, Tarka and I shared 30 square feet on canvas.

But we had some technology that Scott couldn't have imagined.

And we blogged live nightly from our tents via laptops and custom-built satellite transmitters. They were all solar powered and had flexible solar panels on top of the tents.

And that sentence was important to me.

As a child, I was inspired by adventure and exploration literature. And I think everyone here this week has seen the importance and power of storytelling.

So we had some 21st century gear, but the reality was that the challenges Scott faced were the same as we did. The weather and what Scott calls gliding, the amount of friction between the sled and the snow.

The lowest wind chill we experienced was in the -70s range, and visibility was zero for most of the trip, a so-called whiteout condition.

We climbed up and down Beardmore Glacier, one of the largest and most dangerous glaciers in the world.

It is 110 miles long. Most of its surface is what is called blue ice.

A beautiful, shimmering, steely blue surface covered with thousands of crevasses. These crevasses are deep fissures in the glacier ice up to 200 feet deep.

We were in the most danger when technically we were least likely to be rescued, because planes can't land here.

After 61 days of walking, with a day off due to bad weather, we arrived at the South Pole, which unfortunately was kind of a climax.

Antarctica is home to a permanent American base, the Amundsen-Scott Antarctic Station.

There is also a runway, dining room, hot showers, a post office, tourist shops, and a basketball court that doubles as a movie theater.

So things are a little different these days, with acres and acres of trash lying around.

I think it's great that people can exist 365 days a year, with hamburgers, hot showers, and movie theaters, but there still seems to be a lot of empty cardboard boxes.

On the left side of this photo you can see several acres of garbage waiting to be flown from Antarctica.

But the South Pole also has a pole, and we have dragged the heaviest weight of anyone in history to reach the most difficult route of 900 miles in record time on foot, with no help or support.

If we had stopped there and had flown home, which would have been a very wise move, then my story would have ended here, and it would have ended like this.

With the right team around you, the right tools, the right technology, enough confidence and enough determination, anything is possible.

But then it changed direction. Now here's where things get interesting.

Over 10,000 feet above the Antarctic Plateau, it was windy, very cold, very dry, and we were exhausted.

We had run 35 marathons and were only halfway there. Of course, there were safety nets like ski planes, satellite phones, and 24-hour tracking beacons, but they weren't there for Scott, but in retrospect, rather than making our lives easier, safety nets actually sliced ​​things up and allowed us to navigate very close to our absolute limits as humans.

And dragging a sled full of food, exhausting you day after day until you almost starved to death, is exquisite torture.

For years, I've written lip lines in sponsorship proposals about pushing the limits of human endurance, but in reality it's been a very scary place.

Two weeks of near-permanent headwinds slowed it down before reaching the poles.

As a result, we ended up eating half food for several days.

I had a limited amount of food on my sled for this trip, so I was trying to manage my food intake by reducing my intake to half the calories I should be eating.

As a result, we both became more and more hypoglycemic, with lower blood sugar levels each day and more and more sensitivity to extreme cold.

Tarka took a picture of me one night after I nearly passed out from hypothermia.

We both had repeated bouts of hypothermia, which was something I had never experienced before and was truly humbling.

Like me, you may want to think you're the one who can't quit, the one who's going to fall apart, but hypothermia leaves you with few options.

You will be completely helpless.

Like a drunken toddler.

I feel pathetic.

I remember just wanting to lay down and quit.

It was a strange, strange feeling, and it was really surprising for me to be so debilitating.

Then, 76 miles short of the first depot we set up on the outbound trip, we ran out of food.

We loaded 10 locations with food for our return trip, literally burying food and fuel. The fuel was for a rice cooker that could melt snow to get water. And I had to make the decision to call a supply flight, a ski plane with eight days' worth of food, to overcome the shortage.

They took 12 hours to reach us from the other side of Antarctica.

Calling that plane was one of the hardest decisions of my life.

And standing here pissed off now sounds like a bit of an imposter.

I've lost 30 pounds in the last 3 weeks.

I was so hungry that it left an interesting mental scar. That is, I ate as much of the hotel buffet as I could find.

(laughter) But we were really hungry and I mean pretty bad.

I have never regretted calling that plane. Because I am still standing here alive and telling this story with every finger intact.

But getting that kind of outside help was not in the plan and is something my ego still struggles with.

This was the biggest dream I've ever had and it was almost perfect.

On the way back to shore, my crampons (like spikes on the boots I wear to navigate over the blue ice of glaciers) broke at the top of Beardmore.

We still have 160 miles left to go downhill over very slippery, rock-hard blue ice.

It needed repair almost every hour.

To give you an idea of ​​the scale, this is looking down on the mouth of Beardmore Glacier.

You can fit all of Manhattan in the gap in the horizon.

There are 32 miles between Mount Hope and Mount Kiffin.

I have never felt so small as I was in Antarctica.

As we descended to the mouth of the glacier, we noticed that the fresh snow was hiding dozens of deep crevasses.

One of Shackleton's men said that traversing this type of terrain was like walking on the glass roof of a train station.

I've fallen more times than I can remember, mostly just shoving my skis or boots into the snow.

Sometimes it went up to my armpit, but thankfully it never went any deeper.

And less than five weeks later, after 105 days, we crossed this strangely ominous finish line, the coast of Ross Island on the New Zealand side of Antarctica.

You can see ice in the foreground and rubble-like rocks behind it.

Behind us stretched nearly 1,800 miles of uninterrupted ski trails.

We have achieved the longest polar foot trip in history, a dream of 10 years.

Looking back, I still stand by what I've been saying over the years about the importance of goals, determination, and self-confidence, but I also admit that I didn't give much thought to what would happen when I achieved the kind of all-consuming goal I've devoted most of my adult life to. And the reality is that we are still figuring it out.

As I said earlier, there are very few superficial signs that I am away.

I've lost 30 pounds.

I still have some frostbite marks, but they're probably covered with makeup now.

One on his nose, one on each cheek, where the goggles are, but inside he's a completely different person.

To be honest, Antarctica challenged me and humbled me so deeply that I don't know if I can put it into words.

I'm still having trouble collecting my thoughts.

That I am standing here telling this story is proof that through ambition, through passion, through sheer stubbornness, and by not giving up, everyone can achieve great things, and as Sting said, if you dream it enough, it will come true.

But I also stand here saying the cliche that the journey is more important than the destination.

There is something there.

The closer I got to the finish line on that rubble, rocky coast of Ross Island, the more I began to realize that the biggest lesson this long, hard walk might have taught me was that happiness is not the goal, and that for us humans, the perfection that so many seem to dream of may never really be achieved, and that in a journey through the confusion and effort of open-loop, half-finishing, we must feel satisfied here, today, and now. We may never feel it if we are thinking about our to-do list or how we could do better next time.

Many people asked me, "What next?"

Now that I have recovered, I am very happy just to be in front of the hotel buffet.

But as Bob Hope said, I feel very humbled, but I think I have the strength of character to fight it. (laughs) Thank you.

2014 is a very special year for me. I've been a consultant for 20 years, been married for 20 years, and will be 50 in a month.

So I was born in 1964 in a small town in Germany.

It was a gray November day and I was late.

With so many babies born on a gray November day, the hospital maternity ward was really stressful.

In fact, 1964 was the year Germany had the highest birth rate ever, with over 1.3 million.

Last year we just passed 600,000, so that's half my number.

Here you can see the German age pyramid. And that little black dot at the top is me.

(Laughter) (Applause) The red part is the potential working-age population, people over 15 and under 65, but I'm really only interested in this red part.

Now let's do a quick simulation of how this age structure will develop over the next few years.

As you can see, the peak has moved to the right and I, like many other baby boomers, will retire in 2030.

By the way, you don't need fertility predictions to predict this red area.

The red area, or potential working-age population in 2030, is now already established, except for much higher migration rates.

And if you compare this red area in 2030 with the red area in 2014, it will be much smaller.

So what does this mean for Germany before we discuss the rest of the world?

What this situation shows us is that in Germany the labor supply, the people who provide labor, will decrease and decrease significantly.

What about labor demand?

That's where the difficulty lies.

As you may know, consultants' favorite answer to any question is "it depends".

So I would say it depends.

We didn't want to predict the future.

Very speculative.

we did another.

We looked at Germany's GDP and productivity growth over the last 20 years and calculated the following scenarios: If Germany wants to continue this GDP and productivity growth, we can directly calculate the number of people Germany needs to support this growth.

And this is the green line, labor demand.

Germany will therefore soon face a serious shortage of manpower.

Eight million people are still missing, or more than 20 percent of the current workforce, which is a huge number.

And I calculated several scenarios, but the picture was always like this.

Now, to close the gap, Germany needs to immigrate significantly, bring more women into the workforce, raise the retirement age (which it just lowered this year, by the way), and do all of this at once.

If Germany fails here, Germany will stagnate.

we don't grow anymore why?

Because there are no workers out there who can produce this growth.

And companies will look elsewhere for talent.

But where?

Here we simulated the labor supply and labor demand of the world's 15 largest economies, accounting for over 70% of the world's GDP. Here's what the big picture looks like by 2020:

Blue indicates a labor surplus, red indicates a labor shortage, and gray indicates bordering countries.

This means that while some countries, such as Italy, France and the United States, still have labor surpluses by 2020, this situation will change dramatically by 2030.

By 2030, most of the largest economies, including three of the four BRICs, will face a global labor force crisis.

Brazil and Russia will also be hit, as well as China, which used to have a one-child policy.

Now, to tell the truth, the reality is going to be even tougher.

Here are the average numbers.

We de-averaged them and categorized them into different skill levels. We found that there was an even greater shortage among high-skilled employees and a partial surplus among low-skilled employees.

Therefore, in addition to the overall labor shortage, we will face a large skills mismatch in the future. This represents a major challenge for governments and businesses in terms of education, qualifications and upskilling.

Well, next we looked at robots, automation, and technology.

Will technology change this and improve productivity?

Simply put, our numbers already include significant productivity gains from technology.

The long answer goes like this:

Let's take Germany again.

Germans have a certain reputation worldwide for productivity.

In the 1990s, I worked in an office in Boston for about two years, and when I was about to retire, an old senior partner literally said to me, "Send me more of these Germans, they work like machines."

(Laughter) That was in 1998.

Sixteen years later, I would probably say the opposite.

"Send me more of these machines. They work like the Germans."

(Laughter) (Applause) Technology will replace many jobs, ordinary jobs.

Not only the production industry, but even office workers are at risk and may be replaced by robots, artificial intelligence, big data and automation.

The key question, therefore, is not whether technology will replace some of these jobs, but when, how quickly, and to what extent.

Or in other words, can technology help solve this global workforce crisis?

yes and no.

This is a more sophisticated version of "depending on the situation".

(Laughter) Take the automotive industry for example. In the automotive industry, more than 40 percent of industrial robots are already in operation, and automation is already taking place.

In 1980, less than 10% of automobile production costs were due to electronic components.

This number is now over 30 percent and is expected to exceed 50 percent by 2030.

And these new electronic components and applications require new skills, creating many new jobs, such as cognitive system engineers who optimize interactions between drivers and electronic systems.

Back in 1980, no one could have imagined that such a job existed.

In fact, despite robots and automation, the total number of people involved in car production has changed little in recent decades.

So what does this mean?

Sure, technology will replace many jobs, but it will also create many new jobs and new skills. In other words, technology exacerbates the overall skills mismatch.

And this kind of de-averaging reveals significant challenges for governments and businesses.

So people, highly skilled people and talent will be important in the next decade.

If they are scarce resources, we need to understand them more deeply.

Are they actually willing to work abroad?

What are their job preferences?

To find out, this year we conducted a global survey of more than 200,000 job seekers in 189 countries.

We asked about mobility because immigration is certainly one of the key means of bridging the gap, at least in the short term.

Over 60 percent of these 200,000 job seekers are willing to work abroad.

To me, that's a surprisingly high number.

The numbers are even higher when looking at employees aged 21-30.

Breaking this number down by country, the world is certainly mobile, but that's only part of it.

The least mobile countries are Russia, Germany and the United States.

So where do these people want to go?

Australia came in seventh, with 28% of respondents saying they were considering moving there.

France, Switzerland, Germany, Canada, the United Kingdom, and the world's top choice is the United States.

So what are the job preferences of these 200,000 people?

So what are they looking for?

Salary is only eighth on a list of 26 items.

The top four topics are all about culture.

Fourth, I have a good relationship with my boss. Third, enjoy a good work-life balance. Second, build great relationships with your colleagues. And the number one priority in the world is for your work to be recognized.

So, can we get a thank you?

Not just once a year for bonus payments, but every day.

And now our global workforce crisis has become very personal.

People want recognition.

We all want recognition for our work, don't we?

Now let's connect the dots.

We will face a global labor force crisis consisting of a huge skills mismatch, and even a huge cultural challenge, on top of an overall labor shortage.

And this global workforce crisis is approaching very quickly.

We are now at a tipping point.

So what can we, governments and businesses do?

Every company, not just any country, needs a talent strategy and must act on it immediately. Such a talent strategy consists of four parts.

The first is planning how to forecast supply and demand for different jobs and different skills.

Workforce planning will become more important than financial planning.

The second is a plan on how to attract top talent, including Gen Y, women as well as retirees.

The third is planning how to train and upskill your employees.

We have a big task ahead of us: upskilling.

And fourth, how to retain top talent, or in other words, how to create a culture of appreciation and relationships.

But one of the fundamental key factors is changing our attitudes.

An employee is a resource, an asset, not a cost, not a number, not a machine, not even a German.

thank you.

(applause)

Ten years ago, one phone call changed my life.

At the time, I was a cardiologist at UCLA, specializing in cardiac imaging technology.

The call was from a veterinarian at the Los Angeles Zoo.

An elderly female chimpanzee woke up with a drooping face and veterinarians worried she might be having a stroke.

They asked if we could come to the zoo and image the animal's heart to look for possible heart causes.

To be clear, North American zoos are staffed with highly qualified and board certified veterinarians who are meticulous in the care of their animal patients.

But occasionally they reach out to the human medical community, especially for specialized consultations, and I was one of the lucky doctors invited to help.

I have had the opportunity to rule out stroke in this chimpanzee, confirm that this gorilla has no aortic rupture, assess heart murmurs in this macaw, and confirm that the pericardium is not inflamed in this California sea lion. And in this photo, I listen to the lion's heartbeat after working with veterinarians and physicians to perform life-saving procedures and extract 700cc of fluid from the lion's heart sac. .

And this procedure, which I have done on many human patients, was exactly the same except for the legs and tail.

Most of the time now, I work with doctors at the UCLA Medical Center, discussing symptoms, diagnosis, and treatment with human patients, and occasionally with veterinarians at the Los Angeles Zoo, discussing symptoms, diagnosis, and treatment with animal patients.

And sometimes, on the same day, I went to rounds at UCLA Medical Center and the Los Angeles Zoo.

And this is what started to become a very clear focus for me.

Physicians and veterinarians were essentially treating the same diseases in animal and human patients: congestive heart failure, brain tumors, leukemia, diabetes, arthritis, ALS, breast cancer, and even psychiatric syndromes such as depression, anxiety, compulsions, eating disorders, and self-harm.

Well, I have a confession to make.

I studied comparative physiology and evolutionary biology during my undergraduate years, and while I was writing my senior thesis on Darwinian theory, it was a much-needed alarm bell for me, even though I had learned that there was a significant overlap between animal and human disorders.

So, given all these overlaps, I began to wonder why I hadn't even considered asking veterinarians for insights on human patients, or consulting the veterinary literature.

Why have I, and none of my friends and colleagues I asked, ever attended a veterinary conference?

Furthermore, why was this surprising?

In other words, every doctor agrees that there is some sort of biological connection between animals and humans.

All the medicines we prescribe, the medicines we take ourselves, and the medicines we give to our families are first tested on animals.

But giving animals drugs or human diseases is very different from letting them develop congestive heart failure, diabetes, or breast cancer on their own.

Now, perhaps part of the surprise comes from the increasing separation between urban and non-urban areas in our world.

You know, we hear stories of city kids who think that wool grows on trees, or that cheese comes from plants.

Well, today's human hospitals are increasingly turning into this shining cathedral of technology.

And this creates a psychological distance between the human patients being treated there and the animal patients living in the ocean, farms and jungles.

But I think there is a deeper reason.

Doctors and scientists, we intelligently accept that our species, Homo sapiens, is just one species, not as unique or special as any other.

But we don't fully believe it in our hearts.

I feel it myself when I'm listening to Mozart or looking at pictures of the Mars rover on my MacBook.

I feel the pull of human exceptionalism, while recognizing the cost of scientific isolation by seeing ourselves as a superior species.

Well, I'm doing my best these days.

Now, when I see human patients, I always ask, what do veterinarians know about this issue that I don't know about?

And if I saw my human patient as a human animal patient, would I care better?

Here are some examples of the inspiring connections that this kind of thinking has made for me.

Fear-induced heart failure.

Around the year 2000, human cardiologists "discovered" heart failure caused by emotion.

It was depicted as a father who lost his savings in gambling to the roll of the dice, and a bride who was left at the altar.

However, it turns out that this "new" human diagnosis was neither new nor unique to humans.

Since the 1970s, veterinarians have been diagnosing, treating and even preventing emotion-triggered conditions in animals ranging from monkeys to flamingos, deer to rabbits.

How many lives could have been saved if this veterinary knowledge was in the hands of paramedics and cardiologists?

hurt yourself.

Some human patients harm themselves.

Some people pull out their hair, while others actually cut it themselves.

Some animal patients harm themselves.

Some birds pluck their wings.

Some stallions bite the flanks repeatedly until they bleed.

However, veterinarians have very specific and highly effective methods for treating and even preventing self-mutilation in self-mutilating animals.

Shouldn't this veterinary knowledge be left in the hands of psychotherapists and parents and patients who suffer from self-harm?

Postpartum depression and postpartum psychosis.

Some women become depressed soon after giving birth, while others become severely depressed and psychotic.

They neglect newborn babies and, in extreme cases, end up harming them.

Equine veterinarians know that soon after giving birth, a mare will ignore the foal, refuse to nurse, and in some cases even kick the foal to death.

However, veterinarians have devised interventions to address this foal rejection syndrome, which is associated with increased oxytocin in mares.

Oxytocin is the bond-building hormone, and this leads to renewed interest in the foal on the mare's part.

Shouldn't this information be put into the hands of obstetricians, gynecologists, primary care physicians, and patients battling postnatal depression and psychosis?

Now, despite these promises, unfortunately, the gap between our fields remains large.

To explain, I'm assuming you have to hang your dirty laundry to dry.

Some doctors have a very snob attitude towards non-doctors.

I'm talking about dentists, optometrists, psychologists, but perhaps especially veterinarians.

Of course, most doctors don't realize that getting into veterinary school is harder than medical school these days, and that going to medical school will teach you everything there is to know about one species, Homo sapiens, but veterinarians need to learn about health and disease in mammals, amphibians, reptiles, fish, and birds.

Therefore, I do not blame veterinarians for being offended by my professional contempt and ignorance.

But a word from the veterinarian. What do you call a veterinarian who can only see one kind of animal?

doctor. (Laughter) Closing the gap has become a passion for me, and I'm working on it through programs like UCLA's Darwin Rounds. They bring in animal experts and evolutionary biologists and incorporate them into the medical team along with interns and residents.

It also brings together medical and veterinary schools through Zoobiquity conferences to jointly discuss diseases and disorders common to animal and human patients.

At the Zoobiquity conference, attendees will learn how treating tiger breast cancer can help treat kindergarten teacher breast cancer. How understanding polycystic polycystic disease in Holstein cattle can help better care for dance instructors with menstrual cramps. And how a greater understanding of how to treat separation anxiety in nervous Shelties can help anxious young children struggling on their first day of school.

In the United States, and now around the world, Zoobikitty conferences bring physicians and veterinarians together at the doorstep to test their attitudes and prejudices, and to come together as colleagues, peers and physicians.

After all, we humans are animals too, and the time has come for us physicians to embrace the animal nature of our patients and ourselves, and join veterinarians in their transspecies approach to health.

Because it turns out that some of the best and most humane medical care is practiced by doctors with non-human patients.

And one of the best ways to care for human patients is to pay close attention to how all other patients on the planet live, grow, get sick and heal.

thank you.

(applause).

When I arrived in Kiev on February 1st of this year, Independence Square was surrounded by government-loyal police.

Protesters who occupied the Maidan, known as Maidan Square, stockpiled homemade weapons and mass-produced makeshift bulletproof vests to prepare for battle.

The Euromaidan protests began peacefully in late 2013 after Ukrainian President Viktor Yanukovych rejected a broader deal with the European Union in favor of closer ties with Russia.

In response, tens of thousands of disaffected citizens poured into central Kiev to demonstrate against this allegiance.

As the months passed, confrontations between police and civilians escalated.

I set up a makeshift portrait studio by the barricade on Hrushevsky Street.

So I shot the fighter against a black curtain, a curtain that obscures a very mesmerizing visual backdrop of fire, ice and smoke.

To tell an individual human story here, we felt the need to get rid of the dramatic visuals that have become so familiar and recurring within mainstream media.

What I witnessed was not only news, it was also history.

This realization freed me from the conventions of newspaper and magazine photojournalism.

Oleg, Vasily and Maxim were all ordinary men living an ordinary life in an ordinary town.

But the elaborate costumes they wore were quite extraordinary.

I say "costumes" because they are not clothes that someone has supplied or coordinated.

These were decommissioned military equipment, irregular combat uniforms, and makeshift uniforms made from trophies taken from the police.

I was intrigued by the way they expressed themselves, the way they chose the external expression of masculinity, the ideal of a warrior.

I worked slowly with an analog film camera with a manual focus loop and a handheld exposure meter.

The process is old fashioned.

It gives me time to talk to each person and stare at them in silence while they stare at me.

Rising tensions culminated in the worst day of violence on February 20, which became known as "Bloody Thursday."

Snipers loyal to the government opened fire on civilians and protesters on Instytskaya Street.

Many people were killed in a very short period of time.

The front desk of the Hotel Ukraine has become a temporary morgue.

Lines of corpses lay in the streets.

And the sidewalk was full of blood.

The next day, President Yanukovych fled Ukraine.

In total, more than 120 people have been confirmed dead and many more are missing after three months of protests.

History unfolded rapidly, but celebrations remained elusive on the Maidan.

In Kiev's central square, as the days wore on, the flow of armed fighters was joined by tens of thousands of civilians who filled the streets in a collective mourning act.

Many of them were women, who held flowers they had brought with them as a sign of respect for the deceased.

They came day after day and covered the square with millions of flowers.

Sadness enveloped the Maidan.

It was quiet and I could hear birds chirping.

I had never heard of that before.

I stopped the women who approached the barricade in mourning and asked them to take a picture.

Most of the women cried when taking pictures.

On the first day, my fixer Emine and I cried along with nearly every woman who visited the studio.

Until then, the absence of women was conspicuous.

And the colors of their pastel coats, their shiny handbags, and the bundles of red carnations, white tulips, and yellow roses they carried jagged with the blackened square and the darkened men who camped there.

Clearly, these two sets of photos wouldn't make much sense without the other.

They are about men and women and who we are. It's not about what we look like, it's about who we are.

They talk about different gender roles in conflicts, not only on the Maidan, but also in Ukraine.

Most wars are fought by men and lamented by women.

If men showed the ideals of a warrior, women showed the meaning of such violence.

When I took these pictures, I believed I was documenting the end of the violence in Ukraine.

But now I understand that it was a record of the beginning.

The death toll has now reached about 3,000 and hundreds of thousands have been displaced.

I was in Ukraine again 6 weeks ago.

On the Maidan, barricades have been removed, paving stones used as weapons during the protests have been replaced, and free movement is now possible in the center of the square.

The fighters, the women, and the flowers disappeared.

A huge billboard depicting geese flying over a wheat field covers the exterior of the burnt-down trade union building and reads: "Glory to Ukraine.

Glory to heroes. ”

thank you.

(applause).

(music) (applause)

thank you.

You only have 18 minutes to explain what goes on for hours and days, so you better start.

Let's start with a clip from Al Jazeera's listening post.

Richard Gisbert: Norway is a relatively underrepresented country in the media.

Even last week's election ended without much drama.

The Norwegian media can be summed up in one word: not much drama.

A few years ago, the Norwegian public television channel NRK decided to broadcast a live seven-hour train ride. It's a simple seven-hour video of a train rolling down a track.

According to ratings, over one million Norwegians loved the film.

A new kind of reality show has been born, but it defies all the rules of television.

No storyline, no script, no drama, no climax, it's called slow TV.

Over the past two months, Norwegians have been observing cruise ships coming up the coast, where fog is common.

Executives of the Norwegian National Broadcasting are now considering broadcasting knitting nights across the country.

It may sound boring on the surface, but it really is. But something about this TV experiment caught the hearts of Norwegians.

So we sent The Listening Post's Marcela Pizarro to Oslo to find out what it is, but first give a warning: Viewers may be disappointed by some of the images in the following report.

(Laughter) Thomas Helm: And then there's an eight-minute article about a little Norwegian weird TV show on Al Jazeera.

Al Jazeera. CNN. How did you get there?

Must go back to 2009. Then one of my colleagues had a great idea.

Where do you get your ideas?

in the lunchroom.

So he suggested that we create a radio program to commemorate the day of the German invasion of Norway in 1940.

We tell the story at the exact time of the night.

oh. Great idea, except this was just a few weeks before the invasion date.

So we sat in the lunchroom and talked about what other evolving stories might look like.

What else takes a really long time?

So one of us came up with the train.

The Bergen Railway celebrated its 100th anniversary that year. The train runs from western Norway to eastern Norway and takes just over seven hours, just as it did 40 years ago. (Laughter) So we got a commissioned editor in Oslo and said we wanted to make a documentary about the Bergen Railway, and we wanted to make it feature length, and the answer was, 'Yes, but how long will the program be?'

"Oh, full length," we said.

"Yes, but that's the program."

and back and forth.

Lucky for us, they laughed and greeted us with a very, very good laugh, so one bright day in September we started a program of what we thought should be 7 hours and 4 minutes.

In fact, it took 7 hours and 14 minutes due to a signal failure at the end point.

We had 4 cameras, 3 of which were pointing at beautiful nature.

If you have a conversation with a guest, you can also provide information.

(Video) Train announcement: Arrive at Haugastre station.

TH: That's it, but of course 160 Tunnels gave us the opportunity to do some archiving.

Narrator [Norwegian]: Then flirt a bit until the food is digested.

It is the final downhill before reaching the destination.

Pass Mjörfiel station.

A new tunnel.

(laughter) TH: And now we think we have a great program.

This fits 2,000 Norwegian railway inspectors.

It went on air in November 2009.

But no, this was much more appealing.

This is Norway's 5 largest TV channels on regular Fridays. Take a look at NRK2 here and see what happened when the Bergen Railway program aired. 1.2 million Norwegians watched part of the show.

(Applause.) And there was another interesting thing. Our main channel host said after breaking the news: "And on our second channel, the train will soon arrive at Myrdal station."

Thousands of people jumped on the train like this on our second channel. (Laughter) It was a huge success on the social media side as well.

It was great to see thousands of Facebook and Twitter users all discussing the same scenery and talking to each other as if they were on the same train.

And I especially like this one. I am a 76 year old male.

He watched the entire show, got up to pick up what he believed to be luggage at the terminal station, hit his head on the curtain rail, and found himself in his living room.

(Applause) That's a very powerful living television.

Every 436 minutes on Friday night, I got my first Twitter message on that first night. "Why a chicken?"

Why stop at 436 when you can extend that to 8,040 per minute to make Norway's iconic journey, a coastal boat trip that covers most of the nearly 3,000 kilometers of coast from Hurtigruten to Bergen to Kirkenes?

It has 120 years of very interesting history and is literally about life and death along the coast.

So, just a week after the Bergen Railway, we called Hurtigruten and started planning our next show.

we wanted to do something different.

The Bergen Railway was a taped program.

So we were sitting in the editing room looking at this photo, which is all from All Station. We saw this journalist.

We called him, spoke to him and as we exited the station he took a picture of us and waved at the camera. And I thought what if more people knew we were on that train.

Will more people show up?

what would that look like?

So I decided to go live for my next project.

We wanted to show the fjord and this picture on the screen at the same time.

So this isn't the first time NRK has been on board a ship.

This dates back to 1964. At the time, technical managers were wearing suits and ties, and NRK was loading all the equipment onto the ship, sending signals back 200 meters from shore, talking to mechanics in the machine room, and having great entertainment on deck.

So it's not my first time on a ship.

But with five and a half days of gigs in a row, we needed help.

And we asked the viewers, "What would you like to see?"

What do you want us to photograph? how do you want this to look?

Would you like us to make a website for you? What do you want from it?

And I got some answers from all of you, which helped me a lot in building the program.

So in June 2011, 23 of us set out on board the Hurtigruten coastal ship.

(music) I have some very strong memories of that week, but it's all about people.

For example, this guy is the Director of Research at the University of Tromsø (Laughter) And I'll show you a piece of cloth, this.

Another strong memory.

It belongs to a man named Eric Hansen.

And it's people like these two who really understand our program and, along with thousands of other people along this route, made it what it is today.

they made all the stories.

Carl. he is in ninth grade.

It says, "Tomorrow I will be a little late for school."

He was supposed to come to school at eight o'clock in the morning.

He came at 9:00 a.m., but he didn't get a note from his teacher because he was watching a program.

(laughter) How did you do this?

Yes, we used the meeting room of the Hurtigruten.

We turned it into a complete TV control room.

Of course it all worked out and then I took 11 cameras with me.

This is one of them.

This is a sketch I drew in February. Hand this sketch over to the experts at Norwegian broadcaster NRK, and you'll get something great in return.

And there are also some very creative solutions.

(Video) Narrator [Norwegian]: Try moving it up and down.

This is currently the most important training for Norway.

This controls the height of the bow camera in NRK's ​​live production. This is one of 11 capturing great shots from the MS Nord-Norge.

8 wires stabilize the camera.

Cameraman: I work on various camera solutions.

They are just tools used in different contexts.

TH: Another camera is this. Usually used for sports.

It is now possible to take close-up pictures of people at a distance of 100 kilometers, like this one. (Laughter) People called us and asked, 'How is this guy doing?

he's fine Everything went fine.

We were also able to take pictures of people waving at us, thousands of people along the road, all with mobile phones in their hands.

And when you take a picture of them and get a message saying, "Now you're on TV, Dad," they start waving.

I've been on TV for five and a half days, and people are very happy when they can send warm messages to their loved ones.

It was also a huge success on social media.

On the last day, I met Her Majesty the Queen of Norway, but I couldn't handle it on Twitter.

We also streamed over 100 years of video to 148 countries this week on the web. The website still exists and will remain forever. In fact, Hurtigruten is part of the Norwegian UNESCO list of documents and has even entered the Guinness Book of Records as the longest-running documentary of all time.

(Applause.) Thank you.

However, because it was a long program, some people, like the prime minister, watched part of it.

Some people were watching a little more.

It says "I haven't used my bed in 5 days".

He is 82 years old, but he slept very little.

Probably not, but something might happen, so he kept watching. (Laughter) This is the number of roadside viewers.

The famous Trollfjord and the day after it will allow you to hit all-time highs for NRK2.

Looking at the 4 biggest Norwegian channels in June 2011, we find: As a TV producer, I'm happy to put Hurtigruten at the top of that list.

It will be as follows. 3.2 million Norwegians watched part of this show, but there are only 5 million of us here.

Even the passengers on the Hurtigruten coastal ships -- (laughter) -- chose to watch TV instead of turning 90 degrees and looking out the window.

So we were able to become part of people's living rooms in this weird TV show, along with music, nature and people.

And since Slow TV is now a buzzword, we started looking for other things we could do for Slow TV.

So you can make something long and topical, or you can take a topic and make it long, like railways or Hurtigruten.

This is the final project. It's a peep show.

Equivalent to 14 hours of birdwatching on a TV screen, it actually takes 87 days on the web.

We did 18 hours of live salmon fishing.

In fact it took me 3 hours to catch my first fish, which is pretty slow.

We traveled 12 hours by boat to the beautiful Telemark Canal and took another train on the Northern Railway. Since this can't be done live, we did it in four seasons to give viewers a different experience along the way.

That's why our next project got a lot of attention even outside of Norway.

This is from Comedy Central's Colbert Report.

(Video) Stephen Colbert: I'm keeping an eye on a very popular Norwegian show called "National Firewood Night". The program consisted mainly of people in hoodies chatting and chopping wood in the woods, then burning in the fireplace for eight hours. (Laughter) It ruined other top Norwegian shows like 'So You Think You Can Watch Paint Dry' and 'The Amazing Glacier Race'.

Nearly 20 percent of the Norwegian population, 20 percent are watching.

TH: So if wood fires and chopping wood are so much fun, why not try knitting?

So for my next project, I spent over eight hours live broadcasting everything from sheep to sweaters. Jimmy Kimmel on ABC liked it.

(music) (video) Jimmy Kimmel: Even the people on the show fell asleep and in the end the knitters weren't able to actually break the world record.

They didn't succeed, but remember the old Norwegian adage that it's not whether you win or lose that matters.

In fact, nothing matters, death comes to all of us.

(laughs) TH: That's right. So why does this stand out?

This is completely different from other TV shows.

It takes viewers on a journey that's happening in real time, giving them the feeling of being there, whether it's a train ride, a boat ride, or knitting with others. I think the reason I'm doing that is because I'm not editing the timeline.

It is important not to edit the timeline. It's also important that what Slow TV produces is something that we can all relate to, something that our audience can relate to, and something that's ingrained in our culture in some way.

Here's a photo from last summer when we made another 7 week trip to the coast.

And of course, this requires a lot of planning and logistics.

This is a work plan for 150 people last summer, but more importantly, we didn't plan.

You can't plan what will happen.

You just need to bring your camera.

It's like a sporting event.

Equip them and you'll see what's going on.

So this is the entire Hurtigruten 134 hour run sequence on one page.

We knew nothing more when we left Bergen.

Therefore, you should let your viewers create the story themselves. Here is an example.

This is from last summer, and it's a great picture for a TV producer, but we can move on to the next picture here.

But since this is slow TV, you have to keep this picture up until you get really sick to your stomach, and then you have to keep it up for a little longer, and I think some of you have noticed cows when you keep it up that long.

Some of you may have seen the flag.

Some may wonder if the farmer is at home.

did he leave? is he looking at the cow?

And where will the cow go?

So what I'm trying to say is that the longer you hold a photo like this, say 10 minutes, the more you start creating a story in your head.

That's slow TV.

So we think slow TV is one of the better ways to tell the story of TV, and we think it can be continued infrequently, once or twice a year. So it maintains the atmosphere of the event. I also think that a good idea for slow TV is the idea when people say, "Oh, you can't do that on TV."

When people smile, it can be a very good slow idea, so after all, life is best when it's a little weird.

thank you.

(applause)

The shocking police crackdown on protesters in Ferguson, Missouri, in the wake of the police shooting of Michael Brown has highlighted the prevalence of advanced military weapons and equipment designed for the battlefield in small-town police departments across the country.

The same thing happens with surveillance equipment, although it is much more difficult to observe.

NSA-style mass surveillance has enabled local police to collect vast amounts of sensitive information about each and every one of us in a way that was not possible before.

Location information can be very sensitive.

Driving across the United States can reveal whether you're going to a therapist, attending an Alcoholics Anonymous meeting, attending church, or not going to church.

And when that information about you is combined with the same information about everyone else, governments can get a detailed picture of how civilians are interacting.

This information was previously private.

Thanks to modern technology, governments know too much about what goes on behind closed doors.

And the local police will use this information to determine who you are supposed to be.

One of the key technologies driving mass location tracking is the harmless-sounding automatic license plate reader.

If you haven't seen it, it's probably because you didn't know what to look for. It's everywhere.

Automatic license plate readers mounted on roads and police cars capture images of every passing vehicle and convert the license plate into machine-readable text that can be matched against a hot list of potentially fraudulent and wanted vehicles.

But more than that, local police are increasingly keeping records of every plate that passes by, not just those who are wanted for wrongdoing, resulting in the collection of vast amounts of data on the whereabouts of Americans.

Did you know this is happening?

When Mike Katz-Lakabe asked local police for information about the plate reader data they had on him, here's what they got: Police had photographs capturing where he had been and often with whom, in addition to the date, time and place.

The second photo from the top shows Mike and his two daughters getting out of the car in the driveway.

The government keeps hundreds of photos like this of Mike going about his daily life.

If you drive in the US, I'm sure they'll be provided with pictures like this one of your daily life.

Mike has done nothing wrong.

Why is it okay for the government to keep all this information?

The reason this is happening is that the cost of storing this data has come down so much that police are only keeping it in the hope that it might be useful one day.

The problem isn't just that this information is collected by one police department individually, or even by multiple police departments.

At the same time, the federal government collects all these separate data and pools them into one giant database containing hundreds of millions of hits, showing where Americans have traveled.

This document from the Federal Drug Enforcement Administration, one of the agencies primarily interested in the subject, is one of several documents revealing the existence of this database.

Meanwhile, in New York City, the NYPD drove police cars with license plate readers past mosques to figure out who was attending.

Use and abuse of this technology is not limited to the United States.

In Britain, police put 80-year-old John Cutt on ticket inspectors' watch list after he took part in dozens of legal political demonstrations where he liked to sit on benches and sketch participants.

License plate readers aren't the only mass location-tracking technology available to law enforcement today.

Through a technique known as a cell phone tower dump, law enforcement officers can uncover who was using one or more cell phone towers at a given time. This technology is known to reveal the location of tens of thousands and even hundreds of thousands of people.

Law enforcement officers can also use a device known as StingRay to send tracking signals inside people's homes to identify cell phones there.

And if you don't know which homes to target, they've been known to spread this technology throughout your neighborhood.

Just as Ferguson's police have high-tech military weapons and equipment, police across the country have high-tech surveillance equipment.

Just because you can't see it doesn't mean it isn't there.

The question is what to do about this.

I think this poses a grave threat to civil liberties.

As history has proven, police have vast amounts of data that track the behavior of innocent people, and it can be misused for blackmail, political gain, or simply spying.

Luckily, there are things we can do.

Local police are governed by city councils, which can pass laws requiring police to dispose of data about innocent people while allowing lawful use of technology.

thank you.

(applause).

I draw pictures to understand things better.

Sometimes I draw a lot and still don't understand what I'm drawing.

If you're used to digital things and even self-satisfied about their relationship, it might be interesting to learn that the man best known for "The Way Things Work" spent two days getting his laptop to communicate with his new CD burner while preparing for a panel discussion called Understanding.

Anyone know about extension manager?

I've always managed my own extensions, so I didn't even think to read the instructions, but I finally figured it out. Along with the invitation came the dreaded notice that there would be no need to bring a merry-go-round because there was no projector, but an alternative means of communication would be needed, and I had to figure it out.

Now, I can talk about something I'm familiar with, or I can talk about something that's particularly relevant to a lot of tech-minded people here, or I can talk about something that really interests me.

I decided to go with the latter.

Talk about Rome.

Now, why am I particularly interested in Rome?

Well, I went to the Rhode Island School of Design in the late '60s to study architecture.

I was lucky enough to spend my last year, my fifth year, in Rome as a student. It changed my life.

The biggest reason was the fact that I spent my first four years at home, driving to and from RISD every day.

It was nostalgic for the 60's. i read about them. (Laughter) I think it was very interesting. It was nostalgic, but I definitely spent those special years in Rome, a place that will never leave my mind.

So whenever an opportunity is given, we try to do something in it or with it or for it.

Sometimes I draw pictures to help people understand things.

What I want you to believe I understand.

That's my job as an illustrator.

So here are some pictures of Rome.

I have done many paintings of Rome over the years.

These are just Roman paintings. We will be back as often as possible. you have to.

Different materials, different styles, different eras, Roman details drawn from a sketchbook.

One of the reasons I include them is that they help illustrate this process of trying to understand what I feel about Rome and why.

These are sketches of some details.

Rome is a city full of surprises.

So we are talking about an unusual point of view. We're talking about narrow, winding streets suddenly opening up into vast, sunny squares. However, it is by no means a square that is not of human scale.

Part of the reason is the fact that they've grown organically.

An amazing juxtaposition of the old and the new, the bits of light pouring in between the buildings usually create a blue map that stretches overhead, especially in the summer, compared to a traditional street map.

And I started thinking about how I could convey this in book form.

How can I share my feelings about Rome, my understanding of Rome?

Basically, it introduces a lot of dead ends.

The main reason for these dead ends is when you don't know where you're going and you can't be sure that you'll get there efficiently.

Here is a small map. And I thought of maps first. You might want to make a little atlas of your favorite streets and connections in Rome.

And the line of text here actually evolved from the exhaust of a scooter running across the page.

Here, the same lines of text are drawn around the fountain and can be read from either side when turned upside down.

Perhaps that line of text could be a story that helps give this a human side.

Perhaps I should step away from this map entirely and be honest about my desire to show you my favorite snippet of Rome, just kick a soccer ball into the air (it's done in many squares in the city) and wait for it to bounce off something. And a brief description of each thing the soccer ball hits.

It seemed like a kind of cheesy shot.

However, even though I just started this presentation, this was not the first thing I tried to do, and I was kind of desperate.

In the end, I realized that I had no trustworthy content at all, so I decided to go ahead with packaging. (Laughter) I mean, it seems to work for a lot of things.

So I thought a small box set of 4 small books would suffice.

But one of the ideas that emerged from some of those sketches was the concept of traveling through Rome in different vehicles at different speeds to show different aspects of Rome.

Kind of like an overview and plan of Rome as seen from an airship.

Taking snapshots of what you see from a speeding scooter, or taking a leisurely stroll through Rome, might allow you to study in more detail the amazing surfaces you encounter.

Anyway, I'm back to the airship concept.

Have you been to Alberto Santos Dumont?

I found one of his airships had enough dimensions that I could actually use it as a scale alongside the one in Rome.

It will fly over you, pass you by, or stop in front of you, but it's like having a ruler and moving the page without a ruler.

We don't know how long number 11 actually is, but we can compare number 11 to the Pantheon with number 11 to the Baths of Caracalla, and so on. If you are interested.

It's Beatrix. She has a dog named Ajax. She bought an airship. It's a small airship. She is building a structure. Ajax sniffs the balloon hole before leaving.

She launched it over the Spanish Steps and set off on an aerial tour of the city.

Go over the Spanish Steps.

A good way to represent a river flowing down a hill.

Unfortunately, the Marcus Aurelius Column is across the road or quite close. As you can see, the diameter of the airship made an impression when she began reading the story swirling around the Column of Marcus Aurelius. A little too close and you end up moving it a little.

This gives me the opportunity to propose the structure of the Marcus Aurelius Column. This pillar is really just a quarter of the height stacked up. That's a chunky quarter. The symmetry is completely broken above St. Ignatius Square, but that aside, it's a great place to visit.

An extraordinary blue sky is usually visible within the spectacular framework.

Above the Pantheon and the 26-foot-diameter Oculus.

She parked the airship, lowered the anchor ropes, and stepped down to take a closer look inside.

The text here is upside down on the right side, so you have to flip the book over. And you can see it from the ground's point of view and her point of view. Peek through the holes to get a different kind of perspective and move through space. Especially suitable for buildings that can fully accommodate a sphere dimension of the same diameter as the distance from the center of the floor to the center of the Oculus.

Unfortunately for her, the legs of some Boy Scouts visiting the Pantheon get entangled in the anchor line, and they are soon pulled out and forced to take an extraordinary but terrifying tour of some of Rome's domes.

They escape as soon as they reach the top of St. Ivo, that little spiral structure you see there.

She continues beyond Piazza Navona.

We noticed a lot of activity in the Tre Scalini restaurant and found ourselves hungry at lunch time.

They continue running towards Campo de' Fiori and soon reach Campo de' Fiori. Ajax the dog is put in a cage and dropped off at the market with a list of food items, where the market thrives until about 1pm, after which it is removed entirely and does not reappear until 6 or 7 the next morning.

Anyway, the dog returns to the airship with his luggage.

Unfortunately, when she was about to unwrap her prosciutto, Ajax rushed into it.

She manages to save the prosciutto, but loses the tablecloth in the process and is seen flying to the top left corner.

They continue without the tablecloth and are looking for a place to land this so they can actually have lunch.

They eventually discover a huge wall full of tiny holes. It's perfect for mooring airships, as there's a place to tie them up.

It turned out to be the outer wall of the Colosseum, part of it, so they parked there, had a great lunch and had a great view.

At the end of lunch, they unanchored, set off through the Baths of Caracalla, over the city walls, and over the abandoned gatehouse, deciding to take another look at the Pyramid of Cestius, with this lightning rod on top.

Unfortunately this is a problem. A little too close. You have to pay close attention to the spikes when you are on the airship.

This concludes her little story.

Marcello, on the other hand, is lazy, but will be at work until about noon.

Then the alarm goes off and it's about 5:00 to 12:00.

He gets up, hops on his scooter, runs through the city past the church of Santa Maria della Pace, down alleys and through streets where tourists would roam, all disturbing the life of Rome's quiet backstreets.

I hope this little image gives you an idea of ​​how fast he moves. This image has text on the bottom and text on top, one of which is upside down so it can be rotated again and read from both sides.

So he keeps moving, approaching an unsuspecting waiter about to deliver two plates of linguine with a delicate white wine clam sauce to a customer seated at a table just outside the restaurant on the street.

The waiter noticed, but it was too late.

Marcello then continues on his scooter.

Everything he sees from this point on is slightly affected by Linguine, but this guy has work to do, so he keeps moving.

Remove part of the scaffolding. One of the reasons Rome remains an extraordinary place is that it is a city that continues to grow and adapt to the needs of its time, or any particular time we find it, thanks to its determination to maintain its footing and structure.

Through the Rotonda Square, in front of the Pantheon, wreaking havoc again, we finally get to work.

In fact, Marcello is the driver of bus number 64, and if you've ever ridden bus number 64, you know it drives with the same kind of exuberance that Marcello showed with his scooter.

And finally the cullet. You can see his apartment in the upper left corner.

he is looking at the table He's planning to propose tonight to his girlfriend of 40 years (laughs) and he wants it to be perfect.

He extinguishes the candles, puts a flower in the middle, and thinks where to put the plates and glasses.

But he is not happy. something is wrong

The phone rang anyway and he was called to the palace.

He's wobbly, wobbly in a good clip, but compared to all the trips we've seen so far, he's wobbly.

Everyone knows Carrett because he's in the entertainment industry. he's on tv

People know him because he actually repairs TVs.

So everyone knows his number.

He arrives at the palace and reaches the large front door.

When you enter the courtyard and talk to the janitor, you will be told that a disaster has occurred in the palace. No TV is on and the crowd is a little restless and a little nervous as the big soccer game is coming up.

He went down to the basement and started checking the wiring, then gradually made his way to the top floor of the building, checking all the TVs, checking all the connections, apartment by apartment, hoping to figure out what the problem was.

He climbs the grand staircase and finally the smaller staircase until he reaches the attic.

Of course, when I opened the attic window, I saw a tablecloth wrapped around the building's TV antenna.

When he removes it, the matter is resolved and everyone in the palace is happy.

And of course he solves his own problems too.

Set up the perfect table and just wait for her to arrive.

It was my first attempt, but it didn't seem to be enough to convey what I wanted to say about Rome.

So I thought I'd just do the plaza and go inside and down and show you how these things grow, why they're shaped the way they are, and so on.

And I thought it was too complicated. No, take your favorite pieces and put them in the Pantheon, but leave the scale alone. Then you can see the summit of Santivo, the Pyramid of Cestius and Bramante's Tempietto all side by side in this wonderful space.

Now that the painting was complete, I thought it might be time for Piranesi to meet Escher. (Laughter) You can see I'm really starting to lose control here, and I'm starting to lose hope.

There's a very thin blue exhaust line that runs through it, and it's kind of the road that holds it all together.

So I thought, "Wait, what am I doing?"

A book is not only a clean way to collect and store information, it's a series of layers.

That is, always peel one layer from another. We think of them as pages and do them in a certain way.

But think of them as layers. So Rome is a place of horizontal layers and vertical layers of layers. I thought that by just peeling the page off, I could show some depth of layers if you think about it correctly.

The plaster on the walls of most Roman buildings hides the scars. Because these structures have been adapted rather than demolished, they bear the scars of centuries of change.

Create a foldout page on the left and unfold it to see what the scar tissue means behind it.

By 1635, we can see that it became imperative to make a small window, for reasons such as the arrival of bad guys.

All modifications are buried under the plaster.

You can peel off the pages of this palace to see what's going on inside.

But more importantly, I can also show you what it looks like in the corner of one of the grand buildings with giant stone blocks, or faux stone blocks finished with brick and plaster.

That will make it a little more cubic.

Double-sided pages take you through narrow, tiny streets to amazing squares. If you are like me who used to read pop-up picture books when you were a child, I would love for you to stick your head in.

You're in that square for that short amount of time, with the page wrapped around your head.

And I haven't done anything much more complicated than making a foldout page.

But I thought it might be possible to do something simpler here.

See the Pantheon and the Rotonda square in front of it.

Here is a fully open book.

got it. If you don't open the book all the way, but just open it 90 degrees, you're looking down from the front of the Pantheon, looking at the top of the square, more or less looking down.

And if you turn the book to the other side, you can see the square in front of the Pantheon.

No folds, no tricks. It's just an unopened book.

It seemed promising. I thought it would be nice to do it on the inside, and maybe I could combine the partially open book with the folded part.

So we go inside the pantheon, and the pantheon grows.

And I thought maybe I was on the right track, but I had lost my humanity.

So I went back to the concept of stories. Stories are always good when you want people to pay attention to the book and pick up information along the way.

The catchy title "Pigeon's Progress" left an impression on me.

A homing pigeon would be called "Homer's Odyssey".

But it's been a journey...lol I mean, if the title works, use it. But it will be a trip through Rome and showing you everything I love about Rome.

A dove on top of a church.

Go out during the day and do your normal pigeon work. When we come back, the whole place is covered with scaffolding and green netting, no way for this pigeon to go home.

So now they are homeless pigeons and have to find another place to live. So I go through my catalog of favorite things and start with the tallest ones.

Perhaps I will have to go back and live with my family. It's not necessarily a good thing, but it's like reuniting the pigeons.

And that's interesting, but it made me wonder if perhaps someone should be somehow involved in this.

So I thought of this old man who spends his life caring for sick pigeons.

He will go anywhere to catch them, even dangerous places. And they become really good friends with this guy and learn to do tricks for him and entertain him at lunchtime.

A real bond develops between this old man and the pigeon.

Unfortunately, he falls ill. He gets really sick at the end of the story.

He taught them how to spell his name, which is Aldo.

After not seeing each other for three or four days, they show up one day and he lives in this little attic, spelling his name and flying around.

And he finally puts together enough strength to climb the ladder to the roof. Then all the pigeons are waiting for him there, like red balloons, and carry him away over the city walls.

And i forgot to mention this. Whenever he lost a pigeon, he took it outside the city walls.

According to ancient Roman custom, the dead were never buried within the walls.

And I thought it was a really bright story.

(laughter). It's going to be a really long road.

So, anyway, I've been through...and once again, if the packaging doesn't work and the story isn't going anywhere, I just come up with a title and hope that title gets me going in the right direction.

Sometimes that gives me enough focus to create the title page.

So these are all title pages that ultimately led me to a settled solution. It tells the story of a young woman who lives outside the city walls of Rome and rides a homing pigeon to send a message to someone in the city.

And the pigeons are flying here over the Appian Way.

Graves and pine trees can be seen along the way.

If you can see the red line, you can see the pigeon tracks. If you can't see the red line, you're a pigeon.

And at this point it becomes necessary and possible to try to convey what it feels like to fly over a city without actually moving.

Even if you've passed the Pyramid of Cestius and haven't been to Rome recently, these will seem very familiar. Go through the gatehouse.

This is a little unusual.

This pigeon does what most homing pigeons do not. Proceed along the scenic route (laughs). This was a twist that I felt was necessary to actually expand the book beyond about four pages.

So we circle around the Colosseum and continue towards the river past the Church of Santa Maria in Cosmedin and the Temple of Hercules.

We narrowly escaped by crashing into the cornice of Palazzo Farnese, designed by Michelangelo and built with stone taken from the Colosseum.

Soar over Campo de' Fiori.

This is one of the things I show my students. Because this is complete stupidity, the denial of any point of view rule.

The only perspective rule that I think is important is that if it looks believable, it's successful.

But I try to understand where the vanishing points meet here. One couple is on Mars and a few others are on Cremona.

However, when I entered the square in front of Santa Maria della Pace, where soccer games are always held, a soccer ball hit me directly.

Well, here's a terrible illustration of being hit by a soccer ball.

The pieces are all there. There is the Church of Santa Maria della Pace, a soccer ball and a few bird wings. Nothing was happening, so I had to rethink.

If you want to know about Santa Maria della Pace, these books are very flexible and incredibly interactive. Just turn around and look the other way.

As you pass through the alley, you can see the impact captured by the red line.

And the birds managed to join forces and fly past this medieval tower (one of the few surviving medieval towers) towards the Church of Sant'Agnese and around the dome overlooking Piazza Navona. Already mentioned, seen and flown several times. There is a statue of Bernini of the Four Rivers, then we passed the magnificent Borromini Santivo and stopped just long enough to catch our breath at the 8 meter diameter Oculus of the Pantheon.

And you can raid inside and around. And since we're flying, we don't have to worry about gravity at this particular moment. So the picture can be oriented in any direction on the page.

Passing Guess we get a little excited. Mimicking architecture in this way is not surprising.

Beyond the wonderful walls filled with juxtapositions I was talking about. There are beautiful carvings on the wall above the 'Ristorante' neon sign.

Eventually, they arrive at their destination, the courtyard of the palace.

Go straight up through the courtyard to the small window to the attic, where someone is working on a drawing board.

He removes the message from the bird's leg. This is what it says.

Looking at the drawing board, we see that what he is working on is actually a map of the journey the pigeons have just taken, with red lines going through all the sights.

If you need information to complete this understanding cycle, just read these paragraphs.

thank you very much.

When we think of urban mapping, we tend to think of the story of the roads, streets, buildings, and settlements that led to their creation. Alternatively, we can think about the bold visions of urban designers, but there are other ways to think about mapping cities and how they are made.

Today I would like to introduce a new kind of map.

This is not a geographic map.

Here's a map of people's relationships in my hometown of Baltimore, Maryland. What we can see here is that each dot represents an individual, each line represents a relationship between those people, and each color represents a community within the network.

Well, I'm here on the green side, on the far right where Mania is. TEDx is also on the far right. (Laughter) Now, on the other side of the network there tends to be mostly African-Americans and Latinos who have slightly different interests than geeks, but for reference, we call the green part of the network Smallymore. Because to those of us who live there, it looks like we live in a very small town.

We see the same people over and over because we haven't explored every corner of the city in depth.

On the other side of the network, there are people interested in hip-hop music, etc., who even sympathize with living in, say, the DC/Maryland/Virginia area beyond the Baltimore City designation.

But in the middle, we can see that there is something that unites the two communities. That's sports.

We have the Baltimore Orioles, the Baltimore Ravens football team, and Olympian Michael Phelps.

Under Armor is a Baltimore company whose sports community serves as the only bridge between the two ends of the network.

Look at San Francisco.

You can see things happening a little differently in San Francisco.

On the one hand, there are the media, political and news lobes that tend to exist in Baltimore and other cities, but there is also a very dominant group of geeks and techies who seem to have taken over the top half of the network, and even a group next to geeks, between gamers and geeks, on the other end of the hip-hop spectrum, clear and distinct enough to be recognizable as Twitter employees.

But the tension we've heard about people in San Francisco worrying about gentrification and the tech startups that are bringing in new wealth and residency turns out to be genuine. And you can actually see it documented here.

It turns out that the LGBT community doesn't get along very well with the geek, art, and music communities.

And it leads to something like this.

[“Evict Twitter”] Someone sent me this photo a few weeks ago. It shows what's happening locally in San Francisco. I think you can actually understand it by looking at a map like this.

Look at Rio de Janeiro.

I've spent the last few weeks gathering data about Rio, and one of the things that stands out about the city is that everything is really mixed.

It's a very different city, unlike Baltimore or San Francisco.

There are still many people involved in government, newspapers, politics, columnists.

TEDxRio is on the bottom right, right next to bloggers and writers.

But at the same time, we also have a very diverse group of people interested in different types of music.

Justin Bieber fans are here too.

There are other boy bands, country singers, gospel music, funk, rap, stand-up comedy, and even a whole section on drugs and jokes.

How cool is that?

And the Flamengo football team is also represented here.

There are similar sports and civic activities, arts and music spreads, but they are expressed in very different ways, perhaps in line with our understanding of Rio as a very multicultural and musically diverse city.

Now we have all the data.

This is an incredibly rich dataset that we currently have on cities, probably the richest we've ever had.

So what can you do with it?

I think the first thing we can understand is that racism is a social construct.

It's what we choose to do and we can choose not to do it. please consider. What we're doing with this data is pointing a space telescope at a city and looking at it as if it were a giant high school cafeteria and seeing how everyone is arranged on the seating chart.

Well, maybe it's time to change the seating chart a bit.

Another thing we are beginning to realize is that race is a very poor representation of diversity.

All over the map here there are representatives of all kinds of races. Looking at race alone does not really contribute to the development of diversity.

So if we're looking to harness diversity as a way to tackle some of the tougher problems, we need to start thinking about diversity in new ways.

And finally, we have the ability to create interventions to start reshaping our cities in new ways. And I believe that if we have the ability to do so, we may even be responsible for doing so.

So what is a city?

Some people say it's a geographical area, or a collection of streets and buildings, but I believe a city is a collection of relationships between the people who live there. And I believe that if we can start documenting those relationships in a real way, perhaps we have a real chance of creating the kind of city we want.

thank you.

(applause)

This summer I was on a long road trip and had a great time listening to the wonderful Isabel Wilkerson's "The Warmth of Other Suns."

The book, which chronicled the six million black refugees from the South between 1915 and 1970 seeking respite from all their atrocities and fleeing north for better opportunities, was full of stories of African-American resilience and brilliance, and all the stories of fear, humility, and humiliation that were hard to hear.

It was especially painful to hear about black men being beaten, burned, and lynched.

And I said, 'You know, this is a little deep.

I want to take a break. turn on the radio. ”

When I turned it on, there it was. Michael Brown, Ferguson, Missouri, 18-year-old black man, unarmed, shot by white police, lying dead on the ground, bleeding for four hours as his grandmother, young children and neighbors watched in horror. And I thought, here I am again.

This violence, this brutality against black men has been going on for centuries.

So it's the same story. Only the name is different.

It could have been Amadou Diallo.

It could have been Sean Bell.

It could have been Oscar Grant.

It could have been Trayvon Martin.

This violence, this brutality, is just part of our national spirit.

It's part of our collective history.

what are you going to do about it?

Did you know that there's still a part of us that crosses the street, locks doors, and clutches purses when we see young black men?

The part.

I mean, we know we're not shooting people in the streets, but we're saying we have the same stereotypes and prejudices that fuel such tragic events.

We have also been educated in them.

We believe that by looking at ourselves and being willing to change ourselves, we can prevent this kind of incident, the Ferguson incident, from happening.

So I have a call to action for you.

There are three things I want you to think about today about how you can stop Mr. Ferguson from recurring. Three things I think will help change the image of young black men. The three things I hope will not only protect them, but open the world up for them to thrive.

Can you imagine it?

Can you imagine our country accepting young black men, seeing them as part of our future, giving them such generosity, giving them such grace to give to those we love?

How good would our lives be? How good will our country be?

Let's start with number one.

You have to get out of negativity.

Stop trying to be a good person.

We need real people.

I do a lot of diversity work and people come to me at the beginning of the workshop.

They're like, "Oh, Diversity Lady, I'm so glad you're here" (laughs), "But we don't have lopsided bones in our bodies."

And I said, "Really?"

Because I do this job every day, I see all my prejudices. ”

Not long ago, I was on a plane when I heard the voice of a female pilot coming from the airport. I was so excited, so excited.

I thought, 'Yes, ladies, we're so excited.

We are in the stratosphere now. ”

It was all fine, but then it started getting rough and bumpy, so I thought, 'I hope she can drive.

(Laughter) I know. right.

But I didn't even realize it was prejudice until I came back on the other leg. It is always driven by men and is often rough and bumpy, but I have never questioned the confidence of male drivers.

Pilot is good.

Now, here's the problem.

If asked outright, I would say, "Female pilots, wow."

But apparently when things get funky and a little messy and a little dangerous, I resort to prejudices I didn't even know I had.

You know, a plane that moves fast in the sky, I want a man.

That's my default.

Men are my default.

who is your default?

who do you trust?

Who are you afraid of?

Who do you feel an unspoken connection to?

Who are you running from?

I will tell you what we have learned.

An implicit association test that measures unconscious bias is available online.

Five million people have ingested it.

After all, the default is white. we like white people

we prefer white What does that mean?

When presented with an image of a black man and a white man, we are better able to associate the picture with positive words and the white man with positive words and vice versa than when we try to associate positive things with black faces.

When we see a black face, we are more likely to associate black with negativity than we associate white with negativity.

70% of Caucasians who take the test prefer Caucasians.

Fifty percent of blacks who take the test prefer whites.

See, we were all outside when the pollution subsided.

What about the fact that our brains automatically associate?

I think one of the things you're probably thinking about is trying to double down on colorblindness.

Yes, we will work on that again.

I propose to you, no.

We have done everything we can to make the change invisible.

The problem was not seeing color. That's what we did when we saw the colors.

It's a false ideal.

And while we're busy turning a blind eye, we don't realize how racial differences change people's potential, which hinders their growth and sometimes causes them to die prematurely.

So, really, what scientists are telling us is "impossible."

Don't even think about color blindness.

In fact, what they're suggesting is stare at the great black people.

(Laughter) Look directly into their faces and remember that. Because when you see great black people, it helps you dissolve the automatic associations that occur in your brain.

Why do you think I'm showing a beautiful black man behind me?

There were so many of them that I had to cut them.

Now, let's get to the point. I'm trying to reset your automatic associations with black men.

My point is that young black men grow up to be amazing people who change our lives and make them better.

So here comes the problem.

Another possibility in science is that it only temporarily changes our automatic assumptions, but one thing we do know is that sometimes when you stick the obnoxious white people you know next to people of color, the great black people, it actually causes us to disconnect as well.

Think Jeffrey Dahmer and Colin Powell.

Just stare, right? (Laughter.) But here it is. So look for your own prejudices.

Please, please, get out of the denial and go find negative data that actually proves your old stereotypes wrong.

Well, that's number one. Second, what I want to say is, don't walk away from young black men, get closer to them.

It's not the hardest thing to do, but it's also one that has to be done consciously and intentionally.

As you know, I went to the Wall Street area with a colleague a few years ago. She's really great and is working with me on diversity. She is a woman of color and Korean.

And we were out, late at night, wondering where to go, and we got lost.

And then I saw this guy across the street and I was like, 'Oh, that's great, Mr. Negro.

I went to him without thinking.

And she was like, "Oh, that's funny."

The man across the street was black.

I think black men generally know where they are going.

I don't know exactly why you think so, but I do.

So she said, "Oh, you said, 'Yeah, a black man'?"

"I was like, 'Oh, he's black,'" she said in another direction. Same needs, same man, same clothes, same time, same street, different reactions.

and she said: “I am very sorry. I am a diversity consultant.

I did the black thing I am a woman of color. oh my god! "

And I said, "Did you know? Please, I really need to relax about this."

I mean, just know that I dated a black man a long, long time ago.

(Laughter) My father is black. Do you understand what I'm saying?

I have a black son who is 6'5" tall. I was married to a black man.

My stuff about black men is so broad and deep that I can almost sort of understand who that black man was, and he was my black man.

He said, "Yes, guys, I know where you're going. I'll take you there."

As you know, prejudice is the story we make up about a person before we know who they really are.

But how can we know who they are when we are told to avoid and fear them?

So I would like to tell you to walk in the direction of discomfort.

And I'm not asking you to take outrageous risks.

My point is, take inventory and expand your social and professional circles.

who is in your circle?

who is missing?

How many genuine relationships do you have with black youth, people, men, women?

Or is there a big difference with your own personality or how you roll, so to speak?

'Cause you know Look around you.

At work, in classrooms, at chapels, there may be black youth everywhere.

and you are lovely you say hello

What I mean is to go deeper, closer, further and build relationships, friendships that really defy stereotypes and really see the whole human picture.

I know some of you are like that too, especially when a white friend says, "You don't realize how awkward I am.

Well, I don't think this will work for me.

I'm sure I'll blow this up. ”

Well, maybe so, but it's not perfect. It's about connectivity.

And you can't be comfortable before you're uncomfortable.

I mean, just do it.

And, young black men, what I'm saying is, if someone comes to you, take the invitation wholeheartedly and honestly.

Not everyone is trying to catch you.

Find someone who can understand your humanity.

It's the empathy and compassion that comes from relationships with people who are different from you.

Something really powerful and beautiful happens. You begin to realize that they are you, that they are part of you, that they are part of your family. Then we cease to be bystanders, we become actors, we become advocates, we become allies.

So get out of your comfort zone and set your sights on something bigger and brighter. Because that's how Ferguson's new events are stopped.

By doing so, we can create a community in which everyone, especially young black men, can thrive.

So this last thing is going to be harder, and I know that, but I'm going to put it out there anyway.

When you see something, you need the courage to say something, even to someone you love.

As you know, it's a holiday today, so we're going to have some fun around the table.

Anyway, many of us are on vacation, so we have to listen to the conversations around the table.

They start saying things like, "Grandma is a bigot."

(Laughter) "Uncle Joe is a racist."

And you know, we love Grandma and we love Uncle Joe. that's right.

I know they are good people, but they are wrong.

We know who else is at the table, so we have something to say.

Children are at the table.

And it makes me wonder why these prejudices persist and are passed down from generation to generation.

because we said nothing.

We have to say, "Grandma, we don't call people that way anymore."

"Uncle Joe, it's not true that he deserves it.

no one deserves it ”

And when Black parents, especially those with young Black sons, can't afford to do so, we must stop protecting our children from the ugliness of racism.

We have to take away our loved ones and our future, and we have to tell them that we are a wonderful country with incredible ideals, that we have worked incredibly hard and have made some progress, but we are not done yet.

Old ideas of superiority still persist within us, embedding them further into our institutions, societies, and generations, which creates hopelessness, inequality, and the devastating devaluation of young black men.

We still struggle to see both the color and the personality of young black men, but what you and you expect from them is to be part of this transformative force in society willing to stand up to injustice and, above all, create a society in which young black men are seen for what they are.

So many great black men, the greatest politicians who ever lived, brave soldiers, great hard workers.

They are powerful preachers.

They are great scientists, artists, and writers.

They are dynamic comedians.

They dote on their grandpa and are caring sons.

They are strong fathers and young men with their own dreams.

thank you.

(applause)

While preparing for my talk, I was looking back on my life and trying to understand where exactly the moment my journey began.

It's been a long time, and I have no idea where my story begins, where it ends, or where it ends.

I always thought my beginnings were one afternoon in my hometown when my mother told me that I had escaped three arranged marriages by the time I was two.

Or, one night, when the electricity went out in our area for eight hours, my father sat around us all and told me stories of his childhood when he struggled to go to school when he was a farmer and wanted him to work in the fields with him.

Or that dark night when I was 16, three young children came up to me and whispered in my ear that a friend of mine had been killed in something called an honor killing.

But then, while I know these moments contributed to my journey, they affected my journey, but they weren't the beginning. The real beginning of my journey was in front of a mud house in Upper Sindh, Pakistan. So my father took my 14-year-old mother's hand and they decided to leave the village to go to a town where they could send their children to school.

In a way, my life feels like the result of their wise choices and decisions.

And just like that, their other decision was to keep me and my siblings connected to our roots.

When we lived in a community called Liverbird (meaning poor community), my father made it possible for us to have a home in our rural hometown.

I am from an indigenous people of the Balochistan Mountains called Burahui.

Burahui, or Brohi, means mountain dweller and it is also my language.

Because of my father's very strict rules regarding our customs and ties, I had to live a beautiful life surrounded by songs, culture, traditions, stories, mountains and lots of sheep.

But living at the extremes between my culture and village traditions and the modern education of my school was not easy.

I knew I was the only girl given that kind of freedom, and I was guilty of it.

While attending school in Karachi and Hyderabad, many of my cousins ​​and childhood friends married older men, some in exchange, some as second wives.

Women were told to have patience as their main virtue, but when they saw the birth of a girl celebrated with sorrow, they saw beautiful traditions and their magic vanish before their very eyes.

Until the age of 16, I used to cry to heal my grief. Mostly at night when everyone was asleep, I was sobbing in my pillow. Until one night, when I learned that my friend had been killed in the name of honor.

Honor killings are the custom of killing a man and woman who are suspected of having a premarital or extramarital affair and therefore killed by their family members.

Usually the killer is a family brother, father or uncle.

The United Nations reports that approximately 1,000 honor killings occur in Pakistan each year, but these are the only reported cases.

The habit of killing people didn't make sense to me, and I knew now I had to do something about it.

I didn't mean to cry.

I would do anything to stop it.

i was 16 years old. I started writing poetry and going door to door telling everyone about honor killings and why it happens and why it should be stopped, raising awareness about the issue until I actually found a much better way to deal with it.

At that time, we lived in a very small one-room house in Karachi.

Every year during the monsoon season, our house would be flooded with rainwater and sewage, and my father and mother would fetch water for us.

At that time, my father brought home a huge machine, a computer.

It was so big that it took up half the only room we had, and there were a lot of parts and wires that needed to be connected.

But still it was the most exciting thing that ever happened to me and my sisters.

My eldest brother, Ali, was put in charge of managing the computers, and we were all given 10-15 minutes of computer time each day.

I was the eldest of eight siblings, so I used it last. That was after washing the dishes, cleaning the house, cooking dinner with my mother, and laying blankets on the floor so everyone could sleep. Then I ran to my computer, connected to the internet, and spent 10-15 minutes of pure joy and amazement.

Around that time, I discovered a website called Joogle.

[Google] (laughter) In a feverish desire to do something about this practice, I turned to Google and discovered Facebook, a website that allows people to connect with anyone in the world. So from a very small cement-roofed room in Karachi, I connected with people in England, America, Australia and Canada to launch a campaign called the WAKE UP campaign against honor killings.

In just a few months, it became something huge.

We received a lot of support from all over the world.

The media connected with us.

Many have reached out to join us in raising awareness.

It has grown so big that it has spread from online to the streets of my hometown where we have rallies and strikes to change Pakistan's policies for supporting women.

And while I thought everything was perfect, my team (who were basically my friends and neighbors at the time) thought everything was going very well, so I didn't expect any major opposition to come upon us.

My community opposed us for promoting un-Islamic practices.

We were challenging the centuries-old customs of those communities.

I remember my father receiving an anonymous letter saying, "Your daughter is promoting Western culture in an honorable society."

Our car was hit by a stone at one point.

One day, when I went to the office, I found a metal sign wrinkled and broken, probably because it had been hit with something heavy by many people.

The situation got so bad that I had to hide in various ways.

I closed my car windows, covered my face and avoided speaking in public, but eventually life was threatened and the situation worsened and we had to return to Karachi and we stopped.

Back in Karachi at 18, I thought this was the biggest mistake of my life.

I was devastated.

As a teenager, I used to blame myself for everything that happened.

And when we started reflecting, it turned out that it was actually me and my team's fault.

There were two main reasons why our campaign was a disaster.

One of them, the first reason, is that we were against people's core values.

We said no to something very important to them, challenged their code of honor, and hurt them deeply in the process.

And the second is that it was very important for me to learn, it was amazing, and it was amazing what I learned, but it didn't include true heroes to fight for themselves.

The women of the village had no idea that we were fighting for ourselves in the streets.

Every time I went home, I would find cousins ​​and friends with scarves around their faces and ask, "What happened?"

And they would say "our husband beat us."

But we are working the streets for you!

We are changing our policy.

How can it not affect their lives?

So we discovered something very surprising.

National policies do not always affect tribal and rural communities.

It was devastating. Oh, can't we really do something about this?

And it turns out that there is a big gap between official policy and the truth on the ground.

So this time we decided to do something different.

We're going to use strategy, and we're going to go back and apologize.

Yes, I apologize.

We went back to the community and said we were so ashamed of what we had done.

we are here to apologize. In fact, we are here to apologize to you.

How do we do that?

We promote three main cultures in your company.

We know it's music, language and embroidery.

nobody believed us.

No one wanted to work with us.

It took a lot of persuasion and discussion with these communities until they agreed to produce a booklet of tribal stories, fables and folklore to promote their language and music by producing a CD with tribal songs and drumming.

And the third, which was my favourite, was to promote embroidery by creating a center in the village where women would come to do embroidery every day.

And it started.

We cooperated with one village and established the first center.

It was a very nice day.

established the center.

The women have come to embroider and have gone through a life-changing process of education to learn about their rights, what Islam says about their rights, the development of businesses, how to make money and how to make money from money, how to combat the habits that have destroyed women's lives for centuries. Because Islam actually says that women should stand shoulder to shoulder with men.

Women have too much status, but we needed to tell them that we weren't listening, that their voices weren't being heard, and that we needed to know where their rights were and how they could get them for themselves. Because they can do it and we can't.

This was the model that actually appeared. It was wonderful.

We spread their traditions through embroidery.

We entered the village. We mobilize our community.

We will create a center in it and 30 women will come for 6 months to learn about the added value of traditional embroidery, enterprise development, life skills and basic education, and women's rights and how to say no to those customs, and how to stand up for yourself and as a leader in society.

Six months later, we connect these women to loans and markets, enabling them to become local entrepreneurs in their communities.

We quickly named the project Sugar.

Sugar is a local word used in many languages ​​of Pakistan.

Denotes a skilled and confident woman.

I truly believe that there is only one way to create female leaders. It's about letting them know they have what it takes to be a leader.

The women seen here have strong skills and potential to be leaders.

All we have to do is remove the barriers that surround them, and that's what we decided to do.

But just when I thought everything was going great, again everything was great and I realized the next setback. Many men began to see visible changes in their wives.

She started talking more and making decisions. Heck, she handles everything in the house.

I blocked them from coming to the center, so this time it was like, 'Okay, it's time for Strategy 2.'

We decided to go to the fashion industry in Pakistan and investigate what was going on there.

It turns out that Pakistan's fashion industry is very strong and growing day by day, but not much contribution comes from tribal and tribal areas, especially women.

So we decided to launch the first-ever fashion brand dedicated to tribal women. Now called Nomads.

As such, women were more likely to earn more and contribute more financially to their homes, and men had to think twice before saying no when coming to the center.

(Applause.) Thank you, thank you.

In 2013, we launched the first Sugar Hub instead of a center.

We partnered with Trip Advisor to create a cement hall in the middle of the village and invited many other organizations to operate there.

We created this platform for nonprofits. This is so that nonprofits can address and address other issues not addressed by Sughar. For nonprofits, it makes it an easy place to do training, use it as a farmer's school, or even use it as a marketplace, or whatever they want to use. And they are doing really amazing things.

And so far, we have been able to reach 900 women in 24 villages across Pakistan.

(Applause.) But really, that's not what I want.

My dream is to reach out to 1 million women in the next 10 years. And to make sure we do that, this year we launched the Sugar Foundation in the United States.

We plan to fund Sughar as well as many other organizations in Pakistan to replicate this idea and find even more innovative ways to unlock the potential of rural women in Pakistan.

Thank you very much.

(Applause.) Thank you. thank you. thank you.

Chris Anderson: Halida, you are truly a force of nature.

So, in many ways, this story feels incredible.

It's incredible that someone so young can achieve so much with such strength and ingenuity.

So I have one question. It's a grand dream to reach out and empower a million women. How much of your current success depends on the power of this charming personality?

How will it scale?

Kalida Brohi: I think my job is to inspire and to dream.

There are many ways to do it, so I can't tell you how to do it.

We have only experimented with three methods.

There are hundreds of ways to unlock a woman's potential.

I just inspire and that's my job.

We will continue to do so. Sugar still grows.

We plan to reach out to two more villages and hope to expand from Pakistan to South Asia and beyond in the near future.

CA: I loved how you talked about your team in the talk. So you were all 18 at the time.

What was this team like?

This is your friend from school, right?

KB: Do people here believe I'm old enough to be a grandmother in the village?

My mother got married at the age of nine, and I am the oldest unmarried and idle woman in the village.

CA: Wait, wait, are you doing nothing?

KB: No. CA: That's right.

KB: People often sympathize with me.

CA: But how long have you actually been back in Balochistan?

KB: I live over there.

We still live between Karachi and Balochistan.

All my brothers go to school.

I am still the eldest of 8 siblings.

CA: But what you're doing is definitely a threat to some people out there.

How do you handle safety? Are you comfortable?

Is there a problem there?

KB: This question has been asked many times before and the word "fear" seems to come and go, but there is one fear that is different.

My fear is what will happen to the people who love me so much if I am killed.

My mother waits until late at night for me to come home.

My sisters want to learn a lot from me and there are a lot of girls in my community who want to talk to me and ask me different things. I recently got engaged. (Laughter) (Applause) CA: Is he here?

(Applause) KB: Escaping an arranged marriage, I chose my husband in Los Angeles, a world really different.

I had to fight all year long. That's a whole other story.

But I think that's the only thing I'm afraid of, and I don't want my mom to see anyone when she's waiting for me at night.

CA: So, for those who want to help you along the way, can I go on and buy the actual made, embroidered clothes that you bring with you in Balochistan?

KB: Right.

CA: Or you can join a foundation.

KB: Of course. We are looking for as many people as possible. Because the foundation is in the start-up phase, I'm trying to learn a lot about how to operate, how to raise funds, how to reach out to more organizations, especially e-commerce, which is very new to me.

I mean, I'm not a fashion person, trust me.

CA: Well, I'm really glad you're here.

Please continue to be brave, act smart, and stay safe.

KB: Thank you. CA: Thank you, Carida. (applause)

Today I would like to talk about the math of love.

Now, I think we can all agree that mathematicians are good at finding love.

(Laughter) But it's not just because of our dashing personalities, great conversational skills, and great pencil cases.

It's also because we've actually done an enormous amount of math on how to find the perfect partner.

Now, the title of my favorite paper on the subject is "Why I Don't Have a Girlfriend" -- (laughter) Peter Backus is trying to assess his chances of finding love.

Well, Peter is not such a greedy man.

Among the women available in the UK, Peter is only looking for people who live nearby, who are in the right age group, who have a college degree, who he can get along with, who is attractive, who he finds attractive.

(Laughter) And there's an estimated 26 women across the UK.

(laughter) It doesn't look very good, is it Peter?

Now, to put this into perspective, this is about 400 times less than the best estimates of the number of extraterrestrial intelligent life.

And Peter has a 1 in 285,000 chance of running into one of these special women on any given night out.

I'd like to think that's why mathematicians didn't go out of their way to go out at night.

The point is that I personally do not agree with such a pessimistic view.

Because I know, like all of you, that love really doesn't work out that way.

Human emotions are not well-ordered, rational, or easily predictable.

But I also know that that doesn't mean math doesn't have something to offer us. Because, like most things in life, love is full of patterns, and math is all about the study of patterns after all.

Patterns from weather forecasts to stock market fluctuations to planetary movements and city growth.

And let's be honest, none of these things are exactly neatly ordered or easily predictable.

Because I believe that mathematics is very powerful and can offer new ways of looking at almost anything.

Even something mystical like love.

So, to help you understand how wonderful, good, and relevant math can be, here are three mathematically testable love tips.

(Laughter) So, top tip #1: How to win online dating.

So my favorite online dating site is OkCupid. Especially since it was started by a group of mathematicians.

Well, being mathematicians, they've been collecting data on everyone who uses the site for almost a decade.

And they're looking for patterns in the way we talk about ourselves and interact with each other on online dating sites.

And they came up with some very interesting findings.

But what I particularly like about online dating sites is that popularity isn't determined by how attractive you are, and in fact, it can work to your advantage if people think you're ugly.

(Laughter) Let me explain how this works.

OkCupid's thankfully self-directed section lets you rate how attractive people find you on a scale of 1 to 5.

Now, when you compare this score, or average score, with the number of messages selected people receive, you can begin to see how attractiveness is tied to popularity on online dating sites.

This is the chart the folks at OkCupid came up with.

And what's important to note is that it's not entirely true that the more attractive you are, the more messages you receive.

But the question arises, why are the people here so much more popular than the people here, even though they have the same attractiveness score?

The reason is that it's not just the simple looks that matter.

So let's illustrate their findings with an example.

Take someone like Portia de Rossi for example, everyone agrees that Portia de Rossi is a very beautiful woman.

No one thinks she's ugly, but she's not a supermodel either.

Comparing Portia de Rossi to someone like Sarah Jessica Parker, I think a lot of people, myself included, think that Sarah Jessica Parker is truly amazing and probably one of the most beautiful creatures to ever walk the earth.

But some other people, much of the internet...

(Laughter) She seems to think she resembles a horse.

(Laughter) Now, if you ask people how attractive they think Jessica Parker and Portia de Rossi are, and ask them to rate them on a scale of 1 to 5, I think they'll average about the same score.

But it will change the way people vote.

So all of Portia's scores will be centered around the four. Because while everyone agrees that Portia is extremely beautiful, Sarah Jessica Parker is completely divided.

Her scores will vary greatly.

And it's this spread that really matters.

This spread makes it more popular on internet dating sites online.

So if someone finds you attractive, it's actually better to make some other people think you're a millionaire.

It's so much better than everyone thinking you're the pretty girl next door.

Now, from the point of view of the people sending these messages, I think this makes a little more sense.

For example, you find someone attractive, but suspect that others aren't necessarily as interested either.

That means less competition and more motivation to get in touch.

On the other hand, compare this to when you find someone attractive but doubt that everyone will find them attractive.

Let's be honest, why bother humiliating yourself?

But here's where it gets really interesting.

Because when choosing photos to use on online dating sites, people often try to minimize what some may find unattractive.

A typical example is someone who is probably slightly overweight and deliberately chooses a picture that is extremely cropped (laughs), or a bald man who deliberately chooses a picture with a hat, for example.

But really, this is the opposite of what you should do if you want to be successful.

Rather, you should do everything in your power to make yourself different, even if some people might find it unattractive.

Because those who like you just like you anyway, and the unimportant losers who don't, are, well, just playing in your favor.

OK, top tip #2: How to choose the perfect partner.

Now let's imagine that you are a big success on the dating scene.

But the question arises of how to translate that success into long-term well-being, and in particular how to determine the right time to settle down.

Now, in general, it's not a good idea to just make money and marry the first person who shows even the slightest interest.

But likewise, if you want to maximize your chances of long-term happiness, you don't want to leave it too long.

My favorite author, Jane Austen, said, "A seven-year-old and a twenty-year-old unmarried woman can never hope to feel loved or aroused again."

(Laughter) Thank you very much, Jane.

(Laughter) So the question is, with so many people you can date in your lifetime, how do you know when is the right time to settle down?

Thankfully, there's some handy mathematics to help here called optimal stopping theory.

So let's imagine that you want to start dating at the age of 15 and ideally be married by the age of 35.

And there are many people you might associate with throughout your life, but with varying levels of goodness on their part.

Now the rule is that once you make money and get married, you can't look to the future and think about what you could have had, just like you can't go back and change your mind.

At least in my experience, I've found that people usually don't really like being sent off by other people and being reminded after years, or it's just me.

So, according to the math, what you should do in the first 37% of your dating life is to reject anyone with serious potential marriage.

(Laughter) And the next person to show up should be someone better than anyone you've seen before.

Here is an example.

Doing this actually proves mathematically that this is the best way to maximize your chances of finding the perfect partner.

Unfortunately, it must be said that this method comes with some risks.

Imagine, for example, that the perfect partner appeared during the first 37 percent.

Unfortunately you have to reject them.

(Laughter) Well, if you do the math, unfortunately you won't find anyone better than the one you've seen. So you have to keep rejecting everyone and die alone.

(Laughter) Probably surrounded by cats...

OK, another risk is instead that the first 37 percent of people we dated were incredibly dull, boring, and terrible.

It's okay, you're in the rejection phase, so it's okay, it's okay to reject them.

But imagine the next person to be just a little bit boring, boring, and awful...

(laughs) Better than anyone I've ever seen.

Well, if you're following the math, I'm sorry, but you have to marry them...

(Laughs) And frankly, you end up in a suboptimal relationship.

sorry.

But I think there's an opportunity here for Hallmark to make money in this market and really respond.

Valentine's card like this.

(Laughter) "My dear husband, you're not even slightly worse than the first 37 percent I dated."

(Laughter) Actually, it's more romantic than I usually manage.

(Laughter) This method is not 100% successful, but no other strategy is more effective.

And indeed, there are certain types of fish that follow and employ exactly this strategy in the wild.

As such, they reject any suitor that appears during the first 37 percent of the mating season, then pick the next fish that comes after that period. It's bigger and tougher than any fish I've ever seen, I don't know.

I think people do this unconsciously.

When we are young, we give ourselves a little time to play on the field, to soak up the atmosphere of the market and so on.

And it's not until you reach your mid-to-late 20s that you start seriously considering marriage candidates.

I think this is definitive proof that everyone's brain is pre-wired to be just a little bit more mathematical, even if it needed to be.

That's it for Top Tip #2.

Well, top tip #3: How to avoid divorce.

Now imagine you choose the perfect partner and build a lifelong relationship with that partner.

Now, I think everyone ideally wants to avoid divorce, I don't know, maybe Piers Morgan's wife?

(Laughter.) But it's a sad fact of modern life that one in two marriages in America ends in divorce, and the rest of the world is no less.

Now, perhaps it's no wonder that the arguments that precede a separation are not ideal candidates for mathematical investigation.

First, it is very difficult to know what to measure and what to quantify.

But psychologist John Gottman did not stop at this and did just that.

Gottman observed hundreds of couples conversing and recorded everything he could think of.

So he recorded what was said in the conversation, skin conductivity, facial expressions, heart rate, blood pressure, and basically everything apart from whether or not his wife was actually always right. By the way, my wife was completely right.

But Gottman and his team found that one of the most important predictors of whether a couple will get divorced is how positive or negative each partner is in conversation.

Now, the very low-risk couples scored far more positive than negative points on the Gottman scale.

They found themselves in a downward spiral while having a bad relationship, which would likely result in a divorce.

Using just these very simple ideas, Gottman and his group were able to predict with 90% accuracy whether a particular couple would get divorced.

But it wasn't until I teamed up with mathematician James Murray that I really started to understand what causes and how these downward spirals happen.

And I think the results they found were incredibly simple and interesting.

These equations therefore predict how a wife or husband will react in the next conversation, how positively or negatively they will be.

And these equations are determined by how a person feels when he is alone, how he feels when he is with his partner, but most importantly, how much the husband and wife influence each other.

Now, I think it's important to point out at this stage that these exact equations have proven to perfectly explain what happens between the two countries in an arms race.

(Laughter.) So, an arguing couple going through negative emotions and being on the brink of divorce is actually mathematically equivalent to the beginning of a nuclear war.

(Laughter) But the really important term in this equation is the effect people have on each other, specifically what's called the "negativity threshold."

Well, the negativity threshold allows you to think about how much a husband can annoy you before your wife really starts getting pissed off. And vice versa.

Now, I always thought a good marriage was about compromise, understanding, and giving the other person space to be themselves.

So I would have thought that perhaps the most successful relationships are those that have a very high threshold of negativity.

When couples leave things alone and only bring things up when it really matters.

In practice, however, the team's mathematics and subsequent discoveries showed that the exact opposite was true.

The best, or most successful, couples are those with very low negativity thresholds.

These couples don't miss a thing and give each other room to complain.

Such couples are continually trying to mend their relationship and have a more positive outlook on married life.

Couples who don't let things go, and couples who don't let little things end up in trouble.

Of course, having a good relationship requires more than just lowering the threshold of negativity and not compromising a little bit.

But I find it very interesting to know that there is mathematical evidence that anger should never be allowed to sink.

Here are my top three tips on how math can help you in your love life and relationships.

But I hope it gives you a little insight into the power of math rather than just using it as a hint.

Because to me, equations and symbols are more than just things.

They speak out about the amazing richness of nature and the astonishing simplicity of the patterns that twist, bend, distort and evolve around us, from how the world works to how we act.

So I hope that perhaps just a few of you are persuaded to love math a little more with a little insight into the math of love.

thank you.

(applause)

Have any of you been exposed to tear gas?

tear gas? Who?

Sorry, you may know that this is a highly toxic substance, but you may not know that it is a very simple molecule with the unpronounceable name Chlorobenzalmalononitrile.

Hooray.

Although it has been around for decades, it seems to be very prevalent among police forces around the world these days, and in my experience as someone who has not voluntarily smoked tear gas, tear gas has two main but diametrically opposite effects.

One, it can really burn your eyes, and two, it helps open them up.

Tear gas definitely helped open the door to what I wanted to share with you this afternoon. It is that live-streaming the power of independent broadcasting over the web could be transformative in journalism, activism and, as I see it, political discourse as well.

This idea began to occur to me in early 2011, when I was covering the protests in São Paulo.

It was a marijuana march, a gathering of people calling for the legalization of cannabis.

As the group began to move, riot police came from behind with rubber bullets, bombs and gas.

But long story short, I joined the protest as editor-in-chief of a long-established print magazine where I worked for 11 years, but the unwanted effects of this tear gas left me as a journalist dedicated to new ways to share the raw experience of what it's like to actually be there.

So the next week I was back on the streets, no longer a member of any media.

I was there as an independent livestreamer and basically all I had was borrowed equipment.

I had a backpack with a very simple camera and a 3G modem.

And I had a web link that I could share through social media and put up on any website, so the protest worked then.

there was no violence.

There were no action scenes.

But it was really exciting. I could see a TV channel broadcasting it from afar and they had big vans and teams and cameras. I was doing basically the same thing, all I had was a backpack.

It was really exciting for journalists, but the most interesting thing was when I got home. In fact, I received hundreds of emails and messages from people who found out I was being seen by over 90,000 people and basically asked how I did it and how it was even possible.

And I learned another thing. That said, it was actually the first time someone had live-streamed a street protest in this country.

It was a real shock. I was neither a geek nor a tech expert, so all the equipment I needed was already there and easily available.

And I realized that there's a frontier here, a very important frontier, it's just a matter of changing the perspective, the web can actually be used as a huge, uncontrollable, very anarchic TV channel, a TV network, it's already in use, anyone with very basic skills and very basic equipment, even people like me who had this little stuttering problem, if it does, be patient, even people like me can be broadcasters.

And it sounded revolutionary in my mind.

So over the next few years I started experimenting with live streaming in different ways, not just on the street, but mostly in the studio and at home. Last year, early 2013, I became the co-founder of a group called Mídia NINJA.

NINJA is Narrativas Independentes Jornalismo e Ação, or an acronym that stands for Independent Story, Journalism and Action in English.

It was a media group with very little media plan.

We didn't have a financial structure.

We weren't looking to make any money off of this, but it was smart. Because you shouldn't be trying to make money with journalism now.

But we had a very strong and clear belief that the hyper-connected environment of social media might allow us to integrate an experimental network of journalists across the country.

So we first launched a Facebook page, then a manifesto, and started street coverage in a very simple way.

But then something unexpected happened that no one expected.

Street protests have begun to erupt in Sao Paulo.

They started out as very local and specific.

They objected to a bus fare increase that just happened in the city.

This is a bus.

It says "theft".

But such signs began to multiply and it kept happening.

As a result, police violence against them also began to increase.

However, there was another contradiction. I believe it is more important to make my point here that it is a narrative contradiction.

There was a mainstream media version of this fact that anyone in the streets could easily dispute if they presented their own vision of what was actually going on there.

And I think it is this clash of visions, this clash of narratives that prolongs the protests in the country of political liquidation, with hundreds of thousands, perhaps a million or more, taking to the streets across the country.

But it was no longer a matter of increasing bus fares.

it was all about.

People's demands, expectations, and reasons for taking to the streets are diverse and often contradictory.

I hope you can understand me if you read it.

But in the political cathartic environment that the country is experiencing, it certainly has to do with politics, but it also has to do with new ways of organizing through new ways of communicating.

It was with the right equipment that Mídia NINJA grew from near-anonymity to national phenomenon.

I don't use big cameras.

We basically use this.

We use smart phones.

In fact, it allowed us to disappear in the middle of protests, but it allowed us to do more. It's about showing what it's like to be in a protest and presenting a subjective perspective to people in the country.

But I think there was something more important than equipment.

We don't act as media, so that was our way of thinking.

We are not fighting over the news.

We are trying to encourage people, invite them and actually teach them how to do it and how they can be broadcasters.

And that was very important to change Mídia NINJA from a minority group. And within a matter of weeks we were growing in numbers and growing exponentially across the country.

In just a week or two, hundreds of young people of ours were connected to this network across the country during the ongoing protests.

We were covering over 50 cities at the same time.

That's something no TV station can ever do.

That's actually what caused us to suddenly turn into a kind of mainstream media, social media.

So the Facebook page had thousands of followers and quickly grew to 250,000 followers.

Our posts and videos were viewed by over 11 million timelines per week.

It was far beyond what any newspaper or magazine could do.

And that turned Mídia NINJA from being a media project into something else beyond media outlets.

It has become something of a public service to citizens, protesters and activists. Because they had very simple, efficient and peaceful tools to oppose both the police and media powers.

Many of our images have started being used on regular TV channels.

When the situation got really bad, our livestream started airing on regular TV as well.

Some of our images have been responsible for bringing out of prison people who have been falsely arrested and were able to prove their innocence.

And unfortunately, because of this, Mídia NINJA was quickly considered an enemy of the police, and we were brutally beaten and eventually arrested in the streets.

It happened on many occasions.

But it was also informative. Because we were still using the web, it helped spark important domestic debates about the role of the media itself and the state of press freedom in the country.

So Mídia NINJA evolved and finally settled into what we wanted. It is a national network of hundreds of young people who self-organize locally to cover social and human rights issues and express themselves not only politically but also journalistically.

As I started earlier this year, Mídia NINJA is already a self-organizing network, so I'm devoting myself to another project.

It's called "Fluxo" which means "flow" in Portuguese.

Here in a journalism studio in downtown São Paulo, we used livestreams to experiment with the so-called post-TV format.

But I'm also trying to figure out how to fund independent journalism through a direct relationship with an audience, an active audience relationship. Because now I really want to make a living with my tear gas determination back then.

But there is something more important here, more important and important than my personal example, I believe.

We said that livestreams can turn the web into a giant television network, but we believe it has a different effect. Because after seeing people use it to represent and organize politically, not just to report things, we believe livestreams can turn cyberspace into a global political arena where everyone has the right voice. Because livestreams monopolize broadcast political discourse, monopolize the verbal aspect of political dialogue from the mouths of politicians and political commentators only, and empower citizens through this direct and indirect. -Through the power of exchange and dialogue of experience, they will be able to question authorities and influence them in the ways we will see.

And I believe it does another thing that may be even more important. It is, I think, that the simplicity of technology allows us to blend objectivity and subjectivity in a very political way. Because it really helps citizens, the spectators, to see the world through the eyes of others, and thus to put themselves in the shoes of others.

And that idea, I think, should be the intention and the goal of good journalism, good activism, and most of all, good politics.

thank you very much. It was an honor.

(applause)

It used to be thought that if you wanted a computer to do something new, it had to be programmed.

Now, for those of you who have never programmed yourself, programming involves laying out in excruciating detail all the steps you want your computer to take to achieve your goal.

Now, if you want to do something you don't know how to do, this will be a big challenge.

This was the challenge faced by a man named Arthur Samuel.

In 1956, he wanted to get this computer so he could beat himself at checkers.

How do I write a program, lay it out in excruciating detail, and get better at checkers than I am?

So he got an idea. We trained the computer to play checkers by playing it thousands of times.

And it worked, in fact, by 1962, the computer had beaten the Connecticut state champion.

So Arthur Samuel is the father of machine learning, and I owe him a lot because I am a machine learning practitioner.

I was president of Kaggle, a community of over 200,000 machine learning practitioners.

Kaggle has run hundreds of successful contests to solve unsolved problems.

This vantage point has taught us a lot about what machine learning could do in the past, what it can do today, and what it can do in the future.

Google was probably the first place where machine learning became a major commercial success.

Google has shown that it can search for information using computer algorithms. This algorithm is based on machine learning.

Since then, machine learning has enjoyed many commercial successes.

Companies like Amazon and Netflix use machine learning to suggest products you might want to buy or movies you might want to watch.

Sometimes it's almost creepy.

Companies like LinkedIn and Facebook can tell you who your friends are, but you have no idea how they did it. This is because it uses the power of machine learning.

These are algorithms that have learned how to do this from data rather than being programmed manually.

It's also how IBM managed to answer such incredibly nuanced and complex questions and have Watson defeat two world champions in "Jeopardy."

["The ancient 'Lion of Nimrud' went missing (along with many others) from the city's National Museum in 2003"] This is also why we can now see the first self-driving cars.

For example, if you want to be able to distinguish between trees and pedestrians, that's very important.

We don't know how to write these programs by hand, but with machine learning we can.

And, in fact, this car has driven over 1 million miles on the open road without an accident.

So we know that computers can learn, and that they can actually learn things that we don't know how to do ourselves, and that in some cases they can do it better than we can.

One of the most amazing examples of machine learning I've ever seen happened in a project I ran on Kaggle. There, a team run by a guy named Jeffrey Hinton from the University of Toronto won a competition for automated drug discovery.

Now, what's amazing here is not only that they beat every algorithm developed by Merck or the international academic community, but that none of the team had a chemistry, biology or life sciences background and they did it in two weeks.

how did they do this?

They used an extraordinary algorithm called deep learning.

This was so important, in fact, that the success was featured on the front page of the New York Times a few weeks later.

This is Jeffrey Hinton on the left.

Deep learning is an algorithm inspired by how the human brain works and, as a result, an algorithm that has no theoretical limits to what it can do.

The more data you give and the more computation time you give, the better the results.

The New York Times also covered another surprising result of deep learning in this article.

This shows that computers can hear and understand.

(Video) Richard Rashid: Now, the last step in this process that I would like to be able to do is to actually speak Chinese.

The important thing here is that we were able to get a lot of information from many Chinese speakers and create a text-to-speech system that takes Chinese text and converts it to Chinese. After that, I spent an hour or so getting my own voice and using it to calibrate a standard text-to-speech system to sound like mine.

Again, the results are not perfect.

There are actually quite a few mistakes.

(in Chinese) (Applause) There is a lot to be done in this area.

(in Chinese) (applause) Jeremy Howard: Well, it was at a machine learning conference in China.

In fact, you don't often hear spontaneous applause at academic conferences, but of course it does happen from time to time at TEDx conferences, but don't be shy.

Everything I saw there was happening with deep learning.

(Applause.) Thank you.

English transcription was deep learning.

The translation to Chinese and the text on the upper right were also deep learning, and the voice construction was also deep learning.

So deep learning is pretty cool.

It's a single algorithm that seems to do just about anything, but a year ago I realized that this algorithm was also learning to see.

In this obscure German competition called the "German Traffic Sign Recognition Benchmark", deep learning learned to recognize such traffic signs.

In addition to being able to recognize traffic signs better than any other algorithm, we have shown that the leaderboard actually outperforms humans, about twice as much as humans.

So, by 2011, we had the first examples of computers with better vision than humans.

A lot has happened since then.

In 2012, Google announced that after letting a deep learning algorithm watch YouTube videos and process the data on 16,000 computers for a month, the computers independently learned concepts like people and cats just by watching the videos.

This is very similar to how humans learn.

Humans do not learn by being told what they see, but by learning what it is.

Also in 2012, the aforementioned Jeffrey Hinton won the hugely popular ImageNet competition trying to figure out what a picture was from 1.5 million images.

As of 2014, the image recognition error rate has dropped to 6%.

It is also superior to humans.

So the machines have done a very good job in this regard and are now being used in industry.

For example, Google announced last year that it mapped every location in France in two hours. The method was to feed Street View imagery into a deep learning algorithm to recognize and read street numbers.

Imagine what it would have taken dozens of people and years before.

This is also happening in China.

I think Baidu is like China's Google. Above left is an example photo I uploaded to Baidu's deep learning system. Below that you can see that the system figured out what the photo was and found similar images.

In fact, similar images include those with similar backgrounds, similar face orientations, and tongues sticking out.

This is not a clear look at the text of the web page.

I only uploaded images.

So we now have computers that really understand what we're looking at and can search databases of hundreds of millions of images in real time.

So what does it mean that computers can now see?

Well, that's not the only thing the computer can see.

In fact, deep learning has done more than that.

Complex and subtle sentences like this can now be understood using deep learning algorithms.

As you can see here, this Stanford-based system with a red dot at the top recognized that this sentence expressed a negative sentiment.

In fact, deep learning has come close to human performance in understanding what a text is about and what it says about it.

Deep learning has also been used to read Chinese, which is also on par with native Chinese speakers.

The algorithm was developed by people from Switzerland, but no one speaks or understands Chinese.

As I say, using deep learning is the best system in the world for this, even compared to natural human understanding.

This is a system I built at my company that puts it all together.

These are images with no text attached, and as I'm typing here, it understands these images in real time, understands what they're about, and finds images that are similar to the text I'm writing.

So you can see that you actually understand my writing and you really understand these pictures.

I'm sure you've seen something like this on Google. It shows an image as you type, but what it's really doing is searching for text in the web page.

This is very different from actually understanding the image.

This is the first time computers have been able to do it in recent months.

Thus, we have shown that computers can read as well as see, and, of course, they can understand what they hear.

It's probably not surprising that they're going to say they can write.

Here is a portion of the text I generated yesterday using a deep learning algorithm.

This is the text generated by the Stanford University algorithm.

Each of these sentences was generated by a deep learning algorithm to describe each photo.

In this algorithm, I have never seen a man in a black shirt playing a guitar.

It has seen men before, it has seen blacks before, it has seen guitars before, but uniquely generated this novel depiction of the painting.

We're not yet at human performance here, but we're getting close.

In our tests, humans prefer computer-generated captions 1 in 4 times.

The system is only two weeks old, so perhaps within the next year computer algorithms will far exceed human performance.

Therefore, computers can also write.

So all of this combined creates a very exciting opportunity.

In medicine, for example, a team of researchers in Boston announced that they had discovered dozens of new, clinically relevant features of tumors that could help doctors determine the prognosis of cancer.

Similarly, a group at Stanford University announced that it had developed a machine-learning-based system that actually outperforms human pathologists at predicting survival in cancer patients by looking at tissues at a larger scale.

In both cases, predictions have not only become more accurate, but insightful new science has emerged.

For radiology, they were new human-understandable clinical indicators.

In this pathological case, a computer system actually discovered that the cells surrounding the cancer were as important as the cancer cells themselves in making the diagnosis.

This is contrary to what pathologists have been taught for decades.

Both of these cases were systems developed by a combination of medical and machine learning experts, but as of last year, they have surpassed them.

Here is an example of identifying cancerous areas in human tissue under a microscope.

The system presented here can identify these regions as accurately, or nearly as accurately, as a human pathologist, but was built solely by deep learning, without medical expertise, by people with no background in the field.

Similarly, here is this neuron segmentation.

Although we can now segment neurons with nearly the same accuracy as humans, the system was developed using deep learning using people with no medical background.

So, as someone with no prior medical background, I thought I was well qualified to start a new medical company, and I did.

I was a little intimidated to do it, but the theory seemed to suggest that it would be possible to do very useful medicine using just these data analysis techniques.

And thankfully, the feedback, not only from the media, but also from the very supportive medical community, has been great.

Theoretically, this means that as much of the middle part of the medical process as possible can be turned into data analysis, leaving doctors to do what they do best.

I would like to give an example.

It currently takes about 15 minutes to generate a new medical diagnostic test. I'm going to show you this in real time, but I've cut some parts and shortened it to 3 minutes.

Rather than show you creating a medical diagnostic test, I'll show you a diagnostic test for car images. Because that's what everyone understands.

So, starting with about 1.5 million images of cars, I want to create something that can split the images according to the angle of the photo being taken.

So these images are not labeled at all and you have to start from scratch.

Our deep learning algorithms can automatically identify structural regions in these images.

The great thing is that humans and computers can now work together.

So, as you can see here, humans tell computers about areas of interest they want the computer to use to improve its algorithms.

Now, these deep learning systems are actually in a 16,000-dimensional space, so you can see the computer spinning this around in that space, trying to find new structural regions.

And when it succeeds, the human driving it will be able to point out areas of interest.

Here, the computer has successfully found areas such as angles.

So as you go through this process, you're telling the computer more and more about the kind of structure you're looking for.

In diagnostic tests, for example, we can imagine a pathologist identifying areas of lesions or a radiologist pointing out potentially problematic nodules.

It can also be difficult for algorithms.

In this case, I'm a little confused.

The front and back of the car are jumbled together.

So here we have to be a little more careful and manually select the front instead of the back to tell the computer that this is the type of group we are interested in.

So let it run for a while, skip a bit and train a machine learning algorithm based on these hundreds of things. We hope that this will greatly improve machine learning algorithms.

As you can see, some of these photos are starting to fade out, and you can see that we already know how to make sense of these photos themselves.

Then you can use this similar image concept. Using a similar image, we can see that at this point the computer can perfectly locate just the front of the car.

At this point, the human can tell the computer, "Okay, yes, well done."

Of course, even at this point it can be difficult to distinguish between groups.

In this case, even if you let the computer rotate it for a while, you will find that the left and right photos are all mixed up.

So again we can give the computer some hints. Then, using this deep learning algorithm, we can say, try to find a projection that separates the left and right sides as much as possible.

And given that hint, oh, okay, I succeeded.

I was able to find a way to separate and think of these objects together.

You'll get the idea here.

This is when humans work collaboratively rather than being replaced by computers.

What we're doing here is replacing what used to take a team of 5-6 people about 7 years with a job that would take 1 person 15 minutes to do alone.

So this process takes about 4-5 iterations.

We can see that currently 62% of the 1.5 million images are classified correctly.

At this point, you can quickly grab entire large sections and check them to make sure there are no mistakes.

If you make a mistake, you can tell the computer about it.

And by using this kind of process for different groups, we are currently achieving up to 80% success rate in classifying 1.5 million images.

At the moment I'm just trying to find a small number of numbers that aren't classified correctly and understand why.

Using this approach, we reach a 97 percent classification rate in 15 minutes.

Therefore, this kind of technology has the potential to solve the big problem of the world's lack of medical expertise.

The World Economic Forum says developing countries are 10 to 20 times short of doctors and it will take about 300 years to train enough people to solve the problem.

Now imagine if these deep learning approaches could be used to improve their efficiency.

So I am very excited about this opportunity.

I'm also worried about problems.

The problem here is that all the blue areas on this map are places where service is over 80 percent of employment.

What are services?

These are services.

These are also just things that computers have just learned how to do.

In other words, 80 percent of the world's jobs in developed countries are the ones computers have just learned how to do.

what do you mean?

Well, it's okay. They will be replaced by other jobs.

For example, there will be more jobs for data scientists.

No, it's not.

It doesn't take a data scientist much time to build these things.

For example, all four of these algorithms were built by the same person.

So if you think, oh, it all happened before, and you've seen the result in the past of new things coming up and being replaced by new jobs, what about these new jobs?

Human performance grows so slowly that it's very difficult to estimate, but now we have a system called deep learning, and we know that our abilities actually grow exponentially.

and here we are.

Now we look at our surroundings and say, "Oh, computers are still pretty stupid." right?

But in five years, computers will be off this chart.

So we should start thinking about this feature now.

Of course, we've seen this once before.

The Industrial Revolution saw a gradual change in power thanks to the engine.

But the thing is, after a while, things flattened out.

There was some social turmoil, but things calmed down completely once engines were used to generate electricity in every situation.

The machine learning revolution will be very different from the industrial revolution. Because the machine learning revolution will never take hold.

Our previous understanding of the possibilities is different, because as the intellectual activity of computers improves, we build better computers and improve their intellectual capacity, this will be the kind of change the world has never really experienced before.

This is already affecting us.

Over the past 25 years, while capital productivity has improved, labor productivity has remained flat and actually declined slightly.

So let's start this discussion now.

I know people can be very negative when I talk to people about this situation often.

Well, computers can't really think, they can't express emotions, they can't understand poetry, and we don't really understand how computers work.

so what?

Computers can now do what humans are paid to spend most of their time doing, so now is the time to start thinking about how to adjust our social and economic structures to perceive this new reality.

thank you.

(applause)

still power.

I heard about high schools in Chicago that they had to pass a certain number of courses to graduate, and if they didn't pass a course they were given a grade of "not passed."

I thought that was great. Because if you get a failing grade, you think you're nobody and you're nowhere.

But if you get a "yet" rating, you know you're in the middle of the learning curve.

It gives you a way into the future.

"Not Yet" also gave me insight into a key event early in my career, a real turning point.

I wanted to see how the children coped with the challenges and difficulties, so I gave them a little too difficult problem for 10 year olds.

Some of them responded surprisingly positively.

They said things like 'I love a challenge' or 'I was hoping this would be beneficial'.

They knew they could develop their abilities.

They had what I call a "growth mindset."

However, other students found it tragic and devastating.

In terms of their more fixed mindsets, their intelligence was judgmental and they failed.

Instead of still luxuriating in power, they were still trapped in the current oppression.

So what will they do next?

I'll tell you what they do next.

One study states that if they fail a test, they will probably cheat next time rather than study further.

Another study looked for people who did worse than they did so that they could be truly happy with themselves after failing.

And in study after study, they have escaped from difficulties.

Scientists measured the brain's electrical activity when students faced a mistake.

On the left you can see a student with stereotypes.

Very little activity.

They run away from errors.

they don't get involved in it.

But on the right is a student with a growth mindset, the idea that abilities can be developed.

they are deeply involved.

their brains are still burning.

they are deeply involved.

They handle errors.

They will learn from it and fix it.

How are we raising our children?

Raise for now, not yet?

Are we raising kids obsessed with getting As?

Are we raising children who don't know how to dream big?

Is their biggest goal to get the next A or the next test score?

And will they carry this constant need for validation into the rest of their lives?

Maybe it's because employers come to me and say, "I've already raised a generation of young workers who can't spend a day without winning an award."

So what can we do?

How can we still build that bridge?

Here are some things we can do.

First of all, instead of praising intelligence or talent, you can praising wisdom.

it failed.

Please don't do that again.

But I admire the process, the effort, the strategy, the focus, the perseverance and the improvement that the children are working on.

Praising this process will produce strong, resilient children.

There are still other ways to earn rewards.

We recently collaborated with game scientists at the University of Washington to create a new online math game that is still challenging.

In this game, students were rewarded for their effort, strategy and progress.

In normal math games, you get rewarded for getting the right answer right away, but in this game you get rewarded for the process.

And we got more effort, more strategy, more commitment over the long haul, and more patience when faced with really, really hard problems.

We have found that the word "yet" or "yet" alone can give children great confidence and a path to a future that generates greater tenacity.

And you can actually change the way students think.

One study taught that every time children step out of their comfort zone to learn something new and difficult, neurons in their brains form new and stronger connections, allowing them to get smarter over time.

Let's see what happened. In this study, students who weren't taught this growth mindset continued to perform poorly during this difficult school transition, while those who were taught this lesson recovered sharply.

We have now shown such improvements to thousands of children, especially those who are struggling.

Now let's talk about equality.

There are groups of students in our country who are chronically underperforming, including urban children and Native American reservation children.

And their performance has been so bad for so long that many consider it inevitable.

But equality happens when educators create classrooms instilled with a growth mindset.

Here are some examples.

One year, a kindergarten class in Harlem, New York scored in the 95th percentile on a national achievement test.

Many of those kids couldn't hold a pencil when they arrived at school.

One year, a South Bronx senior ranked number one in a class of New York State seniors on a state math test, far behind.

In a year to a year and a half, Native American students at schools on the reservation rose from the bottom of the district to the top. The school district also included wealthy neighborhoods in Seattle.

So native kids outperformed Microsoft kids.

This happened because the meaning of effort and difficulty was transformed.

Before, effort and hardship made them feel stupid and make them want to give up, but now, with effort and hardship, their neurons are forming new connections, stronger connections.

That's when they're getting smarter.

I recently received a letter from a 13 year old boy.

He said, "Dear Professor Dweck, I appreciate that your work is based on solid scientific research, which is why I have decided to put it into practice.

I put more effort into my studies, my relationships with my family, and my relationships with my children at school, and experienced great improvements in all of them.

I now realize that I have wasted most of my life. ”

Let's not waste any more lives. For, knowing that capacities are capable of such growth, living in a place that produces that growth, in a place full of 'yet', is a fundamental human right for children, all children.

thank you.

(applause)

There are many superheroes in our world.

But they have the worst of all psychic abilities: transparency.

Catadors, for example, are workers who collect recyclable materials for a living.

Catador arose from large amounts of solid waste due to social inequalities, unemployment and flawed waste collection systems.

Catador provides heavy, honest and essential work that benefits the whole nation. But they are not allowed to do so.

Here in Brazil, 90 percent of all waste that is actually recycled is recovered.

Most catadors operate independently, picking up waste from the streets and selling it to junkyards at very cheap prices.

They may collect more than 300 kg in bags, shopping carts, bicycles, carosas, etc.

Carosas are carts made of wood or metal, and can be found on some streets in Brazil, along with graffiti and street art.

This is how I first encountered alienated superheroes.

I am a graffiti artist and activist and my art is social, environmental and political in nature.

In 2007, I took my work beyond the walls to Calosa as a new support for my message in the city.

But for now, we're giving Catador a voice.

Adding art and humor to the cause made it more appealing, drew attention to the catadores, and helped boost their self-esteem.

Also, they are now famous on the streets, in the mass media and on social media.

I mean, I jumped into this world and haven't stopped working since.

I have painted over 200 carosas in many cities and have been invited to exhibit and travel all over the world.

And then I realized that invisible catadores aren't just for Brazil.

I have met them in Argentina, Chile, Bolivia, South Africa, Turkey, and even developed countries such as the United States and Japan.

And at this point I realized that this is a big challenge and we need more people to join the movement.

And so I started a collective movement called "Pimp My Carroça" -- (laughter) -- which is a massive crowdfunding event.

thank you.

(applause).

In short, Pimp My Carroça is a massive crowdfunding event to support catadores and their carosas.

Catador is supported by health care professionals and healthcare professionals including doctors, dentists, podiatrists, hair stylists and massage therapists.

They will also receive safety shirts, gloves, raincoats and glasses to see the city in high definition and Calosa will be renovated by our amazing volunteers.

In addition, you will receive safety supplies such as reflective tape, horns and mirrors.

And finally, be part of this huge and amazing mobile art exhibition, painted by a street artist.

Pimp My Carroça hit the streets of São Paulo, Rio de Janeiro and Curitiba.

But to meet the demands of other cities, including outside Brazil, we created Pimpx inspired by TEDx. This is a simplified do-it-yourself crowdfunded version of Pimp My Carroça.

Anyone can now participate.

In two years, more than 170 catadores, 800 volunteers, 200 street artists and over 1,000 donors have joined the Pimp My Carroça movement, which has also contributed to recycling education in local schools.

As such, Catador is becoming more and more respected and appreciated, leaving behind an invisible presence.

Thanks to prostitutes, they are able to confront prejudice, increase their income, and increase their interaction with society.

So now I would like to ask you to start by noticing and recognizing the Catadores and other invisible superheroes in your city.

Try to see the world as one, without boundaries or frontiers.

Believe it or not, there are over 20 million catadores worldwide.

Next time you see this animal, please know that it is an integral part of our society.

thank you very much.

(applause).

I am a lexicographer.

I make a dictionary

And my job as a lexicographer is to try to get every possible word in the dictionary.

My job is not to decide what words are. that's your job.

All English speakers decide together what is a word and what is not.

Any language is just a group of people who agree to understand each other.

Now, when people try to decide if a word is good or bad, sometimes there really isn't a good reason.

So they say things like, "Because it's grammar!"

(Laughter) I'm not really into grammar. don't tell anyone

However, the word “grammar” actually has two types of grammar.

There's something like grammar in your brain, if you're a native speaker of a language, or if you speak it well, it's the unconscious rules that you follow when you speak that language.

And this is what you learn when you learn a language as a child.

Here's an example: this is wug, right?

It's Ugu.

Now there is one more.

There are two of these.

There are two...

Audience: Wags.

Erin McKean: Exactly! You know how to make the plural form of wug.

The rules live in your brain.

You don't need to be taught this rule, just understand it.

This is an experiment invented in 1958 by a Boston University professor named Gene Berko Gleason.

So we have been talking about this for a long time.

Now, these laws of nature that exist in your brain are not like traffic laws, but more like laws of nature.

And nobody needs to remind you to obey the laws of nature, right?

When you leave the house in the morning, your mom doesn't say, "Hey honey, it's going to be cold, put on your hoodie and remember to obey the laws of gravity."

No one says that.

Now, there are other rules that are not about nature, but about manners.

So words can be thought of like hats.

No one needs to tell you not to wear a hat on your feet if you understand how hats work.

All they have to tell you is, "Can I wear a hat indoors?"

who can wear a hat?

What kind of hats can you wear? ”

These are more like a second kind of grammar, which linguists often call usage, as opposed to grammar.

Now, sometimes we use this kind of rule-based grammar to discourage people from making words.

And I think that's, well, stupid.

For example, people always say, "Be creative, make new music, do art, invent things and technology."

But when it comes to words, it's like, "Don't. No. Creativity stops here, Whippernapper. Rest."

(laughs) But that doesn't make sense to me.

Words are wonderful. There should be more.

I want you to create new words as much as possible.

And I'll show you 6 methods you can use to make new words in English.

The first method is the easiest.

Basically steal from other languages.

["steal other people"] (Laughter) Linguists call this borrowing, but we never get the word back. So I would honestly call it stealing.

We usually verbalize what we like, such as delicious food.

"Kumquat" comes from Chinese and "caramel" comes from French.

There are also words that express cool things such as "ninja".

It's kind of a cool trick because it's taken from the Japanese and hard to steal from a ninja.

(Laughter) Another way to make words in English is to combine two other English words.

This is called compound interest.

English words are like Lego. With enough power, you can combine any two.

(Laughter) We do this all the time in English. Words like “broken heart,” “bookworm,” and “sandcastle” are all compound words.

So make up words like "duck face". Just don't duck face.

(Laughter) Another way to make words in English is similar to synthesis, but you use so much force when squashing the words that some pieces fall out.

So, they are mixed words, just like "brunch" is "breakfast" and "lunch" mixed.

"Motel" is a coined word combining "motor" and "hotel".

Who knew "motel" was a mixed word here.

Yes, the word is so old in English that many people don't know there is a missing piece.

"Edutainment" is a coined word that combines "education" and "entertainment".

And of course "electrocute" is a combination of "electric" and "execute".

(Laughter) You can also make words by changing the actions of words.

This is called function shift.

Take a word that acts as a part of speech and change it to another part of speech.

Now, who knew that "friend" wasn't always a verb here?

"Friend" used to be a noun, but it is now a verb.

Almost every word in English can be verbified.

Adjectives can also be nouns.

"Commercial" used to be an adjective, but now it's a noun.

And, of course, you can also "green" things.

Another method of making words in English is reverse formation.

You can also cram a few words.

For example, English had the word "editor" before the word "edit" existed.

"Edit" came from "Editor".

Bulldozers are bulldozers, butlers are butlers, and robbers are robbers.

(Laughter) Another way to make words in English is to take the first letters of something and squash them.

So the National Aeronautics and Space Administration becomes NASA.

And of course this can be done with anything.

So it doesn't matter how stupid the words are.

They can be really good English words.

"Absquatulate" is perfect English.

"Mugwump" is perfect English.

So the words don't have to sound normal, they can sound really silly.

Why do we need to make words?

Words need to be made up because every word is a chance to express your ideas and convey meaning.

And new words attract people's attention.

That way, people can focus on what you're saying and have a better chance of understanding what you're trying to say.

A lot of people on this stage today said, "In the future you can do this. You can help us with this. You can help us explore. You can help us invent."

Now you can make new words.

English has no age limit.

Start making words today and send them to me. Then register with my online dictionary Wordnik.

Thank you very much.

(applause)

I am a visual artist, creating innovative art that moves history forward.

To be clear, I do not accept America's economic foundation, social relations, or governing ideology.

My art contributes to fundamental change by encouraging audiences to address the big questions in that light.

Changing society is hard, but ideas are very important.

When I say I'm an artist, most people think, "Oh, he's a painter."

Behind me you can see some of the work I do.

"Imagine a World Without America" ​​is a painting, but works in a variety of media including photography, video and performance art.

The ongoing project, "Reenactment of the Slave Rebellion," will be performed in a suburb of New Orleans in November this year.

In 1989, I had a piece that was the center of controversy regarding the illegal use of the Stars and Stripes.

"What is the correct way to display the US flag?"

It is a conceptual work that encourages audience participation.

It consisted of a montage of photos with the text "What is the proper way to display the US flag?"

Below that was a book where people could write the answer to that question, and below that was a flag that people could choose to stand on.

The photo montage consisted of an image of a South Korean student holding a placard reading "Yankee go home, motherfucker" and burning an American flag, under which was a flag-clad coffin returning from Vietnam.

People wrote long and short answers.

Thousands of people have worked on this task in different languages.

Some said, "I'm a German girl."

If we Germans admired the flag as much as you do, we would be called Nazis again.

I think you are worrying too much about this flag. ”

“I think the artist should be returned to his heritage, the African jungle, so he can dig for manure in an artistic way.”

"This flag where I stand represents all that is oppressive in this system. The murder of Indians and oppressed people around the world, including my brother who was shot by a pig and kicked over his body to 'make sure the black people die.' That pig was wearing a flag.

Dred Scott, thank you for this opportunity. ”

"As a national flag veteran, I personally would never stand up for your idiots!

Should be shot! -- US Navy SEAL.

As you can see, people had a very strong reaction to this flag then and now.

There was a demonstration of veterans in front of the Art Institute of Chicago.

“Hold both flags and artists,” they shouted, conjuring images of Lynch.

I received numerous death threats and bomb threats at my school.

It was a very dangerous situation.

President Bush then called the work "disgraceful," but I considered it so honorable that Congress outlawed it.

(Laughter) I was part of a Supreme Court case when I and others defied this law to burn flags on the steps of the Capitol.

This action, and the ensuing legal and political struggles, led to the landmark First Amendment decision to prevent the government from requiring patriotism to be mandated.

But let me back it up a bit.

These people literally wanted me dead.

What I do in this moment will make a difference.

This is me in the exact same moment, eight floors above that crowd.

It was for a photo shoot that was to take place on the stairs where the veterans were at the time.

It wouldn't have been safe if I had been there to say the least.

But doing that shoot was really important. While some people wanted to kill me, others who thought the Stars and Stripes represented everything oppressive in this system felt they had a voice and that voice needed to be amplified.

This is the point. Whether it's traditional thinking about America's national symbol, traditional thinking being challenged by scientific advances, or the ousting of an authoritarian president, it takes a lot to change something.

It takes courage, luck, and boldness of vision and action.

But if we were lucky, the photo shoot we did might not have gone so well.

We laughed after leaving the area.

But the problem is, given the risks involved, it was worth the risk.

And in this case, that luck brought us a wonderful situation that is humorous, yet profound and powerful.

thank you.

(applause)

Over the past few centuries, microscopes have revolutionized our world.

They revealed to us a tiny world of objects, life and structures too small for us to see with the naked eye.

They have made great contributions to science and technology.

Today I would like to introduce a new type of microscope, a microscope for change.

Instead of using optics to magnify small objects like a normal microscope, video cameras and image processing are used to reveal subtle movements and color changes in objects and people – changes that are invisible to the naked eye.

And it allows us to see the world in a whole new way.

So what does color change mean?

For example, our skin changes color slightly when blood flows underneath it.

The changes are incredibly subtle. That's why when you look at other people, when you look at the person sitting next to you, it doesn't seem like their skin or face color has changed.

If you watch this video of Steve here, it looks like a still image, but if you watch this video through a new special microscope, suddenly you see a completely different picture.

What you see here is a small change in Steve's skin tone, magnified 100x to make it visible.

We can actually see a human pulse.

Not only can you see how fast Steve's heart is beating, but you can actually see the blood running down his face.

And not only can you visualize your pulse, you can actually recover your heart rate and even measure your heart rate.

And you can use a regular camera and do it without touching the patient.

Here, we extracted the pulse and heart rate of a neonate from a video taken with a regular DSLR camera. Heart rate readings are as accurate as those you get with standard hospital monitors.

And it doesn't even have to be a video we recorded.

You can basically do the same with other videos.

So, here's a short clip from "Batman Begins" to give you Christian Bale's pulse.

(Laughter) And you know, he's probably wearing makeup. The lighting here is a bit tricky, but even then, just from the video, we can extract his pulse and show it very well.

So how do we do all this?

We basically analyze the light changes recorded at every pixel in the video over time and incrementally increase those changes.

Enlarged for easy viewing.

The difficulty is that these signals, the changes we are looking for, are so subtle that great care must be taken when trying to separate them from the noise that is always present in video.

So we use some clever image processing techniques to measure the color of each pixel in the video very precisely, get how the colors change over time, and amplify those changes.

Enlarge them to create enhanced or magnified videos that show the change in action.

However, I found that not only small changes in color can be expressed, but also small movements. That's because the light recorded by the camera changes not only when the object's color changes, but also when the object moves.

So this is my daughter who is about 2 months old.

This is a video I took about 3 years ago.

And as new parents, we all want to make sure our baby is healthy, breathing and alive.

So I bought a baby monitor too so I can see when my daughter is asleep.

This is pretty much what you would see on a standard baby monitor.

You can see the baby sleeping, but there isn't much information there.

There are not many things we can see.

Wouldn't it be better, more informative, and more useful if you could see a view like this instead?

So when I took a picture of the movement and magnified it 30 times, it was very clear that she was indeed alive and breathing.

(Laughs) I'll compare them side by side.

Again, in the source video, there isn't much to see, but zooming in on the motion makes the breathing more visible.

And it turns out that there are many phenomena that can be revealed and magnified using our new motion microscope.

You can see how the veins and arteries of our body pulsate.

You can see that our eyes are always wobbly like this.

This is actually my eye. Again, this video was shot shortly after my daughter was born, so you can tell I didn't get much sleep. (Laughter) Even when a person is sitting still, we can extract a lot of information, such as breathing patterns and small facial expressions.

Maybe you can use the movement to say something about your thoughts and feelings.

It also magnifies small mechanical motions, such as engine vibrations, to help engineers detect and diagnose mechanical problems, or to see how buildings and structures sway in the wind and react to forces.

These are all things that our society knows how to measure in different ways, but measuring those movements is one thing entirely and seeing those movements in action is quite another.

And since discovering this new technology, I've put the code online so that others can experiment with it.

It's very easy to use.

Works for my own videos too.

Our collaborators at Quanta Research have also created this amazing website where you can upload your videos and process them online. So it's very easy to experiment with this new microscope without any computer science or programming experience.

And I'd like to see some examples of what other people have done with it.

This video was created by a YouTube user named Tamez85.

I don't know who that user is, but he or she used our code to enlarge their small pregnant belly movements.

It's kind of creepy.

(Laughter) People have used it to enlarge the pulsating veins in their hands.

And you know it's not real science unless you use guinea pigs. Apparently the guinea pig is called Tiffany, and this YouTube user claims it's the first motion-magnified rodent on Earth.

You can also do art with it.

This video was sent to me by a design student at Yale University.

She wanted to see if there was any difference in her classmates' movements.

She held everyone still and then expanded the movement.

It's like watching a still image come to life.

And the good thing about all these examples is that we have nothing to do with them.

We just gave this new tool, a new way to see the world, but people find other interesting, new and creative ways to use it.

But we didn't stop there.

Not only does this tool allow us to see the world in new ways, it redefines what we can do and pushes the boundaries of what we can do with a camera.

So we, as scientists, started wondering what other kinds of physical phenomena produce small movements that we can measure using cameras.

One of the phenomena that we are paying attention to these days is sound.

As you know, sound is basically a change in air pressure that travels through the air.

When these pressure waves hit an object, they produce small vibrations in the object. This is how we hear and record sounds.

But it turns out that sound also creates visual movement.

These are motions that are invisible to us but visible to a properly processed camera.

Here are two examples.

This is where I demonstrate my great singing ability.

(Singing) (Laughs) And I took a high speed video of my throat while humming.

Again, if you stare at that video, you won't see much, but if you zoom in on the movement 100x, you can see all the neck movement and ripples involved in producing sound.

The signal is in that video.

We also know that a singer can break a wine glass if he hits the right note.

Here, sound at the resonant frequency of the glass is emitted from the speaker next to the glass.

If you play that sound and magnify the movement by a factor of 250, you can very clearly see how the glass vibrates and resonates in response to the sound.

It's not something you're used to seeing every day.

But this got us thinking. It gave us this crazy idea.

Could we actually reverse this process and recover the sounds from the video by analyzing the small vibrations that the sound waves produce in objects, essentially converting them back to the sounds they produced?

In this way, you can turn everyday objects into microphones.

That's exactly what we did.

This is an empty bag of chips on the table. By filming it with a video camera and analyzing the tiny movements that sound waves create within it, it turns that bag of chips into a microphone.

So, here's what it sounds like in the room.

(music: "Mary Had a Little Lamb") And here's a high-speed video of that bag of potato chips.

I am playing again.

It's hard to tell what's going on just by looking at this video, but here's the sound I was able to recover just by analyzing the small movements in the video.

(music: "Mary's Lambs") That's what I call it -- thank you.

(Applause) I call it a visual mic.

It actually extracts the audio signal from the video signal.

To give you a sense of the scale of the movement here, even with a fairly loud sound, the bag containing the chips moves less than a micrometer.

That's one thousandth of a millimeter.

By simply observing how light reflects off an object and is recorded by a camera, it is now possible to derive that small movement.

Sound can also be collected from other objects such as plants.

(Music: "Mary Had a Little Lamb") And we can restore language too.

Someone here is talking in the room.

VOICE: Mary had a lamb with snow-white wool, and it went wherever she went.

Michael Rubinstein: And here's the speech extracted again from this video in the same bag of chips.

VOICE: Mary had a lamb with snow-white wool, and it went wherever she went.

MR: We used "Mary Had a Little Lamb" because it is said to be the first words spoken by Thomas Edison into a gramophone in 1877.

It was one of the first recording devices in history.

Basically, sound is directed at a diaphragm and a stylus vibrates, engraving the sound into aluminum foil wrapped around a cylinder.

Here's a demonstration of recording and playing back sound with Edison's gramophone.

(Video) Audio: Test Test 1 2 3.

Mary had a lamb with wool that was as white as snow, and wherever she went there was always a lamb.

Test, test, one two three.

Mary had a lamb with wool that was as white as snow, and wherever she went there was always a lamb.

MR: And now, 137 years later, we can get sound with about the same quality, but only by observing the object vibrating and making sound with a camera, and we can do that even when the camera is 15 feet away from the object, behind the soundproof glass.

So this is the sound that could be recovered in that case.

VOICE: Mary had lambs with snow-white wool. Wherever Mary went, there was always a lamb.

MR: And of course the first application that comes to mind is surveillance.

(Laughter) But it might actually be useful for other things as well.

Perhaps in the future we will be able to use this to retrieve sound across space, for example. Sound cannot travel through space, but light can.

We are just beginning to explore other possible uses for this new technology.

This allows you to see physical processes that you know exist but have never been able to see with your own eyes.

Here is our team.

Everything I've shown you today is the result of a collaboration with this amazing group of people you see here. We invite you to check out our website, try it for yourself, and join us in exploring this world of small movements.

thank you.

(applause)

I am here to help reconstruct the story of how humans and other creatures get things done.

This is the old story. We've already heard a little bit about it. Biology is a war in which only the fiercest survive. Corporations and nations succeed only by winning, subverting, and dominating competition. Politics is about winning your side at all costs.

But I think we are starting to see the beginning of a new story.

This is a multidisciplinary story, where cooperation, collective action and complex interdependencies play a more important role.

And the central but not all-important role of competition and survival of the fittest is scaled back just a little to make room.

When I wrote Smart Mobs, I started thinking about the relationship between communication, media, and collective action, and it turns out that I kept thinking about it after finishing the book.

In fact, in retrospect, human communication media and the way we organize society have been co-evolving for quite some time.

Humans have lived much longer than about 10,000 years in a sedentary agricultural civilization with small family groups. Nomadic hunters hunt rabbits for food.

The form of wealth in those days was enough food to stay alive.

But at some point they banded together to hunt larger prey.

They must have solved some collective action problems, but I don't know exactly how they did this. It stands to reason that you can't hunt mastodons while fighting other groups.

Again, we never know, but it is clear that new forms of wealth must have emerged.

More protein than a family of hunters could eat before it spoiled.

As such, I believe it must have caused social problems, which must have driven a new social form.

Do those who eat mastodon meat owe the hunter and his family something?

If so, how did they arrange it?

Again, we don't know, but we can be fairly certain that some form of symbolic communication must have been involved.

Of course, with agriculture came the first great civilizations, the first cities built of mud and brick, the first empires.

And it was these imperial administrators who began hiring people by marking them to record the dues and taxes of wheat, sheep, and wine. Traces of clay from that time.

Not long after that, the alphabet was invented.

And this powerful tool has actually been reserved for elite administrators (laughter) tracking imperial accounts for thousands of years.

And other communication technologies have made new media possible. The printing press came along and within a few decades millions of people could read and write.

And out of literate people arose new forms of collective action in the fields of knowledge, religion and politics.

We have seen scientific revolutions, the Protestant Reformation, and constitutional democracy made possible where previously impossible.

It was not made possible by the printing press, but made possible by collective action born of literacy.

And again, new forms of wealth emerged.

Well, commerce is old. The market is as old as the crossroads.

But capitalism as we know it is only a few hundred years old, made possible by cooperative arrangements and technologies such as shareholding companies, shared liability insurance, and double-entry bookkeeping.

Of course, the technology that makes this possible is based on the Internet, and in the age of many-to-many, every desktop becomes a printing press, broadcaster, community, or marketplace.

Evolution is accelerating.

These days, that power has been unleashed and bursting forth from our desktops, and very quickly, we will see a significant percentage, if not most, of humanity walking around with, carrying, or wearing supercomputers connected at speeds exceeding what we might think of today as broadband.

Now, when I started looking into collective behavior, quite a bit of the literature on it is based on what sociologists call "social dilemmas."

And there are some mythical stories about social dilemmas.

I will briefly describe two of them, the prisoner's dilemma and the tragedy of the commons.

Now, when I spoke to Kevin Kelly about this, he assured me that everyone in this audience pretty much knows the details of the Prisoner's Dilemma, so I'm going to go over it very briefly.

If you have more questions, ask Kevin Kelly later. (Laughter) The prisoner's dilemma is actually a story superimposed on a mathematical matrix that came out of early game theory when we started thinking about nuclear war. So two players who couldn't trust each other.

Just to let you know, any unsecured transaction is a good example of the prisoner's dilemma.

People who have things and people who have money can't trust each other, so they're not going to trade.

Neither wants to be first, nor do they want to get a duck in return, but of course they both lose because they don't get what they want.

If they could only agree, turn the prisoner's dilemma into another payoff matrix called the guarantee game, they would be able to proceed.

Twenty years ago, Robert Axelrod used the prisoner's dilemma as an exploration of biological questions. So if we are here because our ancestors were such fierce competitors, how does cooperation exist in the first place?

He started a computer tournament to submit strategies for the prisoner's dilemma. And, to my surprise, I discovered that a very simple strategy won. I won the first tournament and won the second even after everyone knew I had won. This is known as retaliation.

Another economic game that may not be as well known as the Prisoner's Dilemma is the Ultimatum Game, which is also a very interesting study that explores our assumptions about how people make economic transactions.

Here's how the game is played: There are 2 players. They have never played a game before, have no intention of playing a game, and do not know each other. And they are actually in separate rooms.

The first player is offered $100 and asked to suggest a split they prefer, such as 50/50, 90/10, etc. The second player either accepts the split (both players are paid and the game ends) or rejects the split (neither player gets paid and the game ends).

Now, the basic foundations of neoclassical economics tell us that it's absurd to refuse $1 just because a stranger in the other room receives $99.

But thousands of exams for American, European, and Japanese students show that a significant percentage reject offers that fall short of 50/50.

And even though they were vetted, didn't know the game, and had never played the game before, the average suggestion was surprisingly close to 50/50, so the proposers seemed to know this innately.

Now, the interesting part is when anthropologists began to incorporate this game into other cultures, and more recently, when they discovered that Amazonian slash-and-burn farmers, Central Asian nomads, or a dozen different cultures each have radically different ideas about what is fair.

This suggests that, whether we know it or not, the basis of our economic transactions may be influenced in some way by social institutions rather than an innate sense of fairness.

Another major story of social dilemmas is the tragedy of the commons.

Garrett Hardin used the term to talk about overpopulation in the late 1960s.

He used the example of a common rangeland where each person only maximizing his herd leads to overgrazing and resource depletion.

He came to the rather bleak conclusion that common pool resources that people cannot restrain from using will inevitably be looted by humans.

Well, political scientist Eleanor Ostrom asked an interesting question that every good scientist should ask in 1990. Is it true that humans always plunder the commons?

So she went out to see what data she could find.

She examined thousands of cases of humans sharing watersheds, forest resources, and fisheries, and found that indeed, they were destroying common lands upon which humans depended.

But she also found many examples of people escaping the prisoner's dilemma. In fact, Tragedy of the Commons is a multiplayer prisoner's dilemma.

And she said a man is a prisoner only if he thinks he is a prisoner.

They get away by creating institutions for collective action.

And she found, most interestingly, that organizations that are functioning have many common design principles that seem to be lacking in those that are not.

I am progressing very quickly across many areas. Indeed, in biology the concepts of symbiosis, group selection and evolutionary psychology are disputed.

But the fact that cooperation has moved from a peripheral to a central role in biology, from the cellular level to the ecological level, is no longer much of a debate.

And again, our conception of the individual as an economic entity has been turned upside down.

Rational selfishness is not always the dominant factor.

In fact, people act to punish cheaters, even at the cost of themselves.

And most recently, neurophysiological measurements showed that people who punish cheaters in economic games have more active reward centers in their brains.

For this reason, one scientist declared that altruistic punishment could be the glue that holds society together.

So far, I have talked about how new forms of communication and new media have contributed to the creation of new economic forms.

Commerce is ancient. The market is very old. Capitalism is a fairly recent development. Socialism emerged as a reaction to this.

Nevertheless, we see little discussion of how the next morphology will emerge.

Jim Surowiecki made a brief reference to Yochai Benkler's paper on open source, pointing to a new form of production: peer-to-peer production.

Just remember that if, in the past, new forms of cooperation enabled by new technologies created new forms of wealth, we may be moving into yet another form of economy that is very different from the previous one.

Very briefly, let's look at some businesses. As you know, some of the fiercest competitors in IT, such as IBM, HP, and Sun, have open-sourced their software and offered patent portfolios for the commons.

Eli Lilly has created a market for solving pharmaceutical problems in another highly competitive pharmaceutical industry.

Instead of treating their suppliers as a market, Toyota treats them as a network and trains them to make better things even though they also train them to make better things for their competitors.

None of these companies are doing this out of altruism today. They are doing it because they are learning that some kind of sharing benefits them.

Open source production shows that world-class software like Linux and Mozilla can be created without the corporate bureaucracy and market incentives as we know them.

Google enriches itself by enriching thousands of bloggers through AdSense.

Amazon has opened its application programming interface to 60,000 developers and countless Amazon shops.

They enrich others not out of altruism, but as a way to enrich themselves.

eBay solved the prisoner's dilemma and created a market that didn't exist by creating a feedback mechanism that turned the prisoner's dilemma game into a guarantee game.

It's not "we can't trust each other, so we have to do the next best thing", it's "you prove you can be trusted, so I'll work with you".

Wikipedia has leveraged thousands of volunteers to create a free encyclopedia with 1.5 million articles in 200 languages ​​in just a few years.

We've seen ThinkCycle enable NGOs in developing countries to pose problems for design students around the world to solve. Some of them are currently being used for tsunami relief. This is a system for rehydrating cholera victims and is so easy to use that even the illiterate can be trained to use it.

BitTorrent turns every downloader into an uploader, and the system gets more efficient the more you use it.

Millions of people link to a supercomputing collective via the internet when they're not on their desktop computers, helping medical researchers (folding@home at Stanford University) solve protein folding problems as they crack codes and search for life in space.

I don't think we know enough yet.

I don't think you're starting to figure out what the ground rules are yet, but I think you can start thinking about them.

I don't have enough time to talk about all of them, but let's think about self-interest.

It's all about self-interest, and it adds up to something bigger.

In El Salvador, both sides withdrawing from the civil war have taken actions that have proven to reflect the prisoner's dilemma strategy.

Around the world, including the United States, the Philippines, and Kenya, citizens are organizing self-imposed political protests and using mobile devices and SMS to vote.

Is it possible to cooperate with the Apollo program?

Is it an interdisciplinary study of cooperation?

I think the payoff will be huge.

I think we need to start mapping this area so that we can talk about it across disciplines.

And I'm not saying that understanding cooperation makes us better people. And sometimes people cooperate to do bad things, but remember that hundreds of years ago people saw their loved ones die from illnesses they attributed to sin, foreigners, and demons.

Descartes said we need a whole new way of thinking.

Suffering was alleviated when the scientific method offered new ways of thinking and biology showed microbes to be the cause of disease.

What forms of suffering would be alleviated and what forms of wealth would be created if we knew a little more about cooperation?

I don't think this interdisciplinary discussion will happen automatically. It will take effort.

Therefore, we would like to ask for your help in starting a cooperative project.

thank you.

(applause)

In the 1600s, Cape Cod Bay, off the east coast of the United States, was teeming with right whales.

Apparently I can walk across their backs from one end of the bay to the other.

Today, there are hundreds of them, and they are in danger of extinction.

Like them, many species of whales have been greatly reduced in numbers by 200 years of whaling, where they were hunted and killed for their meat, oil, and whale bones.

Thanks to the Save the Whales movement of the 1970s, there are only whales in our oceans today.

It helps stop commercial whaling and was built on the idea that if we can't save whales, what can we save?

It was ultimately a test of our political capacity to stop environmental destruction.

So, in the early 80s, a ban on commercial whaling came into force as a result of this campaign.

But whale numbers in our waters are still low. This is because whales face a variety of other human-induced threats.

Unfortunately, many still believe that whale conservationists like myself do what we do simply because these creatures are charismatic and beautiful.

Whales are ecosystem engineers, so this is actually a disadvantage.

They help maintain the stability and health of the oceans and also provide services to human communities.

So let's talk about why saving whales is important to the ocean's resilience.

It boils down to two main things: whale droppings and rotting carcasses.

Whales dive deep to feed, and when they come to the surface to breathe, they actually release this giant dung plume.

This whale pump, as its name suggests, actually transports essential limiting nutrients from the depths to the surface waters, where it stimulates the growth of phytoplankton, which form the basis of all marine food chains.

So having more whales pooping in the ocean really benefits the whole ecosystem.

Whales are also known to perform the longest migrations of all mammals.

Gray whales off the coast of the United States migrate 16,000 kilometers each year between high-productivity feeding grounds and low-productivity calving areas and back.

In doing so, they carry manure in the form of faeces from where it is to where it is needed.

It is clear that whales are of great importance in the horizontal and vertical nutrient cycling of the ocean.

But what's really cool is that they're still very important after they die.

Whale carcasses are some of the largest forms of wreckage that fall from the surface of the ocean and are referred to as whale falls.

As these carcasses sink, they feed on about 400 species, including the eel-shaped mucus-producing hagfish.

Thus, over the course of 200 years of whaling, when we were busy killing and removing these carcasses from the sea, we probably changed the rate and geographic distribution of the fall of these whales as they fell into the deep sea, thus leading to the extinction of many of the species that were probably the most specialized and depended on these carcasses for their survival.

Whale carcasses are also known to transport about 190,000 tons of carbon from the atmosphere to the deep ocean, equivalent to the carbon produced by 80,000 cars a year, and the deep ocean is what we call a "carbon sink" because it traps and retains excess carbon in the atmosphere, thus helping to slow global warming.

Occasionally, these carcasses wash up on shores and provide food for many terrestrial predatory species.

200 years of whaling has been demonstrably harmful, reducing whale populations by 60 to 90 percent.

Clearly the Save the Whales movement has helped stop commercial whaling from continuing, but we need to rethink this.

We need to address the more modern and pressing issues facing these whales in this area today.

Among other things, they need to be prevented from being overturned by container ships when in the feeding area and entangled in fishing nets while floating at sea.

We also need to learn to contextualize conservation messages so that people can truly understand the true ecological value of these creatures.

So let's save whales again, but not just for whales this time.

Do it for us too.

thank you.

(applause)

I am a tourism entrepreneur and peacebuilder, but this is not my starting point.

When I was seven years old, I remember watching TV and seeing people throwing stones and thinking this must be fun.

So I went out into the street and threw stones at Israeli cars, not knowing that I should be throwing stones at them.

Instead, I ended up throwing rocks at my neighbor's car. (Laughter) They weren't keen on my patriotism.

This is a picture I took with my brother.

This is me, little kid, and I know what you're thinking: "You used to be pretty, what the hell happened?"

However, my brother, who is older than me, was arrested and imprisoned for stone throwing when he was 18 years old.

He refused to confess to throwing stones, was beaten, suffered internal injuries as a result, and died shortly after his release.

I was angry and bitter and all I wanted was vengeance.

But that changed when I was 18.

Deciding that I needed Hebrew to get a job, I went to study Hebrew in the classroom and that was the first time I met a Jew who was not a soldier.

And we connected over really little things, like the fact that we love country music, which is really weird for Palestinians.

But then we also realized that there was a wall of anger, hatred, and ignorance that separated us.

I decided that I didn't care what happened to me.

What really matters is how you deal with it.

So I decided to dedicate my life to breaking down the walls that separate people.

I do so in different ways.

Tourism is one of them, but it also includes media and education. You may wonder if tourism can really change things.

Will it be able to break down walls? yes.

Tourism is the best sustainable way to break down those walls and create sustainable ways to connect with each other and foster friendships.

In 2009, two Jewish friends and I co-founded Medjidi Tours, a social enterprise that aims to connect people. By the way, the model that we are trying to do is, for example, in Jerusalem you have two tour guides, one Israeli and one Palestinian, and they travel together, guiding history and stories, archeology and conflict from completely different perspectives.

I remember planning a trip with a friend named Cobi. A Jewish congregation from Chicago, the place of travel was Jerusalem. And we took them to refugee camps, Palestinian refugee camps, where they ate great food.

By the way, this is my mother. she's cool

It's a Palestinian dish called makluba.

It means "upside down".

Cook with rice and chicken and turn over.

Best meal I have ever had.

and eat together.

Then we formed a joint band of Israeli and Palestinian musicians and danced belly dance.

If you don't understand something, I will teach you later.

But when we left, we were both crying because we didn't want to leave.

Three years later, the relationship continues.

Imagine with me what it would be like if the billion people who travel abroad each year traveled in this way, actually connecting with people instead of being taken around in buses, from one hotel to another, taking pictures of people and cultures from the bus window.

I remember there was a group of Muslims from England.

There was a connection that when they went to the home of an Orthodox Jewish family and had their first Friday night supper, that is, the Sabbath supper, and ate together the Jewish food, humin, a stew, they realized after a while that their family had come from the same place in North Africa 100 years earlier.

This is not a Facebook photo profile.

This is not disaster tourism.

This is the future of travel. Please join me in transforming your trip.

We are now doing it all over the world, from Ireland to Iran to Turkey, and we think we will go anywhere to change the world.

thank you.

(applause)

I have a confession to make.

As a scientist and engineer, I have focused on efficiency for many years.

But efficiency can become a cult. Today I want to talk about a journey that took me out of my cult and back into a much richer reality.

A few years ago, after completing my PhD, I moved to Boston after being in London.

I used to live in Boston and work in Cambridge.

That summer I bought a racing bike and biked to work every day.

I used my mobile phone to find the way.

It sent me to Massachusetts Street on Massachusetts Street, the shortest route from Boston to Cambridge.

But one day, after a month of biking daily down Massachusetts Avenue, which was packed with cars, I decided to take a different route.

I'm not sure why I took a different route that day, a detour.

I only remember being surprised. Nearby Massachusetts Avenue is full of cars, but I was surprised to find a car-free street. I was surprised to find the street covered with leaves and surrounded by trees.

But after being surprised, I felt embarrassed.

How did I become so blind?

For a whole month, I was so obsessed with mobile apps that getting to work was the only shortest route.

In this one trip, there was no thought of enjoying the road, the joy of being in contact with nature, or seeing people's eyes.

why?

It saved me a minute on my commute.

Am I alone here?

How many of you have never used a map app to get directions?

Most, if not all, have experienced it.

Don't get me wrong. Map apps are the biggest game changers for encouraging people to explore cities.

Take out your phone and instantly know where to go.

However, the app also assumes that there are only a few directions to the destination.

It has the power to direct those few directions to the final destination.

After that experience, I changed.

I changed my research from traditional data mining to understanding how people experience cities.

I used computer science tools to reproduce social science experiments at scale and at web scale.

I was fascinated by the beauty and genius of traditional social science experiments by Jane Jacobs, Stanley Milgram, Kevin Lynch and others.

The result of that research was a new map, one where you can find not only the shortest road, the blue road, but also the most pleasant road, the red road.

How was that possible?

Einstein once said, "Logic takes you from A to B.

Imagination will take you anywhere. ”

So I had to use a little imagination to figure out what parts of the city people find beautiful.

At Cambridge University, my colleagues and I thought about this simple experiment.

If I were to show you these two urban landscapes and ask you which one is more beautiful, which would you say?

don't be shy.

Who said A? who says B?

wonderful.

Based on that idea, we built a crowdsourcing platform, a web game.

The player is presented with a pair of urban landscapes and asked to choose which one is more beautiful, quieter, and happier.

See where consensus comes from, based on thousands of user votes.

You can see the scenery of the city that makes people happy.

After that job, I joined Yahoo Labs and teamed up with Luca and Rossano to aggregate London's winning locations to build a new map of the city with an emphasis on human emotions.

With this cartography, you can not only see and connect the shortest stretches from point A to point B, but also fun stretches, beautiful roads, and quiet roads.

In our tests, participants found the happy, beautiful, and quiet path much more enjoyable than the shortest path, with only a few extra minutes of travel time.

Participants also love leaving memories in place.

Shared Memories -- It's where the old BBC building used to be. And a personal memory, that's where I had my first kiss.

They also remembered how some road smells and sounds felt.

So what if we had a mapping tool that returned the most pleasing routes based not only on aesthetics, but also on smells, sounds and memories?

That's where our research is currently going.

More generally, what my research seeks to do is to avoid the perils of straight roads and deprive people of the opportunity to fully experience the city they live in.

Skipping the parking lot and following the path through the park reveals a completely different path.

Walking a road full of your loved ones instead of one full of cars gives you a whole different trail.

It's that simple.

I would like to end with this final thought. Remember "The Truman Show"?

This is a media satire in which real people are unaware that they live in a fabricated world.

Perhaps we live in a world built for efficiency.

Review your daily habits and escape the fabricated world just like Truman did in the movie.

why?

Well, if you think adventures are dangerous, try Routine. It's deadly.

thank you.

(applause)

It is said that to become a poet you must go to hell and back.

On my first visit to a prison, I was not surprised by the sound of padlocks, doors slamming, cell bars, or anything else I had imagined.

It may be because the prison is in a fairly open area.

I can see the sky.

With seagulls flying overhead, it feels like you're really close to the beach, like you're next to the ocean.

In reality, however, the seagulls forage for food in a garbage dump near the prison.

As I went further in, I suddenly saw prisoners moving across the corridor.

Then I took a step back and it was as if I thought I might have been one of them.

If only we had a different story, a different situation, a different fortune.

Because no one, no one can choose where they are born.

In 2009, I was invited to coordinate a writing workshop on a project conducted by the National University of San Martin at the 48th Unit Prison.

The prison gave away part of the land on the edge of the prison and built a university center building there.

When I met the prisoners for the first time, I asked them why they were asking me for a writing workshop.

That's when I decided I wanted to put poetry in prison.

So I said, if they knew what poetry was, why not work with it?

But no one knew what poetry really was.

It was also suggested that the workshop should be open to all inmates, not just those taking college classes.

So I said, to start this workshop, we need to find a tool that we all have in common.

That tool was language.

We had the language, we had the workshop. I might be able to write poetry.

But what I didn't realize was that inequality exists in prisons too.

Many of the prisoners did not even finish elementary school.

Many could not use cursive and could hardly print.

Nor could they write fluently.

So we started looking for short poems.

Very short, but very powerful.

And we all started to realize that by reading books, reading one author, then another, and reading short poems like that, what the poetic language does is destroy certain logics and create other systems.

Destroying the logic of language also destroys the logic of the systems they have learned to react to.

So there came a new system, a new rule, and very quickly, very quickly they understood that with poetic language they could say whatever they wanted.

It is said that to become a poet you must go to hell and back.

And hell abounds in them. Plenty of hell.

One of them once said, "You can never sleep in prison.

You can never sleep in prison. You can never close your eyelids. ”

So I gave them a little silence, as I do now, and then said, "That's poetry, you guys."

All around you is this prison world.

All your statements about never being able to sleep exude fear.

All that is not written is poetry. ”

So we started taking advantage of that hell. We plunged headfirst into the seventh circle.

And in that seventh circle of hell, our own beloved circle, they learned that they could make walls invisible, windows scream, and that we could hide in the shadows.

When the first year of the workshop ended, we organized a modest closing party so that we would like to throw a party to celebrate, as when the work was lovingly completed.

We called family, friends and university authorities.

All the prisoners had to do was recite a poem, receive a diploma, and receive applause.

It was our simple party.

The only thing I want to leave you is those men, those who stood next to me so huge, or the young boys, so young yet with great pride clutching their papers, shivering like little children, sweating and reading poetry completely hoarse.

That moment made me think so much. For most of them, it was probably the first time someone applauded them for something they had done.

Some things you can't do in prison.

You can't even dream in prison. You can't cry in prison.

There are words that are effectively prohibited, such as the word "time", the word "future", the word "wish".

But we dared to dream, and we dreamed a lot.

We decided they would write a book.

They not only wrote the book, but also did the binding themselves.

It was the end of 2010.

Then we doubled our stakes and wrote another book.

And we tied it too.

That was a while ago, late last year.

What I see every week is how they transform into different people. how will they transform?

How words give them a dignity they never knew or even imagined.

They never thought that such dignity could come from them.

In the workshop we all give something in that loving hell we share.

We open our hands and hearts and give what we have and what we can do.

all of us; all of us equally.

And you feel, at least in a small way, mending the great social rift that has made prison the only destination for many of them.

I am reminded of a poem by the great poet Nicolas Dorado from the Unit 48 Workshop. "I need endless threads to sew up this big wound."

Poetry does that. It stitches up the wounds of exclusion.

it opens the door. Poetry acts as a mirror.

It creates a mirror that is poetry.

They recognize themselves, they see themselves in poetry, they write themselves out of who they are and what they write.

To write, you have to take advantage of the moment of writing, which is an extraordinary moment of freedom.

They have to get inside their heads and look for that little bit of freedom that can never be taken away when writing. And it also helps us understand that freedom is possible even in prison, that the only iron bar in our wonderful space is the word 'bar', and that when we light the core of the word, we all burn with happiness in hell.

(Applause.) I've talked a lot about prison, what I'm going through each week, and how I'm enjoying it and transforming myself with the inmates.

But if you can feel, live and experience, even for a few seconds, what I enjoy each week and what makes me who I am, I would be so happy.

(Applause) Martin Bustamante: The heart is chewing the tears of time. Blinded by its light, the image obscures the speed of existence as it paddles.

it fights. it is hanging

My heart cracks at the sad stare, rides the storm that spreads fire, lifts my stooped chest in shame, and knows that I don't just want to keep reading, I also want to see the infinite blue.

The mind sits and thinks, fights to avoid being normal, tries to love without hurting, breathes sunshine, gives itself courage, surrenders, journeys to reason.

The mind fights among the swamps, slips through the edge of the underworld, falls from exhaustion, but does not yield to ease, while its erratic drunken steps awaken and evoke stillness.

My name is Martin Bustamante. Prisoner of the 48th Regiment of San Martin. Today is parole day.

And for me poetry and literature changed my life.

thank you very much!

Christina Domenech: Thank you!

(applause)

Guatemala is recovering from 36 years of armed conflict.

Conflict during the Cold War.

It was really just a small leftist rebellion and a devastating response by the state.

As a result, 200,000 civilians were killed, 160,000 of whom were killed in their communities, including infants, men, women and the elderly.

And about 40,000 others are still missing and are still being searched.

We call them Desaparecidos.

Today, 83 percent of the victims are Mayan victims and victims who are descendants of native peoples of Central America.

And only about 17 percent are of European descent.

But most importantly, the people who should protect us, the police and the military, are the ones who committed most of the crimes.

Now the family is asking for information.

They want to know what happened.

They want the bodies of their loved ones.

But above all, they want you, and want everyone to know that their loved ones have done nothing wrong.

Well, in my case, in 1980, my father received death threats.

and we left.

We left Guatemala to come here.

So, I grew up in New York, actually grew up in Brooklyn, attended New Utrecht High School, and graduated from the University of Brooklyn.

The only thing is that I didn't really know what was going on in Guatemala.

I didn't mind that. It hurt too much.

But it wasn't until 1995 that I decided to do something about it.

So I went back.

I went back to Guatemala to search for bodies, to understand what had happened, and to search for parts of myself as well.

The way we work is to inform people.

We discuss it with our families and let them choose.

We let them decide to let us tell stories, tell us what they saw, tell us about their loved ones.

And more importantly, let them choose to give a piece of themselves.

part of who they are, the essence of who they are.

We're going to compare that DNA to the DNA we're going to get from the skeleton.

But while doing so, we are looking for bodies.

And these are now skeletons, most of these crimes happened 32 years ago.

When we find a grave, we remove the dirt and eventually clean up, record and dig up the corpse.

Literally carry skeletons out of the ground.

But once we have those bodies, we bring them back to the city, to the lab, and begin the process of trying to figure out two main things. One is how people died.

For example, here you can see a bullet wound and a machete wound on the back of the head.

Another thing we want to understand is who they are.

Whether baby or adult.

both women and men.

But once the analysis is done, they take a small piece of bone and extract the DNA from it.

Of course, you take that DNA and compare it to your family's DNA.

The best way to explain this is to show two cases.

The first is the case of military diaries.

This is a document smuggled out of somewhere in 1999.

And what you see there is that the nation is chasing individuals who, like you, want to change it and have written everything down.

And one of the things they wrote down was when they were executed.

You can see the code inside that yellow rectangle. It's secret code: 300.

and the date is displayed.

300 means "executed" and date means the day it was executed.

Come on, it will take effect immediately.

What we did was excavate in 2003 and unearthed 220 bodies from 53 graves inside a military base.

Tomb 9, however, coincided with the family of Sergio Saul Linares.

Now Sergio was a university professor.

He graduated from Iowa State University and returned to Guatemala to change the country.

and he was captured on February 23, 1984.

As you can see there, he was executed on March 29, 1984, which was amazing.

We have the bodies, we have the family information and DNA, and now we have the documents to tell us exactly what happened.

But most importantly, about two weeks later, we're going from the same graveyard with Amancio Villatolo to another hit, another match.

The corpse's DNA also matched that of the family.

And then I realized that he was in the diary too.

However, it was surprising to see that he too was executed on March 29, 1984.

So we thought, hmm, how many bodies were there in the grave?

six.

So we asked how many people were executed on March 29, 1984.

That's right, six people.

So we have John of God, Hugh, Moses and Zoil.

They all ran on the same date and were all shot at different locations and at different moments.

All were put in that grave.

All we needed now was the DNA of these four families. So we went and searched and found.

We then identified the six bodies and returned them to their families.

Another incident that I would like to talk to you about is the military base incident called CREOMPAZ.

Although it actually means "Believe in Peace," the acronym actually means Peacekeeping Regional Command Center.

And this is where the Guatemalan army trains peacekeepers from other countries, those who serve the United Nations.

I also go to countries like Haiti and Congo.

There are testimonies that there were corpses and graves inside this military base.

So we entered there with a search warrant and about two hours after entering we found the first of 84 graves, 533 bodies in total.

Now, come to think of it, peacekeepers train on corpses.

It's very ironic.

But the bodies were those who had been executed defenseless, prone, mostly with their hands tied behind their backs, blindfolded, and with all sorts of trauma.

533 families are looking for talent.

So let's focus on the 15th Tomb.

Tomb No. 15 we noticed was a tomb full of women and children, including 63 people.

So we immediately thought, 'Oh my God, where could there be a case like this?

When I arrived in Guatemala in 1995, I heard about the May 14, 1982 massacre. The military rushed in and killed the men, and helicopters took the women and children to strange places.

Well, what do you think?

The clothing of this tomb matched the clothing of the area to which these women and children were taken.

So we did a DNA analysis and what happened?

We identified Martina Rojas and Manuel Chen.

They were both missing in that case, and I've now been able to prove that.

We have physical evidence to prove that this happened and that those people were brought to this base.

Now Manuel Chen was 3 years old.

His mother went to the river to wash clothes and left him with a neighbor.

Then the military came and he was taken away by helicopter and never seen again until found in Crypt 15.

So now, in science, archeology, anthropology and genetics, we are giving voice to the voiceless.

But we do more than that.

We actually provide evidence for trials like the genocide trial in Guatemala last year in which General Rios Montt was convicted of genocide and sentenced to 80 years in prison.

So I'm here today to tell you that this is happening everywhere, that it's happening in Mexico right before our eyes today, and that we can't let this go on any longer.

We must now come together and make the decision that no more people go missing.

So no more getting lost, folks.

have understood? No more missing.

thank you.

(applause)

Imagine you are a Child Protective Services employee.

And we must respond to reports of child abuse.

You walk into a house unannounced, unexpectedly, and of course uninvited.

The first thing you see is a mattress placed on the floor in the center of the room.

Three children are sleeping lying on it.

Nearby is a small table with some ashtrays and empty beer cans.

A large mousetrap is installed in the corner, not far from where the children sleep.

So take notes.

Walking around the house is part of the job.

We start with the kitchen, which has very little food.

You notice another mattress on the bedroom floor that the mother shares with her young child.

Well, generally two things can happen at this point.

Children are deemed unsafe, removed from their homes, and placed in state custody for a period of time.

Alternatively, the children remain with their families and the child welfare system provides assistance and support.

When I was a Child Protective Services employee, I saw situations like this all the time.

Some are much better, some are much worse.

I asked you to imagine yourself in that house. Because what crossed your mind?

What will guide your decisions?

What influences your opinion of that family?

What race/ethnicity do you think your family belongs to?

Please understand that if those children were white, their families would likely still be together after the visit.

A study conducted at the University of Pennsylvania found that white families, on average, received more help and support from the child welfare system.

And their case is unlikely to receive a full investigation.

But on the other hand, if those children are black, they are four times more likely to be abducted, spend longer in foster homes, and find it harder to find stable foster care.

Foster care is intended to be an immediate shelter for at-risk children.

But it can also make the separation from family confusing and traumatic.

A study conducted at the University of Minnesota found that children in foster care had more behavioral and internalized problems than children who remained with their families while receiving help and support.

The scenario I just described is not uncommon.

A single mother with four children living in low-income housing.

And rats make it almost impossible to store food at home, let alone fresh produce.

Is the mother entitled to have her children taken away?

Family court attorney Emma Ketteringham says if you live in a poor neighborhood, you're better off being the perfect parent.

She said we impose unfair and often unattainable standards on parents raising children on little money.

And their region and ethnicity influence whether children are taken away.

In my two years on the front lines of child welfare, I made a high-stakes decision.

And I saw firsthand how my personal values ​​impacted my work.

Today, as a social work faculty member at Florida State University, I lead an institute that oversees the most innovative and effective child welfare research.

And research shows that 28 percent of black children are in foster care, double the 14 percent of the general population.

There are a number of reasons for this, and today I'd like to discuss one of them: implicit bias.

Let's start with "implicit".

It is subconscious and we are not aware of it.

Prejudices -- stereotypes and attitudes we all have toward certain groups of people.

In other words, implicit bias is behind every decision we make.

So how can we fix it?

I have a promising solution and would like to share it.

In nearly every state today, large numbers of black children are placed in foster care.

But data reveals that Nassau County, a New York community, has been successful in reducing the number of black children being abducted.

Then, in 2016, I went to that community with my team to lead a research study and discover the use of the Blind Removal Council.

This is how it works.

Caseworkers responding to reports of child abuse.

They go home, but before the children can be taken out, the caseworker must return to the office and present what they have found.

But here is the difference. They remove all identifiable information, such as name, ethnicity, neighborhood, race, etc., when submitting to the Commission.

They focus on what happened, the strength of the family, the history involved, and the ability of parents to protect their children.

Based on that information, the committee makes recommendations without knowing the race of the family.

Blind removal had a dramatic impact on that community.

In 2011, 57 percent of children placed in foster care were black.

However, after 5 years of blind resection, the rate decreased to 21%.

(Applause.) Here's what we learned from talking to some of our caseworkers.

“When families have ties to the department, many of us turn that history against families, even if we were trying to do something different.”

"When you see an incident in a particular apartment complex, neighborhood, or zip code, you automatically think the worst."

“Child welfare is an emotional field, so it is highly subjective.

There will be no one who does not have feelings for this work.

And it's very difficult to leave all your luggage at the front door when doing this job.

So let's take the racial and regional subjectivity out of it, and you might get different results. ”

Blind elimination seems to bring us closer to solving the problem of implicit bias in foster care decisions.

My next step is to find ways to use artificial intelligence and machine learning to scale this project and make it more accessible to other states.

We know we can transform child welfare.

We can hold organizations accountable for raising the social awareness of their employees.

We can take responsibility for ensuring that our decisions are based on ethics and safety.

Imagine a child welfare system that focuses on parental partnership, empowering families and no longer sees poverty as a failure.

Instead of tearing families apart, let's build systems together to make them stronger.

thank you.

(applause) (cheers)

When is it true that seeing is believing?

A few years ago, a friend of mine sent me this photo from Urumqi, the capital of Xinjiang province in northwestern China.

On this day she couldn't believe her eyes.

When I used this app on my iPad to check the air quality outside, the numbers showed good air quality on a 500 scale.

But when I looked outside, I saw something completely different.

Yes, the building in the background.

(Laughter) But that data simply didn't tell the truth about what people were seeing and what they were breathing because it wasn't measuring PM2.5, or particulate pollution.

When PM2.5 levels fell off the charts in 2012 to what the US Embassy once described in a tweet as "abnormally bad," Chinese residents took to social media to question why there was such a discrepancy between official air quality statistics and what they were seeing and breathing.

Now, this question has caused a kind of environmental awakening in China, forcing the Chinese government to tackle the problem of pollution.

Now China has the opportunity to become the world's environmental leader.

But the picture I am going to give you today is a mixed one.

While there are some very encouraging signs, there are also more worrying trends that deserve more attention.

Now let's get back to what we're talking about.

It was during my fieldwork in China in 2011 as a PhD student that I began to witness the beginning of China's green evolution.

I traveled across the country in search of answers to frequently asked questions from skeptical outsiders.

Do they have environmental policies?

what kind of policy?

At the time, the government kept PM2.5 data secret because it was considered too politically sensitive, but the public was becoming aware of its harmful effects on the human body and demanded greater transparency on the part of the government.

In fact, I myself have begun to see some of this growing evolution and consciousness beginning to manifest across China.

For example, department stores have started selling air purifiers that can remove harmful PM2.5.

Citizens have also adopted PM2.5 as the title of music festivals.

(Laughs) Then I went to a golf course in Shenzhen in southern China. As you can see from this banner, they are advertising their withdrawal from PM2.5.

Golf is substandard, but don't breathe substandard air.

And the Shanghai Municipal Environmental Protection Bureau decided to create a mascot named after the Air Quality Index to better communicate air quality data to the public.

I call her an "AQI girl" and her expression and hair color change depending on the air quality outside.

Five years later, she still has the biggest smile in the Shanghai air.

Then, in 2015, former CCTV reporter Chai Jin produced a documentary called “Under the Dome.”

It can be compared to Rachel Carson's "Silent Spring".

And just as Rachel Carson drew attention to the fact that pesticides are bad for human health, "Under the Dome" sculpted into the public consciousness that air pollution is responsible for one million premature deaths each year in China alone.

The video racked up more than 100 million views in a week before being removed from the internet by the Chinese government, which feared it could cause some kind of social unrest.

But the damage was already done.

Public outcry over air pollution has prompted the Chinese government to think big and decisively about how to tackle the energy system that is at the root of air pollution and many other environmental problems, perhaps for self-defense.

As you know, about two-thirds of China's electricity comes from coal.

China has more coal-fired power plants than any other country in the world, about 40% of the world total. Because of this fact, the Chinese government has decided to wage war on coal since 2014, closing small coal mines, imposing limits on coal consumption, and even canceling Australia's worth of coal-fired power plants.

We are also investing heavily in clean and renewable energy such as hydro, wind and solar, and the pace and scale of this transformation is absolutely staggering.

Let me show you some stats to show what I mean.

China leads the world in hydroelectric power generation, accounting for one-third of total electricity generation.

All Chinese citizens have enough electricity to power two households a year from hydropower alone.

You may have heard of the Three Gorges Dam in the picture. This is the world's largest power plant powered by water.

When it comes to wind power, China accounts for one-third of the world's capacity.

This makes it the number one leader so far.

China is also leading in solar power.

In fact, they have achieved their 2020 goal of installing 105 gigawatts of solar power.

This comes after the government has already revised its solar energy targets several times higher between 2009 and 2015.

Last year, China was able to install a whopping 35 gigawatts of solar power in just seven months.

That's more than half of what the US combined, and China alone did it in just seven months.

We can validate this impressive growth of solar power from space, as startup SpaceKnow did in this slide.

China is on track to meet all of Germany's electricity consumption with wind and solar alone by 2020.

It's pretty remarkable.

And now there is some evidence that China's clean energy efforts are not only reducing air pollution but are actually having an impact on climate change in the world's largest carbon emitter.

Some data suggests that China's coal consumption may have already peaked in 2013.

This is the main reason why the Chinese government has actually announced that it has met its 2020 carbon reduction pledge ahead of schedule.

This reduction in coal consumption also translates directly into improved air quality across the country, shown here in blue.

Air pollution has fallen by 30 percent in most major cities in China.

And this reduction in air pollution has actually increased people's life expectancy in China, an average of two and a half years longer than in 2013.

In yellow are the cities with the greatest improvement in air quality.

But of course, as I said at the beginning of this talk, some of this optimism needs to be tempered with a touch of caution. This is mainly because the data is still being determined.

After roughly three years of stable global carbon emissions late last year, scientific projections suggest that global carbon emissions may be on the rise again, possibly due to China's rising fossil fuel consumption, and may not have reached the previously indicated peaks.

But of course, statistics and data are still opaque, as China regularly updates its coal statistics after the fact.

In fact, it's funny, since I've been here, I've been arguing with other climate modelers on Twitter, trying to figure out whether China's carbon emissions are increasing, decreasing, or relatively stable.

And of course, China is still a rapidly developing country.

Various policies are still being tested, such as dockless bike sharing, which has been highlighted as a potential sustainable transport solution.

But this bike graveyard image tells a more cautionary tale.

In some cases, solutions are deployed too quickly to outpace demand.

And of course, coal is still king in China, at least for now.

So why should we care what China is doing about the environment?

What China is doing with the environment at home can have global implications for the rest of us.

In the words of Chai Jing, we are all under the same dome, and air pollution originating in China can travel across borders and affect people as far away as North America.

China not only exports air pollution, it also exports aid, infrastructure and technology abroad.

In 2013, President Xi Jinping announced the Belt and Road Initiative, a large-scale infrastructure investment project worth US$1 trillion in more than 60 countries.

And historically, China's investment in infrastructure abroad hasn't always been clean.

The Global Environment Institute, a Chinese civil society group, has revealed that China has invested in more than 240 coal-fired power plants in more than 68 countries participating in the Belt and Road Initiative over the past 15 years.

This represents more than a quarter of China's domestic coal-fired power capacity exported abroad.

So even if China cleans up domestically, it exports some of its pollution to other countries, and we can see that its greenhouse gas emissions simply have no passport.

So when we try to assess this question of whether China is really in the lead, we find it still controversial.

But time is running out.

We have studied climate models, but the outlook is not good.

There is still a gap between current policies and what is needed if we want to avoid dangerous climate change.

What we desperately need is leadership, but it is not given by, say, the United States.

The US government announced its intention to withdraw from the Paris Climate Accord last June, so now people are looking to China to fill that leadership void.

In short, China is effectively in the driver's seat of determining the future of our planet's environment.

We can learn many lessons from what they are doing about carbon trading, clean energy and air pollution.

One of those lessons is that clean energy is not only good for the environment, it can save lives by reducing air pollution.

It's also good for the economy.

We can see that China was responsible for 30% of the increase in global green jobs last year.

America? Only six.

So I hope the picture I have drawn for you looks very different from those hazy, foggy air quality statistics to a much clearer picture of China's clean energy.

And while China is on the right track, we know it still has a very long way to go.

So let me ask you another question. Seeing is believing, isn't it?

China's air quality is declining, and can we trust the data and statistics that show the coal war is having a real impact?

Now let's take a look at some of the latest satellite images of China's solar installations.

Please take a good look at this image.

can you see it?

The evidence may be in pandas.

Thank you very much.

(applause)

Let's go south.

You are actually heading south.

This is the south direction, this direction. If you go 8,000 kilometers from the depths of this chamber, you'll reach the South Pole itself, as far as you can go anywhere on Earth.

Well, I'm no explorer.

I'm not an environmental activist.

I'm actually just a survivor and these pictures here are dangerous.

They are the melting of the Antarctic and Arctic ice.

And ladies and gentlemen, we need to listen to what these places are telling us. If we don't, we find ourselves in a subsistence situation here on Earth.

I've faced these places head-on, and wading across a sea of ​​melting ice is without a doubt the scariest thing that's ever happened to me.

Antarctica is a very hopeful place.

It is protected by the Antarctic Treaty signed in 1959.

In 1991, a 50-year pact was signed to end all exploitation in Antarctica, and this pact may be altered, altered, altered or even rescinded from 2041.

Folks, people far north of the Arctic are already taking advantage of this melting ice, extracting resources from areas that have been ice-covered for the last 10, 20, 30,000, 100,000 years.

Can't they connect the dots and ask, "Why does ice actually melt?"

This is a wonderful place called Antarctica. I have spent the last 23 years working hard on this mission to ensure that what is happening here in the North never happens, nor does it happen in Antarctica.

Where did this start?

It started when I was 11 years old.

Check out that haircut. It's a little strange. (Laughter) And when I was 11, I was inspired by real explorers and wanted to be the first to be able to walk to both Poland.

When I was in college, it was incredibly exciting that the idea of ​​becoming a polar traveler was pretty well received by the girls at parties.

It was a little more emotional.

And after years, seven years of fundraising, seven years of being told no, seven years of family telling me to seek counseling and psychiatric help, finally the three of us were able to march to the South Pole on the longest unaided march in Earth's history.

In this picture we are standing alone in an area the size of the United States.

No wireless communication, no backup.

Under our feet lie 90 percent of the world's ice and 70 percent of the world's fresh water.

we are standing on it.

This is the power of Antarctica.

On this trip, we faced the danger of crevasses, the danger of extreme cold where sweat turned to ice on our clothes, teeth cracked and water froze in our eyes.

Let's just say it's a little cold. (Laughter) And after 70 desperate days, we arrive at the South Pole.

we did it.

But during the 70-day journey that brought me here in 1986, something happened to me that hurt me.

My eye color changed in 70 days due to damage.

Our faces were blistered.

The skin was peeling off and I wondered why.

Then when we got home, NASA informed us that a hole in the ozone layer had been discovered over Antarctica and that we had walked under it the same year it was discovered.

The UV rays rained down, hitting the ice, bouncing around, burning my eyes and tearing my face.

It was a bit of a shock -- (Laughter) -- and then I started thinking.

In 1989 we head north.

For 60 days, every step leads you away from safe land across the frozen sea.

It was bitterly cold again.

This is me coming home from laundry naked in minus 60 degrees Celsius.

And if someone tells you, "I'm cold" -- (laughter) -- if that person looks like this, it's definitely cold.

(Applause.) And 1,000 kilometers away from safe land, disaster strikes.

The Arctic Ocean melted under our feet four months ago, more than ever before in history, and we are 1,000 kilometers from our comfort zone.

As the ice crumbles and wears away around us, we are thinking, "Are we going to die?"

But on this day, something clicked in my head as I realized that we were in a survival situation in the world as a whole, and that feeling had not gone away in 25 years.

In those days we had no choice but to march or die.

And we're not a TV survivor show.

When things go wrong for us, it's life or death. And Daryl, the brave African-American who became the first American to walk to the North Pole, had his heels fall off from frostbite after 200 clicks.

He has to keep going, and he does, and after 60 days on the ice, we're at the North Pole.

we did it.

Yes, I was the first person in history to be stupid enough to walk to both Poles, but it was a success for us.

And sadly, when I got home, it wasn't all fun.

I got very low.

Getting something done is often harder than actually making it happen.

I was empty, lonely, and financially bankrupt.

I had no hope, but hope came in the form of the great Jacques Cousteau, who inspired me to undertake the 2041 mission.

As for Jack, he gave me clear instructions. Engage with world leaders, talk to industry and business, and most of all, Rob, inspire young people. They choose the future of Antarctic conservation.

For world leaders, we have made the longest overland voyage ever made by a yacht to every World Earth Summit, all three brave yachts, 2041, twice in Rio, once in 92, at the Earth Summit in Johannesburg.

Over the past 11 years, we have taken over 1,000 industry and business people, men and women from industry, and students from around the world to Antarctica, successfully extracting over 1,500 tons of twisted metal left in Antarctica during the mission.

It took eight years, but I'm very proud of it because we recycled it all here in South America.

Ever since I was able to walk, my mother encouraged me to recycle.

Here's her and my mom -- (applause) -- my mom is still recycling, and she's 100, isn't that great?

(Applause.) And then I love my mother.

(Laughter.) But when Mom was born, our planet was only 1.8 billion people. And in terms of billions, we brought young people from India and China to work in industry and business.

These are game-changing countries and will be very important in decisions about Antarctica's preservation.

Incredibly, we have captivated and inspired women from the Middle East. In many cases, they represent their country in Antarctica for the first time.

Great people and very inspiring.

To save Antarctica, we must first draw people to this amazing place, build relationships, build bonds, build love.

I am so honored to be able to go to Antarctica, words cannot describe it.

I feel really lucky. I've been there 35 times in my life, and everyone who comes with us comes home as a great advocate not just for Antarctica, but for their own local issues.

Let's go back to where we started, where the Arctic and Antarctic ice melted.

And that's not good news.

NASA informed us six months ago that the West Antarctic ice shelf is now collapsing.

Giant Ice Fields -- How Big is Antarctica Compared to Here -- Giant ice fields the size of small nations are being sloughed off Antarctica.

And NASA has calculated that sea levels are certain to rise by 1 meter over the next 100 years, around the same time my mother came to Earth.

It was bound to happen, and I realized that protecting Antarctica and our survival on Earth are linked.

And there is a very easy solution.

If we were using more renewable energy in the real world, using energy more efficiently, and operating our energy mix in a cleaner way, there would be no economic reason to go and develop in Antarctica.

It doesn't make sense economically, and if we could manage our energy better, we might be able to slow or even stop this massive ice melt that threatens us.

This is a big challenge. How should we respond to this?

We have to go back one last time. At the end of next year, we will return to the Southern Pole, where we arrived on foot 30 years ago, and retrace our steps of 1,600 kilometers, but this time using only renewable energy to survive.

We walk on melting ice caps far below and hopefully get a hint of a solution to this problem.

This is my son, Bernie.

he comes with me

He is dedicated to walking alongside his father, and what he does is translate these messages and inspire the minds of future young leaders.

I am very proud of him.

Good for you, Bernie.

Hey survivors, I'm fine. Survivors see the problem and don't think 'anything goes'.

Survivors spot problems and deal with them before they become a threat.

We have 27 years left before Antarctica can be saved.

we all own it.

We are all responsible.

The fact that no one owns it probably means we can succeed.

Antarctica is a moral boundary in the snow, and we, on one side of that line, must fight hard for this beautiful, pristine place left on Earth.

I know it is possible.

I will do it.

And let me give you these words of Goethe.

I have tried to live according to them.

“If you can do something, or dream you can do it, start now, because boldness includes genius, power, and magic.”

Good luck to all of you.

thank you very much.

(applause)

Hercules, son of Zeus and defender of mankind, looked on in horror as he realized he had committed the most unspeakable crime imaginable.

The goddess Hera, who hated Hercules, who was born out of her husband's adultery, gave him a curse of temporary insanity.

And his own family also fell victim.

A grieving Hercules sought the oracle of Delphi, who told him that the way to redemption lay with Hera's favorite cousin, King Eurystheus of Tiryns.

Eurystheus hoped to humiliate Hercules with ten impossible tasks, battling invincible monsters and unfathomable forces.

Instead, the king set the stage for a series of epic adventures later known as the Labors of Hercules.

The first task was to kidnap women and defeat Nemean lions that devoured warriors.

Though its golden fur impervious to arrows, Hercules cornered the lion into a dark cave, stunned it with his club, and strangled it with his bare hands.

No tool was found sharp enough to skin the beast until the goddess Athena suggested using the beast's own claws.

Hercules puts on a lion's skin and returns to Tiryns, scaring King Eurystheus so much that he hides it in a wine bottle.

From then on, Hercules was ordered to present the trophy at a safe distance.

The second target was the Rahnean Hydra, a huge serpent with many heads.

Hercules fought hard, but for every head he cut off, two more sprang up in its place.

The battle was hopeless until his nephew Iolaus decided to burn his neck with fire so that it would not regenerate.

The remains of the dead serpent became the constellation Hydra.

Hercules next had to catch the beast alive instead of killing it.

The Ceryneian Hind was a female deer fast enough to outrun arrows.

Hercules pursued it for a year, eventually trapping it in the northern land of Hyperborea.

This animal turned out to be sacred to Artemis, the goddess of hunting, and Hercules swore to return it.

When Eurystheus saw the doe, he demanded that it be kept for her, but as soon as Hercules let go, the doe ran off to her mistress.

Thus Hercules fulfilled his mission without breaking his promise.

The fourth mission was to capture the Elmanto Boar, which had been ravaging many fields.

On the advice of the wise centaur Chiron, Hercules chased and trapped it in the thick snow.

In the fifth task, no animals were present, only their leftovers.

The stables in which King Augeas kept hundreds of sacred cows had long been unmaintained.

Hercules promised that if he could feed a tenth of the livestock, he would clean them in one day.

Augea expected the hero to fail.

Instead, Hercules dug a massive ditch and rerouted two nearby rivers, running them through stables until they were clean.

Then three more fierce opponents appeared, each requiring clever strategy to defeat.

The carnivorous Stympharia birds were nesting in impenetrable swamps, but Hercules used Athena's special rattle to startle the birds, sending them flying into the air, at which point they were shot down.

No mortal could stand before the Cretan bull's mad rampage, but the choke from behind worked.

And the mad King Diomedes, who had trained his horses to devour his guests, learned a taste of his medicine when Hercules incorporated him into his stable.

The feast that followed calmed the beasts so much that Hercules kept his mouth shut.

But the ninth labor involved someone more dangerous than any beast: Hippolyta, Queen of the Amazons.

Hercules was to retrieve the belt given to him by his father, the god of war Ares.

He prepared for battle and sailed to Themyscira, land of the Amazons, where the Queen was so impressed with the hero and his deeds that she gladly gave him the belt.

For the tenth task, Hercules had to steal a herd of magical red cows from Geryon, a giant with three heads and three bodies.

On the way, Hercules, angry at the heat of the Libyan desert, shot an arrow at the sun.

The sun god Helios praised the hero's strength and lent him a chariot for his journey to Elytheia.

There, Hercules defeated the herdsman of Geryon and his two-headed dog, and then killed the giant himself.

That should have ended.

However, Eurystheus announced that two labors, the Hydra, because he helped Iolaus kill Hercules, and the stable because he accepted payment, did not count.

There, the hero embarked on his eleventh task of retrieving golden apples from the garden of the nymphs of Hesperides.

Hercules first caught the old man of the sea and held the shape-shifting water god until he revealed the location of the garden.

Arriving there, the hero discovered the giant Atlas, which holds up the heavens.

Hercules offered to take his place if Atlas would retrieve the apple.

Atlas obeyed enthusiastically, but Hercules tricked him again into a trading place and escaped with the apple.

His twelfth and final mission was to bring back Cerberus, the three-headed hound guarding the underworld.

Aided by Hermes and Athena, Hercules descended and met with Hades himself.

The King of the Dead allowed Hercules to capture the beast without weapons, which Heracles achieved by grabbing the beast's three heads at once.

When he presented the hound to the frightened Eurystheus, the king finally declared that the hero's service was complete.

After 12 years of toil, Hercules made amends for the tragic death of his family and earned a place in the temple of God.

But his victory had an even deeper significance.

In overcoming the world's chaotic and immense powers, the heroes wiped out the remnants of Titan's primordial order and rebuilt it into an order in which humanity could thrive.

Through his efforts, Hercules tamed the madness of the world by atoning for his sins.

When the Portuguese arrived in Latin America about 500 years ago, they apparently discovered this wonderful tropical forest.

And in a never-before-seen biodiversity, I found one species that immediately caught my attention.

If you cut the bark of this species, you will find a very dark red resin that is very suitable for painting and dyeing fabrics for making clothes.

Indigenous peoples called this species Pau Brasil, which is why this land became the "Land of Brazil", later Brazil.

It is the only country in the world with the name of a tree.

So you can imagine being a forester in Brazil is great, among other reasons.

We are surrounded by forest products.

Apart from all these products, forests are very important for climate regulation.

In Brazil, almost 70% of the evaporation that makes it rain comes from forests.

The Amazon alone pumps 20 billion tons of water into the atmosphere every day.

That's more than the 17 billion tonnes that the world's largest river, the Amazon, throws into the ocean every day.

If water had to be boiled to achieve the same effect as evapotranspiration, it would require six months of the world's total electricity generation capacity.

So this is a great service for all of us.

There are about 4 billion hectares of forest in the world.

In terms of scale, this is more or less like China, the US, Canada and Brazil combined.

Three-quarters of this is in the temperate zone and just one-quarter in the tropics, but this quarter, or billion hectares, contains most of the biodiversity and, very importantly, carbon, which is 50 percent of living biomass.

Well, 2,000 years ago we had 6 billion hectares of forest, 50 percent more than we have today.

In fact, we have lost 2 billion hectares in the last 2,000 years.

But half of that has been lost in the last 100 years.

It was at this time that we moved from deforestation of temperate forests to deforestation of tropical forests.

please think about it. The tropical forests will lose as much forest in 100 years as temperate forests lost in 2,000 years.

That is the speed of destruction we are experiencing.

Now, Brazil is an important piece of this puzzle.

We have the second largest forest in the world after Russia.

This means that 12 percent of the world's forests are in Brazil, most of them in the Amazon.

It is the largest forest we have. It's a big, big area.

It turns out that many of the European countries apply there.

80% of the forest area still remains.

That's good news.

But it lost 15% in just 30 years.

So if we go at that speed, we will soon lose this powerful climate-regulating pump in the Amazon.

During the late 1990s and early 2000s, deforestation was growing and accelerating rapidly.

(Sound of chainsaw) (Sound of falling tree) 27,000 square kilometers in one year.

This is 2.7 million hectares.

That's almost half of Costa Rica's every year.

So at this moment, this was in 2003 or 2004, I happened to be working in the government.

Together with other teammates from the National Forest Service, we were tasked with joining the team to identify the causes of deforestation and to engage local governments, civil society, businesses and local communities to develop a plan to combat deforestation at the national level and address those causes.

So we have devised this plan with 144 actions in different areas.

We will now look at them all one by one. No, just to give a few examples of what we've done over the next few years.

First, we set up a system with the National Space Agency that allows us to see where deforestation is occurring in near real time.

Now in Brazil we have a system called DETER, which gives us information about where deforestation is happening every month or two, so we can actually act when deforestation is happening.

Also, all information is completely transparent, so others can replicate it on independent systems.

This will make it possible, among other things, to arrest 1.4 million cubic meters of illegally harvested logs.

Some of it we saw and sold, and all proceeds went to the foundation, which is now an endowment fund that funds conservation projects in the local community.

This would also allow them to carry out a massive operation to crack down on corruption and misconduct that ultimately resulted in the imprisonment of 700 people, including many civil servants.

Second, we created a relationship that no credit or loan should be granted to areas that are illegally logging.

So we linked this to the end user via our banking system.

Therefore, supermarkets, slaughterhouses, etc. that purchase products from illegally cleared areas can also be held responsible for deforestation.

So making all these connections can solve the problem.

We are also passionate about land ownership issues.

It is very important for conflict.

50 million hectares of reserves have been created, an area the size of Spain.

And 8 million of them were indigenous lands.

Now we are starting to see results.

Over the last decade, deforestation has decreased by 75% in Brazil.

(Applause.) Compared to the average deforestation of the last ten years, we have saved 8.7 million hectares, the size of Austria.

But more importantly, it avoided the release of 3 billion tons of CO2 into the atmosphere.

This is the positive action that has contributed most to reducing greenhouse gas emissions to date.

One might think that taking such actions to reduce deforestation, or to curb deforestation, would have economic consequences, as economic activity would cease.

But it's interesting to know that it's quite the opposite.

In fact, during the period of the most severe decline in deforestation, the economy grew on average twice as much as it did in the previous decade when deforestation was actually increasing.

So this is a good lesson for us.

Perhaps this is a complete disconnect, as we have learned through deforestation.

This is all good news, quite an accomplishment and we should obviously be very proud of it.

But that's not enough.

In fact, if you think about the Amazon deforestation in 2013, the area was more than 500,000 hectares. This means that in the last year, just last year, an area the size of two football fields has been cut down in the Amazon every minute.

Combined deforestation in other biomes in Brazil still represents the highest rate of deforestation in the world.

More or less, we are heroes of the forest, but still kind of champions of deforestation.

Therefore, we cannot be satisfied.

So I think the next step is to fight for zero loss of forest cover in Brazil and make that a target for 2020.

That's our next step.

Currently, I am always interested in the relationship between climate change and forests.

First, 15% of greenhouse gas emissions come from deforestation, which is a big part of the problem.

But forests could also be a big part of the solution, as they are the best way we know to absorb, capture and store carbon.

Now, there is another relationship between climate and forests that really hooked me in 2008 and inspired me to switch careers from forests to work on climate change.

I visited British Columbia, Canada, along with Forest Service Commissioners from other countries that have some sort of alliance: Canada, Russia, India, China, and the United States.

And when we were there, we found out about this pine beetle literally eating the forests of Canada.

What we see here are brown trees, really dead trees.

Because of the beetle larvae, it has become a standing dead tree.

What happens is that this beetle is controlled by the winter cold.

For many years it hasn't been cold enough to really control the population of this beetle.

And it actually became a disease that killed billions of trees.

So I came back to the idea that forests are indeed one of the earliest and most affected victims of climate change.

So I thought that if I could work with all my colleagues to actually stop deforestation, we would probably lose the battle against climate change later on with floods, heat and fires.

So I decided to quit the Forest Service and start working directly on climate change, find a way to think and understand this challenge, and start from there.

Well, the climate change challenge is very simple.

The goal is very clear.

We want to limit the increase in average global temperature to 2 degrees.

There are several reasons for that.

I won't go into that now.

But to reach this limit of 2 degrees we can live with, the Intergovernmental Panel on Climate Change, the IPCC, defines that we have a budget to emit 1.0 trillion tons of CO2 between now and the end of the century.

Dividing this by the number of years yields an average budget of 11 billion tons of CO2 per year.

So what is 1 tonne of CO2?

This is roughly equivalent to the emissions of one small car driving 20 kilometers per day for one year.

Or one-way flight from São Paulo to Johannesburg or London.

Two-way, 2 tons.

So 11 billion tons is double that.

Current emissions are 50 billion tonnes and rising.

On the rise, there could be 61 by 2020.

It should be reduced to 10 by 2050.

And while this happens, the population will grow from 7 billion to 9 billion and the economy will grow from $60 trillion in 2010 to $200 trillion.

So what we need to do is be much more efficient in such a way that we can turn 7 tonnes of carbon per person per year into something like 1 tonne.

You have to choose. Take a plane or have a car.

So the question is, can it be achieved?

That's exactly the question I got when I was making plans to fight deforestation.

It's a very big problem and very complicated. Can you really do it?

I think so. please think about it. Deforestation represents 60% of Brazil's greenhouse gas emissions over the last decade.

Now it's a little less than 30%.

60% of the world is energy.

So if we can tackle energy directly in the same way that we tackle deforestation, we may have an opportunity.

There are five things we should do.

First, we need to decouple development from carbon emissions.

You don't have to cut down all the forests to actually increase employment and agriculture and expand the economy.

That's been proven when we cut deforestation and the economy continued to grow.

The same thing could happen in the energy sector.

Second, we need to move incentives to the right place.

Currently, $500 billion a year is spent on subsidizing fossil fuels.

What if we put a price on carbon and move this to renewable energy?

Third, we need to measure and be transparent about when, where and who emits greenhouse gases so that we can respond concretely to each opportunity.

Fourth, we need to leapfrog the route of development. That means you don't have to go to a landline before you can reach your mobile.

Likewise, we don't need fossil fuels for the billion people without access to energy before we have access to clean energy.

And finally, fifth, there needs to be a shared responsibility between governments, businesses and civil society.

There is work to be done for everyone and everyone needs to participate.

Finally, I don't think the future is like destiny that has to go as usual.

You have to have the courage to actually change course, invest in something new, and think you can actually change course.

I think we are doing this with deforestation in Brazil, and I hope we can do the same with global climate change.

thank you.

(applause)

When you grow up in a developing country like India, as I did, you quickly learn to extract more value from limited resources and find creative ways to reuse what you already have.

Take Indian potter Mansk Prajapati, for example.

He created a refrigerator made entirely of clay that consumes no electricity.

He can keep fruits and vegetables fresh for days.

Literally a great invention.

In Africa, don't panic if your phone runs out of battery.

There are also resourceful entrepreneurs who can use their bikes to charge their phones.

And since this is South America, let's go to Lima, Peru, a humid region that receives just an inch of rain per year.

The University of Technology in Lima has designed a giant billboard that absorbs moisture from the air and converts it into purified water, producing over 90 liters of water every day.

Peruvians are amazing.

They can literally create water out of nothing.

Over the past seven years, I have met and studied hundreds of entrepreneurs in India, China, Africa and South America, and they continue to amaze me.

Many of them did not attend school.

They don't invent things in big R&D labs.

The street is the laboratory.

why would they do that?

This is because these regions lack the basic resources we take for granted, such as capital and energy, and lack basic services such as health care and education.

When external resources are scarce, you have to get inside yourself to tap into your most abundant resource, human ingenuity, and use that ingenuity to find clever ways to solve problems with limited resources.

In India it is called Jugaad.

Jugaad is a Hindi word that means an improvised fix, a clever solution born out of adversity.

The Jugaad solution isn't sleek and perfect, but it delivers more value at a lower cost.

To me, entrepreneurs who create Jugaad solutions are like alchemists.

They can magically turn adversity into opportunity, turning low-value into high-value.

In other words, they have mastered the art of doing more with less, which is the essence of frugal innovation.

Frugal innovation is the ability to create more economic and social value using fewer resources.

Frugal innovation is not about making ends meet. It's about making things better.

Here, I want to show you how entrepreneurs and businesses across emerging markets are implementing large-scale frugal innovations to cost-effectively provide healthcare and energy to billions of people with low incomes but very high aspirations.

First, let's go to China's largest IT city. Service provider Neusoft has developed a telemedicine solution that enables doctors in cities to remotely treat elderly and poor patients in Chinese villages.

The solution is based on an easy-to-use medical device that can be used in rural clinics by unqualified healthcare workers such as nurses.

With more than 500 million elderly people living in China by 2050, such frugal healthcare solutions are in dire need.

Next, let's go to Kenya, a country where half the population uses M-Pesa, a mobile payment solution.

This is a great solution for the continent, as 80 percent of Africans do not have bank accounts, but what is interesting is that M-Pesa is now becoming a source of other disruptive business models in areas such as energy.

M-KOPA is a home solar solution that literally comes in a box and includes a solar roof top panel, 3 LED lights, a solar radio and a cell phone charger.

However, the entire kit costs $200, too expensive for most Kenyans. Using a mobile phone here makes the solution more affordable.

Today, you can purchase this kit with an initial deposit of just $35 and pay for the rest with daily micropayments of 45 cents using your mobile phone.

Complete 365 micropayments to unlock the system, own the product and start receiving clean, free electricity.

This is an amazing solution for Kenya, where 70% of the population lives off the grid.

This shows that the key to frugal innovation is to take advantage of what is most abundant: mobile connectivity to address what is scarce: energy.

Through frugal innovation, the Global South is actually catching up, and sometimes surpassing, the North.

China is using telemedicine to treat millions of patients cost-effectively instead of building expensive hospitals, and Africa is going headlong into mobile payments and decentralized clean energy instead of building banks and power grids.

Frugal innovation is the exact opposite of how innovation is done in the north.

I live in Silicon Valley, where I keep chasing the next big technology.

Consider the iPhone 5, 6, then 7, 8.

Western companies spend billions of dollars on research and development, use vast amounts of natural resources to develop more complex products to differentiate their brands from their competitors, and charge customers more for new features.

In other words, the traditional business model of the West is a better fit.

But sadly, this model is running out of gas for three reasons. First, most Western customers can no longer afford these expensive products due to reduced purchasing power.

Second, we are running out of natural water and oil.

In California where I live, water shortage is a big problem.

And third, and most importantly, the widening income gap between the wealthy and middle class in the West has created a widening gap between existing products and services and the basic needs of customers.

Did you know that more than 70 million Americans are currently unbanked because existing banking services were not designed to meet their basic needs?

I fear that the prolonged economic crisis in the West will cause people to lose their high standard of living and face poverty.

I believe the only way we can sustain growth and prosperity in the West is by learning to do more with less.

The good news is that it's starting to happen.

Some Western companies are now introducing frugal innovations to develop affordable products for Western consumers.

Let me give you two examples.

When I first saw this building, I told myself it was a postmodern house of sorts.

In fact, this is a small manufacturing plant set up by Grameen Danone, a joint venture between Muhammad Yunus' Grameen Bank and food multinational Danone, to produce quality yogurt in Bangladesh.

The plant will be 10% the size of Danone's existing plant and will cost much less to build.

You could call it a low-fat factory.

Today, the factory relies heavily on manual processes to create jobs for the local community, unlike the highly automated Western factories.

Danone is so inspired by this model of combining economic efficiency and social sustainability that it plans to roll it out in other parts of the world.

Now, looking at this example, you might think that thrifty innovation is low-tech.

Not really.

Frugal innovation is also about making high tech more affordable and accessible to more people.

Let's take an example.

In China, Siemens Healthcare R&D engineers designed C.T. The scanner is easy to use even by less qualified healthcare professionals such as nurses and technicians.

The device is great for hospitals because it consumes less energy while scanning more patients each day, but it's also great for patients because it cuts treatment costs by 30 percent and reduces radiation dose by up to 60 percent.

Originally designed for the Chinese market, the solution is now selling like hot cakes in the US and Europe, with pressure on hospitals to provide low-cost, high-quality care.

But the frugal innovation revolution in the West is actually being driven by creative entrepreneurs coming up with amazing solutions to address basic needs in the United States and Europe.

Here are three quick examples of startups that have personally inspired me.

The first one happened to be launched by my neighbor in Silicon Valley.

It's called gThrive.

They make wireless sensors designed like plastic rulers that farmers can stick to different spots in their fields and start collecting detailed information about soil conditions and more.

This dynamic data will allow farmers to optimize their use of water energy while improving product quality and yield, an excellent solution for California facing severe water shortages.

Pays for itself within a year.

A second example is Be-Bound, also in Silicon Valley. With it, you can connect to the internet even in low bandwidth areas where there is no Wi-Fi, 3G or 4G.

how do they do that?

It only uses the basic technology SMS, but it is the most reliable and the most widely used in the world.

Currently, 3 billion people with mobile phones do not have internet access.

This solution allows you to connect to the Internet in a cost-effective way.

And in France there is a start-up called Compte Nickel that is revolutionizing the banking sector.

This allows thousands of people to walk into a mom and pop store and activate a service that offers two products in just 5 minutes: an international bank account number and an international debit card.

The annual flat maintenance fee is just €20.

This means you can send and receive money, pay with debit cards, and do all your banking transactions at no extra charge.

This is what I call unbanked low cost banking.

Surprisingly, 75% of customers using this service are middle class in France who cannot afford high bank fees.

Well, we talked about the thrifty innovations that were first pioneered in the South and are now being adopted in the North.

Ultimately, we want developed and developing countries to come together to co-create frugal solutions that benefit humanity as a whole.

The great news is that it's starting to happen.

Let's go to Nairobi to find out.

Nairobi has terrible traffic jams.

When I first saw it, I thought, "It's a sacred cow."

Because literally cows should also be avoided when driving in Nairobi.

To alleviate this situation, engineers at IBM Labs in Kenya are piloting a solution called Megaffic, originally designed by Japanese engineers.

Unlike Western countries, Megafic does not rely on roadside sensors, which are very expensive to install in Nairobi.

Instead, it can process imagery and traffic data collected from a handful of low-resolution webcams on Nairobi's streets and use analytics software to predict congestion points and guide SMS drivers to alternate routes.

Sure, the Megaffic isn't as compelling as a self-driving car, but it promises to get drivers in Nairobi from point A to point B at least 20% faster.

And earlier this year, UCLA Health launched the Global Lab for Innovation, which aims to identify frugal medical solutions anywhere in the world that are at least 20% cheaper than existing solutions in the United States.

And even more effective.

It also seeks to bring together innovators from the North and South to jointly develop affordable healthcare solutions for all mankind.

I've given you many examples of thrifty innovators around the world, but the question is how to implement thrifty innovation.

Well, I'd like to share with you three principles I've collected from thrifty innovators around the world. This is something you can apply to your own organization to do more with less.

The first principle is to keep it simple.

Don't create solutions to impress your customers.

Make it easy to use and widely accessible, like C.T. A scanner I saw in China.

Second principle: don't reinvent the wheel.

Try to take advantage of existing resources and assets that are widely available, such as using mobile phones to provide clean energy or using mom-and-pop stores to provide banking services.

The third principle is to think and act horizontally.

Companies tend to scale up vertically by concentrating operations in large factories and warehouses, but if they want to be agile and address a huge variety of customers, they need to scale out horizontally using distributed supply chains with smaller manufacturing and distribution units, as Grameen Bank has shown.

The South pioneered frugal innovation out of sheer necessity.

As North Korea now faces resource constraints, it is learning to do more with less.

As an Indian-born Frenchman living in the United States, my hope is that this man-made North-South divide can be overcome and the ingenuity of innovators around the world can be brought together to co-create frugal solutions that improve the quality of life for people around the world while protecting our precious planet.

thank you very much.

(applause)

Therefore, we humans have an extraordinary potential to do good, but we also have immense power to do harm.

It can be built or destroyed using any tool.

It all depends on our motivation.

Therefore, it is even more important to cultivate altruistic rather than selfish motives.

So we certainly face many challenges now.

They may be personal issues.

Our own mind can be our best friend and our worst enemy.

There are also social issues such as poverty, inequality, conflict, and injustice in the midst of affluence.

And there are new challenges that we didn't anticipate.

10,000 years ago, there were about 5 million humans on Earth.

Whatever they can do, Earth's resilience will soon restore human activity.

After the industrial and technological revolutions, it's not the same anymore.

We are now the main actors affecting the planet.

We are entering the Anthropocene, the age of humanity.

So, in a way, if we say we need to continue this unbounded growth, this unbounded use of material resources, it's like this guy saying -- I won't say who, but I heard a former head of state say -- "Five years ago, we were on the precipice.

We took a big step today. ”

This edge is therefore the same as what scientists define as the boundary of the planet.

And within that boundary, various elements can be included.

If we can maintain the same climate stability as in the Holocene for the last 10,000 years, we can still thrive, and humans can thrive for another 150,000 years.

But this depends on choosing spontaneous simplicity and growing qualitatively rather than quantitatively.

So in 1900, as you can see, we were well within our safe range.

Well, in 1950 there was a big acceleration.

Don't hold your breath for too long to imagine what happens next.

We are now well over part of the planetary boundary.

As far as biodiversity is concerned, at current rates 30 percent of all species on Earth will be gone by 2050.

Even if you keep their DNA in the refrigerator, it's irreversible.

I am now sitting in front of a 7,000-meter, 21,000-foot glacier in Bhutan.

In the Third Pole, 2,000 glaciers are melting faster than in the Arctic.

So what can be done in such situations?

Well, no matter how complex the environmental problem is politically, economically, and scientifically, it boils down to a question of altruism and selfishness.

I am a Groucho-prone Marxist.

(Laughter) Groucho Marx said, 'Why should I care about future generations?

what have they done to me? ”

(Laughter) Unfortunately, I heard billionaire Steve Forbes say the exact same thing on FOX News, but seriously.

When asked about sea level rise, he said, "I think it would be silly to change today's behavior because of what will happen in 100 years."

So if you don't care about future generations, go ahead.

Therefore, one of the major challenges of our time is to reconcile the three timescales: the short term of the economy, the ups and downs of the stock market, the year-end closing, and the short term economy. Medium-term quality of life -- what is the quality of every moment of our lives over the next 10, 20 years? -- and the long-term environment.

When an environmental activist talks to an economist, it's like a schizophrenic dialogue, utterly incoherent.

they don't speak the same language.

Now, over the last ten years, I have traveled around the world, meeting economists, scientists, neuroscientists, environmentalists, philosophers and thinkers throughout the Himalayas.

It seems to me that there is only one concept that can reconcile these three timescales.

It simply means more consideration for others.

If we were more considerate of others, we would have a compassionate economics in which finance serves society, rather than society serving finance.

We don't play in casinos with resources entrusted to us by people.

If we were more considerate of others, we could reduce inequalities and bring some well-being to society, education and the workplace.

Otherwise, what's the point, the most powerful, richest, yet miserable country for everyone?

And if you have more consideration for others, you're not going to loot that planet that we own, and at the current pace, we don't have three planets to keep it going.

So the question is, altruism is the answer. Could this be a realistic and practical solution, rather than just a novel ideal?

First of all, does true altruism exist or are we so selfish?

That is why some philosophers have held that we are hopelessly selfish.

But are we really just some kind of rogues?

That's good news.

Many philosophers like Hobbes say so.

But not everyone looks like a rogue.

Or are humans wolves to humans?

But this guy doesn't seem so bad.

He is one of my friends in Tibet.

he is very kind

So now we love working together.

Nothing makes me happier than working with you.

And it's not just humans.

And, of course, there is the struggle for life, survival of the fittest, and social Darwinism.

But in evolution, cooperation, of course competition exists, but has to be much more creative in order to progress to more complex levels.

We are very supportive and need to go further.

Well, on top of that, the quality of relationships.

The OECD surveyed 10 factors, including everything from income.

People were the first to say that the most important thing for my happiness was the quality of my social relationships.

Not just humans.

And look at those great-grandmothers.

Now, if you dig deep inside, this idea that we become irrevocably selfish, this is armchair science.

Not a single sociological or psychological study has shown that.

Rather the opposite.

My friend Daniel Batson spent a lifetime putting people in very complicated situations in labs.

And of course we are selfish at times, some more selfish than others.

But he found that there are quite a few people who systematically act altruistically no matter what.

If you see someone deeply hurt and in great pain, you might just help them out of their sympathetic distress. You can't stand it, so it's better to help than to keep staring at the person.

So we tested them all, and in the end, he said, obviously people can be altruistic.

That's good news.

And furthermore, we should look to the banality of goodness.

Now look here.

When we come out, we don't say, "That sounds great."

While this mob was thinking about altruism, there were no fistfights. ”

No, as expected, right?

If we had a fistfight, we would talk about it for months.

So mediocre goodness is there, even though it doesn't attract your attention.

Now look at this.

So when I told some psychologists that I was doing 140 humanitarian projects in the Himalayas and was very happy about it, they said, "Oh, I see, you're working for warm light.

It's not altruistic. I just feel good. ”

This guy, when you jumped in front of the train, do you think he thought, 'I'm going to feel so good when this is over'?

(Laughter) But that's not the end of the story.

It is often said that when you interviewed him, he said, "I had no choice. Of course I had to jump."

he has no choice. automatic operation. It is neither selfish nor altruistic.

No choice?

Of course, this guy isn't going to spend half an hour thinking, "Should I reach out? Shouldn't I reach out?"

he will do it There are choices, but they are obvious and actionable.

And even there he had a choice.

(laughter) There are those who have had a choice, like Pastor André Trocmé and his wife, and the whole village of Le Chambon-sur-Lignon in France.

During World War II, they saved, sheltered and took 3,500 Jews to Switzerland, in spite of all adversity and risking their lives and the lives of their families.

So altruism exists.

So what is altruism?

It is the wish that “others can be happy and find the cause of their happiness”.

Now, empathy is emotional resonance or cognitive resonance, and it tells you that this person is happy and this person is suffering.

But empathy alone is not enough.

Continuing to face suffering can lead to empathic distress and burnout, so a broader spectrum of loving-kindness is needed.

Together with Tania Singer of the Max Planck Institute in Leipzig, we have shown that empathy and affection have different brain networks.

Well it all worked out. We got it from evolution, maternal care, parental love, but we need to extend it.

It can be extended to other species.

Now, if we want a more altruistic society, two things are needed: individual change and social change.

Is personal change possible?

2000 years of meditative research said yes.

Now, a 15-year collaboration between neuroscience and epigenetics has found that training altruism changes our brains.

So I spent 120 hours in the MRI machine.

I went there for the first time in two and a half hours.

And the results were published in many scientific papers.

This clearly shows that training in altruistic love causes structural and functional changes in the brain.

To give you an idea, this is a meditator resting on the left side. I am a meditator practicing loving-kindness meditation. All activities are displayed. The control group then rests. nothing happened. Nothing happened during meditation.

they are not trained.

So, do we need 50,000 hours of meditation? No, it's not.

Four weeks of mindful mindfulness meditation for 20 minutes a day is already producing structural changes in the brain compared to controls.

Only 20 minutes a day for 4 weeks.

Even for preschoolers, Richard Davidson did it in Madison.

8-week program: Gratitude, Loving-Kindness, Cooperation, Mindful Breathing.

"Oh, they're still preschoolers," you say.

Prosocial behavior after 8 weeks, that's the blue line.

And then the ultimate science test, the sticker test, begins.

In the past, each child had to be their best friend, least favorite child, stranger child, sick child, and hand out stickers.

So, before intervention, they give most of that money to their best friend.

4, 5 years old, 20 minutes 3 times a week.

After the intervention, the discrimination disappeared, and the best friend and the least liked child received an equal amount of stickers.

That's what every school in the world should do.

So where do we go from there?

(Applause.) When the Dalai Lama heard that, he said to Richard Davidson, "You go to 10 schools, 100 schools, the United Nations, and the whole world."

So where do we go from there?

Individual changes are also possible.

Now, should we wait for the altruistic gene to be born in mankind?

That would take 50,000 years, too long for the environment.

Fortunately, there is a cultural evolution.

As experts have shown, culture changes faster than genes.

That's good news.

Look, attitudes towards war have changed dramatically over the years.

Individual changes and cultural changes influence each other, making it possible to realize a more altruistic society.

So where do we go from there?

I myself go back east.

Currently, our project treats 100,000 patients annually.

The school has 25,000 children and overhead is 4%.

Some people say, "Your product works in practice, but does it work in theory?"

There are always positive deviations.

Therefore, I will also return to my hermitage to find inner resources to serve others more.

But what can we do on a more global level?

You need three things.

Enhancing cooperation: cooperative learning in schools instead of competitive learning, unconditional cooperation within companies -- There can be some competition between companies, but no competition within companies.

We need sustainable harmony. i love this word

It is no longer sustainable growth.

Sustainable harmony means reducing inequalities.

In the future, we will do more with less and continue to grow qualitatively rather than quantitatively.

We need compassionate economics.

Homo economicus cannot deal with poverty in the midst of abundance, nor can it deal with the common good of the air and the ocean.

We need compassionate economics.

When we say that economics should be compassionate, we are told, "That's not our job."

But it sounds bad when you say you don't care.

We need local commitment and global responsibility.

We need to extend altruism to other 1.6 million species.

Sentient beings are co-inhabitants of this world.

And we must dare to be altruistic.

Well then, long live the altruistic revolution.

Long live the altruistic revolution.

(Applause.) Thank you.

(applause)

I'm a blogger, filmmaker, and butcher. Describe how these identities fit together.

It started four years ago when a friend and I held our first Ramadan fast at one of New York City's most crowded mosques.

Crowds of men with beards and skullcaps crowded the streets.

It was an FBI agent's wet dream. (Laughter) But as part of this community, we knew how welcome this space was.

Over the years, I have seen photographs documenting this space as a lifeless, cold monolith. This was much like the stereotypical image painted of the American Muslim experience.

Frustrated by this short-sightedness, my friend and I came up with this crazy idea. Break your fast in a different mosque in a different state every night during Ramadan and share your stories on your blog.

We dubbed it 30 Mosques in 30 Days and drove to all 50 states to share stories from over 100 diverse Muslim communities, from Cambodian refugees participating in projects in Los Angeles to Black Sufis living in the forests of South Carolina.

What emerged was a beautiful and complex portrait of America.

Media coverage forced local journalists to revisit the Muslim community, but what was really inspiring was seeing people from all over the world inspired by their journey to 30 mosques.

Some of these two NFL athletes also took time off from the league because of it.

I was actually working on a film in Pakistan when 30 mosques were blooming all over the world.

My co-director Omar and I had reached a breaking point with many of our friends on how to position the film.

The film is called 'These Birds Walk' and tells the story of wayward street children who struggle to find a family.

While we focus on the complexities of youth and family discord, our friends keep pushing us to comment on drones and targeted killings to make the film “more meaningful,” essentially reducing these people who entrusted us with the story to socio-political symbols.

Of course, we didn't listen to them, instead defending the tender gestures of love and the sheer brilliance of youth.

Empathy was the only thing behind our immersion in cinema. This sentiment is largely absent from films in our region.

And as "These Birds Walk" hits international film festivals and theaters, I'm finally able to set foot in my home in New York. And since I had time but no real money yet, my wife asked me to cook more.

And every time I went to the local butcher to buy halal meat, I felt something was wrong.

For those who don't know, halal is the term used for meat that is humanely raised and slaughtered according to very strict Islamic guidelines.

Unfortunately, the majority of halal meat in America falls short of the standards my faith requires.

The more I learned about these unethical practices, the more I felt violated, especially since it was businesses in my own community that were taking advantage of my legitimacy.

So, with a lot of emotion and no butcher shop experience, me and a few friends opened a butcher shop in the heart of the East Village Fashion District.

(Laughter) We call it the Honest Chop. We are bringing halal back by sourcing organic, humanely raised animals and making them accessible and affordable for working-class families.

America doesn't really have anything like that.

Believe it or not, 90% of your brick-and-mortar customers aren't even Muslim.

For many, it was the first time they had interacted with Islam on such an intimate level.

So all these alien projects are - (laughter) - the result of restlessness.

These are my instinctive reactions to companies and curators who work so hard to oversimplify my beliefs and communities that the only way to beat their machine is to play by different rules.

We must fight with an inventive approach.

With the trust, access and love that only we can bring, we must unapologetically take back what we believe in every video and every cut of meat. Because if we falsify our stories to appeal to the masses, not only will we fail, but we will be trampled by those who have more money and resources to tell their stories.

But it's not novelty or relevance that demands creative courage.

Simply because our community is so unique and so beautiful.

They demand that we find uncompromising ways to be recognized and respected.

thank you.

(applause)

I think some people will be relieved that I won't be talking about vaginas today, but others will be disappointed.

I started doing "vaginal monologues" because I was curious about the vagina.

I am very concerned today about this concept, this world, this kind of pervasive security force.

Everywhere I see this word, hear this word, feel this word.

real security, security check, security watch, security clearance.

Why has the focus on security made us feel so insecure?

What does everyone mean when they talk about real security?

And why have we, as Americans in particular, become a nation that seeks safety above all else?

In fact, I think safety is elusive. It's impossible.

we all die. we all get old. we all get sick. People are leaving us.

People change us. Nothing is safe.

And that's actually good news.

Unless, of course, your whole life is safe.

I think these things happen when that is the focus of your life.

You cannot travel too far or go too far outside a particular circle.

Don't have too many conflicting ideas in your head at once. Because it can be confusing and challenging.

Inability to open up to new experiences, new people, new ways of doing things. They may throw you off course.

Unable to know who he is, he clings to his Hard Matter identity.

You become a Christian, a Muslim, a Jew.

You are Indian, Egyptian, Italian and American.

You are heterosexual or gay or have never had sex.

At least you say so when you reveal yourself.

You become part of 'we'.

To be safe, you need to protect yourself from "them".

I hold onto my land because it is a safe place for me.

Those who encroach upon it must be fought.

you become your citizen you become your religion

You become the thing that freezes you, paralyzes you, protects you from doubt and change.

But this really only closes the mind.

In practice, it doesn't really make you safer.

For example, I was in Sri Lanka three days after the tsunami, standing on the shore, and it was clear that within just five minutes, a 30-foot wave could roll in and desecrate people, population, and life.

The effort to stay safe actually makes us even more anxious because we have to be on constant alert.

There are people who are not like you, people you now call enemies.

You have places you can't go, thoughts you can't think of, worlds you can't live in anymore.

And you spend your days fighting things off, defending your territory, and getting your basic ideas more entrenched.

It's going to be a day dedicated to protecting yourself.

This will be your mission. That's all there is to do.

Ideas get shorter. They become sound bites.

There are villains and saints, criminals and victims.

There are those who are against us if they are not with us.

It is easy to hurt people because you can not feel the inside of the other person.

It becomes easier to imprison them, force them to strip naked, humiliate them, occupy them, invade them, and kill them. Because they are no more than an obstacle to your safety.

Over the last six years, I have had the special privilege of traveling to probably 60 countries and spending a lot of time in different regions through V-Day, the global movement against violence against women.

On this planet, I have met women and men who have never known safety or whose illusion of safety has been shattered forever through war, poverty, racism, and forms of violence.

I spent time with women in Afghanistan under the Taliban, and they were basically brutalized and censored.

I have been in a refugee camp in Bosnia.

I was with women in Pakistan who had their faces dissolved in acid.

I have been with girls all over America who have been date raped or raped one night by a drugged best friend.

One of the amazing things I discovered during my travels is that this emerging species exists.

I loved when he talked about another world right next to this one.

I discovered these people in the V-Day world called Vaginal Warriors.

Rather than follow the spirit of a warrior and get an AK-47 or a weapon of mass destruction or a machete, these particular people have fallen into the center of pain and loss, the center of suffering.

They have grieved it, they have become obsessed with it, they have allowed and encouraged the transformation of poison into medicine.

They used pain as fuel and began channeling that energy into another mission and another trajectory.

These warriors now dedicate themselves and their lives to ensure that what happened to them does not happen to anyone else.

There are thousands, if not millions, of them on Earth.

I think there are a lot of people in this room.

They have the intensity and freedom that they believe are the foundations of the new paradigm.

They broke the existing framework of victims and perpetrators.

Their own personal safety is not their ultimate goal. So instead of worrying about safety, I actually believe they are creating real safety and a whole new concept of safety because their end goal is to change suffering.

I would like to talk about some people I met.

Tomorrow I will go to Cairo. I am thrilled to be with the women of V-Day, the women of Cairo who are opening the first safe houses for women who have been battered in the Middle East.

It happens because the women of Cairo made the decision to stand up and put themselves at risk to speak out about the extent of the violence going on in Egypt and be willing to be attacked and criticized.

And through their work over the last few years, not only is this house happening to open, but it is also being supported by many factions of society that never should have supported this house.

Ugandan women performed "The Vagina Monologues" during V-Day this year, actually drawing the ire of the government.

And I love this story so much.

There was a cabinet meeting and a presidential meeting to discuss whether the "vaginas" could come to Uganda.

And this meeting lasted several weeks in the press and two weeks of extensive debate.

The government ultimately decided that the Vaginal Monologue could not be performed in Uganda.

But the shocking news is that their stand-up and willingness to risk their own safety has sparked controversy not just in Uganda, but across Africa.

As a result, all but 10 of the 800-seat audience decided to keep their money for the already sold-out production.

They raised $10,000 for their unrealized work.

There is a young woman in Minnesota named Carrie Leslefsen.

she is in high school

She saw "The Vagina Monologues" and was very moved. As a result, she went to high school in Minnesota wearing a button that said, "I give my heart to my vagina."

(Laughter) She was basically threatened with expulsion from school.

They told her she couldn't love her vagina in high school, it wasn't legal, it wasn't moral, it wasn't good.

So she really wondered what to do. Because even though she was a senior and had good grades in school, she was threatened with expulsion. So what she did is she got all her friends together. I think there were 100 or 150 students, and all the students wore t-shirts that said, "I love her vagina," and the boys wore t-shirts that said, "I love her vagina," to school.

(Laughter) This seems pretty frivolous, but what happened as a result was that the school created a sex education class. It's starting to talk about sex, and it's starting to consider why it's wrong for young schoolgirls to talk publicly about their vaginas or say they love them in public.

I'm sure I've talked about Agnes here before, but I wanted to give you an update on Agnes.

I met Agnes three years ago in the Rift Valley.

When she was young, she was amputated against her will.

The amputation of her clitoris has indeed clearly affected her life and changed it in a devastating way.

Instead of going for razors and shards of glass, she decided to give her life to stop the same thing from happening to other girls.

She walked the rift valley for eight years.

She had a wonderful box with half a woman's torso in it and everywhere she went she was telling people what a healthy vagina looked like and what a severed vagina looked like.

She spent years educating her parents, mother and father.

She saved 1,500 girls from amputation.

When V-Day met with her, we asked her how we could support her. "If you buy me a jeep, I can move faster." So we bought her a jeep.

In the year she owned the Jeep, she saved 4,500 girls from being cut.

So what else can we do, we said.

She said, "If you help me earn money, I can build a house."

Three years ago, Agnes opened a safe house in Africa to deter amputation.

When she began her ministry eight years ago, she was stigmatized, hated, and thoroughly vilified in her community.

I am proud to say that she was elected Vice Mayor of Narok six months ago.

(Applause.) I think what I'm trying to say here is that if your end goal is security and you're focused on that alone, what you end up doing is not only making other people more anxious, but making yourself even more anxious.

Real safety is contemplating death, not pretending it doesn't exist.

We are not running away from the loss, we are going into grief and surrendering ourselves to grief.

Real safety is not knowing something when you don't know it.

Real security seeks connection, not power.

Bombs cannot be purchased, dispatched, or crafted.

It is deeper, a process, a keen realization that we are all utterly mutually bent, and that one action by one person's presence in one small town affects everywhere.

Real security is not only being able to tolerate mystery, complexity, and ambiguity, but craving them and trusting situations only when they exist.

When I started traveling on V-Day eight years ago, something happened. I lost my way.

I remember being on a plane from Kenya to South Africa and I had no idea where I was.

I panicked, not knowing where I was going or where I was coming from. I had a complete anxiety attack.

And suddenly I realized that it doesn't really matter where we go or where we come from, because we are all permanent refugees by nature.

We are all refugees.

I think we come from somewhere and hopefully always travel and move towards new places.

Freedom means I don't belong to any group, but I can visit any group and find myself.

That doesn't mean I don't have values ​​or beliefs, but it does mean that I'm not stuck with them.

I don't use them as weapons.

In a shared future, it will just be shared.

The ultimate goal is not to be safe, controlled, and lonely, but to be weak and aware of where we are connected to each other.

thank you very much.

(Applause) Chris Anderson: So how are you doing? Are you exhausted?

On a typical day, do you wake up hopeful or depressed?

Eve Ensler: You know, I think Carl Jung once said that in order to survive the 20th century, you have to live with two preexisting ideas, opposing ideas, at the same time.

And I think part of what I'm learning in this process is that one has to allow oneself to feel sad.

And as long as I keep grieving, I keep crying, and I keep moving forward, I think I'll be fine.

Problems arise when you start pretending that what you see isn't affecting you or changing your mind.

Because if you spend a lot of time moving from place to place, country to country, city to city, how violated, for example, women, and their prevalence and their routine is so devastating to the soul that you have to take time, or I have to take time now to process it.

CA: There are many causes in the world that are being talked about, such as poverty and disease. You've spent eight years on this.

why this?

EE: When I think about women, I think women are the main resource of the planet. They give birth, we are born of them, they are mothers, they are visionaries, they are the future. If you think the United Nations is saying that one in three women on the planet will be raped or assaulted in their lifetime, then you are talking about desecration of the planet's prime resources, talking about where we were born, and talking about raising children.

Imagine you were raped and raising a boy.

What impact does that have on our ability to work, to envision the future, to thrive, not just survive? I believe that if we can find ways to make women safe and respect them, it will be the same or equivalent to respecting life itself.

My students and I are working on a very small robot.

You can think of these as the robot versions of the ants you are all familiar with.

We all know that ants and other insects of this size can do some pretty incredible things.

For example, you've probably seen a swarm of ants, or one of them, carrying away potato chips at a picnic.

But what are the real challenges in engineering these ants?

First of all, how would you achieve the functionality of an ant in a robot of the same size?

Well, first you have to figure out how to move it when it's this small.

To support its locomotion, it needs mechanisms such as legs and efficient motors. It also needs sensors, power and control to integrate everything into a semi-intelligent ant robot.

And finally, for these things to really work, many need to work together to do greater things.

Let's start with mobility.

Insects are surprisingly energetic.

This video is from the University of California, Berkeley.

This shows how cockroaches can navigate incredibly uneven terrain without flipping over. This is possible because the cockroach's legs are made from a combination of hard and soft materials traditionally used to build robots.

Jumping is one of the very interesting ways to move from an early age.

Therefore, these insects store energy in springs and release it very quickly to acquire the high power needed to jump out of the water, for example.

One of the great contributions of my lab is combining hard and soft materials in very small mechanisms.

So this jump mechanism is about 4 millimeters on a side, so it's very small.

The hard material here is silicone and the soft material is silicone rubber.

The basic idea is to compress this, store energy in a spring and release it to jump.

This means that it currently has no motor and no power supply.

This works in a way that I call "Graduate with Tweezers" in my lab. (Laughter) What you can see in the next video is that this guy is doing amazingly well in the jump.

This is Aaron, a graduate student in question with tweezers. As you can see, this 4mm sized mechanism hops about 40cm high.

This is almost 100 times its own length.

And it survives, bounces on tables, is incredibly sturdy and, of course, is so tiny that it survives very well until you lose it.

But eventually we want to add motors to this as well, and in our lab students are working on millimeter-sized motors, which will eventually be integrated into smaller autonomous robots.

But first, we cheat using magnets to explore mobility and locomotion at scales of this size.

This shows what will eventually become part of the legs of the micro robot. You'll see silicone rubber joints and embedded magnets that are driven by an external magnetic field.

This leads to the robot I introduced earlier.

The really interesting thing that this robot helps us understand is how insects move at this scale.

We have very good models showing how everything from cockroaches to elephants behaves.

We have this kind of bouncy movement when we run.

But when I'm really small, the force between my feet and the ground influences my locomotion more than my body weight, and that's what causes that bouncy movement.

I mean, this guy still doesn't work perfectly, but there's a slightly bigger version that does.

It's a centimeter to the power of three, about a centimeter on a side, so it's very small, and you can run it about ten times the length of your body in one second, or ten centimeters in one second.

That's pretty fast speed for a petite man, but this is really only limited by your test setup.

But this gives you some idea of ​​how it currently works.

You can even make a 3D printed version of this that can climb over obstacles, much like the cockroach we saw earlier.

But eventually we want to put everything on the robot.

We want to integrate sensing, power, control and actuation all together, but not all need to be bio-inspired.

So this robot is about the size of a tic-tac-toe.

In this case, instead of magnets and muscles to move it, we use rockets.

This is a microfabricated energy material from which tiny pixels can be made and one of these pixels can be placed on this robot's abdomen. This robot will then jump when it senses an increase in light.

The following video is one of my favourites.

So this 300 milligram robot is jumping about 8 centimeters in the air.

It measures just 4 x 4 x 7 mm.

And you'll see a big flash at the beginning as the energy kicks in and the robot rolls through the air.

There is a big flash and you can see the robot jumping into the air.

So there is no tether or wire attached to this one.

Everything is on board, and students jumped in response simply by turning on the desk lamp next to them.

You can imagine what amazing things could be done with a robot that could run, crawl, jump, and roll at a scale of this size.

Imagine the debris created after a natural disaster such as an earthquake.

Imagine these little robots running through that rubble looking for survivors.

Or imagine dozens of tiny robots scurrying around a bridge to inspect it and make sure it's safe before a collapse like the one that happened outside Minneapolis in 2007.

Or imagine what you could do if you had a robot that could swim in blood.

right? "Fantastic Voyage" by Isaac Asimov.

Or maybe it can be operated without cutting you in the first place.

Alternatively, we could fundamentally change the way we build things by having our little robots act like termites, building incredible 8-meter-tall mounds – effectively ventilated housing complexes – for other termites in Africa and Australia.

I hope I have given you some possibilities of what these little robots can do.

So far we've made some progress, but there's still a long way to go and I hope some of you can contribute to that destination.

Thank you very much.

(applause)

I found Leonardo da Vinci's secret vault protected by a series of combination locks.

Luckily, your treasure map has three codes: 1210, 3211000, and... umm.

It looks like I'm missing the last one.

It looks like you'll have to work it out yourself.

The first two numbers have something in common. It is the so-called autobiographical figure.

This is a special type of number whose structure describes itself.

Each digit in the autobiographical digit indicates how many times the digit corresponding to that position occurs within the digit.

The first digit indicates the number of 0s, the second digit indicates the number of 1s, the third digit indicates the number of 2s, and so on.

The final lock requires a 10-digit number, but there just so happens to be one autobiographical 10-digit number.

what is that?

Pause here if you want to figure it out yourself.

Answers: 3 Answers: 2 Answers: 1 Blindly trying different combinations will take forever.

So let's analyze the autobiographical numbers we already have and see what kind of patterns we can find.

Adding all the digits of 1210 gives a total number of digits of 4.

This makes sense because the individual digits indicate the number of times that particular digit occurs within the total.

Therefore, the digits of the 10-digit autobiographical number should add up to 10.

This tells us another important thing. The number should not have too many large digits.

For example, if it contains 6 and 7, one digit must appear 6 times and another 7 times, resulting in at least 10 digits.

We can conclude that there is only one number over 5 in the entire sequence.

Therefore, out of the four numbers 6, 7, 8, 9, only one, if any, can pass.

In addition, zeros appear in positions corresponding to unused digits.

Now we know that numbers must contain at least three zeros. This also means that the first digit must be 3 or greater.

This first digit counts the number of zeros, but each subsequent digit counts how many times a particular non-zero digit occurs.

When summing all digits except the first one, zero does not increase the sum. It tells you how many non-zero digits occur in the sequence, including the leading digit.

For example, if you try this with your first code, 2 + 1 will have 3 digits.

Subtracting 1 here tells you how many non-zero digits there are after the first digit. Two digits in this example.

Why would you do that?

Now you know what's important. The sum of non-zero digits that appear after the first digit is equal to the sum of those digits minus one.

And how can we get the distribution exactly 1 greater than the number of positive non-zero integers to which the sum is added?

The only way is to make one of the addends 2 and the rest 1.

How many 1's are there?

After all, there can only be two, and anything more would require additional digits, such as 3 or 4, to count.

Now we have 3 or more leading digits that count 0, 2 that counts 1, and two 1s (one that counts 2 and one that counts leading digits).

Speaking of which, let's find out what the leading number is.

We know that the sum of 2 and two 1's is 4, so subtracting that from 10 gives us 6.

Now all that's left is to put them all in the right place: 6 0's, 2 1's, 1 2's, 0 3's, 0 4's, 0 5's, 1 6's, 0 7's, 0 8's and 0 9's.

The safe opens and inside...

The long lost autobiography of Da Vinci.

2,300 years ago, the rulers of Alexandria set out for one of humanity's most daring goals: to gather all the world's knowledge under one roof.

In its heyday, the Library of Alexandria housed an unprecedented number of scrolls and fascinated the greatest minds of the Greek world.

By the end of the 5th century AD, however, this great library had disappeared.

Many believed it had been destroyed in a devastating fire.

The truth about the rise and fall of libraries is much more complicated.

The idea of ​​the library came from Alexander the Great.

After establishing himself as a conqueror, Aristotle's former student set his sights on building a knowledge empire based in the city that bears his name.

Although he died before construction began, his successor Ptolemy I carried out Alexander's plans for a museum and library.

Located in the royal quarter of the city, the Library of Alexandria may have been built with grand Hellenistic columns, indigenous Egyptian influences, or a unique combination of the two, but there are no extant records of its architecture.

We know there were auditoriums, classrooms, and of course shelves.

As soon as the building was completed, Ptolemy I began filling it with mainly Greek and Egyptian scrolls.

He invited scholars to live and study in Alexandria at his own expense.

The library grew as they contributed their own manuscripts, but the rulers of Alexandria still wanted copies of every book in the world.

Luckily, Alexandria was a base for ships navigating the Mediterranean.

Ptolemy III enacted a policy requiring ships docked at Alexandria to surrender their accounts for copying.

Library scribes reproduced the texts, kept the originals, and sent copies back to the ship.

Hired book hunters scoured the Mediterranean for new documents, and the rulers of Alexandria sought to crush their rivals by halting all exports of Egyptian papyrus used in scrolls.

These efforts brought hundreds of thousands of books to Alexandria.

As libraries have expanded, it has become possible to find information on more subjects than ever before, but it has also become much more difficult to find information on specific subjects.

Luckily, a scholar named Callimachus of Cyrene set out to work on a solution, creating the Pinakes, a 120-volume catalog of the contents of the library.

Others were able to use Pinake to navigate the library's inflated collections.

They made some amazing discoveries.

1,600 years before Columbus sailed, Eratosthenes not only realized that the earth was round, but also calculated its circumference and diameter to within a few miles of its actual size.

Heron of Alexandria took over 1,000 years to create the world's first steam engine before it was finally reinvented during the Industrial Revolution.

Founded in 283 BC, the library flourished for nearly 300 years.

But in 48 BC, Julius Caesar besieged Alexandria and set fire to the ships in the harbor.

For years, scholars believed the library burned as fires spread through the city.

The fire may have destroyed part of its extensive collection, but ancient sources tell us that scholars continued to visit the library for centuries after the siege.

Eventually, the library slowly disappeared as the city passed under Greek, Roman, Christian, and finally Muslim rule.

Each of the new rulers saw its contents as a threat rather than a source of pride.

In 415 AD, Christian rulers had a mathematician named Hypatia killed for blasphemy for studying ancient Greek manuscripts in the library.

Though the Library of Alexandria and its myriad documents are long gone, we are still searching for the best ways to collect, access, and preserve knowledge.

There is much more information available today, and more sophisticated techniques for preserving it, but I am not sure that our digital archives are more resistant to destruction than the inks and paper scrolls of Alexandria.

And even if our treasuries of knowledge were physically secure, we would have to resist the more insidious forces tearing our libraries apart—the fear of knowledge and the arrogant belief that the past is obsolete.

The difference is that this time I know what to prepare for.

When I was young, I was proud to be a Nonconformist in Kansas, the conservative US state where I live.

I couldn't keep up with the crowd.

I wasn't afraid to experiment with weird clothing trends and hairstyles.

I was outspoken and very social.

Looking at the photos and postcards from my study abroad in London 16 years ago, I can clearly see that I didn't care if people thought I was weird or weird.

(laughs) But 16 years ago, the same year I was in London, I realized that I was actually kind of unique, and that changed everything.

I have become the exact opposite of who I once thought I was.

I didn't socialize and shut myself up in my room.

I stopped participating in club activities and leadership activities.

I didn't want to stand out in the crowd anymore.

I told myself it was because I was growing and maturing, not because I suddenly wanted recognition.

I always thought I had immunity that didn't require approval.

After all, I was a little unconventional.

However, I now realize that the moment I realized something was different about me was the moment I began to adapt and hide.

Hiding is a progressive habit, and once you start hiding, it becomes harder and harder to come forward and speak up.

In fact, even now, when I tell people about the content of this talk, I invented a cover story and even hid the truth of the TED talk.

So it's fitting and terrifying that I chose this setting to come back to this city after 16 years and finally stop hiding.

What have I been hiding for 16 years?

I am a lesbian.

(Applause.) Thank you.

I have struggled to say the word because I didn't want to be defined by it.

Every time I thought about coming out in the past, I thought to myself, I just want to be known as Morgana, the one-of-a-kind Morgana, and never be known as "lesbian friend Morgana" or "gay colleague Morgana."

Just Morgana.

For those living in metropolitan areas, this may not seem like a big deal.

It may seem strange that I have suppressed and hidden the truth for so long.

But I was paralyzed by the fear of not being accepted.

Of course, I am not alone.

A 2013 Deloitte study found that a surprising number of people hide aspects of their identity.

Of all employees surveyed, 61% reported changing aspects of their behavior or appearance to adapt to the workplace.

Of all gay, lesbian and bisexual employees, 83% admitted to changing some aspect of themselves so as not to appear "too gay" at work.

The study found that even at companies with diversity policies and inclusion programs, employees struggle to be themselves at work because they believe adaptability is important for long-term career advancement.

And while I was surprised that so many people, like me, were wasting so much energy hiding themselves, I was horrified to learn that my silence would have life-or-death consequences and long-term social repercussions.

12 years: Length of time life expectancy for gay, lesbian and bisexual people living in strongly anti-homosexual communities is shorter than in homophobic communities.

12 years less life expectancy.

When I read about it in this year's Advocate, I knew I could no longer keep quiet.

The effects of personal stress and social prejudice are a lethal combination.

The study found that homosexuals in anti-gay communities had higher rates of heart disease, violence and suicide.

I've found that what I once thought was just a personal matter has ripple effects in my workplace and community with every story that I have.

My choice to hide and not share my true self may have inadvertently contributed to this very same environment and atmosphere of discrimination.

I've always told myself there's no reason to come out publicly as gay, but this year when I missed an opportunity to change the climate of discrimination in my home state of Kansas, the idea of ​​the social repercussions of my silence really hit home.

In February, the Kansas House of Representatives voted on a bill that would essentially allow companies to use religious freedom as a reason to refuse gay services.

My ex-colleague and friend's father is a Kansas Representative.

He voted for a law that would allow companies not to provide services to me.

How do my friends feel about lesbian, gay, bisexual, transgender, queer, and questioning people?

how does her father feel?

I don't know because I've never been honest with them about who I am.

And it shakes me to the core.

What if I had told her my story years ago?

Could she have told her father about my experience?

Could I have contributed to changing his vote in the end?

I will never know, but it made me realize that I hadn't done anything to make a difference.

How ironic that I work in human resources, a profession that welcomes, connects and fosters the growth of employees, a profession that insists that the diversity of our society should be reflected in the workplace, and yet I do nothing to champion diversity.

When I came to this company a year ago, I thought they had an anti-discrimination policy to protect gay, lesbian, bisexual and transgender people.

Their commitment to diversity is evident through their Global Inclusion Program.

When you go through the door of this company, it finally comes out.

But I didn't.

Let alone take the chance, I did nothing.

(Applause.) Sixteen years ago, when I was going through my journals and scrapbooks from my studies in London, I came across an adapted quote from Toni Morrison's book Paradise.

"There are scarier things on the inside than on the outside."

And I wrote a note to myself at the bottom. "Remember this".

I should have been trying to inspire myself to go out and explore London, but the message I was missing was that I needed to start exploring and embrace myself.

What I didn't realize until many years ago is that the biggest obstacle I have to overcome is my own fears and anxieties.

We believe that by facing our inner fears, we can change our outer reality.

Today I have chosen to reveal a part of myself that has been hidden for so long.

I hope this means I will never hide again. And by coming out today, I hope that I can do something to change the data and help people who feel different to be more themselves and be more fulfilled, both professionally and personally.

thank you.

(applause)

On June 12, 2014, at 3:33 p.m. on a crisp winter day in São Paulo, Brazil, on a typical South American winter afternoon, this boy, this young man, 29-year-old Giuliano Pinto, celebrating as if he had scored a goal here, achieved a remarkable feat.

Despite being paralyzed from the middle of his chest to the tips of his feet and feeling numb from the mid-chest to the tips of his feet as a result of his brother's death in a car accident six years ago and a complete spinal cord injury that left him in a wheelchair, Giuliano rose to the occasion and on this day achieved what most people who had seen him for six years thought was impossible.

I think Giuliano Pinto scored the opening kick for the 2014 Brazil World Soccer Cup here.

He couldn't move his body, but he could imagine the movements needed to kick the ball.

He was an athlete before he got injured. Currently a para-athlete.

I think he will be competing in the Paralympics within a few years.

But the spinal cord injury only robbed Giuliano of his ability to dream.

And that afternoon, his dream was to a stadium of some 75,000 people and nearly a billion people watching on TV.

And that impact culminated in 30 years of basic research basically studying how the brain works and how this amazing universe between our ears rivals the one above us. Because about 100 billion elements interact with each other through electrical brainstorming. What Giuliano achieved took 30 years to imagine in the lab and about 15 years to plan.

Fifteen years ago, John Chapin and I proposed in a paper to build what we called the Brain-Machine Interface. This means connecting your brain to a device so that animals and humans can move the device simply by imagining what they want to do, no matter how far away they are from their bodies. A colleague of ours said we really need help from a specialist like psychiatrist.

Nevertheless, the Scots and Brazilians persevered. Because we were raised that way in our respective countries. And for 12, 15 years, we've repeated demonstrations that suggest this is possible.

And brain-machine interfaces aren't rocket science, they're just brain research.

It's nothing more than using sensors to read the electrical brainstorms your brain produces to generate motor commands that need to be downloaded to your spinal cord. So we project sensors that can read hundreds, now thousands, of these brain cells simultaneously, and extract from these electrical signals the motor plans our brains are generating to actually move us into space.

In doing so, they converted these signals into mechanical, electronic, and even digital commands that the virtual device could understand, allowing the subject to imagine what they wanted to move, and the device to follow that brain's command.

By sensing these devices with many different types of sensors, as you will see, we were able to actually send messages back to the brain confirming that the voluntary motor will was being carried out, whether next to, next to, or anywhere on the planet, the subject.

And when this message was fed back to the brain, it recognized its goal: to move us.

So this is just one of the experiments we published a few years ago. There, a monkey learned to control the movements of an avatar's arm, a nonexistent virtual arm, without moving its body.

What you're hearing is the brain sounds of this monkey as it explores three different visually identical spheres in virtual space.

And in order to be rewarded with a drop of the monkey's favorite orange juice, the animal must detect and select one of these objects by touch, not by sight. That's because every time this virtual hand touches one of the objects, an electrical pulse representing the fine texture of this object's surface is sent back to the animal's brain. Therefore, the animal can determine the correct object to grab and, if it does, get a reward without moving its muscles.

The perfect Brazilian lunch is orange juice without moving your muscles.

So when we saw this happening, we actually came along and pitched an idea that we had put out 15 years ago.

We have reproduced this paper.

We took it out of the drawer and suggested that perhaps paralyzed humans could actually use a brain-machine interface to regain mobility.

I thought, if you suffer, it can happen to any of us.

Let me tell you, it's very sudden.

It's a crash in milliseconds, a car accident that can change your life forever.

If you have a complete injury to your spinal cord, you can't move because your brainstorming can't reach your muscles.

However, the brainstorm continues to generate in my head.

Paraplegic and tetraplegic patients dream of moving every night.

they have it in their head.

The question is how to take that code out and create motion again.

So what we suggested was to create a new body.

Let's make a robot vest.

And that's exactly why Giuliano could kick the ball just by thinking. Because he wore the first brain-controlled robotic vest that paraplegic and tetraplegic patients could use to move and get feedback back.

That was the original idea 15 years ago.

What I am about to show you is how 156 people from 25 countries on 5 continents on this beautiful Earth lost their lives, had their patents taken away, abandoned their dogs, their wives, their children, their schools, their jobs, and came together to gather in Brazil for 18 months to actually accomplish this goal.

Because, years after Brazil won the World Cup, it wasn't until, of course, we played against the Germans that we heard that the Brazilian government wanted to do something meaningful with the opening ceremony of this country that had reinvented and perfected football.

(Laughter) But that's another story, and another neuroscientist needs to talk about it.

But what Brazil wanted to do was to introduce a very different country, one that values ​​science and technology and can give gifts to the millions, 25 million people around the world who are disabled by spinal cord injuries.

We went to the Brazilian government and FIFA to propose that the 2014 World Cup be kicked off by a hemiplegic Brazilian who could kick the ball with a brain-controlled exoskeleton and feel the ball's contact.

They looked at us, thought we were completely insane, and said, "Okay, let's do it."

It took 18 months to start over from scratch.

We had no exoskeleton, no patients, nothing.

These people came together, took eight patients into regular training in eighteen months, and basically built this guy out of nothing. We call it the Bra-Santos Dumont 1.

The first brain-controlled exoskeleton built was named after the most famous Brazilian scientist of all time, Alberto Santos Dumont. Dumont built and flew the first controlled airship himself on October 19, 1901 in Paris in front of a million people.

Sorry American friends, I live in North Carolina, but it was two years ago when the Wright brothers flew to the North Carolina coast.

(Applause) The pilot is Brazilian. (Laughter) So we worked with them to basically build this exoskeleton. The exoskeleton is a 15-degree-of-freedom hydraulic machine, controlled by brain signals recorded by a non-invasive technique called electroencephalography, that essentially allows the patient to imagine movements and send commands to controllers and motors to carry them out.

This exoskeleton, covered in artificial skin invented by one of my best friends, Gordon Cheng of Munich, was able to transmit joint movements and the sensation of feet touching the ground to patients through vests and shirts.

It's a smart shirt with a micro-vibration element that basically transmits feedback and tricks the patient's brain by creating the feeling that it's not the machine that's carrying them, but that they're walking again.

So we put this into action. Here you can see one of our patients, Bruno, actually walking for the first time.

And he takes seconds. Because we set everything up. Then Bruno imagines a move that needs to be performed, the computer analyzes it, Bruno authenticates it, and once it's authenticated, the device begins to move according to the commands of Bruno's brain, so you'll see the blue light go off in front of the helmet.

And he got it right and is now walking.

I couldn't move for nine years, but now I walk alone.

And more -- (applause) -- than just walking, he says he feels the ground, and when the Exo picks up speed, he walks again on the sand at Santos, the beach resort he frequented before his accident.

That is why the brain is creating new sensations in Bruno's head.

So he walks, and at the end of the walk--the time is running out--he says, "Ladies and gentlemen, I have to borrow this when I get married, because I wanted to walk to the priest and see the bride, and actually go there alone."

Of course he can always ask for it.

And this is what we wanted to show during the World Cup, but for some inexplicable reason FIFA cut the broadcast in half so we couldn't.

What we'll soon see is Exo's Giuliano Pinto going onto the pitch and kicking in front of the entire crowd minutes before he actually kicks. And the lights you'll see just explain how it works.

Basically, a flashing blue light indicates that you're ready for exo.

You can receive thoughts and give feedback, and when Giuliano decides to kick the ball, you'll see two lights, one green and one yellow, streaming down his helmet and down his feet. This represents the spiritual order the Exo took to actually make it happen.

And at basically 13 seconds, Giuliano actually did it.

A command appears.

He gets ready, sets the ball and kicks it.

And the most amazing thing is that 10 seconds after he did it, he looked at us on the pitch and told us, 'I felt the ball', just as happy as he looked.

And that is very precious.

(Applause.) So where does this go?

I'll tell you in two minutes that you've reached the limits of your imagination.

The technology that moves the brain is here.

This is the latest. We just published this a year ago, the first brain-to-brain interface that allows two animals to exchange mental messages, one animal that sees something coming from the environment can send mental SMS, torpedoes, neurophysiological torpedoes to the second animal, and the second animal performs the act it needs to perform without knowing what the environment is sending as a message. Because the message came from the first animal brain.

So this is the first demo.

I would like to show you the latest information, so I will introduce it as soon as possible.

But what we're seeing here is that the first rat is told by a light that appears on the left side of the cage that it basically needs to push the left cage to get the reward.

he goes there and does it.

And at the same time, he sent a mental message to a second rat that didn't see the light, and the second rat had a 70 percent chance of being rewarded for pressing the left lever without experiencing the light on the retina.

Now, we've taken this to a slightly higher bar and have monkeys mentally cooperate inside the brain net. Basically, I provided brain activity and combined them to move the virtual arm shown earlier. What we see here is two monkeys combining their brains for the first time, completely synchronizing their brains to move this virtual arm.

One monkey controls the x dimension and the other controls the y dimension.

But it gets even more interesting if you put three monkeys in there and ask one monkey to control x and y, another monkey to control y and z, and a third monkey to control x and z. Then have them all play together a game where you move your arm towards a target in 3D to get the famous Brazilian orange juice.

And it really is.

The black dot is the average of all these brains working in parallel in real time.

This is the definition of a biological computer that interacts with brain activity to achieve motor goals.

where does this go?

we don't know.

We are just scientists.

(Laughter) We are basically rewarded for being kids to go to the edge and discover what's out there.

But I do know one thing. Some of you may remember that one day decades later, when our grandchildren surfed the web just by thinking, or mothers donated their eyesight to their blind autistic children, or someone spoke due to a bypass between their brains, it all started with an impossible kick on a Brazilian soccer field on a winter afternoon.

thank you.

(Applause.) Thank you.

Bruno Giussani: Miguel, thank you for being on time.

I really wish I had more time, but there are some things I would like to develop. Of course, it's clear that it takes a team of brains to understand where this is going.

Now let's connect all this together.

So, if my understanding is correct, one monkey is actually receiving the signal and the other monkey is reacting to it, simply because the first monkey is receiving the signal and transmitting the nerve impulse.

Miguel Nicolelis: No, it's a little different.

No monkey knows about the existence of the other two monkeys.

They get visual feedback in 2D, but the tasks they have to accomplish are in 3D.

You have to move your arms three-dimensionally.

But each monkey is only getting two dimensions on a monkey-controlled video screen.

And to get it done, you need at least two monkeys to synchronize their brains, but ideally three.

So what we discovered is that if one monkey starts to slack off, this dynamically adjusts as the other two monkeys step up to bring it back, but the overall sync remains the same.

Now, if you don't tell the monkey which dimension each brain has to control, say this guy controls x and y, but now he should control y and z, and so on, instantly the animal's brain forgets about the old dimension and starts concentrating on the new dimension.

So what I have to say is that no Turing machine or computer can predict what a brainnet will do.

That's why I absorb technology as part of myself.

Technology will never absorb us.

It's just not possible.

BG: How many times have you tested this?

And how many times it succeeded and how many times it failed?

MN: Oh, dozens of times.

With the three monkeys? oh how many times

I can't speak here unless I've experienced it a few times.

And, for the sake of time, I forgot to mention that just three weeks ago, a European group had demonstrated the first human-to-human brain connections.

BG: So how does it play?

MN: There was a bit of information -- big ideas start in humble ways -- but basically brain activity from one subject was sent to a second object. All were non-invasive technologies.

Thus, the first subject received a visual message and sent it to the second subject, just like our rats.

A second subject received a magnetic pulse in the visual cortex, or another pulse, two different pulses.

With one pulse, the subject saw something.

In another pulse he saw something different.

And he was able to verbally demonstrate what the messages the first subject was sending across continents through the Internet.

Moderator: Great. Well, there you go.

It's a TED talk at the next conference.

Thank you Miguel Nicolelis. MN: Thank you Bruno. thank you.

It is very fashionable and appropriate to talk about food in all shapes, colors, aromas and tastes.

But once food has passed through the digestive system and is excreted as waste, it is no longer fashionable to talk about it.

It's pretty defiant.

I'm a guy who graduated from fucking to total fucking.

(Laughter) My organization, Gram Vikas (meaning "village development organization"), was active in the field of renewable energy.

Most of the time we were producing biogas, biogas for rural kitchens.

We use animal manure (usually called cow manure in India) to produce biogas in India.

But as a gender sensitive person, I'd say it's bullshit.

But later on we realized how important hygiene and waste disposal is in a proper way, so we stepped into the field of hygiene.

80% of diseases in India and most developing countries are caused by poor water quality.

And when we look at the causes of poor water quality, we find that it's our terrible attitude towards treating human waste.

Human waste, in its most raw form, returns to all visible water, including drinking water, bathing water, washing water, and irrigation water.

And this is the cause of 80% of rural diseases.

In India, unfortunately, only women carry water.

Therefore, women have to carry water to cover all their household needs.

So it's a dire situation.

Open defecation is rampant.

70% of Indians defecate in the open.

With their sails caught in the wind, their faces hidden and their bases exposed, 70 percent of India sits in its pristine glory.

And, globally, Indians are responsible for 60 percent of all trash dumped in the wild.

Great difference.

I don't know if we Indians can be proud of such an honor.

(Laughter) So we started talking with a lot of villages about how to actually deal with this sanitary situation.

And we got together and formed a project called MANTRA.

MANTRA stands for Movement and Action Network for Rural Transformation.

So we are talking about transformation, transformation in rural areas.

Villages that agree to implement this project will form legal associations. The overall organization consists of all members electing a group of men and women to carry out the project and to be responsible for its subsequent operation and maintenance.

They decided to build a toilet and shower room.

Water is then brought from a protected source to an elevated reservoir and piped to all households 24 hours a day via three faucets - toilets, showers and kitchens.

Unfortunately, our cities like New Delhi and Bombay do not have 24-hour water supply.

But in these villages we want it.

There is a clear difference in quality.

There is a theory in India that the poor should be given poor solutions and the absolutely poor should be given pathetic solutions, and is widely accepted by government bureaucracies and all important people.

This, combined with the Nobel Prize-worthy theory that the cheapest is the most economical, makes for a drunken cocktail for the poor.

we are fighting against this.

We feel that the poor have been humiliated for centuries.

And they should not be humiliated, even in terms of hygiene.

Sanitation puts dignity above the disposal of human waste.

So you build these toilets, and very often, we have to hear that the toilets are better than their homes.

And you can see that there is an attached house in front and the others are toilets.

So these people decided to build toilets and bathrooms, except for families in the village.

To that end, they band together to collect all the local materials. Local materials such as rubble, sand and aggregates. Government subsidies are usually available to cover at least part of the cost of external materials such as cement, steel and toilet bowls.

Then build a toilet and bathroom.

Also, all unskilled workers, mostly landless, or day labourers, are given the opportunity to be trained as masons and plumbers.

So while these people are training, others are gathering materials.

And when both are ready, build toilets, shower rooms, and of course water towers and elevated reservoirs.

We use two leach pit systems for waste disposal.

Waste enters the first leach pit from the toilet.

And when it's full it blocks and you can move on.

However, it has been found that if you plant banana or papaya trees around these leech pits, they will grow very well as they will absorb all the nutrients and you will get very tasty bananas and papaya.

If you come to my house, I would be happy to share these bananas and papaya with you.

You can see the completed toilets and water tower there.

It is located in a village where most people are illiterate.

Water is frequently contaminated when stored, so it is always supplied 24 hours a day. Because the child dips his hand in the water or something falls into the water.

Therefore, no water is stored. Always up and running.

This is how elevated reservoirs are built.

And that is the final product.

Due to the need to be elevated and the availability of space, two or three rooms are built under the water tower, which are used in villages for meetings of various committees.

We have obtained clear evidence of the enormous impact of this program.

Before we started, as usual, over 80% of people suffered from water-borne diseases.

But then all these villages, 1,200 villages, completed it, with empirical evidence showing an average of 82 percent reduction in water-borne diseases by 82 percent.

(Applause.) Women typically spent about six to seven hours a day carrying water, especially during the summer.

And when they carried water, as I said earlier, only women carry water, so they would bring little children, girls, and carry water, or else they would go home and take care of their brothers.

So, even if there were schools, less than 9 percent of girls attended school.

And boys about 30 percent.

However, it is about 90% for girls and almost 100% for boys.

(Applause.) The most vulnerable people in the village are the landless workers, the day labourers.

They have undergone this training to become masons, plumbers and bar benders and now have a 300 to 400 percent increase in their earning capacity.

So this is a functioning democracy, because there are general institutions, governing boards, commissions.

People are asking questions, people are learning to govern themselves, manage their own affairs, and are taking their own future into their own hands.

That is the practice of democracy at the grassroots level.

More than 1,200 villages have done this so far.

This initiative has benefited more than 400,000 people and continues today.

And I hope it continues to move forward.

For India and developing countries like it, armies, weapons, software companies and spacecraft may not be as important as water and toilets.

thank you. thank you very much.

(Applause.) Thank you.

I want to talk about forgotten conflicts.

This is a dispute that rarely makes headlines.

It happens right here in the Democratic Republic of the Congo.

Now, most people outside of Africa don't know much about the Congo War. So let me tell you some important facts.

The Congo conflict is the deadliest conflict since World War II.

About 4 million people died as a result.

Over the past 18 years, much of Central Africa has been destabilized.

This is the largest ongoing humanitarian crisis in the world.

So in 2001 I went to Congo for the first time.

I am a young humanitarian and met a woman my age.

She was called Isabel.

Local militia attacked Isabel's village.

They murdered many men and raped many women.

They were looting everything.

And when they tried to take Isabel, her husband intervened and said, "No, don't take Isabel.

Take me instead ”

So he went with the militia into the woods, and Isabel never saw him again.

Yes, it is thanks to people like Isabel and her husband that I have been able to dedicate my career to the study of this little-known war.

There is one story you may have heard about the Congo.

It's a story about minerals and rape.

Policy statements and media reports usually focus on the illegal exploitation of natural resources and human trafficking, which are the main causes of violence in Congo, and the main result, the sexual abuse of women and girls as weapons of war.

So it's not that these two issues are unimportant or tragic. they are.

But today I would like to tell you a different story.

I would like to highlight a central cause of the ongoing conflict.

Most of the violence in Congo is caused by local, bottom-up conflicts that international peace efforts have failed to address.

The story begins with the fact that Congo is not only famous for having one of the world's worst ongoing humanitarian crises, but is also home to one of the world's largest international peacebuilding efforts.

Congo hosts the world's largest and most expensive UN peacekeeping mission.

It was also the site of the first European-led peacekeeping operation, and the International Criminal Court chose to prosecute the Congolese warlords for the first time in history.

When Congo held its first-ever free national elections in 2006, many observers thought the violence in the region had finally come to an end.

The international community hailed the successful conduct of these elections as a final example of successful international intervention against failed states.

But the eastern states continue to face massive population displacements and horrific human rights violations.

Shortly before I returned there last summer, there was a horrific massacre in South Kivu.

33 people died.

Most of them were women and children, many of whom were cut to death.

Over the past eight years, fighting in the eastern states has regularly rekindled full-blown civil and international warfare.

Basically, every time we feel we are on the brink of peace, conflict explodes again.

why?

Why have large-scale international efforts failed to achieve lasting peace and security in the Congo?

My answer to this question revolves around two central observations.

First, one of the main reasons for the continued violence in Congo is fundamentally local - and when I say "local" I really mean the individual, family, clan, municipality, community, district and sometimes ethnic level.

For example, you remember the story I told you about Isabel.

Now, the reason the militia attacked Isabel's village was because the villagers wanted to take away the land they needed to grow food and survive.

A second central observation is that the presence of a dominant peacebuilding culture has prevented international peace efforts from helping to address regional conflicts.

So what I am trying to say is that Western and African diplomats, UN peacekeepers, donors and staff of most non-governmental organizations working on conflict resolution all share a certain view of the world.

I am one of them, and having shared this culture, I am well aware of how powerful it is.

Around the world and throughout conflict zones, this common culture shapes the understanding of those who intervene that the causes of violence lie primarily in the domestic and international sphere.

It shapes our understanding of the path to peace as requiring top-down intervention to address domestic and international tensions.

And it shapes our understanding of the role of foreign actors involved in domestic and international peace processes.

More importantly, this common culture enables international peacebuilders to ignore the micro-level tensions that often jeopardize macro-level solutions.

In Congo, for example, UN officials, donors, diplomats and most non-governmental organization staff are so socialized and trained that they interpret the ongoing fighting and massacres as a top-down problem.

For them, the violence they see is the result of tensions between President Kabila and various state opponents, tensions between Congo, Rwanda and Uganda.

Moreover, these international peacemakers see local conflicts simply as the result of domestic and international tensions, inadequate state powers, and the so-called innate tendency to violence of the Congolese people.

The dominant culture also constructs intervention at the national and international levels as the only natural and legitimate task for United Nations officials and diplomats.

And it elevates the organization of general elections, now a panacea of ​​sorts, as the most important mechanism of nation-building rather than a more effective nation-building approach.

And it's happening not only in Congo, but in many other conflict areas as well.

But let's dig deeper into other major sources of violence.

In Congo, continued violence is motivated not only by national and international causes, but also by a long-standing bottom-up agenda in which the main agitators are villagers, traditional chiefs, regional chiefs and ethnic leaders.

Many conflicts revolve around local political, social and economic interests.

For example, there are many competitions at the village or district level as to who can become village or territory chief according to traditional law, and who can control the distribution of land and the development of local mines.

This competition often leads to localized fighting, for example in a single village or territory, but often escalates into generalized fighting across states and even neighboring countries.

Consider the conflict between the Rwandan Congolese and the so-called indigenous community of Kivus.

The conflict began in the 1930s during the Belgian colonization, when both communities competed for access to land and local power.

And in 1960, after Congo's independence, conflict escalated as each side tried to keep pace with national politicians, but still tried to advance the local agenda.

And during the 1994 Rwandan genocide, these local actors allied themselves with Congolese and Rwandan armed groups, but still promoted local causes in Kivus.

And since then, these local conflicts over land and local power have fueled violence and regularly endangered domestic and international reconciliation.

Under these circumstances, we can wonder why international peacebuilders have not been able to help implement regional peacebuilding programs.

And the answer is that international interventionists consider grassroots conflict resolution to be an unimportant, unfamiliar and unjust task.

The very idea of ​​engaging at the local level fundamentally clashes with existing cultural norms and threatens vital organizational interests.

For example, if the United Nations were to refocus on local conflicts, this very identity of the United Nations as a macro-level diplomatic agency would be upended.

As a result, neither internal resistance to the dominant way of working, nor external shocks, have persuaded international actors to reassess their understanding of violence and intervention.

And so far there have been only a few exceptions.

There are exceptions to this general pattern, but they are rare.

In summary, the story I just told is about how the prevailing peacebuilding culture shapes the understanding of interventionists about what causes violence, how peace is achieved, and what interventions should achieve.

These understandings allow international peacebuilders to ignore the micro-level foundations so needed for sustainable peace.

As a result, indifference to local conflicts can lead to inadequate peacebuilding in the short term and renewed warfare in the long term.

And interestingly, this analysis helps us better understand the many cases of ongoing conflicts and failed international interventions in Africa and elsewhere.

In most war and post-war environments, from Afghanistan to Sudan to Timor-Leste, regional conflicts have fueled violence and, in rare cases, comprehensive, bottom-up peacebuilding efforts have succeeded in making peace sustainable.

One of the best examples is the comparatively peaceful situation in Somaliland, which has benefited from sustained grassroots peacebuilding activities, contrasted with the widespread violence in other parts of Somalia, where peacebuilding has been mostly top-down.

There are several other examples of how local grassroots conflict resolution has made a difference.

So, in addition to top-down intervention, conflicts must be resolved bottom-up if international peacebuilding is to work.

Again, this is not to say that domestic and international tensions are not a problem.

I will.

This is not to say that domestic and international peacebuilding is not needed.

that's right.

Rather, both macro-level and micro-level peacebuilding are needed to make peace sustainable, and representatives of local non-governmental organizations, local governments and civil society should be key players in the bottom-up process.

So, of course, there are also obstacles.

Local actors often lack the funds, and sometimes the logistical means and technical capacity, to implement effective local peacebuilding programs.

International actors should therefore increase their funding and support for local dispute resolution.

What can be done about Congo?

After two decades of conflict and millions of deaths, it is clear that we need to change our approach.

Based on my field research, I believe that international and Congolese actors should pay more attention to resolving land disputes and promoting reconciliation between communities.

So, for example, in Kivus province, the Institute for Life and Peace and its Congolese partners have established intercommunal forums to discuss the details of local conflicts over land, and these forums find solutions that help manage violence.

It is the kind of program that is desperately needed throughout eastern Congo.

Through programs like this, we can help people like Isabel and her husband.

So these aren't magic wands, but they can definitely be game changers as they take into account the deep roots of violence.

thank you.

(applause)

Hi.

This time I will talk about my personal experience with female genital mutilation and FGM.

Feel free to cry, laugh, cross your legs, and do whatever your body wants.

I'm not going to name how your body works.

I was born in Sierra Leone.

Have you seen "Blood Diamond"?

If you have any thoughts -- I don't own a diamond, by the way.

If you've heard of Ebola, it's also in Sierra Leone.

I am not infected with Ebola. You are safe.

Do not rush to the door.

Please be seated. fine. I was tested before coming here.

My grandfather had three wives.

Don't ask me why a man needs more than one wife.

Men, do you want multiple wives?

i don't think so. Here you go.

He was looking for a heart attack, that's what I say.

Oh yeah.

When I was three years old, in 1991 the war started in Sierra Leone.

I remember literally falling asleep one night. All was well.

The next day I woke up to bombs everywhere and people trying to kill me and my family.

We escaped the war and ended up in Gambia, West Africa.

Ebola is also there. Stay away.

While we were there as refugees, we had no idea what was to come.

My mother applied for refugee status.

She is a wonderful and smart woman and we were lucky.

Australia said "I accept you".

Good luck, Australians.

One day when we were going to travel, my mother came home and said, "I'm going on a little vacation, a little trip."

She put us in the car and drove for hours until we ended up in the bush in a remote part of Gambia.

I found two huts in this thicket.

An old lady came up to us.

She was of ethnic appearance and very old.

She talked with her mother and left.

Then she came back and left us for the second hut.

I stood there and thought, "This is very confusing. I don't know what's going on."

The next time I woke up, my mother took me to this hut.

She took my clothes off and then pinned me to the floor.

I tried to pull her away from me, but I couldn't.

Then an old lady came up to me with a rusty knife. One sharp knife that looked orange had never seen water or sunlight before.

I thought she would slaughter me, but she didn't.

She slowly slid down my body and eventually reached where my vagina was.

She grabbed what I now know to be my clitoris, picked up that rusty knife, and began slicing inch by inch.

I screamed, cried, and begged my mother to get off so the pain would stop, but she just said, "Be quiet."

This old lady sawed my flesh off for what felt like an eternity, and when it was done she threw the piece of meat on the floor as if it was the most disgusting thing she had ever touched.

They both got off of me and left me bleeding and crying, confused as to what had happened.

We never talked about this again.

It soon became clear that we were coming to Australia. It was the Sydney Olympics at the time and people were saying we were going to the end of the world and after Australia there was nowhere else to go.

Yes, that reassured me a little.

It took me three days to get here.

I've been to Senegal, France and Singapore.

We went to the restroom to wash our hands.

It took about 15 minutes to open the faucet like this.

Then someone came in and slid his hand down and water came out and we wondered if this was our situation.

Seriously.

We have arrived in Adelaide. Small place but literally they dumped us in Adelaide, that's what I say.

they abandoned us there.

I was very grateful.

We settled in and loved it.

We were like, 'We're back, here we are.

Then someone took us to Rundle Mall.

Adelaide has only one shopping mall.

This little place.

And I saw many Asians.

My mother suddenly panicked and said, "You took us to the wrong place. You have to take us back to Australia."

yes. I had to explain to her that there are a lot of Asians in Australia and we were in the right place.

it's okay, it's okay

So my mother had the brilliant idea that I should go to an all-girls school that was less racist.

I don't know where she read that publication. (Laughter.) To this day, no evidence of that has been found.

There were 600 white kids there and I was the only black kid.

No, I was the only one with a little color.

Let me say so. chocolate color.

There were no Asians or natives.

All we had were tanned girls, girls feeling the need to be in the sun.

But it wasn't the same as my chocolate. not the same.

Settling in Australia was very difficult, but it became even harder when I started volunteering with an organization called Women's Health Statewide. I joined the female genital mutilation program without knowing anything about what the program was really about or that it had anything to do with me.

I spent months educating nurses and doctors about what female genital mutilation is and where it is done. Africa, Middle East, Asia and now Australia, London and America. Because, as you all know, we live in a multicultural society, and people from such backgrounds come with their culture, and sometimes they may have cultural practices that we disagree with, but they continue to practice them.

One day I was looking at a table of different types of female genital mutilation (FGM, or FGM for short).

Type I is when the hood is cut off.

Type II involves cutting the entire clitoris and part of the labia majora, or the outer lip, while Type III involves cutting the entire clitoris and stitching it back together to create a small hole for peeing or menstruation.

My eyes went to type II.

I was pretty much amnesiac before all this happened.

I was so shocked and traumatized by the event that I didn't remember it at all.

Yes, I knew something bad had happened, but I had no recollection of what happened.

I knew I had scars, but everyone thought they were there.

This was happening to anyone else.

But when I saw the Type II, I was reminded of everything.

I remembered what was done to me.

I remember my grandmother and mother holding me down in that hut.

Words cannot describe the pain and confusion I felt. Because I now realize that what was done to me was a terrible thing that this society calls barbaric and called mutilation.

My mother used to call it circumcision, but here it was amputation.

I thought it might have been disconnected. I am a disconnected human being.

oh my god.

And then I got angry.

I was an angry black woman. (Laughter) Oh, yeah.

Small, but still angry.

I went home and said to my mother, "What did you do?"

Pointing at your mother, this is not what Africans should do, but hey, I was prepared for any consequences.

"You did something to me."

She was like, "What are you talking about, Khadijah?"

She is used to me cursing her.

I said, 'Years ago, you circumcised me.

you cut mine ”

She said, "Yes, I did.

I did it for your own benefit.

It was in your best interest.

Your grandmother did it to me and I did it to you.

That's what made you a woman. ”

It's like, "How?"

She said, "You are empowered, Khadijah.

Does it get itchy? ”

"No, why does it itch there?" I think.

She said, "If you weren't circumcised, you would be itchy.

Uncircumcised women itch all the time.

Then they all sleep together.

You are not going to sleep with anyone. ”

And I thought her definition of empowerment was very strange. (Laughter) That's the end of our first conversation.

I went back to school.

It was the time when there were magazines like Dolly and Girlfriend.

There was always a section that was sealed. Anyone remember that sealed section?

Do you know the naughty part?

oh i love them (Laughter.) Anyway, there were always articles about pleasure and relationships and, of course, sex.

But I always assumed that I had a clitoris, so I didn't think this would suit me.

This is not about people like me.

i don't have a clitoris

When I was watching TV, the women were moaning, "Oh! Oh!"

I was like these guys and their damn clit.

(Laughter) What should a woman without a clitoris do in life?

that's what i want to know.

I want to do it too - "Oh! Oh!" and all that.

didn't happen.

So I went home again and said to my mother. "Dolly and my girlfriend said I should be given pleasure, I should have an orgasm, and white men should know how to find their clitoris."

Apparently, white men have a harder time finding their clitoris.

(Laughter) Let me just say, it wasn't me. That's what Dolly said.

And I thought I had an inner joke in mind, "I'm going to marry a white man."

He won't have that problem with me."

You invaded me in the most sacred way.

I want pleasure.

I want to be horny too, damn it. ”

And she said to me, "Who are Dolly and her girlfriend?"

Are they your new friends, Khadijah? ”

I said, "No, it's a magazine, Mom, it's a magazine."

She didn't understand.

We come from two different worlds.

When she was growing up, it was normal to not have a clitoris.

Celebrated.

I was an Afro-Australian girl.

I lived in a clitoris-centric society.

It was all about the clitoris!

And I didn't have it!

It pissed me off.

So when I went through this strange phase of anger and pain and confusion, I remember making an appointment with a therapist.

yes i am african having a therapist. Here you go.

And I said to her, "I was 13. I was a child.

I had settled in a new country and was dealing with racism and discrimination, English was my third language but there it was. ”

I told her, 'What you did to me makes me feel like I'm not a woman.

I feel incomplete.

am i going to be asexual? ”

Because from what I knew about FGM, its purpose was to control women's sexuality.

It's so that we don't have a libido.

And I said, 'Am I asexual now?

Will I live the rest of my life without wanting or enjoying sex? ”

She was unable to answer my question and was left unanswered.

When I started getting my period around age 14, I realized I wasn't getting my normal period because of FGM.

My periods were heavy, long and very painful.

After that, I was told that I had uterine fibroids.

They are like little balls sitting there.

One of them covered one of my ovaries.

And then came the big news.

"We don't think you can have children, Khadijah."

And again, I was an angry black woman.

I went home and said to my mother, "Your deeds, your actions, whatever defenses you have"--because she thought she did it out of love--"What you did out of love hurts me and hurts me.

What do you have to say about it? ”

"I did what I was supposed to do as a mother," she said.

By the way, I'm still waiting for an apology.

Then I got married.

Again, FGM is a gift that keeps on giving.

You can see that right away.

Sex was so painful.

It hurt all the time.

And of course I noticed that they said "you can't have children".

I thought, "Oh, is this my existence? Is this my life?"

I can proudly say that five months ago I was told I was pregnant.

(Applause.) I'm a lucky girl.

Many women have become infertile after undergoing FGM.

I know a 9 year old girl who has incontinence, constant infections and pain.

That's the gift. Giving never stops.

It affects all areas of life, but this happened because I was born a girl in the wrong place.

That's why it happened to me.

I'm channeling all that anger, all that pain into advocacy. Because I needed my pain to be worth it.

So, I am the director of an organization called No FGM Australia.

You heard me right.

Why is FGM banned in Australia?

FGM also exists in Australia.

Two days ago I had to call Child Protective Services. Because there is a 4-year-old somewhere in Australia and the 4-year-old's mother is planning to perform FGM on her.

That child is kind. I am 4 years old.

A few months ago I met a woman who is married to a Malaysian man.

One day her husband came home and said he was going to take the girls back to Malaysia and have their clitoris removed.

And she said, "Why?" He said they were dirty.

And she said, "Well, you married me."

He said, "Oh, that's my cultural belief."

They then entered into a thorough discussion, in which she said to him, "Are you going to do that to my daughters over my corpse?"

But imagine if this woman didn't know what FGM was, or had never had such a conversation.

Her children will be flown to Malaysia and will return life-changing.

Do you know how many millions of dollars it costs to deal with such a problem?

[3 children per day] are at risk of FGM in Australia.

This is an Australian problem, folks.

It's not an African problem. It's not a Middle East problem.

It's not white, it's not black, it's not colored, that's everyone's problem.

FGM is child abuse.

It is violence against women.

They are saying that women have no right to sexual pleasure.

It says we have no rights over our bodies.

Well I say no and you know what? Bullshit.

I must say so.

(Applause.) I am proud to say that I am doing my part to end FGM.

what are you going to do

There may be children in your classroom who are at risk of FGM.

Some patients who come to your hospital may be at risk for FGM.

But even in the most wonderful place in the world, our beloved Australia, children are being abused because of their culture.

Culture should not be a defense against child abuse.

I hope that at least one of you will see FGM as a problem for you.

Keep it personal.

It could be your daughter, sister or cousin.

I cannot fight FGM alone.

You can try, but you can't.

So my urge to all of you is to get involved.

Sign the petition at Change.org and enter my name, Khadija, as it appears and sign.

The aim is to get support for FGM survivors in Australia and to protect girls growing up in Australia from these negative effects, because every child has a right to pleasure.

Every child has the right to have their body left intact, and oh my god, every child has the right to have a clitoris.

So please join me in ending this act.

My favorite quote is, "All it takes for evil to prevail is a few good men and women doing nothing."

Are you going to let this evil of female genital mutilation run rampant in Australia?

I don't think so, so please help me to finish it in my generation.

thank you.

(applause)

Have you ever had to break a family rule?

Today I break my own thoughts on money, secrets and shame.

In 2006, my brother Keith called me on his 40th birthday.

"Tam, I'm in a lot of trouble.

Don't ask if you don't need to.

May I borrow $7,500? ”

It wasn't the first time he needed cash right away, but this time his voice scared me.

The first time I heard him so devastated and humiliated was on his 40th birthday.

After some basic questions we all asked, I agreed to lend him the money. However, there was one condition. That said, as a family financial expert, I want to see him and his wife to see what's really going on.

A few weeks later, we met at our local Starbucks and immediately started a conversation about tight love budgets.

"You should sell your house, shrink it down to what you can afford, and sell your toys.

And Starbucks?

Stop $5 a day coffee. ”

You know, all the trappings we're doing to catch up with the Jones family.

Soon, the brother and his wife got into a dreadful accusation battle, and things got chaotic.

I was swaying between my therapist and my angry sister.

I wanted them to be better than this.

"Come on, you two. Please do it together.

you are parents

Be an adult and pick yourself up. ”

After leaving, I called my mother and was beaten by Keith and told I was no help.

In fact, he felt hurt and attacked in groups.

Of course he did. I put him to shame with tough love conversations about budgets.

It's been about two months since I got the call.

"Tam? I have some bad news.

Keith committed suicide last night. ”

A few days later, I went to his home "office" - the garage - to look for answers.

There I found a stack of overdue credit card bills and a foreclosure notice served on the day he died.

My brother left behind a beautiful 10-year-old daughter, a brilliant 18-year-old son just weeks out of high school, and a wife of 20 years.

How did that happen?

My brother was caught in a cycle of money shame in our family, but he wasn't the only one.

Suicide rates among adults ages 40 to 64 have risen nearly 40 percent since 1999.

Nearly 40% of deaths resulted in job loss, bankruptcy, or foreclosure, and 7 out of 10 suicides were white, middle-aged men.

What I have learned is that our self-destructive and self-defeating financial behavior is not driven by rational, logical thinking.

Rather, they are the product of subconscious belief systems rooted in our childhood, so ingrained in us that they shape our relationship with money throughout our adult lives, leading many to believe we are lazy, crazy, stupid, or simply bad at spending money.

This is what I call money embarrassment.

Dr. Brené Brown, a renowned shame researcher, defines shame as "a very painful feeling or experience in which one believes oneself to be defective and therefore unworthy of love and belonging."

Based on this definition, I define money shaming as: “A very painful feeling or experience of believing that you are defective and therefore unworthy of love or belonging based on your bank account balance, debt, home, car, or title.”

Let me give you some examples of what I mean.

Whether it's $10,000 or $10 million a year, I think we're all ashamed of money because we give all of our power to it.

If you love someone, or you're embarrassed by your money, here's what it looks like next.

They play big guys, always get checks, and save family and friends financially.

They are financially stable but live chronically inadequate.

They drive Mercedes, but on a budget they can only buy Hondas.

And it looks great for any cost.

I know I can break free from the reign of money shame. Because I did.

Shortly after his brother's death, depression struck.

I lost my business and was on the brink of bankruptcy.

Secretly I was scared.

I stayed home for a year and thought I did something wrong and said to myself, "What did you do? What happened?"

I was silent, but the whole time I came out and smiled.

no one knew.

It's a money shame.

So all I had to do was let go of the shackles of knowing all the answers.

I knew everything in my family and had to give up on the idea that a new financial plan was the solution.

And like everything in my life, for me too, a human being was sent to help and I accepted the help but had to do extensive self-investigation into my family's money history and my beliefs about money.

We have to start this conversation.

Money is no longer a taboo topic.

We have to be honest with each other that we are struggling with money issues, and let's be real – we have to stop numbing the pain.

You can't be numb to uncover the painful parts of your money story and money history.

We have to let go of the past to be free.

Letting go of the past happens through surrender, faith, and forgiveness.

Debt is a concrete manifestation of unforgiveness.

Being in debt means that we have not fully forgiven ourselves for our past, so it is our job to forgive ourselves and others so that we can live freely.

Otherwise our history will continue to repeat itself.

It's not a quick fix and I know everyone wants it, but it's a late wake up call.

This is another level of work.

To get it, to achieve it, we have to go higher.

So try this. Follow your money

Your money quickly shows what you value.

Where are you going?

And ask yourself: Do I really care about all these things?

And be interested in how you feel when you spend money.

are you sad?

Boring?

Or are you just excited?

However, more in-depth work is required.

How did you develop these beliefs about money in the first place?

I call it my money autobiography, and it's the first step I take with my clients as a money coach.

Recall your childhood memories of money.

How did you feel when you got the money?

Excited, proud, or confused?

And what happened to that money?

Did you run with the candy store or did you run to the bank?

And did you hear what your parents said, and did you see what they did with that money?

My brother and I had heard that more money would make us happier.

every day.

"If we had more money, we would be happier."

And seeing our mothers living chronically not good enough, we internalized it into the belief of money, the belief that one's worth equals one's net worth.

And she eased the pain with sugar and shopping.

So what did we do?

Keith acted out his mother's life.

He was earning little and desperate to be saved financially, but he used alcohol to ease the pain.

I did the opposite.

I became a high earner, a rescuer, and pain relief with self-help books.

But what we had in common was our belief in money.

We both believed our bank account balance equaled our worth.

Looking back at the Starbucks meeting with my brother ......

He didn't need a budget or my judgment.

He needed a breakthrough from his suffering, he needed my sympathy.

Keith couldn't speak up and break the chain of financial shame in his family, so he let me do the work and share in his legacy.

Change is difficult, but not changing is fatal for my family.

So I worked, experienced deep, deep forgiveness, and as I stand here today, I am living and serving purpose, and money is serving me.

It just takes one person in the family to break the money shame cycle.

I want you to be.

thank you.

(applause)

I've heard a lot lately about how social media helps empower protest movements, and that's true, but after studying and participating in social movements for over a decade, I've found that the way technology empowers social movements also paradoxically undermines them.

This is not inevitable, but overcoming it requires digging deeper into what makes long-term success possible.

And the lessons learned can be applied in multiple areas.

Now consider the protests in Turkey's Gezi Park in July 2013. I returned to study there.

Twitter was key to that organization.

It was all over the park - well, with tons of tear gas.

Not everything was high tech.

But after the unfortunate incident about a year ago when a military plane bombed and killed 34 Kurdish smugglers near the border, Turkish citizens are already accustomed to the power of Twitter, and the Turkish media completely censored the news.

Editors sat in the newsroom and waited for the government to tell them what to do.

One frustrated journalist couldn't stand it any longer.

He bought himself an airline ticket and went to the village where the incident happened.

Then he was confronted with rows of coffins coming down the hill and the sight of his weeping relatives.

He then told me how devastated he was and didn't know what to do, so he pulled out his phone, took a picture and tweeted it like we did.

Surprisingly, the photo went viral, breaking censorship and allowing mass media to report it.

So when Turkey's Gezi protests took place a year later, it began as a protest against the destruction of the park, but turned into an anti-authoritarian protest.

We censored the media, of course, but at times it was a little silly.

When things were so serious, when CNN International was broadcasting live from Istanbul, CNN Turkey was broadcasting a documentary about penguins instead.

Well, I love penguin documentaries, but that wasn't the news of the day.

An angry viewer put the two screens together and took a picture of it, which also went viral, and people have since called the Turkish media Penguin Media. (Laughter.) But this time, people knew what to do.

They just pulled out their phones and looked for the actual news.

More than that, they knew to go to the park, take pictures, participate and share more on social media.

Digital connectivity was used for everything from food to donations.

Everything has been partially organized with the help of these new technologies.

And using the internet to mobilize and promote protests actually has a long history.

Remember the Zapatistas, a peasant revolt in southern Chiapas, Mexico, led by the charismatic, masked, pipe-smoking second-in-command Marcos?

It was perhaps the first movement to receive global attention thanks to the Internet.

Or consider Seattle 1999, when grassroots multinational initiatives brought global attention to the then-unknown World Trade Organization by using digital technology to help organize it.

And more recently, movement after movement has shook from country to country, including Arab revolts from Bahrain to Tunisia to Egypt and beyond. Indiñad of Spain, Italy and Greece. Protests in Gezi Park. Taiwan; Euromaidan in Ukraine; Hong Kong.

And think about more recent initiatives like the #BringBackOurGirls hashtag.

Today, a network of tweets can run a global awareness campaign.

A Facebook page can be a hub for mass mobilization.

wonderful.

But think of the moment I just mentioned.

The achievements and results they were able to achieve are really not proportional to the scale or energy they inspired.

The hopes they rightfully put forward don't really match what they ultimately get.

And this raises questions. If digital technology makes it easier, why aren't we more likely to succeed?

In adopting digital platforms for activism and politics, are we overlooking some of the benefits of doing things the hard way?

Now I believe so.

I think my rule of thumb is: Easier to mobilize does not necessarily mean easier to achieve profits.

Let me be clear, technology empowers us in many ways.

Very powerful.

In Turkey, we saw four young university students organize a national citizen journalism network called 140Journos, which has become a central hub for uncensored news in the country.

In Egypt, during the massive clashes near Tahrir Square in 2011, I saw another four young people using digital connectivity to organize 10 field hospitals, supplies and logistics for a large-scale operation.

And I asked the founders of this initiative, called "Tahrir Supplies," how long it took them from coming up with the idea to getting started.

"Five minutes," he said. Five minutes.

And he had no training or experience with logistics.

Or consider the Occupy movement that rocked the world in 2011.

It all started with an email from Adbusters magazine to the 90,000 subscribers on its list.

About two months after the first email, there were 600 ongoing occupations and protests in the United States.

Less than a month after the first physical occupation of Zuccotti Park, global protests have taken place in 950 cities in some 82 countries.

It was one of the largest global protests ever organized.

Now compare this to what the civil rights movement wanted to boycott in 1955 in Alabama to protest the racist bus system.

They've been preparing for years, but after Rosa Parks' arrest, they decided it was time to act.

But how do you spread information when you don't have Facebook, text messages, Twitter, none of that?

So they had to sneak into the university duplication room and secretly mimeograph 52,000 handbills overnight.

They then hand-distributed the leaflets using 68 African-American organizations that crisscross the city.

And because they were poor, logistical work was daunting.

Boycott or not, they had to get to work, so they met again to organize a massive carpool.

No texting, no Twitter, no Facebook.

To keep this carpool going, they had to meet almost constantly.

Today it will be much easier.

You can create a database, available vehicles, desired vehicles, adjust the database and use text messages.

You don't need to see each other that much.

But think again. The civil rights movement in the United States has navigated a minefield of political danger, faced and overcome repression, won major policy concessions, and risked and innovated.

By contrast, three years after “Occupy” sparked a global debate about inequality, the policies that started it are still being implemented.

Europe was also shaken by the anti-austerity protests, but the continent did not change course.

In adopting these technologies, have we overlooked some of the benefits of slow and sustained?

To understand this, I returned to Turkey about a year after the Gezi protests and interviewed a wide range of people, from activists to politicians, both in ruling and opposition parties and movements.

I noticed that the Gezi protesters were in despair.

They were frustrated and got far less than they expected.

This was the same thing I heard around the world from many other protesters I have been in touch with.

And part of the problem, I realized, is that today's protests are like climbing Mount Everest with the help of 60 Sherpas. The Internet is our Sherpa.

What we do is take the fast route, not replace the benefits of slow work.

Because the kind of work that went into organizing all these daunting and tedious logistical tasks created the kind of organization that not only handled those tasks, but that allowed us to think collectively, make tough decisions together, build consensus and innovate, and perhaps even more importantly, continue to collaborate across differences.

So when you look at the 1963 March on Washington, and you look at the picture, this is the march in 1963 when Martin Luther King Jr. gave his famous "I have a dream" speech. You don't just see marches and hear powerful speeches, you also see the painstaking and long-term efforts to make them happen.

And if you're in power, you'll realize that you have to take seriously the ability shown by that march, not just the march, but the ability shown by that march.

In contrast, if you look at Occupy's global march organized in two weeks, you'll see plenty of grumbling, but not necessarily long-term, chewable teeth in sight.

And, crucially, the civil rights movement brought about tactical innovations, from boycotts to lunch counter sit-ins, pickets, marches, and free rides.

Today's movement scales rapidly without an organizational foundation that can meet the challenges.

They feel like start-ups that have grown so big without knowing what to do next, and they rarely transition tactically because they don't have the deep competencies to survive such transitions.

Now, let me be clear: the magic is not in the mimeograph.

It is the ability to work and think together, which can only be built with a lot of effort and time.

To understand all this, I interviewed a Turkish ruling party official and asked, "How are you doing?"

They also use digital technology heavily, so that's not all.

So what's the secret?

Well, he told me

He said the important thing was that he never put sugar in his tea.

I said, what does that have to do with anything?

Well, he said his party started preparing for the next election the day after the last election, meeting with voters all day every day at voters' homes, wedding parties, circumcision ceremonies, etc., and then meeting with colleagues to compare notes.

Every day I had this many meetings, and each time I was served tea, it was so rude that I couldn't refuse. That's how many kilos of sugar, so you can't even calculate how many kilos. At that point I knew why he was speaking so fast.

We met in the afternoon and he was already on caffeine.

However, his party won two major elections by a comfortable margin within a year of the Gezi protests.

Certainly, governments need to be provided with a variety of resources.

It's not the same game, but the difference is beneficial.

And like all stories like that, this one isn't just about technology.

It allows technology to converge on what we want to do.

Today's social movements want to operate informally.

They don't want organizational leadership.

They don't want to get involved in politics for fear of corruption and plagiarism.

They have a point too.

Modern representative democracy is strangled by powerful interests in many countries.

But such practices make it harder for them to sustain and influence the system in the long run, leading to disgruntled protesters dropping out and further political corruption.

And politics and democracy without an effective challenge hold back because the causes that inspired the recent movements of our time matter.

Climate change is upon us.

Inequality stifles human growth, potential and economies.

Authoritarianism is suffocating many countries.

It needs movement to be more effective.

Now, some would argue that the problem is that today's movement isn't shaped by as many risk-takers as it used to be, but that's not true.

From Gezi to Tahrir and beyond, I have seen people risk their lives and livelihoods.

Nor is it true that today's protesters are weakening virtual ties, as Malcolm Gladwell argued.

No, they still participate in these protests with friends and existing networks, and sometimes make new friends for life.

I still see friends from the global protests convened by the Zapatistas more than a decade ago, and the bonds between strangers are not without value.

When I was tear gassed in Gezi, strangers helped me and each other instead of running away.

In Tahrir, I saw people participating in protests working hard to keep each other safe and protected.

And digital awareness is great because changing consciousness is the foundation for changing politics.

But today's movement needs to move beyond large-scale participation very quickly to think collectively, formulate strong policy proposals, build consensus, find political steps, and figure out how to link them to influence. Because all these goodwill, courage and sacrifice alone are not enough.

And there is a lot of effort.

In New Zealand, a group of young people is developing Loomio, a platform for large-scale participatory decision-making.

In Turkey, 140Journos organizes hackathons to support communities as well as citizen journalism.

In Argentina, an open-source platform called DemocracyOS brings parliamentary and political party participation.

These are all great, and we need more, but the answer is more than just improving online decision-making. Because to renew democracy, we need to innovate at every level, from organization to politics to society.

For long-term success, you may need a sugar-free cup of tea with Twitter.

thank you.

(applause)

When we were invited to this talk a few months ago, we discussed several titles with the organizers and various items were considered and discussed.

But no one suggested this, and the reason was two months ago, Ebola was expanding exponentially, spreading across a wider geographic area than we had ever seen before, and the world was terrified, concerned and alarmed by the disease in a way it had never seen in recent history.

But today I am able to stand here and talk about overcoming Ebola because of people you have never heard of, like Peter Clement, a Liberian doctor who works in Lofa County that many of you in Liberia probably have never heard of.

The reason Lofa County is so important is that just about five months ago, when the epidemic began to spread, Lofa County was right at the epicenter, the epicenter of the epidemic.

At that time, MSF and its treatment centers were seeing dozens of patients each day, and over time these patients and their communities became increasingly frightened about the disease and its impact on their families, communities, children and relatives.

So Peter Clement was tasked with driving 12 hours of rough roads from the capital, Monrovia, to Lofa County, trying to curb the escalating epidemic there.

And what Peter discovered when he arrived was the horror I just told you about.

There he talked and listened to the local chiefs.

And the words he heard were heartbreaking.

He heard of the devastation and despair of those afflicted with this disease.

He heard heartbreaking stories about not only the damage Ebola has done to people, but its impact on families and communities.

And he listened to the local chiefs there and what they told him - they said, 'When our children are sick, when our children are dying, we cannot hold them when we want to be closest to them.

When our relatives die, we cannot take care of them according to tradition.

We are not allowed to wash and bury bodies in the way our community and ceremonies require.

Because of this, they were deeply disturbed, deeply alarmed, and the whole epidemic was unraveling before their eyes.

People were blaming the health workers and heroes who came to help and help the community, but they had no access to them.

What happened there, Peter explained to the leaders.

The leaders listened. they turned the tables.

Then Peter explained what Ebola was. He explained what the disease was.

He explained what it did for their community.

He explained that Ebola threatens everything that makes us human.

Ebola means that you can't hold your children the way you used to in this situation.

You can't bury the dead the way you want.

You have to trust people in spacesuits to do it for you.

And ladies and gentlemen, what happened then was quite extraordinary. Community and health workers, Peter, they have met together and put together a new plan to control Ebola in Lofa County.

And the reason why this is so important is, ladies and gentlemen, today this county is at the center of this epidemic that you have been watching and seeing in the newspapers and on your television screens.

(Applause.) Of course, this is not the end of the job.

There is still a great risk of further infections occurring.

But what it teaches us is that Ebola can be overcome.

That's what matters.

Even at this scale and with the rapid growth seen in this environment, we know that Ebola can be overcome.

If communities come together and work together with health workers, we can stop this disease.

But how did Ebola get to Lofa County in the first place?

To do that, we need to go back 12 months to the beginning of this epidemic.

As many of you know, this virus went undetected and evaded detection for 3-4 months when it started.

Because this is not a disease of West Africa, but of Central Africa, half a continent away.

People had never seen this disease before. Healthcare workers had never seen this disease before.

They didn't know what they were dealing with, but to make things even more complicated, the virus itself was causing symptoms, a kind of symptoms that weren't typical of the disease.

In other words, people knew about Ebola, but they didn't recognize the disease.

As such, it evaded detection for some time, but recently, contrary to popular belief, it quickly surged in popularity once the virus was detected.

As you know, MSF quickly established an Ebola treatment center in the area.

The World Health Organization and its partners eventually sent hundreds over the next two months to help track the virus.

The problem, folks, was that by then this virus, now better known as Ebola, had spread far too widely.

This was already one of the largest responses ever taken to the Ebola epidemic.

By the middle of this year, not only Guinea, but also Sierra Leone and Liberia were infected.

As the virus spread geographically, its numbers were increasing, and by this point not only had hundreds of people contracted and died, but importantly, dozens of frontline responders, aid workers, medical workers and other responders were also sick and dying.

The presidents of these countries recognized the emergency.

They met just about that time, agreed on common actions, set up an emergency joint operations center in Conakry, and worked together to try to end and stop this disease and implement the strategies we talked about.

But what happened then was something we had never seen before with Ebola.

What happened then was, for the first time, a virus, or a person infected with a virus, got on a plane, flew to another country, and saw the virus erupt again in a distant country.

This time, it was held in Lagos, Nigeria, a large city with a population of 21 million people.

Now the virus was present in that environment.

And as you can imagine, a disease like this has caused international alarm, international concern on a scale not seen in recent years.

The World Health Organization immediately convened an expert panel to review the situation and declared an international emergency.

And in doing so, it would be expected that a huge amount of international aid would be poured in to help these countries, who at the time had great difficulties and concerns.

But what we saw was something completely different.

There was a big reaction.

As you know, many countries came to help. Many NGOs and other groups have come, but at the same time the opposite has happened in many places.

Alarms were heightened and soon these countries found themselves increasingly isolated, without the support they needed.

What we have seen is [suspension] of commercial airline flights to these countries, and people who have not been exposed to the virus are no longer allowed to travel.

This clearly created problems not only for the countries themselves, but also for the response.

Organizations that were trying to bring people in to help respond to the outbreak were unable to get people on planes or send people to countries that could respond.

In that situation, folks, viruses like Ebola take advantage.

And what we saw then was something we had never seen before.

This virus not only continues in the areas that are already infected, but then it starts to escalate and we have seen the numbers that you see here, but on a scale that we have never seen before, not only in these countries and in the already infected areas of these countries, but also the Ebola cases are exponentially increasing and spreading deeper into these countries.

Ladies and gentlemen, this was one of the most concerning global public health emergencies we have ever seen.

And what happened in these countries, many of you also saw on TV and in the newspapers that the health care system began to collapse under the weight of this epidemic.

We saw schools begin to close in these countries, markets weren't open and they didn't work as they should.

We have seen misinformation and misperceptions begin to spread more rapidly through the community, making the community more vigilant about the situation.

They started to rebel against, you see, people in space suits who came to help them, as they called them.

And things got even worse.

Countries had to declare a state of emergency.

Massive quarantines were required in some areas, and riots broke out afterwards.

It was a very, very scary situation.

Many people around the world started asking if it was possible to stop Ebola when it started spreading like this.

And they started asking how much do we really know about this virus?

In reality, we don't know much about Ebola.

As far as we know, this is a relatively modern disease.

It has been only 40 years since the disease first appeared in Central Africa in 1976.

But, nevertheless, we know a lot. We know that the virus probably survives in bat species.

We know that the virus can enter human populations through contact with infected and possibly sick wild animals.

And it turns out that the virus is transmitted from person to person through contaminated bodily fluids.

And, as you've seen, we know the horrific diseases this disease causes in humans. The disease causes severe fever, diarrhoea, vomiting and, unfortunately, death in 70 percent or more of cases.

This is a very dangerous, debilitating and fatal disease.

But despite the fact that we haven't known about this disease for so long and we don't know everything about it, we know how to stop it.

There are four key things you can do to stop Ebola.

First and foremost, communities need to understand this disease, how it spreads and how to stop it.

And we have to have a system where we can find all the cases and all the contacts for those cases and start tracing them so we can stop the transmission.

We must have treatment centers, treatment centers dedicated to Ebola. There, staff trying to provide assistance to infected people are protected to survive the disease.

And for those who have died, we need to ensure a safe but at the same time dignified burial process so that the infection does not spread in the process.

So folks, we know how to stop Ebola and these strategies work.

Stopping the virus in Nigeria was apparently stopped by these four strategies and the people who implement them.

This outbreak was stopped in Senegal, where infections were widespread, and in other countries affected by the virus.

So there is no doubt that these strategies work in practice.

The big question, folks, was whether these strategies would work at this scale in a situation where so many countries are being affected by such rapid growth.

That was the big problem we were facing just a few months ago.

Today we know the answer to that question.

And we know the answer. It's all thanks to the extraordinary work of an incredible group of NGOs, governments, local leaders, UN agencies, and many humanitarian and other organizations who have joined the fight to stop Ebola in West Africa.

But what I had to do there was a little different.

These countries have taken the strategy that I have just outlined. Whether it's community engagement, case finding, or contact tracing, they turned their thinking upside down.

There were so many diseases that they took a different approach to it.

Their decision was to try to slow the epidemic first by rapidly building as many beds as possible in specialized treatment centers and preventing the spread of the disease from the infected.

They tried to rapidly build up so many burial teams so that the dead could be handled safely, thereby slowing this epidemic and then seeing if it could actually be brought under control using the classic approach of case finding and contact tracing.

And when I went to West Africa about three months ago, what I saw there was extraordinary.

I have watched presidents open their own Ebola Emergency Operations Center to personally coordinate, oversee and advocate for this surge of international assistance to stop the disease.

We have seen troops coming from those countries and from far away countries to help build Ebola treatment centers that can be used to isolate sick people.

We have seen the Red Cross movement working with local partners to help train communities to actually and safely bury their dead in a dignified way.

And we have seen the World Food Programme, a United Nations agency, building huge bridges in the sky that can quickly get responders to every corner of these countries so that they can implement the strategy we just talked about.

Ladies and Gentlemen, perhaps the most impressive thing we have seen is the incredible effort by governments, leaders and communities in these countries to try to help people understand the disease and the tremendous work that must be done to stop Ebola.

As a result, folks, whether it's possible or not, we're seeing things that we didn't know just a few months ago.

What we have seen is what is shown in this graph when we got our inventory on December 1st.

What we saw was that we could bend that curve, change this exponential growth, so to speak, and restore hope to our ability to control this epidemic.

For this reason, ladies and gentlemen, there is now no doubt that we can catch up with this epidemic in West Africa and beat Ebola.

But the big question many people have is, even when they look at this curve, they say, "Wait a minute, it's great to be able to slow it down, but can we actually slow it down to zero?"

I already answered that question at the beginning of this talk when I talked about Lofa County in Liberia.

We told you how Lofa County has been eight weeks without an Ebola outbreak.

But other countries have similar stories.

From Guéckédoux, Guinea, where the first case was actually diagnosed.

While there have been few cases in recent months, Kenema, another region of the epicenter here in Sierra Leone, has not seen the virus in more than a few weeks. It's obviously too early to declare victory, but the evidence, folks, is that the response can not only catch up with this disease, it can drive it to zero.

The challenge now, of course, is to do this at the scale required across these three countries, and that's a big challenge.

Because when you're working on something this long and on this scale, you've got two other big threats in addition to viruses.

The first of those is complacency, the risk that the curve of this disease will begin to bend, the media will look elsewhere, and the world will look elsewhere.

Complacency always comes with risks.

And the other risk, of course, is if you've worked very hard and slept only a few hours in the past few months. People are tired, people are tired, and these new risks start creeping into the response.

Ladies and gentlemen, I can tell you today that I have just returned from West Africa.

The people of these countries, the leaders of these countries, are not satisfied with the status quo.

They want their country to be Ebola-free.

And these people, though they are tired, they are not.

They have the energy, the courage, the strength to get this done.

Ladies and gentlemen, what they need at this time is the unwavering support of the international community to support them and bring even more support at this time to get this job done.

Because ending Ebola now means turning the tables on this virus and starting the Ebola hunt.

Remember, this virus, and this whole crisis, would rather begin and end with one incident.

But the disease will only end if these countries have enough epidemiologists, enough health workers, enough logistics workers and other collaborators to find all these cases, trace their contacts and stop the disease once and for all.

Ladies and Gentlemen, Ebola can be overcome.

Now let us take this story to you and tell those who will listen and educate them on what it means to beat Ebola. And more importantly, advocate with those who will help bring these countries the resources they need to overcome this disease.

Many will survive and thrive because of what you have done to help us overcome Ebola.

thank you.

(applause)

A few years ago I stumbled across a simple design exercise that helps people understand and solve complex problems. As with many of these design exercises, it seemed trivial at first, but digging deeper revealed unexpected truths about how we worked together and made sense of things.

This exercise has three parts, starting with how to make toast, which everyone knows how to do.

Starting with a clean piece of paper and a felt marker, start drawing how to make toast without using words.

And most people draw something like this.

They take a loaf of bread, slice it and put it in the toaster.

After that, the toast is left for some time.

It pops up and voila. 2 minutes later we were toasted and happy.

Well, over the years, I've collected hundreds of these toast paintings. Some of them are very good as they show the process of making toast very clearly.

And some not so good.

In fact they are really the worst, because I have no idea what they are trying to say.

Upon careful observation, some aspects of toast making are revealed and others are hidden.

Some are about toast, some are about toast variations.

Others are about toasters, but engineers love to draw how they work.

(Laughter) And then there's also the human thing.

It's about visualizing people's experiences.

Another is about the toast manufacturing supply chain all the way to the store.

It traces through the teleportation supply chain network all the way back to the fields and wheat, and in fact to the Big Bang.

That's crazy.

But I think it's clear that even though these paintings are really vastly different, they share a common quality. Do you understand that?

can you see What do they have in common?

Most drawings have nodes and links.

So nodes represent tangible objects like toasters or people, and links represent connections between nodes.

The combination of links and nodes then produces a complete system model, visualizing our private mental model of how we think about how something works.

That's the value of these things.

The interesting thing about these system models is how they reveal our different perspectives.

For example, Americans make toast in a toaster.

It's clear.

Of course, many Europeans make toast in a frying pan, but many students use fire to make toast.

I'm not sure about this. Many MBA students do this.

Therefore, we can measure complexity by counting the number of nodes, with an average illustration having between 4 and 8 nodes.

Below that, the picture seems trivial, but instantly understandable, and above 13, it's a drawing that creates a sense of map shock.

So the sweet spot will be between 5 and 13.

So if you want to convey something visually, include 5-13 nodes in your diagram.

So we may not be very good at drawing, but the point is that we intuitively know how to break down complex things into simple things and put them back together.

Now on to the second part of the exercise. How to make toast, but this time we will use sticky notes or cards.

So what happens?

Well, when using cards, most people tend to draw clearer, more detailed, more logical nodes.

See how the analysis is done step by step, moving the nodes around and rearranging them like Lego blocks as you build your model.

Now, this may seem like a small thing, but it's actually very important.

This rapid iteration of expressing, reflecting, and analyzing is the only way we gain clarity.

That's the essence of the design process.

And systems theory experts will certainly tell you that being able to change representations correlates with your willingness to improve your model.

So not only is the sticky note system more fluid, but it typically produces a lot more nodes than static drawing.

The drawings will become richer.

Now on to the third part of the exercise. This time, the group will draw how to make toast.

So what happens?

Well what happens.

Messy at first, then very messy, and more messy. But as people refine the model, the best nodes become more prominent, and with each iteration, the model becomes clearer as people build on each other's ideas.

What is born is a unified system model that integrates the diverse viewpoints of each person, so the results are completely different from ordinary meetings.

So, even though these drawings may contain 20 or more nodes, participants do not experience map shock as they participate in building the model themselves.

Now, what's very interesting is that the group spontaneously blends, adding an extra layer of tissue.

For example, add branching and parallel patterns to deal with inconsistencies.

Oh, by the way, if they do it in total silence, they do it much better and much faster.

It's really interesting -- it gets in the way of talking.

Here are some important lessons to be learned from this.

First, drawing a diagram helps us understand the situation as a system with nodes and their relationships.

Movable cards generate better system models because they iterate more fluidly.

And group notes create the most comprehensive model, as they combine several perspectives.

That's interesting.

Group models are far superior to individual models when people work together under the right circumstances.

This approach is very effective at depicting how toast is made, but what if you want to depict something more relevant or urgent, such as your organization's vision, customer experience, or long-term sustainability?

A visual revolution is taking place as more organizations work together to bring out and deal with evil problems.

And I believe that those who see their world as mobile nodes and links really have the edge.

And the practice is really simple.

Starting with a question, collecting nodes, refining nodes, iterating, refining, refining, refining, patterns emerge, groups become clear, and the question is answered.

So this simple act of visualizing and repeating it over and over yields some very surprising results.

The really important thing to know is that the conversation is the important aspect, not just the model itself.

And these visual reference frames can grow to hundreds or even thousands of nodes.

One example is from an organization called Rodale.

big publisher.

One year they lost so much that management visualized the entire practice over three days.

And interestingly, after layering the system and gaining visibility across the business, we collected $50 million in revenue and moved from a D to an A customer rating.

why? Because there is a management adjustment.

So I'm currently on a mission to help organizations solve thorny problems with collaborative visualization, and I've collected a number of best practices on a site I created called drawtoast.com.

Here you can learn how to run a workshop, learn more about the visual language and structure of links and nodes that can be applied to common problem solving, and download a variety of template examples to help you solve thorny problems everyone faces in your organization.

So the seemingly trivial design exercise of drawing a toast can help clarify, engage, and align.

So the next time you face an interesting challenge, remember what design can tell us.

Make your ideas visible, concrete, and consequential.

I believe it's a simple, fun, powerful and admirable idea.

thank you.

(applause)

(music) (applause) Thank you. Oh, it's like, "Whoa, whoa, calm down and get back in your body." (Laughter) Usually when I play, the first thing that happens is people yell, "What is she doing?!"

If I play at a rock show and I'm completely still on stage, they're like, "What is she doing?! What is she doing?!"

And I'm kind of like -- (vvvwow!) -- and they're like, 'Oh!

(Laughter) I'm sure you're trying to figure out, "So how does this work?"

Now, what I do is control the pitch with my left hand.

You see, the closer you get to this antenna, the higher the sound -- (portamento) -- and you can go really low.

And since the volume is controlled with this hand, the volume increases as the right hand moves away.

(Tone) So basically both hands control pitch and volume, trying to create the illusion that you're playing separate notes when in fact you're playing them continuously...

(loud…beep) (laughter) Sometimes I surprise myself. If you forget you're wearing it and crouch down to pick something up, this is what happens -- (beep) -- "Ah!"

And it's like a funny sound effect that follows you around if you don't turn it off.

(laughs) I think we'll probably move on to the next song. Because I completely lost track of where this was going.

I'm going to do a song called "Listen: the Words Are Gone" by David Mash, and maybe the words will come back to me later when I can relax.

(music) (applause) So let's think about some frequently asked questions. There are so many.

And... Well, I wish I could tell you a little bit about the history of the Theremin.

The theremin was invented around the 1920s. Inventor Leon Theremin was a musician as well as an inventor. I think I got the idea to make a theremin when I was working on shortwave radio.

And there's that sound in the signal, it's like a shriek, and he thought, "Oh, what if you could control that sound and turn it into an instrument, because that sound has a pitch."

It seems that he managed to develop it and came to make the current theremin.

And even kids these days often say "hoo-hoo-hoo-hoo" about the theremin. Because the theremin was used in sci-fi horror movies in the 50s. That sound is... (Woo-hoo-hoo-hoo) (laughter) It's kind of funny and goofy.

Vibrato can get out of hand if you drink too much coffee.

When you are behind this thing, you become really sensitive to your body and its functions.

If you want maximum control, you have to stay still.

It reminds me of an earlier balancing act, an act Michael was doing. Because I'm fighting so hard to stay in balance and in tune with what I'm playing and at the same time I don't want to focus too much on being in tune all the time. I want to feel the music.

And also, if little movements of other parts of the body affect the pitch, or hold a low note (the tone rises from the key), we try to stay very, very, very quiet because breathing changes the pitch...

(laughs) If you pass out on the next song...

(Laughter) I think of it like yoga equipment. Because it allows you to be aware of all the little crazy things your body is doing and things you don't want it to do while you're playing. Avoid sudden movements.

When I go to clubs and play live, everyone says, "Let's have a drink!"

And it's like, "Well, I'll go on in a minute, I don't want to be like -- (shudders) --?"

It really reflects your mood, if you...

It's like being a vocalist, but you just control it in the air, not out of your throat, and you have no reference point. Always relying on your ears and constantly adjusting.

You have to constantly adapt to what's going on, notice some disappointing noises here and there, listen to them, adjust, and just move on. If you don't, you'll be too tied up and going crazy. like me.

I think I'll play another song this time.

I will do "Rush Life". It's one of my favorite songs.

(music) (applause)

I'm an artist and I cut books.

This is one of my first book works.

It's called "Alternative Routes to Knowledge".

I wanted to create a stack of books where someone could come into a gallery and think they were just looking at a normal stack of books, but when they got up close, they could see this rough hole carved into it and think about what's going on, why, and what the book is made of.

So I'm also interested in textures, but I'm more interested in the text and images in the book.

Most of my work involves sealing the edges of the book with a thick varnish to create a kind of skin on the outside of the book, making it a solid material, but the inner pages are still loose and then carving the surface of the book without moving or adding anything.

I carve anything that I find interesting.

So everything you see in the finished piece is exactly the same as it was in the book before I started writing.

I think of my work as a kind of remix in a way. Because I work with other people's material just like a DJ. You may be working with other people's music.

This was a book of paintings by the Renaissance artist Raphael. His work has been remixed and sculpted to make it newer and more contemporary.

I also think about breaking out of the traditional framework of the book and pushing for a linear form, pushing the structure of the book itself so that the book is completely sculptural.

Clamps and ropes and all sorts of materials and weights can be used to hold things in place before varnishing, to press the mold before starting work, and things like this can become works like this. It is made from just one dictionary.

Or maybe something like this will become a work like this.

Or, who knows how this will turn out or why it's in my studio, but it's going to be something like this.

So I think one of the reasons why people get anxious about breaking books is that people don't want to break them and nobody really wants to throw them away because we think of books as living things, we think of them as bodies, and they're not only made to relate to our bodies in terms of scale, but they also have the potential to keep growing and becoming new.

That's why books are really alive.

So I think of books as bodies, and I think of books as technology.

I see books as tools.

And I also think of books as machines.

I also think of books as landscapes.

This is a full set of connected and polished encyclopedias that I am carving and deciding what to choose.

So, in the encyclopedia, I could choose anything, but I chose landscape images in particular.

Also, for the material itself, I use sandpaper to polish the edges, so not only is the image suggesting a landscape, but the material itself is suggesting a landscape as well.

So as I go through the book, I'm thinking about images, but I'm also thinking about text, and I'm thinking about them in a very similar way. It's interesting because when you're reading a text, when you're reading a book, the images come into your head, so it's like filling in that part.

When we're reading text, we're kind of creating images, and when we're looking at images, we actually use language to make sense of what we're looking at.

So a kind of yin-yang, a reversal takes place.

That's why I create works that the viewer can complete by themselves.

And I consider my work mostly archeology.

I am excavating, trying to maximize my potential, discovering as much as I can and trying to reveal it in my work.

But at the same time, I'm thinking about the concept of erasure, and what's happening now that most of our information is intangible, and the concept of loss, and the idea that not only is the format constantly changing in computers, but now that we don't have physical backups, the information itself needs to be constantly updated to prevent it from being lost.

And I have some dictionaries in my studio. I use my computer every day. If I need to look up a word, I use a computer. It gives you direct and instant access to what you're looking for.

I think the book was never the right format for nonlinear information. That is why reference books are the first to see endangered or extinct.

So I don't think this book will really go away.

People think books will be obsolete with the advent of digital technology, but we see things changing and evolving.

I think this book will evolve, and just as people said that painting would die when photographs and prints became everyday materials, what actually became possible with painting is that painting made it possible to quit the mundane job.

Thanks to that, the painting no longer has to do the mundane chore of telling a story, it is free and able to tell its own story. It was then that we witnessed the rise of modernism and the expansion of painting into various fields.

I think that's what's happening with the books now. Now that most of our technology, most of our information, most of our personal and cultural records are in digital form, I think that's really making books something new.

So I think it's a very exciting time for an artist like me, and I'm very excited to see what the future holds for this book.

thank you.

(applause)

I saw a movie called "Her" about two and a half years ago.

And this work features Samantha, a super-intelligent AI who cannot take physical form.

And since she can't be seen in photographs, Samantha decided to write music that captures life's moments in a photographic way.

As a musician, engineer, and coming from an artistic family, I found this idea of ​​music photography to be really powerful.

And I decided to make an AI composer.

Her name is AIVA. She's an artificial intelligence who learned the craft of composition by reading over 30,000 of the greatest musical scores of all time.

Here's what a single score looks like in a matrix-like representation to the algorithm:

Here's what 30,000 scores written by Mozart, Beethoven, and others fit in one frame:

So AIVA uses deep neural networks to look for patterns in scores.

And from a few bars of existing music, it actually tries to guess what note should come next in those tracks.

And once AIVA gets good at these predictions, it can actually build a set of mathematical rules for that musical style to create its own original compositions.

And in a way, this is like how we humans compose music too.

This is a trial and error process and you may not always get the correct notes.

But you can correct yourself with your musical ear and musical knowledge.

But for AIVA, this process spans years of learning, decades of learning as an artist, musician and composer, to just a few hours.

But music is also an ultra-subjective art.

And because people have different tastes, AIVA needed to be taught how to compose the right music for the right people.

To do so, we present the algorithm with over 30 different category labels for each score in the database.

So these category labels are things like the mood or sonic density of the song, the style of the composer, or the era in which the song was written.

And by checking all this data, AIVA can actually respond to very precise requirements.

For example, in a recent project we were asked to create something reminiscent of a sci-fi movie soundtrack.

And the song that was made was called 'Among the Stars' and was recorded with the CMG Orchestra in Hollywood under the direction of the great conductor John Beale, this is what they recorded and was created by AIVA.

(music) (music ends) What do you think?

(Applause.) Thank you.

As we've seen, AI can create beautiful music, but the best part about it is that humans can actually bring that music to life.

And it's not the first time in history that technology has augmented human creativity.

Silent films almost always used live music to enhance the experience.

But the problem with live music is that it doesn't scale.

It's really hard to fit a whole symphony in a small theater, and it's really hard to do it in every theater in the world.

So when music recording was really invented, content creators alike filmmakers were able to pre-record original music tailored to each frame of the story.

And it was really creative.

Two and a half years ago, when I saw the movie Her, I knew that personalized music would be the next big thing in how we consume and create music.

Because today we have interactive content such as video games, where there are hundreds of hours of interactive gameplay, but only two hours of music on average.

It means the music loops and loops over and over, not very immersive.

So what we're working on is enabling AI to compose hundreds of hours of personalized music for use cases where human creativity cannot scale.

And we don't want it to be just a game.

In fact, Beethoven wrote the song "For Elise" for his beloved. And imagine if Beethoven could be brought to life.

And if he sits next to you and composes music to fit your personality and life story.

Or imagine someone like Martin Luther King had a personalized AI composer.

Perhaps then we will remember "I Have a Dream" not just as a great speech, but as a piece of our history and a great piece of music that captures Dr. King's ideals.

This is AIVA's vision. It's about personalizing music so that you and everyone in the world can access a personalized live soundtrack based on your story and personality.

So this moment we spent together at TED is now part of our life story.

Therefore, it felt appropriate for AIVA to compose music for this moment.

And that's exactly what we did.

So my team and I set out to give AIVA the style of TED jingles and music that makes them feel awe and wonder.

And the result is called the "Age of Surprise".

You didn't need an AI to figure it out.

(Laughs) And I couldn't be more proud to show you this. Close your eyes and enjoy the music if you can.

thank you very much.

(music) [AIVA COMPOSITION WONDERFUL ERA] (music ends) This was for you guys.

thank you.

(applause)

So it's an infection, right?

Infectious diseases remain a major cause of human suffering and death worldwide.

Every year, millions of people around the world and in the United States die from diseases such as tuberculosis, malaria, and HIV.

Thousands of Americans die each year from seasonal flu.

Now, of course humans are creative. right?

We have figured out how to protect ourselves from these diseases.

There are drugs and vaccines.

And we are conscious - we learn from our experiences and come up with creative solutions.

We used to think we were the only ones with this problem, but now we know we're not.

We are not the only doctors.

We now know that there are many animals that can do that.

Chimpanzees are probably the most famous.

Not so different from us, they can use plants to treat intestinal parasites.

But in recent decades, we've learned that other animals can do the same, including elephants, porcupines, sheep, and goats.

And even more interesting than that, recent discoveries show that insects and other small animals with small brains can also use drugs.

As we all know, the problem with infectious diseases is that pathogens continue to evolve and many of the drugs we have developed are losing their effectiveness.

Therefore, there is a great need to find new ways to discover drugs that can be used against disease.

Well, I think we should observe these animals. And I think we can learn from them how to treat our disease.

As a biologist, I have studied monarch butterflies for the past ten years.

Now, monarchs are very famous for their spectacular migrations that draw millions from the United States and Canada to Mexico each year, but that's not why I started studying monarchs.

I study monarchs because they get sick.

They get sick just like you. They get sick just like I do.

And I think their work will tell us a lot about drugs that can be developed for humans.

Now, the parasite that infects the monarch is called Omphyocystis electrosilha (bite).

What they do is produce millions of spores on the outside of the butterfly, which are shown as tiny specks between the butterfly's scales.

And this is really harmful to the monarch.

It shortens their lifespan, reduces their ability to fly, and can even cause them to die before reaching adulthood.

A very harmful parasite.

As part of my job, I spend a lot of time growing plants in greenhouses because monarchs are very picky eaters.

They eat milkweed only as larvae.

Luckily, there are several milkweed species available, all of which contain cardenolides.

These are toxic chemicals.

They are poisonous to most animals, but not to monarchs.

In fact, monarchs can take the chemical into their bodies, making it toxic to predators such as birds.

And what they do is promote this toxicity through beautiful warning colors of orange, black and white.

So what I did at work is grow different plants, different milkweeds in the greenhouse.

Very high concentrations of these cardenolides, such as tropical milkweed, were toxic.

And some of them were non-toxic.

Some monarchs were in good health. They had no illness.

However, some of the monarch butterflies were sick. And what I discovered is that some of these milkweeds are medicinal, reducing the symptoms of monarch disease. This means monarch butterflies can live longer if infected by eating these medicinal plants.

I came up with this idea when I found this. A lot of people said it was a crazy idea, but I wondered what if monarchs could use this.

What if these plants could be used as unique medicines?

What if they could act as doctors?

So my team and I started experimenting.

In the first type of experiment, caterpillars were given a choice between medicated and non-medicated milkweed.

They then measured how much of each species they ate over their lifetimes.

And the results, as is often the case in science, were boring. Fifty percent of their food was medicinal. 50% were not.

These caterpillars did nothing for their own good.

So we moved on to adult butterflies and began to question whether it was the mother who could administer drugs to her offspring.

Could mothers lay eggs on medicated milkweed that would make future offspring less susceptible to disease?

We've been doing these experiments over the years and always get the same results.

What we do is put monarch butterflies in a large cage with medicinal plants on one side and non-medicinal plants on the other and measure the number of eggs the monarchs lay on each plant.

And what you find when you do it is always the same.

What we discovered is that monarchs have a strong preference for medicinal milkweed.

In other words, these females lay 68 percent of their eggs in medicinal milkweed.

Interestingly, they actually transmit the parasite when they lay their eggs.

They cannot prevent this.

They can't even take their own medicine.

But what these experiments show us is that these monarchs and mothers are able to lay eggs in medicinal milkweeds that make their future offspring less susceptible to disease.

Now, I think this is a really important discovery. That's because it not only tells us wonderful things about nature, but it may also tell us something more about how to find medicine.

Now, these are very small animals and we tend to think of them as very simple.

They have tiny little brains, but they can do this very advanced treatment.

Now, even today, most of the medicines we use are derived from natural products, including plants, and we know that in indigenous cultures, traditional healers often look to animals to discover new medicines.

This is how elephants have taught us how to treat stomach upsets and porcupines have taught people how to treat bloody diarrhea.

But what I think is important is to go beyond these big-brained mammals and put more faith in these simple animals and insects, which we tend to think of as very simple things with tiny little brains.

The discovery that these animals can also use drugs opens up a whole new avenue. Perhaps one day we will treat human ailments with drugs first discovered by butterflies. I think it's a great opportunity worth pursuing.

Thank you very much.

(applause)

Monday and Thursday I learn how to die.

I call them terminal.

My wife, Fernanda, doesn't like that term, but many in my family died of melanoma cancer, and my parents and grandparents had melanoma as well.

And I kept thinking that one day the doctor might sit in front of me and look at my tests and say, "Ricardo, things don't look very good.

You have half a year or a year left to live. ”

And start thinking about what to do with this time.

And you say, "I'm going to spend more time with my kids."

I'm going to visit these places, go up and down mountains and places, and do all the things I couldn't do when I had the time. ”

But of course we all know that these will be very bittersweet memories.

It is very difficult.

You probably spend a lot of time crying.

So I said I was going to do something else.

Every Monday and Thursday are Terminal Days.

And when I get that news, I'm going to do whatever I set out to do during those days.

(Laughter) When you think -- (Applause) When we think of the opposite of work, we often think of it as leisure.

And you say, oh, I need some free time, and so on.

But the truth is, leisure is very busy.

Go play golf or tennis, see people, go out to lunch, be late for the movie.

It's a very crowded thing that we do.

The opposite of work is laziness.

But few people know what to do with laziness.

If you look at our general distribution of life, we can see that when we have a lot of money, we have very little time.

And when you finally have time, you have no money and no health.

So we started thinking about that as a company for the last 30 years.

The company is a complex multi-million dollar business with thousands of employees, manufacturing rocket-fueled propulsion systems, operating 4,000 ATMs in Brazil, and preparing income taxes for hundreds of thousands of people.

So this is no simple business.

We looked at it and said let's leave it to these guys, let's give these guys a company stripped of all the boarding school stuff, this is how you arrive, this is how you dress, this is how you attend meetings, what this says, what this doesn't say, and let's see what's left.

So we started this about 30 years ago and started working on this very problem.

So we said, look, retirement, the whole question of how to distribute the graph of life.

Instead of going mountain climbing when you turn 82, why don't you go mountain climbing next week?

And we'll do this, refund your Wednesdays at 10 percent of your salary.

Now, if you were going to be a violinist, which you probably weren't, go on Wednesday and do this.

And what we discovered is that it's the elderly who are really interested in the program.

And, of course, the average age of those who first endorsed was 29.

So we started looking into it and said we need to do things differently.

So we started saying things like, "Why do you want to know what time you come in and what time you leave?"

Couldn't we exchange this for a contract to buy something or some kind of work from you?

Why build a headquarters like this?

Isn't it an ego issue that we want to appear solid, big and important?

But is that why I'm dragging you around town for two hours?

So we started asking questions one by one.

Say: 1: How do you find people?

We went out and tried to recruit people, and we said, look, if you come to us, there won't be a couple of interviews, and then you're going to marry us for life.

That's not how we spend the rest of our lives.

So please come and have an interview.

If you are interested in an interview, please come and visit us.

And we'll see what happens from the intuition that springs from there rather than filling in the little boxes of whether you're the right person.

And please come back.

Whether you spend an afternoon or an entire day talking to someone you love.

Make sure you're the kind of bride you thought you were, not the bullshit we put in our ads.

(Laughter) Gradually, it became a process of saying things like, you don't want someone who hasn't been interviewed and approved by a future subordinate to be the leader of the company.

Every six months, everyone is anonymously evaluated as a leader.

And this determines whether they should continue in that leadership position, which, as you know, often depends on the circumstances.

So unless they get 70-80% of grades, they won't stay. That's probably why I haven't been CEO in over ten years.

And as time went on, we started asking different questions.

We said things like why people can't set their own salary.

What do they need to know?

There are only 3 things you need to know. How much are our internal employees making, how much are people making similar businesses elsewhere, and how much are they generally making to see if we can afford it?

So let's give people these three pieces of information.

So we set up a computer in the cafeteria where people could ask what they used, how much they earned, what their benefits were, what their company profited, what their profit margins were, and so on.

And this was 25 years ago.

When this information started to get out to people, we said we didn't want to see your expense report, we didn't want to know how long you were on vacation, we didn't want to know where you worked, and so on.

At one point we had 14 different offices around town. He then asks you to go to the office closest to the customer you are visiting today.

Please don't tell me where you are.

Additionally, even when we had thousands, 5,000 employees, we had two people in HR, and thankfully one of them left.

(Laughter) So what we were asking is, how can we take care of people? That's what it means.

All we have is people.

There can be no department chasing people and taking care of people.

So we started to see this working, so I would say we're looking, but I think this is the main thing I've been looking for in the end times and in the company, it's how to set the wisdom.

We have been through the Age of Revolution, the Industrial Revolution, the Age of Information, the Age of Knowledge, but we are not yet nearing the Age of Wisdom.

How do we design and organize for more wisdom?

For example, what is the wisest or wisest decision is often wrong.

So you say something like, "Let's agree to sell 57 widgets a week."

If you sell by Wednesday, go to the beach.

Don't let us, the manufacturing industry, or the application get in trouble. Then we have to buy new companies, we have to buy competitors, we have to do all sorts of things because you sell too many widgets.

So go to the beach and start over Monday.

(Laughter) (Applause) So the process is looking for wisdom.

And of course, along the way, we wanted people to know everything and be truly democratic about how we run things.

So there were two seats open on our board with equal voting rights for the first two people to attend.

(Laughter) So we had the cleaning ladies vote at a board meeting, which was attended by many other important people in suits and ties.

And as a matter of fact, they kept us honest.

In this process, when we started observing people who came to us, we said, "Wait a minute. People come to us, where should we sit?"

how do i work? Where will I be in 5 years?

We looked at it and said we should start sooner.

Where do we start?

We said, "Oh, kindergarten sounds like a good place."

So we set up a foundation and have now run three schools for 11 years. So we started asking the same questions. How do we redesign schools in search of wisdom?

All I can say is that the teachers need to be reappointed and the board members need to work harder.

But in reality, what we do in education is completely outdated.

The teacher role is completely outdated.

Going from math class to biology to 14th century France would be very stupid.

(Applause.) So we started thinking about what that would be like.

And we brought together people who love education, people like Paulo Freire, and people including two of Brazil's ministers of education, to discuss what it would be like to design a school from scratch.

So we created this school, it's called Lumial, and Lumial, one of which is a public school, and Lumial says: Let's divide this role of the teacher into two.

One person calls a tutor.

A tutor in the old sense of the Greek ``paideia'': taking care of children.

What's going on at home, what are their life moments, etc.

But please don't tell me. You know very little compared to Google. because we don't want to know.

Please keep it a secret.

(Laughter) Well, we bring people together who have two things: passion and expertise. It doesn't matter if it's a profession or not.

And we are using the 25 percent of our population, the elderly, with wisdom that no one wants anymore.

So we took them to school and said tell them anything you really believe.

There, a violinist teaches mathematics.

We have all sorts of things to say, don't worry about course materials anymore.

There are about 10 great threads from 2 to 17.

For example, how do we evaluate ourselves as human beings?

So there's a place there for math, physics and all that stuff.

how do we express ourselves?

So there is a place not only for music, literature, etc., but also for grammar.

And there's also something that everyone forgets, perhaps the most important thing in life.

We know nothing of the most important things in life.

We know nothing about love, we know nothing about death, we know nothing about why we are here.

So schools need a thread to discuss everything we don't know.

That's a big part of what we do.

(Applause.) So over the years, we started working on other things.

We would scold our children and say why do we have to sit down and come here and do that.

We said let the kids do something called a circle that meets once a week.

And then, after you've put together the rules, I think you decide what to do with them.

So can you guys punch yourself in the head?

Well, try it for a week.

They came up with the exact same rules we had. except that it belongs to them.

And they have power. I mean, they can and do decide to suspend or expulse our kids just like we're not playing in school.

And just like this, keep digital mosaics. Because this is not constructivism or Montessori or anything.

It holds the Brazilian curriculum in a mosaic of 600 tiles and wants children exposed to it by the time they turn 17.

And if you follow this constantly, you will see how they are doing. And we say, "You're not into this right now, let's wait a year."

And since the kids are in an ageless group, a 6-year-old is ready for that along with an 11-year-old. This will get rid of all the gangs and groups and whatnot at the school.

It also has zero to 100 percent grading, and we use the app to score ourselves every few hours.

Until we see that they have achieved 37% of what we want on this issue, and we can send them out into the world with a good understanding of this issue.

So, the courses are World Cup soccer and bicycle making.

And people will sign up for a 45-day course on bicycle building.

Now, let's build a bicycle without knowing that pi is 3.1416.

you can't.

And you too, try using 3.1416 for something.

I don't know anymore.

So this is lost and that's what we're going to do there, seeking wisdom in that school.

And then back to this graph and our distribution of life.

I remember saving a lot of money.

When you think and you say, now is the time to give back - well, if you're giving back, you've taken too much.

(Laughter) (Applause) Warren Buffet I will always remember waking up one day to realize that I had $30 billion more than I thought.

And he looked and said, What are you going to do with this?

And he said he would give it to someone who really needed it.

I'll give it to Bill Gates. (Laughter) And my boyfriend who is my financial advisor in New York says, look, you stupid dude, because if you were making money with money instead of sharing, you would have 4.1 times more money today.

But I like to share as you improve.

(Applause.) I was teaching an MBA at MIT for a time, and one day I ended up in Mount Auburn Cemetery.

A beautiful cemetery in Cambridge.

And I was walking around It was my birthday, so I was thinking.

And for the first time, when I saw these tombstones and the wonderful people who did great things, I wondered what I wanted to be remembered for.

Then I walked around again, and the second time I had a different question. Which was better? Why do I want to be remembered in the first place? about it.

(Laughter.) And I think that took me to another place.

When I was 50, my wife, Fernanda, and I sat all afternoon, built a big pit with a fire, and threw everything we had ever done into it.

This is books in 38 languages, hundreds of articles, DVDs, and everything else out there.

And it did two things.

First, five children have been freed from our footprints and shadows. they don't know what i'm doing

(laughs) That's good.

And I'm not going to take them somewhere and say that one day this will all be yours.

(Laughter) Five kids don't know anything, and that's a good thing.

Second, I freed myself from stereotypes such as past achievements.

You can always start something new, and even decide things from scratch during part of the end of life.

And some will say, oh, now that we have time in this end of life, we go out and do all kinds of things.

No, we went to the beach, so we went to Samoa, Maldives, Mozambique, so that's it.

I have climbed mountains in the Himalayas.

We went down 60 meters to see a hammerhead shark.

I spent 59 days riding camels from Chad to Timbuktu.

I went to the North Pole of the magnetic field by dog ​​sledding.

So we were busy.

That's what I like to call an empty bucket list.

(Laughter) With all this reasoning, what I think about these days is that I haven't retired yet. I don't feel retired at all.

So I am writing a new book.

We have launched three new companies in the last two years.

I am currently working to bring this school system to the world for free, and what is very interesting is that no one wants to use it for free.

So I've been trying for 10 years to get the public system to carry on the rationale of this school, much like public schools have grades of 91 out of 100 instead of 43 out of 100.

But for free nobody wants that.

So maybe we'll start charging for it and then go somewhere else.

But getting this out into the world is one of the things we want to do.

And I think what this left us with as a message to all of you is something like this: We have all learned how to email and work from home on Sunday nights.

But few people know how to go to the movies on Monday afternoon.

And if you seek wisdom, you must also learn how to do so.

So what we've been doing all these years is a very simple little tool: ask "why" three times in a row.

Because the first reason always has a good answer.

The second reason is that it starts to get difficult.

As for the third "why", I don't quite understand why I'm doing this.

What I want to leave you with is the seed and the idea that perhaps doing this will raise the question "for what?"

What am I doing this for?

And hopefully as a result, as time goes by, by this, and that's what I wish for you, I hope you get a wiser future.

thank you very much.

(Applause) Chris Anderson: Ricardo, you're kind of crazy.

(Laughter.) For a lot of people, this seems crazy.

It's also very smart.

What I'm trying to put together is: Your idea is so radical.

For example, in business, these ideas have been around for a while, but the percentage of companies that have probably embraced them is still fairly low.

Have you ever seen a big company adopt your idea and thought, "Yes!"?

Ricardo Semler: It happens. That happened about two weeks ago when Richard Branson, his people were like, oh, they don't want to control your vacation anymore, or Netflix is ​​doing a little bit of this, but I don't think it matters all that much.

Maybe I'd love to see it come to fruition with a little bit of missionary zeal, but that's very personal.

But in reality, losing control requires arrogance.

And very few people in the lead are ready to take the leap with conviction.

It has to come from kids and other people trying to build a company in a different way.

CA: Is that the point?

From your point of view there is evidence, from a business point of view this works, but people don't have the guts to do it -- (huh) RS: They don't even have the incentive.

You run a company with a 90-day mandate.

Quarterly report.

If you are unwell within 90 days, you will be expelled.

So you say, ``This is a great program that will happen in less than a generation,'' and the man says, ``Get out of here.''

This is the problem.

(Laughter) CA: What you're trying to do in education seems incredibly deep to me.

Everyone worries about their country's education system.

No one thinks we've caught up to a world with Google and all these technological options just yet.

Now you have real evidence that children have made it through your system and their performance has improved dramatically.

How can we move these ideas forward?

RS: It's a matter of ideas and I think the time has come.

And I was not very evangelical about these things.

took it outside.

Suddenly people appear. In Japan there is a group called the Semmlerists, and I am very scared, but there are 120 companies.

they invited me I was afraid to go all the time.

And there is a group of 600 Dutch SMEs in the Netherlands.

It thrives on its own.

Some may be wrong, but it doesn't matter.

This will find its own place.

And the other is, "This is so good, I have to do this."

Get a system up and put a lot of money into it and people will do it no matter what.

CA: So you've been asking extraordinary questions all your life.

It seems to me that that is the fuel that drives much of this issue.

Do you have any more questions for us, TED, and this group?

RS: I always remember a variation of the question my son asked me when he was three years old.

As we sat in the Jacuzzi, he said, "Dad, why do we exist?"

No other questions.

I have no one else to ask.

There are more than three variations of this one question.

So how many people do you know on their deathbed who, while spending time in a company, a bureaucracy, or an organization, said, "Wow, I wish I had spent more time in the office?"

So it's important to have the courage to say, "No, what am I doing this for?"

Please stop everything. let me do something else

If you get stuck in the process, that's okay. Much better than what you are doing.

CA: I think it's a deep and very beautiful way to end the penultimate day of TED.

Ricardo Semler, thank you very much.

RS: Thank you very much.

(applause)

Today I will talk about the history of architecture in the last 30 years.

You have to pack a lot of content into 18 minutes.

It's a complicated topic, so here I'll elaborate on a complicated place: New Jersey.

Thirty years ago, I was from Jersey, and when I was six years old, I lived in my parents' house in the town of Livingston. This was my childhood bedroom.

Around the corner from my bedroom was the bathroom I shared with my sister.

And between my bedroom and bathroom was a balcony overlooking the family room.

It was a place where everyone would hang out and watch TV, so every time I went from the bedroom to the bathroom, everyone would see me, and every time I came back in the shower and wrapped in a towel, everyone would see me.

And I looked like this

I was awkward, anxious, and hated it.

I hated that walk, I hated that balcony, I hated that room, I hated that house.

And that is architecture.

(Laughter) Done.

That feeling, the emotion I felt, that's the power of architecture. Because architecture isn't about math or zoning, it's about the intuitive and emotional connection we feel to the places we occupy.

According to the EPA, Americans spend 90% of their time indoors, so it's no wonder we feel that way.

90% of our time is surrounded by architecture.

That's amazing.

In other words, architecture shapes us in ways we were unaware of.

That makes us a little gullible and very predictable.

I mean, when I show you a building like this, I know what you think of "power," "stability," and "democracy."

It is based on a building built by the Greeks 2,500 years ago.

This is the trick.

This is the trigger that architects use to create an emotional connection to the forms we use to build our buildings.

It's a predictable emotional connection, and we've used this trick for a long time.

We used it to build a bank [200] years ago.

It was used to build a museum in the 19th century.

And 20th century America used it to build houses.

And look at these sturdy, stable little soldiers facing the sea and sheltering from the elements.

This is really useful, because building anything is terrifying.

Expensive, time consuming and very complicated.

And the people who make things, developers and governments, are naturally afraid of innovation and want to stick with formats they know will respond.

That's how buildings like this come to be.

This is a lovely building.

This is the Livingstone Public Library completed in 2004 in my hometown. It has a dome, round and pillars, red bricks, and you can guess what Livingston is trying to say with this building. Children, property values, history.

But that has little to do with what libraries actually do today.

In the same year, 2004, another library was completed on the other side of the country. Here's what it looks like:

Located in Seattle.

This library describes how we consume media in the digital age.

It's about a new kind of public facility in the city, a place to gather, read and share.

So how is it possible, in the same year, in the same country, that two buildings, both called libraries, look so different?

The answer is that architecture works on the pendulum principle.

On the one hand there is innovation, architects are constantly pushing new technologies, new typologies and new solutions to suit our way of life today.

And we'll keep pushing and pushing until we've completely pushed you all away.

We're dressed in all black, we're so down, you think we're adorable, but we're dead inside because we have no choice.

We have to go to the other side and re-engage the symbols you know you love.

So we do, and you're happy, we feel like we've sold out, so we start experimenting again, pushing the pendulum back and forth, what we've been doing for the last 300 years, and certainly the last 30 years.

Thirty years ago we were trying to get out of the seventies.

Architects were busy experimenting with what was called Brutalism.

It's about concrete.

(Laughter) You can imagine this.

Small windows, inhuman scale.

This is really hard.

So as we approach the '80s, we start picking up those symbols again.

Push the pendulum back in the opposite direction.

We adopt and update these forms that our customers love.

Add neon, add pastels, use new materials.

and you love it

And we can't give it enough.

We turned a Chippendale cupboard into a skyscraper. Skyscrapers can become medieval castles made of glass.

Forms are bigger, bolder and more colorful.

Dwarves became pillars.

(Laughter) The swan grew to the size of a building.

It was crazy.

But the 80's are cool.

(Laughter) We're all hanging out in malls and moving to the suburbs. And outside the suburbs, we can create our own architectural fantasies.

And those fantasies are Mediterranean, French, Italian, etc.

(laughter) Maybe there will be endless bread sticks.

This is postmodernism.

This is about symbols.

You don't create a place, you create a memory of that place, so it's easy and cheap.

Because, as you and I know, this is not Tuscany.

This is Ohio.

(Laughter) So the architects get frustrated, and we start pushing the pendulum back in the other direction.

In the late 80's and early 90's we started experimenting with what we called deconstructivism.

We ditch historical symbols and rely on new computer-aided design techniques, colliding form with form to devise new compositions.

This is academic, dumb, and very unpopular, and we completely alienate you.

Normally the pendulum just swings in the opposite direction.

And then something amazing happened.

This building opened in 1997.

This is Frank Gehry's Guggenheim Bilbao.

And this building fundamentally changes the relationship between the world and architecture.

Paul Goldberger said Bilbao was one of those rare moments when critics, academics and the public were completely united around the building.

The New York Times called the building a miracle.

Since the building's completion, Bilbao's tourist arrivals have increased by 2,500%.

Then suddenly everyone wants one of these buildings: LA, Seattle, Chicago, New York, Cleveland, Springfield.

(Laughter) Everyone wants it and Gary is everywhere.

He is our first architect.

Now, these forms are wild and radical, but how can they be so ubiquitous around the world?

And it happened because the media did a good job of activating them around them and quickly taught us what these forms meant for culture and tourism.

We have created an emotional response to these shapes.

So did every mayor in the world.

Therefore, every mayor knew that culture and tourism could be realized with these formats.

This phenomenon also happened to several other Starkitects at the turn of the millennium.

It happened to Zaha, it happened to Libeskind. And what happened to these few elite architects at the turn of the millennium may actually start to happen to the entire field of architecture as digital media begin to speed up the speed at which we consume information.

Because think about how you consume architecture.

1000 years ago, you had to walk to the neighboring village to see the building.

Transportation speeds up. You can take a boat, fly an airplane, or be a tourist.

Technology progress accelerates. You can see it in the newspapers and on TV, but in the end we all become architectural photographers and the building is cut off from the site.

Architecture is everywhere now, which means the speed of communication has finally caught up with the speed of architecture.

Because architecture actually moves very fast.

It doesn't take long to think about a building.

It takes a long time, 3-4 years, to build a building, during which time architects design 2, 8, or 100 other buildings before they know if the building they designed 4 years ago was a success.

Because there has never been a good feedback loop in architecture.

That's how buildings like this come to be.

Brutalism was not a two-year movement, but a movement that lasted twenty years.

For 20 years we have been building buildings like this. Because I had no idea how much you all hated it.

I think it will never happen again. Because we are living on the brink of the greatest revolution in architecture since the invention of concrete, steel and elevators: the media revolution.

So my theory is that if we apply media to this pendulum, it will start swinging faster and faster, reaching its extremes at about the same time, thereby effectively blurring the difference between innovation and symbolism between us architects and you ordinary people.

Now you can create emotional symbols almost instantly from something completely new.

Let me explain how this happens in a project my company recently completed.

We were hired to replace this burnt down building.

This is the center of the town of Pines on Fire Island, New York.

community on vacation.

We proposed a bold building that differs from anything the community is accustomed to. And we were scared, the clients were scared, and the community was scared. So we created a series of photorealistic renderings and posted them on Facebook and Instagram. And I let people share it, comment on it, like it, dislike it, and start doing whatever they want.

But that meant that the building was already part of the community two years before it was completed, so it wasn't surprising that the renderings looked exactly like the finished product.

This building was already part of this community. And that first summer, when people arrived and started sharing the building on social media, the building was no longer just a building, it was media. Because these are pictures of your building, not just pictures of buildings.

And when you use them to tell your own story, they become part of your personal story and what you're doing is shorting out all of our collective memory and creating these paid symbols for us to understand.

In other words, we no longer need the Greeks to teach us how to think about architecture.

Digital media has not only changed the relationship we all have, it has changed the relationship we have with buildings so we can tell each other what we think about architecture.

Consider for a moment the librarian in Livingston.

If the building were to be built today, they would first search online for "new library."

They will be bombarded with experiments, innovations, and examples that push the boundaries of the library.

It's ammunition.

That's the ammunition to bring to the Mayor of Livingston and the people of Livingston to say that there is no single answer to what a library is today.

Join us in this.

This wealth of experimentation gives them the freedom to run their own experiments.

Everything is different now.

Architects are no longer mysterious creatures with big words and intricate drawings. Nor are you the unlucky masses and consumers who refuse to accept what they have not seen.

Architects can hear you and you are not intimidated by architecture.

That means the pendulum swinging back and forth from style to style and movement to movement is irrelevant.

We can actually move forward and find relevant solutions to the problems facing society.

This is the end of architectural history and means that tomorrow's buildings will look very different from today's buildings.

This means that the public spaces of the ancient city of Seville are unique and can be adapted to the workings of a modern city.

That means a Brooklyn stadium can be a Brooklyn stadium, not the red-brick historical knockoff we think stadiums should be.

That means robots will be building our buildings. Because we are finally ready for the robot-created form.

And that means buildings will twist to match the whims of nature, rather than go against it.

That means a parking lot in Miami Beach, Fla., could be a place for sports, yoga, and even a late-night wedding.

(Laughter) That means three architects can dream of swimming in the East River in New York while raising nearly half a million dollars from a community that has come together around their cause. There are no more customers.

That means no building is too small to innovate, like this tiny reindeer pavilion, as muscular and sinewy as the animals it's designed to observe.

And that means buildings don't have to be beautiful to be loved. Like this ugly little building in Spain, the architects dug a hole, stuffed it with hay, poured concrete around it, and when the concrete dried, they had someone come and clean up the hay. When completed, all that remains is this horrific little room filled with traces and scars of how the place was made, making it the most sublime place to watch a Spanish sunset.

Because it doesn't matter if the building is built by cows or by robots.

It doesn't matter how you build it, it matters what you build it.

Architects already know how to make buildings greener, smarter and friendlier.

We look forward to hearing from you.

And finally, we are no longer at odds.

Find an architect, hire an architect and work with us to design better buildings, better cities and a better world. Because the risks are high.

Buildings not only reflect our society, they shape it down to the smallest of spaces: the local library, the home where we raise our children, the walk from the bedroom to the bathroom.

thank you.

(applause)

What is the fastest growing threat to American health?

cancer? heart attack? Diabetes mellitus?

The answer is actually none of them. It's Alzheimer's disease.

Every 67 seconds someone is diagnosed with Alzheimer's disease in the United States.

As the number of people with Alzheimer's disease triples by 2050, caring for people with Alzheimer's disease and the rest of the aging population will become an overwhelming social challenge.

My family has experienced firsthand the struggles of caring for someone with Alzheimer's disease.

I grew up in a three-generation family and was always very close to my grandfather.

When I was four years old, my grandfather and I were walking in a Japanese park when he suddenly got lost.

It was one of the scariest moments in my life, and the first time I learned that my grandfather had Alzheimer's.

Over the past 12 years, his symptoms have gotten worse and worse, especially his wanderings, which has caused a great deal of stress to his family.

His primary caregiver, his aunt, had a really hard time staying up at night to watch over him and still often couldn't catch him getting out of bed.

I was very worried about not only my grandfather's safety, but also my aunt's safety.

I searched exhaustively for a solution that could solve my family problem, but I couldn't find one.

And then, one night about two years ago, when I was taking care of him, I saw him get up out of bed.

The moment his foot hit the floor, I wondered if I could put a pressure sensor on the heel of his foot.

When you step on the floor and get out of bed, the pressure sensor detects pressure build-up due to your body weight and wirelessly sends an audible alarm to the caregiver's smartphone.

That way my aunt could sleep well all night without worrying about her grandfather's wanderings.

Now, I would like to give a demonstration of these socks.

Could you put my sock model on stage?

wonderful.

So when the patient steps on the floor (ringing), an alert is sent to the caregiver's smartphone.

thank you. (Applause.) Thank you, sock model.

Here is a drawing of my initial design.

My desire to create sensor-based technology probably stemmed from my lifelong love of sensors and technology.

When I was 6 years old, an elderly family friend fell in the bathroom and was seriously injured.

I got worried about my grandparents and decided to invent a smart bathroom system.

A motion sensor is installed inside the tiles on the bathroom floor to detect a fall whenever an elderly patient falls in the bathroom.

I was only six years old at the time and had not yet graduated from kindergarten, so I didn't have the resources and tools I needed to turn my ideas into reality, but my research experience nevertheless instilled in me a strong desire to use sensors to help older people.

I believe sensors can improve the quality of life of the elderly.

As I planned, I found myself facing three major challenges. One is the creation of sensors. Second, design the circuit. The third is coding smartphone apps.

This made me realize that my project was actually much more difficult to realize than I originally thought.

First, we had to create a wearable sensor that was thin and flexible enough to fit comfortably on the sole of a patient's foot.

After extensive research and testing on various materials such as rubber, it was found to be too thick to be worn snugly against the soles of the feet, so we decided to print the film sensors using conductive, pressure-sensitive ink particles.

As pressure is applied, connections between particles increase.

Thus, we were able to design a circuit that measures pressure by measuring electrical resistance.

Next, we had to design a wearable radio circuit, but radio signal transmission consumes a lot of power, requiring heavy and bulky batteries.

Thankfully, I learned about Bluetooth Low Energy technology, which consumes very little power and can run on a coin-sized battery.

This saved the system from going down in the middle of the night.

Finally, I had to code a smartphone app that turned the caregiver's smartphone into a remote monitor.

This required expanding my coding knowledge with Java and XCode, as well as watching YouTube tutorials and reading various textbooks to learn how to code for Bluetooth Low Energy devices.

By integrating these components, we were able to create two prototypes. One has a sensor embedded in the sock and the other is a reattachable sensor assembly that can be glued anywhere it comes in contact with the patient's sole.

I have been testing this device on my grandfather for about a year now and it has shown a 100% success rate in detecting over 900 known loitering cases.

Last summer, I was able to beta test the device at several residential care homes in California. We are currently in the process of incorporating feedback to further improve the device and make it a marketable product.

After testing the device on a number of patients, we realized we needed to invent a solution for people who didn't want to wear socks to sleep at night.

Sensor data collected from vast numbers of patients can therefore help improve patient care and possibly lead to cures for diseases.

For example, I am currently investigating the correlation between the frequency of nocturnal wandering in patients and their daily activities and diet.

One thing I will never forget was the first time my device caught my grandfather wandering out of bed in the middle of the night.

In that moment, I was truly struck by the power of technology to change lives for the better.

I envision a world where people live healthily and happily.

thank you very much.

(applause)

As a pediatrician, one of the first patients I had to see was Sol, a beautiful one-month-old baby who was hospitalized with signs of a severe respiratory infection.

I had never seen a patient deteriorate so quickly before.

In just two days she was put on a ventilator and died on the third day.

Sol was suffering from whooping cough.

I remember the Chief Resident saying to me after discussing the incident in the room and feeling pretty miserable catharsis. "Okay, take a deep breath and wash your face.

And now comes the hardest part: we have to go talk to her parents. ”

Thousands of questions then popped into my head: "How could a one-month-old baby be so unhappy?"

"Couldn't something have been done about it?"

Before vaccines existed, many infectious diseases killed millions of people each year.

The 1918 influenza pandemic killed 50 million people.

This is more than Argentina's current population.

Perhaps some of you older people remember the 1956 polio epidemic in Argentina.

At that time, there was no vaccine available against polio.

People didn't know what to do. They were going crazy.

They went to plaster the wood with caustic lime.

They put small bags of camphor in the children's underwear, as if it had any effect.

Thousands of people died during the polio epidemic.

And thousands of people suffered very serious neurological injuries.

I know this because I read about it. Because of vaccines, my generation has been fortunate enough to have never experienced such a terrible epidemic.

Vaccines are one of the great public health successes of the 20th century.

After drinking water, it is the intervention with the highest mortality reduction than antibiotics.

Vaccines have eradicated horrific diseases such as smallpox from the face of the earth and have greatly reduced mortality from other diseases such as measles, whooping cough and polio.

All of these diseases are considered vaccine-preventable diseases.

What does this mean?

They are potentially preventable, but something must be done to do so.

Must be vaccinated.

I think most if not all of us here today have had a vaccine at some point in our lives.

Now, not many of us know very well what vaccines or boosters we should receive after puberty.

Have you ever wondered who we are protecting when we vaccinate?

What does that mean?

Is there anything else I can do besides protect myself?

Let me show you something.

Imagine for a moment that you are in a city that has never had a particular disease, such as measles.

This means that no one in the city has come into contact with the disease.

No one has natural defenses against measles, and no one is vaccinated against measles.

One day, a person with measles appears in the city, but the disease is not very resistant and begins to spread from person to person, quickly spreading throughout the area.

After a certain amount of time, a large portion of the population becomes ill.

This happened at a time when there were no vaccines.

Now imagine the exact opposite case.

In our city, over 90 percent of the population has protection against measles. So they either got measles, survived, and developed natural defenses. or had been vaccinated against measles.

Even if one day someone with measles shows up in this city, the disease will acquire more resistance and not so much human-to-human transmission.

Presumably, the spread of infection will remain contained and measles epidemics will not occur.

I would like to draw your attention to one point.

Not only do vaccinated people protect themselves, but they also indirectly protect unvaccinated people in this community by stopping the spread of the disease within the community.

They protect these people by creating a kind of protective shield that prevents them from coming into contact with disease.

This indirect protection that unvaccinated people in a community gain simply by surrounding themselves with vaccinated people is called herd immunity.

Many people in the community rely almost exclusively on this herd immunity to protect themselves from disease.

The unvaccinated people shown in infographics are not just hypothetical.

Those people are our nieces and nephews, our children who may be too young to receive their first vaccination.

They are our parents, siblings, and acquaintances, who may have illnesses or take medications that lower their defenses.

Some people are allergic to certain vaccines.

It is possible that some of us who have been vaccinated have them, but vaccines have not had the desired effect because not all vaccines are 100 percent effective all the time.

All of these people rely almost exclusively on herd immunity to protect themselves from disease.

To achieve this effect of herd immunity, a large portion of the population must be vaccinated.

This percentage is called the threshold.

Thresholds depend on many variables. It depends on the characteristics of the bacterium and the immune response that the vaccine generates.

But they have something in common.

If the proportion of the population within the vaccinated community falls below this threshold, the disease may begin to spread more freely and outbreaks of this disease may occur within the community.

Even a disease that has been controlled at some point can recur.

This is more than just theory.

This actually happened and is still happening.

In 1998, British researchers published a paper in one of the most important medical journals linking the MMR vaccine, given against measles, mumps and rubella, to autism.

This had an immediate effect.

People started to stop getting vaccinated, and they stopped vaccinating their children.

and what happened?

In many communities around the world, the number of people vaccinated has fallen below this threshold.

And measles outbreaks occurred in many cities around the world, including the United States and Europe.

Many people got sick.

A person died from measles.

what happened?

The article caused a stir in the medical world.

Dozens of researchers have begun evaluating whether this is in fact true.

Not only did no one discover a causal link between MMR and autism at the population level, but the article also turned out to be falsely claimed.

Moreover, it was fraudulent.

In fact, the journal publicly retracted the paper in 2010.

One of the main concerns and excuses for not getting vaccinated is side effects.

Vaccines, like other drugs, can cause potential side effects.

Most are mild and temporary.

But the benefits always outweigh the possible complications.

When we get sick, we want to get well soon.

Many of us here take antibiotics when we have an infection, blood pressure medications when we have high blood pressure, heart disease medications.

why? Because we are sick and want to get well soon.

And we don't question it too much.

Why is it so hard to think about caring for yourself and preventing disease when you are healthy?

We take great care of ourselves when we are ill or in imminent danger.

I think most of us here remember the 2009 influenza A pandemic that broke out in Argentina and around the world.

It was winter in Argentina when the first cases began to emerge.

We knew nothing at all.

Everything was a mess.

People wore masks in the streets and rushed to pharmacies to buy alcohol gel.

People line up at the pharmacy to get a vaccine, not even knowing if it's the right vaccine to protect them from this new virus.

We knew nothing at all.

At the time, in addition to my fellowship at the Infant Foundation, I was working as a home pediatrician for an advance pharmaceutical company.

I remember starting work at 8:00 AM, and by 8:00 I already had a to-do list of 50 visits.

It was chaos. People didn't know what to do.

I remember the kind of patients I was seeing.

The patients were slightly older than those commonly seen in winter and had a longer fever.

And I told the fellowship leader about it, and he had heard the same thing from his colleagues. This meant that there were many pregnant women and adolescents in intensive care units with clinical presentations that were difficult to manage.

At that time we tried to understand what was happening.

First thing Monday morning, we drove to a hospital in the province of Buenos Aires, which is the referral hospital for cases of the new influenza virus.

we arrived at the hospital. It was busy.

All the medical staff wore biosafety suits like NASA.

We all had masks in our pockets.

I was a hypochondriac and couldn't breathe for two hours.

But I know what's going on.

We immediately started contacting pediatricians at six hospitals in the city and in the province of Buenos Aires.

Our main goal was to figure out in the shortest possible time how this new virus behaves when it comes into contact with our children.

marathon work.

In less than three months, we now know how this new H1N1 virus affects 251 children hospitalized with it.

I knew which children had more serious illnesses. Children under the age of 4, especially children under the age of 1. Patients with neurological disorders. Young children with chronic lung disease.

It was important to identify these at-risk groups and include them as priority groups for influenza vaccination recommendations, not only here in Argentina, but also in other countries where the pandemic has not yet reached.

A year later, when a vaccine against the pandemic H1N1 virus became available, we wanted to know what would happen.

After massive vaccination campaigns aimed at protecting at-risk groups, these hospitals had 93 percent of at-risk groups vaccinated and no patients were hospitalized with the pandemic H1N1 virus.

(clap) 2009: 251.

2010: Zero.

Vaccination is an act of individual responsibility, but collectively it has a huge impact.

Getting vaccinated not only protects you, but it also protects others.

Sol was suffering from whooping cough.

Sol was still young and had not yet received his first whooping cough vaccine.

I still wonder what would have happened if everyone around Sol had been vaccinated.

(applause)

Imagine you are in a bar or a club and you start talking and after a while the question comes up, "So what do you do?"

And you say, "I'm a mathematician," because you find your work interesting. (Laughter) And inevitably one of two phrases comes up in that conversation: A) "I was bad at math, but it wasn't my fault.

(laughs) Or B) "But what is mathematics really for?"

(Laughter) Now let's talk about Case B.

(Laughter) When someone asks you what math is for, they're not asking about the application of mathematical science.

They're asking you, why did I have to study that shit again that I never used in my life? (Laughter.) That's actually what they want.

So when we ask mathematicians what mathematics is for, they tend to fall into two groups. 54.51 percent of mathematicians would take an aggressive stance, while 44.77 percent of mathematicians would take a defensive stance.

Oddly enough, there are 0.8 percent, including myself.

Who will attack?

It is the mathematicians who attack, who say that this question is meaningless, because mathematics is a beautiful construct with its own meaning, its own logic, and that it makes no sense to keep looking for all possible applications all the time.

What is poetry good for? What is love good for?

What good is life itself? what kind of question is that?

(Laughter) Hardy, for example, was a model for this type of attack.

And advocates say, "Friends, math is behind everything, even if you don't realize it."

(Laughter) They always bring up bridges and computers.

"If you don't know math, the bridge will collapse."

(Laughter) Yes, computers are all math.

And now they're starting to say that there's a prime number behind information security and credit cards, too.

These are the answers you would get if you asked your math teacher.

He is one of the defenders.

Okay, but then who is right?

Who says mathematics needs no purpose, or that there is mathematics behind everything we do?

Actually, both are correct.

But remember I said I belong to the weird 0.8 percent who claim otherwise?

So ask what math is for.

Audience: What is mathematics for?

Eduardo Saenz de Cabezón: Well, 76.34 percent asked questions, 23.41 percent said nothing, and the remaining 0.8 percent don't know what they're doing.

Well, dear 76.31 percent -- it's true that math doesn't have to serve a purpose. It is true that mathematics is a beautiful structure, a logical structure, and perhaps one of the greatest collective efforts ever accomplished in human history.

But it is also true that wherever scientists and engineers are looking for mathematical theories that enable progress, they find themselves in the fabric of mathematics that permeates everything.

Admittedly, we need to dig a little deeper to understand what's behind the science.

Science works on intuition and creativity.

Mathematics controls intuition and tame creativity.

Few people who have never heard of this will be surprised to hear that if a piece of paper 0.1 mm thick, the size we normally use, is folded 50 times if it is large enough, it will be roughly the length from the Earth to the Sun.

Your intuition says it's not possible.

Do the math and you'll see that it's true.

That's what math is for.

Indeed, science of all kinds only makes sense so that we can better understand this beautiful world in which we live.

That way we can avoid the pitfalls of this painful world we live in.

There is science that helps us very directly in this way.

For example, oncology.

And even though some people sometimes look on with envy from afar, we know we're here to support them.

All basic sciences, including mathematics, support them.

Everything that constitutes science, science is the rigor of mathematics.

And that rigor is taken into account because the consequences are eternal.

Have you ever said or been told that diamonds are forever?

It depends on your definition of eternity.

Theorem -- it really is forever.

(Laughter) The Pythagorean theorem is still true now that Pythagorean is dead, and I assure you it's true. (Laughter) Even if the world collapsed, the Pythagorean theorem would still be true.

Wherever two sides of a triangle meet the proper hypotenuse (laughter), the Pythagorean theorem goes to great lengths. it works like crazy.

(Applause.) Now, we mathematicians will concentrate on thinking about theorems.

eternal truth.

But it is not always easy to know the difference between eternal truths and theorems and mere speculation.

I need proof.

For example, let's say you have a big, huge, infinite field.

I want to spread it evenly without gaps.

Can I use squares?

You can also use triangles. It leaves a small gap instead of a circle.

Which shape is the easiest to use?

It covers the same surface, but with a smaller border.

In 300 AD Pappus of Alexandria said it was best to use hexagons, just like bees.

But he didn't prove it.

The man said, "Hexagon, nice! Let's make it a hexagon!"

He didn't prove it, it remained a guess.

"Hexagons!"

And, as you know, the world was divided between Papists and Anti-Papists, and 1700 years later, in 1999, Thomas Hales proved Pappus and the bee right – proving that the optimal shape is the hexagon.

And it will be the theorem, the honeycomb theorem, and it will be true forever, longer than any diamond you have. (Laughter) But what happens when you go to 3D?

If you want to fill the space evenly without gaps, you should use a cube, right?

It leaves a small gap instead of a sphere. (Laughter) What's the easiest shape to use?

Lord Kelvin, such as the famous Kelvin Degree, said it is best to use a truncated octahedron. It's, you know, (laughter), here it is.

(Applause.) Come on.

Who doesn't have a truncated octahedron at home? (Laughter) Even in plastic.

"Honey, bring me a truncated octahedron, we have a guest."

Everyone has! (Laughter) But Kelvin didn't prove it.

It remained a guess, a Kelvin guess.

You know, after that the world split into Kelvinists and anti-Kelvinists (laughs), and after a hundred years, someone found a better structure.

Weir and Phelan found this little thing here -- (laughter) -- and they gave it a very clever name, the "Weir-Phelan structure."

(Laughter) It looks like a mysterious object, but it's not so mysterious, and it exists in nature.

It is very interesting that this structure was used in the construction of the Beijing Olympic Swimming Center due to its geometrical properties.

There Michael Phelps won eight gold medals and became the greatest swimmer of all time.

Well, until someone better comes along, right?

This is also possible in Weir-Phelan structures.

Best until something better comes along.

But be careful. This is because in 100 years, or in 1700 years, someone could actually prove that it was the best shape for the job.

And it will forever be a theorem, a truth.

Longer than any diamond.

So if you want to tell someone that you love them forever, you can gift them diamonds.

But if you want to tell them you'll love them forever, teach them the theorem!

(laughs) But wait a minute!

In order for your love not to remain guesswork, you need to prove it.

(applause)

A hostile artificial intelligence called NIM has taken over computers around the world.

You're the only one with enough skill to shut it down, and you only get one chance.

You infiltrate NIM's secret lab and float on a 25-story electrified water raft.

Equipped with a remote control that can lower the water level by spraying it from the grid on the side of the room.

If you can get the water level down to 0, you can hit the manual override to turn off the NIM and save the day.

However, the AI ​​knows you are here and can also lower the water level by sucking water through the trapdoor at the bottom of the lab.

If NIM lowers the water level to 0, you will be sucked out of the lab and the mission will fail.

Control of drainage alternates between the player and the NIM, and neither can skip turns.

You can lower the water level exactly one, three, or four floors at a time.

Whoever gets the level to exactly 0 on their turn wins this dangerous duel.

Note that neither can bring the water down below 0. If the water level is 2, the only remedy is to lower the water level by one floor.

You know that NIM has already calculated all possible outcomes of the contest and will play in a way that maximizes your chances of success.

After you.

How can we shut off artificial intelligence and survive?

Pause here if you want to figure it out yourself.

Answer: 3 Answer: 2 Answer: 1 You cannot leave everything to chance. NIM takes advantage of all the advantages it offers.

And you have to react to every possible move.

The trick here is to start where you want to end and work backwards.

You want to be the one who lowers the water level to 0. That is, the water level should be 1, 3 or 4 when control switches to you.

If the water level is 2, the only option is to lower the water level by one floor. This gives NIM the win.

Color-coding the water levels shows a simple principle at work. There are "losing" levels like 2 where the person who started the turn loses whatever they do.

Then there is the victory level, where the person who started the turn either wins or leaves the opponent with a losing level.

So not just 1, 3 and 4 win levels, but 5 and 6 win levels as well. Because from there you can send your opponent to 2.

what about 7?

Starting at 7, every possible move sends the opponent to winning level, which again becomes the losing level.

You can continue the lab in this way.

Starting your turn 1, 3, or 4 levels above your losing level will result in a winning level.

Otherwise, you are doomed to lose.

You can continue this way up to level 25.

However, as a shortcut, you might notice that levels 8-11 are the same color as 1-4.

Level 12 is the same color as level 5, 13 matches 6, 14 matches 7, and so on, because the color of the level is determined by the stories in levels 1, 3, and 4 below it. In particular, the losing level is always a multiple of 7 and 2 more than a multiple of 7.

From your original starting level of 25, you must ensure that your opponent starts at the losing level each turn. The game is over if NIM starts at a winning level even once.

So at Turn 1 the only option is to lower the water level by 4 floors.

No matter what the AI ​​does, you can keep giving it losing levels until it hits 0 and triggers a manual override.

And that's how the crisis is averted.

Well, let's get back to stress-free surfing.

Humans are everywhere.

There are settlements on every continent and we can be found in the most isolated places of the planet in jungles, oceans and tundra.

Our impact is so severe that most scientists believe that humans have left a permanent mark on the Earth's geological record.

So what would happen if all of a sudden there were no humans on Earth?

Some of our work backfires quickly because no one maintains it.

Hours after our disappearance, refineries broke down and month-long fires erupted at plants in western India, the southern United States, South Korea and elsewhere.

Subway systems like those in London, Moscow and New York City have abandoned hundreds of sump pumps, flooding tunnels in just three days.

By the end of the first week, most of the emergency generators have shut down and the fires extinguished, plunging the Earth into darkness for the first time in centuries.

After the first devastating month, the changes will appear more slowly.

In less than 20 years, the sidewalks were torn apart by weeds and tree roots.

Around this time, flooded tunnels eroded the streets above and flowed into the urban river.

In temperate climates, seasonal cycles cause these channels to freeze and thaw, cracking pavements and concrete foundations.

Leaking pipes would cause a similar reaction in concrete buildings, causing most skyscrapers to buckle and collapse within the 200 winter.

In a city built in the delta like Houston, these buildings eventually wash away completely, filling nearby tributaries with crushed concrete.

Rural and suburban areas decline more slowly, but the way it progresses is hardly surprising.

Leaks, mold, bugs, rodent infestations, all the homeowner's constant enemies, are now out of the question.

Within 75 years, the beams of most of the houses rotted and bowed, and the resulting crumbling mountains became home to local rodents and lizards.

But in this post-human world, "local" takes on a new meaning.

Our cities are flooded with imported plants, which now grow wild in their homeland.

Water hyacinths cover Shanghai's waterways with a thick green carpet.

A poisonous giant ragweed grows on the banks of the Thames in London.

A Chinese ailanthus tree cuts through the streets of New York City.

And when sunken skyscrapers add crumbling concrete to the new forest floor, soil acidity can plummet, allowing new plants to thrive.

This post-human biodiversity extends into the animal kingdom.

Animals use our remaining bridges to advance into new habitats, following the uncontrolled spread of native and exotic plants.

In general, our infrastructure saves some animals and ruins others.

Cockroaches continue to thrive in their native tropical habitat, but without heating systems, urban cockroaches can freeze to death in just two winters.

And, with the exception of a handful of resourceful pigs, dogs and feral cats, most farm animals cannot live without us.

Conversely, the reduction of light pollution saves more than one billion birds each year whose migration was hindered by the lighting of telecommunications towers and flashing high-voltage power lines.

And mosquitoes multiply endlessly in one of their favorite artificial nurseries, rubber tires, which can last for nearly a thousand years.

Earth's climate slowly recovers from thousands of years of human influence as flora and fauna thrive.

The plant cycle will remove the last traces of lead left by the industrial revolution from the earth's soils within 35,000 years, and it could take up to 65,000 years thereafter for CO2 to return to pre-human levels.

But millions of years later, humanity's legacy lives on.

Carved into unyielding granite, America's Mount Rushmore has survived 7.2 million years.

The chemical composition of our bronze sculptures makes them recognizable to over 10 million people.

The ruins of cities built on flood plains have been buried deep underground and preserved as a kind of techno-fossil.

Eventually these traces will also be erased from the Earth's surface.

Humanity has not always been here, nor will it be here forever.

But by examining the world without us, we may be able to learn more about the world we live in now.

At the annual Athens Theater Festival in 426 B.C., the comedy The Babylonians, written by a young poet named Aristophanes, won first prize.

However, the play, depicting Athenian conduct during the Peloponnesian War, was so controversial that a politician named Creon subsequently brought Aristophanes to court for "defaming the people of Athens in the presence of foreigners."

Aristophanes fought back two years later with a play called The Knights.

In it he openly mocks Creon, and ends with Creon's character working as a lowly sausage vendor outside the city gates.

This satire style is the result of the liberal democracy of Athens in the 5th century and is now called "old comedy".

The world's oldest surviving comedy, Aristophanes' plays are packed with parodies, songs, sexual jokes and surreal fantasies.

They frequently use wild situations, such as the protagonist flying to heaven riding a dung beetle, or throwing a net into the house to trap the landlord's father in the house, in order to subvert the viewer's expectations.

And they've shaped the way comedy is written and staged ever since.

The word "comedy" is derived from the ancient Greek words "komos" (to rejoice) and "oide" (to sing), and differs in many ways from its related art form, tragedy.

Where ancient Athenian tragedies dealt with the downfall of noble powers, comedies usually ended happily.

And while tragedies most often borrowed stories from legends, comedies dealt with current affairs.

Aristophanes' comedy glorified the common people and attacked those in power.

His targets were arrogant politicians, warmongering generals, self-respecting intellectuals, the very people who could sit in the front row of the theater and watch their reactions.

As a result, they came to be called "Komoid Menoi" ("those who are made fun of in comedy").

Aristophanes' vicious and often despicable ridicule held these leaders accountable and tested their devotion to the city.

In particular, the issue that affected much of Aristophanes' work was the Peloponnesian War between Athens and Sparta.

In Peace, written in 421 BC, a middle-aged Athenian frees her from a cave, the personification of peace, who had been banished by profiteering politicians.

And after Athens was defeated at sea in 411 BC, Aristophanes wrote Lysistrata.

In the play, Athenian women, fed up with the war, go on a sex strike until their husbands reconcile.

Other plays use similarly brilliant scenarios to skewer topical situations, such as The Clouds, in which Aristophanes ridiculed fashionable philosophical thinking.

The protagonist Strepsiades enrolls in Socrates' new school of philosophy, where he learns how to prove that mistakes are right and debts are not debts.

No matter how bizarre the play is, the hero always wins in the end.

Aristophanes also became a master of parabasis, a comedic technique in which actors speak directly to the audience, often praising the playwright or making topical comments or jokes.

For example, in "The Birds," the choir plays the role of various birds and threatens the Athenian jury that if their play does not win the first prize, they will poop on the bird as they walk the streets.

Perhaps the judges didn't get the joke, the play came second.

By exploring new ideas and encouraging self-criticism in Athenian society, Aristophanes not only ridiculed his compatriots, but also shaped the nature of comedy itself.

Praised by some scholars as the father of comedy, his traces can be seen in every form of comedy, from slapstick to two-act plays, mimicry and political satire.

Through the celebration of free speech and the celebration of mediocre heroism, his plays made audiences laugh and think.

And his reply to Creon in 425 BC still sticks in my mind. "I'm a comedian, so I speak about justice, no matter how hard it sounds to your ears."

So what I want to talk about is what was so dear to Khan's mind: how to discover what's really special about the project.

How do you discover project uniqueness and human uniqueness?

Because it seems to me that finding this uniqueness has to do with coping with the overall forces of globalization. That certain things are central to finding the uniqueness of the place and the uniqueness of the program within the building.

So let me take you to Wichita, Kansas. So a few years ago I was commissioned to build a science museum on a riverside site downtown.

And I thought the secret of this site was to make the river building part of the river.

Unfortunately, however, the site was separated from the river by McLean Boulevard, so I suggested, "Let's reroute McLean Boulevard," and Friends of McLean Boulevard was instantly born.

(Laughter) And it took me six months to reroute.

The first image I showed the building commission was the Jantar Mantar observatory in Jaipur. Because I talked about what makes a building a building of science.

And this structure - complex and rich, yet perfectly rational, a tool - seemed to me to have something to do with science. And somehow the building for science is different and unique and should speak for itself.

So my first sketch after leaving was, 'Let's cut a waterway, make an island, and make island buildings.'

So I came back excited and they looked at me with a bit of disappointment and said, 'Island?

This used to be Ackermann Island, but during the Great Depression we filled the strait to create jobs. ”

(Laughter) So the process began, and they said, "You can't put everything on the island. Some of it has to be on the mainland because you don't want to turn your back on the community."

The result was a design in which the gallery forms an island-like structure in which you can walk in and walk on the roof.

And then there were all kinds of exciting features. You can enter through the building on the land side or through the gallery into the playground in the landscape.

If you have the money, you can walk over the bridge to the roof, browse the exhibits, and be completely tempted to come back and pay the $5 admission fee.

(Laughter) And the client was happy. We were over budget by $4 million, so in a way we were happy, but essentially we were happy.

But even so, I was worried, I felt capricious and worried.

It was complicated, but there was something quirky about that complexity.

It was, how to say, a compositional complexity, and I felt that if what I was talking about, the building for science, was to be realized, there had to be some kind of generative idea, some kind of generative geometry.

And this led to the idea of ​​having a toroidal generative geometry with landside buildings centered deep in the ground and toroidal buildings centered in the sky on the island.

For those who don't know, a toroid is the surface of a donut, or the surface of a bagel.

And from this idea begins to derive a great many kinds of variations of different plans and possibilities, after which the plan itself evolves in relation to the exhibits, and we find the intersection of the plan and the toroidal geometry.

And finally the building, this is the model.

And when they complained about the budget, I said: "If you pay for it and get it twice, it's worth doing this island. That's remorse."

Here is the building when it first opened, with the waterway overlooking downtown, as seen from downtown.

A bike path runs right next to the building, so river travelers will be drawn to the building by the exhibits.

The toroidal shape made for a very efficient building. All beams in this building have the same radius and are all laminated timber.

Every wall, every concrete wall resists stress and supports the building.

Every part of the building works.

This is the gallery with light coming in from the skylight, at night, and on the opening day.

Dating back to 1976.

(Applause.) In 1976, I was commissioned to design the Children's Memorial Museum at the Holocaust Museum in Yad Vashem, Jerusalem (where the campus is located).

I was commissioned to build and was given all the crafts such as clothes and paintings.

And I felt very embarrassed.

I spent months working on it, but I just couldn't deal with it because when I saw people coming out of a history museum, completely saturated with information, and yet another museum crammed with information, it felt utterly indigestible.

So I made a counter-proposal. "I will not build a building," he said. There was a cave on the site. We make a tunnel in the hill and go down through the rock to the basement.

There is an antechamber with photographs of deceased children, and from there you exit into a large space.

A single candle flickers in the center. Due to the placement of the reflective glass, it reflects infinitely in all directions.

As you walk through the space, voices read out the children's names, ages, and where they were born.

This voice is not repeated for half a year.

And you descend into the light, into the north, into life.

Well, they said, "People won't understand. They'll think it's disco. You can't do that."

And they shelved the project. And it sat there for ten years, until one day Abe Spiegel from Los Angeles, who had lost his three-year-old son in Auschwitz, came in, saw the model, cut the check, and ten years later it was built.

So, many years later, in 1998, when I was visiting Jerusalem every month, I got a call from the Ministry of Foreign Affairs and said, 'The Chief Minister of Punjab is here.

He is on a state visit. We took him on a visit to Yad Vashem and also to the Children's Memorial. he was very impressed.

He demands to see the architect. Could you come to Tel Aviv and meet him? ”

And when I went down, Prime Minister Badal said to me, "Like you Jews, we Sikhs have suffered greatly.

I am very impressed with what I saw today.

We will build a national museum to tell the story of our nation. we're about to embark on it.

I would love for you to design it. ”

So it's one of those things that can't be taken too seriously.

But two weeks later, I was in Anandpur Sahib, this small town on the outskirts of Chandigarh, the capital of Punjab. The temple and next to it was also the fortress where the last Sikh guru, Guru Govind, died while writing the Khalsa, the sacred text.

And when I went to work, they took me somewhere 9 kilometers away from towns and temples and said, "That's the place we chose."

And I said, 'This makes no sense at all.

Pilgrims come here in the hundreds of thousands, but they are not going to get there in trucks and buses.

Head back to town and walk to the scene. ”

And I advised them to do it on that hill and this hill, and go over the bridge to the city.

And things were a little easier in India, so within a week we bought the site and started working.

(Laughter.) And my suggestion was to split the museum in two, with the permanent exhibition at one end and the auditorium, library, and changing exhibition at the other, flooding the valley with a series of water gardens and tying everything together to the fortress and downtown.

And the structure rises from the sand cliffs and is built of concrete and sandstone. The roof is stainless steel, facing south and reflecting light towards the temple itself, with pedestrians crossing from one side to the other.

And coming from the north, just like coming from the Himalayas, all the masonry growing out of the sandy cliffs reminds us of the fortress tradition.

Then I went on vacation for four months, and a breakthrough happened.

And when I came back, to my surprise, the small model I had left had been made 10 times bigger to be displayed on site...with a bridge!

(Laughter) It's in the working drawings!

And half a million people gathered for the celebration. You can check them out on the site itself as the foundations are starting.

I have been renamed Safdi Singh. And there is construction going on. It employs 1,800 workers and is expected to be completed within two years.

Go back to Yad Vashem three years ago. After all this episode began, Yad Vashem decided to completely rebuild the History Museum. Because now there is a Holocaust Museum in Washington, and that museum is much more comprehensive in terms of information.

And Yad Vashem currently needs to serve 3 million visitors a year.

They said, "Let's rebuild the museum."

But of course Sikhs may give you a platter job. The Jews make it difficult for international competition, first stage, second stage, third stage.

(Laughter.) And again, I was kind of at odds with the idea of ​​a building as big as the Washington Building (50,000 square feet) on top of that fragile hill, and we would walk into a gallery (a room with a door or something familiar) to tell the story of the Holocaust.

And I suggested carving out the mountain. That was my first sketch.

Simply cut the entire museum into the mountain, enter on one side of the mountain, exit on the other side of the mountain, and let light into the room through the mountain.

You can see that model here. Reception building and underground parking lot.

Cross the bridge and enter this 60-foot-tall triangular room. This room cuts straight into the hill and cuts through to the north.

And all the galleries are underground, with light openings visible.

And at night, a single ray of light pierces the mountain. That's the skylight at the top of that triangle.

And as you go through the galleries etc, all the galleries are down one floor.

And then there are the rooms carved into the rock - concrete walls, stone, preferably natural rock - with light shafts.

This is actually a Spanish quarry, and that's where the inspiration for what the gallery space will be.

Then to the north it opens. It pops out of the mountain again, revealing the lights and the view of the city and the hills of Jerusalem.

I'd like to wrap up a project I've been working on for two months.

It is the headquarters of the United States Institute of Peace in Washington.

The chosen location is opposite the Lincoln Memorial. You can see it directly at the mall. This is the last building on the mall and gives access to the Roosevelt Bridge coming from Virginia.

It's also a competition, and I'm just getting started.

But one person recognized a kind of uniqueness of this site.

If it were anywhere in Washington, it would be an office building, a conference center, a place for peace talks, etc. This building is all of that, but thanks to the choice to put it in the mall, by the Lincoln Memorial, it has become a symbol of peace on the mall.

And it was hot enough to deal with.

The first sketch recognizes that this building is a lot of space. Spaces where research takes place, conference centers and public buildings to become museums dedicated to peacebuilding. And these are the drawings we submitted to the competition, showing the space radiating outward from the entrance.

Like the series of structures in the mall, this structure is very transparent, inviting, and peeking inside.

And when you're inside it again, you'll look out over the city in all directions.

And what I felt about the building, in Kundera's words, is that it has something to do with the luminosity of existence. It has to do with whiteness, it has to do with certain dynamic qualities, it has to do with optimism.

And this is the place. It's kind of evolving.

A study of roof structures. New materials are probably needed, such as how to make the roof white, translucent, glowy, less whimsical.

And here I am researching in three dimensions how to give some kind of order and structure. Just because you stopped designing a particular process doesn't mean you feel like you can change it.

And so it will be.

I would like to finish by saying one last thing...

(Applause.) I would like to conclude by relating everything I have said so far to the word "beauty."

And while I know it's not a fashionable term these days, and certainly not in architecture school discourse, it all seems to me to be a quest for beauty in one way or another.

The beauty of the deepest fit.

One of my favorite quotes is from morphologist Theodore Cooke in 1917. "Beauty contains humanity.

We call natural objects beautiful because their form expresses fitness, the full realization of function. ”

Well, I can say that the objective was perfectly achieved.

Nevertheless, beauty as a kind of fit. It is something that tells us that all forces related to our natural environment, and our human environment, have been fulfilled.

Twenty years ago, at a conference Richard and I attended together, I wrote a poem. It still seems to be stuck in my mind.

"He who seeks truth will find beauty; he who seeks beauty will find emptiness.

Those who seek order will find satisfaction.

Satisfaction seekers will be disappointed.

Those who consider themselves to be servants of their brothers will find joy in self-expression. Those who seek self-expression will fall into the pit of arrogance.

Arrogance is incompatible with nature.

Through nature, cosmic nature, and human nature, we seek truth. If we seek truth, we will find beauty. ”

thank you very much. (applause)

I am an identical twin and grew up with an incredibly loving sibling.

Well, part of being a twin is being an expert at spotting favors.

I wondered if his cookie was any bigger than mine.

(Laughter) As a psychologist, I started noticing another kind of favoritism. It's how much we value our bodies over our minds.

I spent nine years in college getting my PhD in psychology, and I can't tell you how many people look at my business card and say, "Oh, I'm a psychologist. I mean, I'm not a real doctor," as if that's what my business card says.

[Dr. Guy Winch, just a psychologist (not a real doctor)] (laughter) This tendency of us to favor the body over the mind is everywhere.

I recently went to a friend's house and saw my 5 year old son getting ready for bed.

He was standing in a chair by the sink brushing his teeth, but when he fell, he slipped on the chair and scraped his leg.

He cried for a minute, then stood up, sat in a chair, and reached for a box of Band-Aids to stick to the wound.

Now, this kid could barely tie his shoelaces, but he knew that the wound had to be covered to keep it from getting infected, and that he had to brush his teeth twice a day to take care of his teeth.

We all know how to stay physically fit and how to practice good dental hygiene, right?

We've known it since we were five years old.

But what do we know about maintaining mental health?

Well, nothing.

What do you teach your children about mental health?

none.

Why do we spend more time taking care of our teeth than taking care of our heads?

Why is physical health so much more important to us than mental health?

More often than not, we suffer emotional wounds, such as failure, rejection, and loneliness, rather than physical wounds.

It can also get worse if ignored, and can have a dramatic impact on our lives.

But even though there are scientifically proven techniques that can be used to treat this kind of mental injury, we are not doing it.

It doesn't occur to us that we should.

"Oh, are you depressed? Shake it off. It's all in your head."

Can you imagine saying to someone with a broken leg, "Oh, walk away. It's all in your leg."

(Laughter.) Now is the time to bridge the gap between our physical health and our mental health.

Now is the time to make them more equal, more like twins.

Speaking of which, my brother is also a psychologist.

He's not even a real doctor.

(laughs) But we didn't study together.

In fact, the hardest thing in my life so far was moving across the Atlantic to New York City for a PhD in psychology.

That was when we were separated for the first time in our lives, and the separation was cruel to both of us.

But while he remained among family and friends, I was alone in my new country.

We were very lonely, but at that time international calls were very expensive and we could only afford to talk for 5 minutes a week.

As our birthdays approached, it was the first time we couldn't spend time together.

We decided to splurge and talk for 10 minutes that week.

(Laughter) I've been walking around my room all morning waiting for a call from him...

Given the time difference, I thought, "Okay, he's out with his friends, so he'll call you later."

There were no mobile phones in those days.

But he didn't.

And after being apart for over 10 months, I started to realize that he no longer missed me like I missed him.

I expected him to call me in the morning, but it was one of the saddest and longest nights of my life.

I woke up the next morning.

When I looked down at my phone, I realized that I had unplugged it during my walk the previous day.

I stumbled out of bed, put the phone back on, and a second later it rang.

And it was my brother and he was mad.

(Laughter) It was also the saddest and longest night of his life.

Well, I tried to explain what happened, but he said, "I don't know.

If you knew I wasn't calling, why didn't you pick up the phone and call me back? ”

he was right

I didn't have an answer then.

But what I'm feeling today is simple. It's lonely.

Loneliness creates deep psychological wounds that distort our perceptions and confuse our thinking.

It makes us believe that those around us are far more indifferent than they really are.

Reaching out becomes really scary. Because why should I be rejected or hurt when my heart is already unbearably hurt?

At that time, I was really lonely, but I was surrounded by people all day long, so it didn't bother me at all.

But loneliness is defined purely subjectively.

It depends on whether you feel emotionally or socially disconnected from the people around you.

And I did.

There's a lot of research on loneliness, and it's all frightening.

Loneliness doesn't just make you miserable. it will kill you

no kidding.

Chronic loneliness increases the chance of premature death by 14%.

Loneliness causes high blood pressure, high cholesterol.

It also suppresses the functioning of the immune system, making it more susceptible to all kinds of illnesses and diseases.

In fact, scientists have concluded that, taken together, chronic loneliness poses as significant a risk to long-term health and lifespan as smoking.

Now, cigarette packs come with a warning that says, "This can cost you your life."

But loneliness is not.

That is why it is so important that we prioritize our mental health and practice mental hygiene.

Because if you don't know you're hurt, you can't heal your heart.

Loneliness is not the only psychological wound that distorts and misleads our perceptions.

The same goes for failure.

I once visited a daycare center where I saw three toddlers playing with the same plastic toy.

A cute dog comes out when you slide the red button.

One girl pulled and pushed a purple button, but just sat and stared at the box with her lower lip quivering.

The little boy next to her saw this, then turned to his box and started crying without touching it.

Meanwhile, another girl tried everything she could think of until she slid the red button. Then a cute dog jumped out and she let out a roar of delight.

So three toddlers with the same plastic toy, but with very different reactions to failure.

The first two toddlers were perfectly able to slide the red button.

The only thing that prevented them from succeeding was that their minds led them to believe they could not.

Now, adults are tricked like this all the time, too.

In fact, we all have default emotions and beliefs that trigger us whenever we encounter frustration or setbacks.

Do you know how your mind reacts to failure?

It has to be.

Because if your mind tries to convince you that you can't do something, and you believe it, like those two toddlers, you'll start to feel helpless, and you'll stop trying very quickly or not at all.

And you will be even more convinced that you cannot succeed.

You know, that's why so many people are functioning below their true potential.

Because somewhere along the way, a single failure can convince you that you won't succeed, and you'll believe it.

Once you are convinced of something, it is very difficult to change your mind.

I learned that lesson the hard way as a teenager with my brother.

We were driving with friends down a dark road at night when a police car stopped us.

There was a robbery in the area and they were looking for a suspect.

A police officer approached the car and shone a flashlight on the driver, then my brother in the front seat, and then me.

Then he opened his eyes wide and said, "Where have I seen your face?"

(Laughter.) And I said, "Front seat."

(Laughter.) But it didn't make any sense to him, so now he thought I was on drugs.

(Laughter.) So he dragged me out of the car, searched, and marched me to a police car. And I could only show him that I had twins in the front seat if I confirmed I didn't have a police record.

But even as we drove away, I could tell by the look on his face that he was sure I was trying to escape something.

(Laughter) Once our minds are convinced, they are hard to change.

So it may be natural to feel demoralized and defeated after a failure.

But don't let yourself assume you can't succeed.

You have to fight the feeling of helplessness.

You have to control the situation.

And we need to break this vicious cycle before it starts.

[Stop Emotions Bleeding] Our hearts and emotions are not the trusted friends we thought they were.

They are more like moody friends who can be perfectly supportive one moment and very uncomfortable the next.

I once worked with this woman who after 20 years of marriage and a very ugly divorce was finally ready for a first date.

She met the man online. He seemed kind and successful. And most importantly, he seemed really into her.

So she got so excited that she bought a new dress and had a drink in a fancy New York bar.

After 10 minutes into the date, the man stood up, said, "I'm not interested," and left.

Being rejected is very painful.

The woman was incapacitated.

A friend said: "So what do you expect?

You have big hips, you say nothing funny.

How could such a handsome and successful man date a loser like you? ”

It's shocking that a friend can be so cruel.

But it would be less shocking to say that it wasn't your friend who said it.

That's what women told themselves.

And that's what we all do, especially after being rejected.

We all start thinking about all our flaws and all our flaws, things we wish we were and things we weren't.

We call ourselves names.

It may not be that hard, but we all do.

And interestingly, our self-esteem has already been damaged.

Why would we try to hurt it even more?

We do not intentionally aggravate physical injuries.

You don't get a cut on your arm and decide, "Oh, okay, I'm going to pick up a knife and see how deep I can cut it."

But we always do it with emotional scars.

why? Because of poor mental health.

Because we don't prioritize our mental health.

Dozens of studies have shown that low self-esteem makes us more vulnerable to stress and anxiety. Failures and rejections hurt more and take longer to recover from.

So the first thing you should do when you get rejected is to get your self-respect back, not join a fight club and beat your self-respect outright.

When you're in emotional pain, treat yourself with the same compassion you'd expect from a really good friend.

[Protect Self-Esteem] We must find our unhealthy psychological habits and change them.

And one of the most unhealthy and most common is called rumination.

Rumination means to chew.

That's when your boss yells at you, when your professor makes fun of you in class, or when you have a big fight with a friend that keeps repeating the scene in your head for days or even weeks.

Now, ruminating on upsetting events like this can easily become a habit and very expensive. Because by spending so much time focusing on upsetting negative thoughts, you're actually putting yourself at significant risk of developing clinical depression, alcoholism, eating disorders, and even cardiovascular disease.

The problem is that the urge to ruminate can feel so strong and so important that it's a hard habit to break.

This is true because a little over a year ago I had that habit myself.

My twin brother was diagnosed with stage 3 non-Hodgkin's lymphoma.

His cancer was very aggressive.

His body had visible tumors.

And he had to start grueling chemotherapy.

And I couldn't help but think what he was going through.

I couldn't help but think how much he suffered, even though he never complained.

He had an incredibly positive attitude.

His mental health was amazing.

Physically I was healthy, but mentally I was in shambles.

But I knew what to do.

Studies show that even two minutes of distraction is enough to stop the urge to ruminate in the moment.

So every time I got worried, upset, or had a negative thought, I forced myself to focus on something else until the urge dissipated.

And within a week, my whole outlook changed, I became more positive and more hopeful.

[Fighting Negative Thoughts] Nine weeks after starting chemo, my brother had a CAT scan and I was by his side when the results came.

All tumors had disappeared.

He still has three more rounds of chemo left and we were confident he would recover.

This photo was taken two weeks ago.

By taking action when you're alone, changing your reaction to failure, protecting your self-esteem, and combating negative thoughts, you can not only heal your wounds, but build your emotional resilience and grow.

100 years ago, people started practicing personal hygiene, and in just a few decades life expectancy increased by more than 50%.

I believe that if we all started practicing mental hygiene, our quality of life could improve dramatically as well.

Can you imagine what the world would be like if everyone was mentally healthy?

What if loneliness and depression decreased?

What if people knew how to overcome failure?

What if they feel better about themselves and more empowered?

What if they were happier and more fulfilled?

I can do it because that's the world I want to live in.

And that's the world my brother wants to live in too.

And that's the world we can all live in, just by getting informed and changing a few simple habits.

thank you very much.

(applause)

How can we explain the unexplainable?

This question has inspired numerous myths, religious practices, and scientific studies.

But Zen monks practicing throughout China from the 9th to the 13th century asked a different question. Why do we need an explanation?

For these monks, blindly seeking answers was a vice to overcome, and learning to accept the mysteries of existence was the true path to enlightenment.

But it can be difficult to fight the urge to explain the unexplainable.

So, to help them practice living with these mysteries, the meditative monks used a collection of some 1,700 bewildering and obscure philosophical thought experiments called koans.

The name originally means "public document" or "incident" in Chinese.

However, unlike the actual trial, the koans were intentionally made incomprehensible.

They were amazing, surreal, and often contradictory.

Ostensibly, it contained maxims about the norms of Zen monks, such as living without physical or spiritual attachment, avoiding dualistic thinking, and realizing one's true "Buddha nature."

But framing those lessons as illogical anecdotes made them a useful test for practicing monks to learn how to live with ambiguity and paradox.

Resolving these confusing "incidents" allowed the meditating monk to internalize and practice the teachings of Buddhism.

Hopefully, they will let go of their search for the only true answer and make a spiritual breakthrough.

They are deliberately unexplainable, and trying to decipher these stories on our own would be misguided.

But like the monks before us, we can think about them together, and investigate how resistant they are to simple explanations.

Consider this koan that demonstrates the practice of detachment.

Two monks, Tanzan and Yido, are traveling together on a muddy road.

Ahead of them we see a charming traveler who cannot cross the muddy road.

Tanzan politely offered his help, carried the traveler across the street, and left her without a word.

Eid was shocked.

According to monastic law, monks were not allowed to approach women, let alone touch beautiful strangers.

After walking for miles, Ekido could no longer control himself.

"How can you carry that woman?" Tanzan smiled. are you still holding her? ” Like all koans, this story has many interpretations.

However, according to one popular theory, the Ekid broke the monastery's laws by mentally "clinging" to women, even though they never physically carried travelers.

This kind of conflict, examining the gray area between the letter and the spirit of the law, was common in koans.

In addition to exploring ambiguity, koan often ridiculed characters who claimed to have a complete understanding of the world around them.

For example, we see three monks discussing a temple flag fluttering in the wind.

The first monk calls the flag a moving flag, while the second claims that he sees the wind blowing rather than the flag moving.

They argued back and forth until finally a third monk intervened and said, "This is not the flag moving or the wind blowing, but rather the movement of your heart!" One interpretation of this koan draws on what is believed to be the wisdom of the arguing monks. The first argues for the importance of the visible world, the second favors deeper knowledge that can be inferred from that world.

However, each monk's fixation on his own "answer" blinds the other monks' insight and goes against the essential ideal of Buddhism to abolish dualistic thinking.

The third monk makes it clear that their conflict is perceptual. Both arguing monks do not see the big picture.

Of course, all these interpretations are only suggestions of how to wrestle with these koans.

Neither the wisdom of our former monks nor the wise characters of these stories can solve the problem for you.

Because the purpose of koans is not to arrive at a simple solution.

The very act of wrestling with these paradoxical puzzles challenges our desire for solutions and our understanding of understanding itself.

In the mid-90s, CDC and Kaiser Permanente found exposures that dramatically increased the risk of 7 of the 10 leading causes of death in the United States.

At high doses, it affects brain development, immune and hormonal systems, and even how DNA is read and transcribed.

People exposed to very high doses have a threefold lifetime risk of heart disease and lung cancer, a 20-year difference in life expectancy.

Despite this, today's doctors are not trained in routine examinations and treatments.

Now, the exposure I'm talking about isn't from pesticides or packaging chemicals.

It's childhood trauma.

have understood. What kind of trauma am I talking about here?

I'm not talking about failing a test or losing a basketball game.

I'm talking about threats so severe or pervasive that they literally get under our skin and alter our physiology: abuse, neglect, or growing up with parents who struggle with mental illness or drug addiction.

Now, for a long time, I've viewed these things as social issues (referring to social services) or as mental health issues (referring to mental health services), the way I was trained to approach these issues.

And then something happened that made me rethink my whole approach.

After my stay, I wanted to go to a place where I felt really needed, where I could make a difference.

So I went to work at California Pacific Medical Center, one of the best private hospitals in Northern California, and together we opened a clinic in Bayview Hunters Point, one of the poorest and most underserved neighborhoods in San Francisco.

Well, until that point, there was only one pediatrician who could see over 10,000 children across Bayview. So we were able to shingle and provide the highest quality care regardless of ability to pay.

It was very cool. We targeted typical health disparities: access to care, immunization rates, and asthma hospitalization rates, and we achieved them all.

We were so proud of ourselves.

But then I started noticing disturbing trends.

Many children have been referred to me with ADHD (Attention Deficit Hyperactivity Disorder), and in fact, after a thorough interview and physical examination, I have found that ADHD cannot be diagnosed in most patients.

Most of the children I see have experienced trauma so severe that it felt like something else was going on.

Somehow I missed something important.

Well, before I became a resident, I had a master's degree in public health. One of the things public health school teaches is that if you're a doctor and you see 100 children all drinking from the same well, and 98 of them have diarrhea, you can write a prescription for each dose of antibiotics, or you can walk up and say, "What's in this well?"

So I started reading everything I could get my hands on about how exposure to adversity affects a child's brain and body development.

And then one day a colleague came into my office and said, "Dr. Burke, have you seen this?"

In his hand was a copy of a research study called The Childhood Experiences of Adversity Survey.

That day changed my clinical practice and ultimately my career.

Research into childhood experiences of adversity is something everyone needs to know.

The study was conducted by Kaiser's Dr. Vince Ferritti and CDC's Dr. Bob Anda, who collaborated to ask 17,500 adults about their history of exposure to what they call "adverse childhood experiences" (ACEs).

These include physical, mental, or sexual abuse. Physical or emotional neglect. Parental mental illness, drug addiction, imprisonment. Separation or divorce of parents. Or domestic violence.

For every yes, points are added to your ACE score.

And what they did was correlate these ACE scores with health outcomes.

What they discovered was amazing.

There are two. First, ACE is very common.

67% of the population had at least 1 ACE and 12.6% (1 in 8) had 4 or more ACEs.

The second thing they found was that there was a dose-response relationship between ACE and health outcomes: the higher the ACE score, the worse the health outcome.

People with an ACE score of 4 or higher had a relative risk of chronic obstructive pulmonary disease that was 2.5 times greater than those with an ACE score of 0.

In the case of hepatitis, it was two and a half times.

For depression it was 4.5 times.

About suicidal tendencies was 12 times.

People with an ACE score of 7 or higher had a three-fold higher lifetime risk of lung cancer and a 3.5-fold higher risk of ischemic heart disease, the number one killer in the United States.

Well, of course this makes sense.

After looking at this data, some people said:

You are more likely to have had a rough childhood and do things that hurt your health, such as drinking and smoking.

This is not science. This is just bad behavior. ”

It turns out that this is exactly where science comes into play.

We now understand better than ever how childhood exposure to adversity affects a child's developing brain and body.

It affects areas such as the nucleus accumbens, the pleasure and reward center of the brain associated with substance addiction.

It inhibits the prefrontal cortex, which is necessary for impulse control and executive function, areas important for learning.

And MRI scans show measurable differences in the fear response center of the brain, the amygdala.

So it's important to know that there are real neurological reasons why people exposed to a great deal of adversity are more likely to engage in high-risk behaviors.

But even if you don't engage in high-risk behaviors, you're still more likely to develop heart disease and cancer.

The reason for this has to do with the hypothalamic-pituitary-adrenal axis, the stress response system of the brain and body that governs our fight-or-flight response.

How does it work?

Now imagine you are walking in the woods and see a bear.

Immediately, the hypothalamus signals the pituitary gland, and the pituitary gland signals the adrenal glands, "Release stress hormones! Adrenaline! Cortisol!"

Then your heart starts pounding, your pupils dilate, your airways open, and you're ready to fight or run away from the bear.

If there are bears in the forest, that's great.

(Laughter) But the question is, what happens when the bear comes home every night, and the system kicks in over and over again, going from being adaptive, which is life-saving, to being non-adaptive, which is health-damaging.

Children are especially sensitive to this repetitive stress activation because their brains and bodies are still developing.

Mass adversity not only affects the structure and function of the brain, but also the development of the immune system, the development of the hormonal system, and even how DNA is read and transcribed.

So for me, this information has ruined my training so far. Because when we understand the mechanisms of disease, when we know not only which pathways are disturbed, but how they are disturbed, it is our job as physicians to apply this science to prevention and treatment.

that's what we do.

That's why we established the Youth Wellness Center in San Francisco to prevent, screen for, and heal the effects of ACE and harmful stress.

We started by having all of our children tested regularly with routine health checks. Because I know that my patients with an ACE score of 4 are 2.5 times more likely to develop hepatitis or COPD, 4.5 times more likely to have depression, and 12 times more likely to attempt suicide than my patients with zero ACE.

I know it when she's in my doctor's office.

For patients who test positive, we have a multidisciplinary treatment team committed to reducing the amount of adversity and treating symptoms using best practices such as home visits, care coordination, mental health care, nutrition, holistic interventions, and medications when needed.

However, we are also educating parents about the effects of ACE and toxic stress, just like plugging outlets and lead poisoning, and customizing care for asthmatics and diabetics, recognizing that changes in the hormonal and immune systems may require more aggressive treatment.

Understanding this science also makes me want to scream from the rooftops. Because this isn't just an issue for the Bayview kids.

The moment others heard this, I thought this would be a race for the most effective clinical treatment protocol with regular screenings and a multidisciplinary treatment team.

yes. That didn't happen.

And it was a big lesson for me.

What I thought was simply best clinical practice, I now understand is exercise.

In the words of Dr. Robert Brock, former president of the American Academy of Pediatrics, "Childhood adversity is the greatest unaddressed public health threat facing our country today."

And for many, it's a terrifying prospect.

The scope and scale of the problem is so great that it feels overwhelming to think about how to deal with it.

But for me, there is actually hope. Because with the right framework, once we recognize that this is a public health crisis, we can use the right toolkit to come up with solutions.

From tobacco to lead poisoning to HIV/AIDS, the United States does have a considerable track record in addressing public health problems, but replicating that success with ACE and toxic stress will require determination and determination. Looking at our country's response so far, I wonder why we haven't taken this issue more seriously.

At first I thought this issue was being ignored because it didn't apply to us.

That's a problem for children in the area.

This is strange because the data don't back it up.

The original ACE study was conducted in a 70 percent Caucasian, 70 percent college-educated population.

But the more I talked to people, the more I realized that maybe I had the opposite idea.

If you were to ask how many people in this room grew up with a mentally ill family member, I'm sure a few would raise their hands.

And if you ask how many people have parents who may have drank too much, or who really believe that sparing sticks will ruin their children, I'm sure you'll get a few more hands.

Even in this room, I am beginning to believe that we are ignoring this issue because it is an issue that affects many of us, but it actually applies to us.

Maybe you don't want to see it, so it might be easier to see it in another zip code.

We would rather be sick.

Fortunately, advances in science and, frankly, economic realities are making that option less viable by the day.

Scientifically clear. Early adversity can have dramatic effects on health over a lifetime.

Today, we are beginning to understand how to stop the progression of early adversity to disease and premature death. And 30 years from now, a child with a high ACE score but unrecognized behavioral symptoms, untreated asthma, high blood pressure and early heart disease and cancer will be as out of the ordinary as the 6-month mortality rate from HIV/AIDS.

People will look at the situation and say, "What the hell happened there?"

This is treatable.

You can win this.

The most important thing we need today is the courage to face this issue and say that this is real and that this is a problem for all of us.

We believe we are that movement.

thank you.

(applause)

As an Arab female photographer, I have always found sufficient inspiration for my projects from personal experience.

A passion for knowledge that can break down barriers to a better life motivated my project 'I Read I Write'.

Inspired by my own experience of being initially barred from higher education, I decided to research and document the stories of other women whose lives have changed through education, and to uncover and question the barriers they face.

I have covered various topics related to women's education, keeping in mind the differences between Arab countries due to economic and social factors.

These problems include female illiteracy, which is very high in the region. education reform. A program for dropout students. and college student politics.

When I started this job, it wasn't always easy to convince women to join.

Some agreed only after explaining how their story would affect the lives of other women and how they would serve as role models for their communities.

Seeking a collaborative and reflective approach, I asked them to write their own words and ideas on prints of their images.

These images were shared in some classrooms and helped to inspire and motivate other women going through similar education and circumstances.

Aisha, a teacher from Yemen, wrote: "I sought education to become independent and not rely on men for everything."

One of my first subjects was Umm El-Saad from Egypt.

The first time we met she could barely write her name.

She was attending a nine-month literacy program run by a local NGO outside Cairo.

Months later, she joked, her husband threatened to drag her out of class after learning that her literate wife was tapping her cell phone text messages.

(laughs) Naughty Umm El Saad.

Of course, that is not why Umm El Saad joined the programme.

I saw her longing to be able to take control of the mundane, mundane things we take for granted, from counting money at the market to helping the kids with their homework.

Despite poverty and community attitudes that disrespect women's education, Umm Ersaad was eager to learn to read and write with her Egyptian classmates.

In Tunisia I met Asma, one of four female activists I interviewed.

This secular bioengineering student is very active on social media.

"I've always dreamed of discovering new germs," ​​she said of her homeland, which cherished what it called the Arab Spring.

After the revolution, we are making new revolutions every day. ”

Asma noted the rise of religious fundamentalism in the region, which also poses obstacles, especially for women.

Of all the women I met, the one who influenced me the most was Faiza from Yemen.

Faiza was forced to drop out of school when she was eight when she got married.

The marriage lasted for one year.

At 14, she became the third wife of a 60-year-old man, and by the time she was 18, she was a divorced mother of three.

Despite poverty in an ultra-conservative society, despite her social status as a divorcee, and despite her parents' objections to returning to school, Faiza knew that education was the only way to control her life.

She is 26 now.

She received a grant from a local NGO to fund her business studies at the university.

Her goal is to find a job, rent a place to live, and bring her children back.

Arab countries are undergoing great change and the challenges faced by women are immense.

Like the women I photograph, I have had to overcome many obstacles to become the photographer I am today. Along the way, many people have taught me what I can and cannot do.

Umm Elsaad, Asma, Faiza and many other women in the Arab world have shown that barriers to education can be overcome, and they know that education is the best way to a better future.

And here I would like to end with the words of Yasmine, one of the four activist women I interviewed in Tunisia.

"Doubt your beliefs," Yasmin said.

Be the person you want to be, not the person they want you to be.

Don't accept their slavery, your mother gave birth to you free. ”

thank you.

(applause)

I am interdisciplinary.

As a scientist, I was the commander of NASA's Mars simulation crew last year, and as an artist I create multicultural community art on Earth.

And these days, I'm actually combining both.

But first let me talk a little bit more about NASA's mission.

This is the HI-SEAS program.

HI-SEAS is a NASA-funded research program specifically designed to study the effects of long-term isolation of a small crew on the planetary surface analogue of Mauna Loa volcano in Hawaii.

I lived in this dome with a crew of 6 people for 4 months and of course it was a very interesting experience.

We did all kinds of research.

Our main research was actually food research, but apart from that food research, we also did all sorts of other research, such as developing new dietary systems for astronauts living in deep space.

As you can see here, we wore mock-up spacesuits and went on a spacewalk, but we had a lot of other things to do, like chores and surveys at the end of each day.

busy, busy work.

Now, as you can imagine, living in a small space with only a small group of people for an extended period of time can be very difficult.

There are all kinds of psychological challenges. How do you keep your team together in a situation like this? How to deal with the time distortion that begins to feel alive in these situations. sleep problems that arise. etc

But we learned a lot.

I learned a lot about how individual crew members really deal with situations like this. How do you keep your crew productive and happy? Giving them enough autonomy, for example, is a good way to do that. To be honest, I learned a lot about leadership because I was a crew commander.

So, while doing this mission, I started to think more deeply about our future in space.

We venture into space and begin to live in space.

I have no doubt about it.

It may take 50 years, it may take 500 years, but it will still happen.

So I came up with a new art project called Seeker.

And the Seeker Project is actually asking communities around the world to devise spacecraft prototypes that will reimagine human habitation and survival.

That's the core of the project.

One important thing here. This is not a dystopian project.

This is not a ``Oh my god, the world is going wrong, so we need somewhere else future so we have to get away'' kind of thing.

No no.

This project basically invites people to step back from their earthbound constraints and rethink our future.

It's really helpful and works very well, so that's a really important part of what we do.

Now, for this project, I'm taking a co-creative approach, which is a bit different than what you'd expect from many artists.

I basically take a basic idea down into a group or community and people start to gravitate towards it and together they shape and build the artwork.

It really looks a bit like termites.

We just work together, but even when architects visit our work, for example, sometimes they have a little trouble understanding how we build without a master plan.

We always come up with great large-scale sculptures that we can actually live in too.

The first versions were created in Belgium and Holland.

Built with a team of about 50 people.

This is the second iteration of the same project, but in a different country in Slovenia, and the new group seemed to do the architecture differently.

So they got rid of the architecture, kept the artwork base, and built a whole new, more biomorphic architecture on top of it.

And that's another important part of the project.

It is an evolving artwork, an evolving architecture.

This was the last version, just unveiled in Holland a few weeks ago, and used caravans as modules to build spacecraft.

We bought some used caravans, cut them open, and reassembled them into spaceships.

Now, when we think of spacecraft, we don't just approach it as a technical challenge.

We see it as a combination of three systems: ecology, humans and technology.

Therefore, projects always contain a strong environmental element.

Here you can actually see the aquaponic system surrounding the astronaut. Astronauts are in constant contact with some of the food they eat.

Now, what's very typical of this project is running its own quarantine missions within these art and design projects.

We actually lock ourselves up for days on end to test what we have built.

And this is, for example, a quarantine mission at the Museum of Modern Art in Ljubljana, Slovenia. Six artists and designers, including myself, were trapped inside the museum for four days.

And of course, it's clear that this is a very performant and very powerful experience for all of us.

Currently, he and TED Fellow Camilo Rodriguez-Bertrand are developing their next project in Chile's enchanting Atacama Desert.

First of all, it is really considered an analogue of Mars.

It really looks like Mars in certain places and is used by NASA to test equipment.

And we have a long history of connecting with the universe through star observation.

It is now home to the large telescope ALMA, which is being developed there.

But it is also the driest place on earth. That's what makes our project so interesting to build. Because suddenly sustainability is something we have to fully explore.

I am very curious what will happen as I have no other choice.

Now, what is unique about this particular version of the project is that we are very interested in how we can connect with locals, indigenous peoples.

These people have lived there for a very long time and are considered sustainability experts, so I am very interested in what we can learn from them and how we can input their knowledge into space exploration.

So we are redefining how we see our future in outer space by exploring integration, biology, technology and people. By using a co-creation approach. And by drawing on and exploring local traditions, we consider how we can learn from the past and integrate it into our deeper future.

thank you.

(applause)

It's a long walk.

I feel that I have to practice based on that.

First of all, what an honor and what an honor it is to be on this stage and to be able to have this conversation with all of you.

In fact, for the last three years, I've been talking to young men in college locker rooms about the importance of respecting women.

I was recently invited to a major university, and halfway through I was having a "debriefing session," and they told me what was going on in the locker room.

I was informed that there was a player who hit the baby's mother. There were four other players facing rape allegations against four other women. Filming one of the rapes of a girl unconscious and having two other players watching. Knowing all this, the day after the election one of the head coaches came over and started yelling, "This is America, so I can grab a woman's pussy."

Well, it's not America as I know it, and the truth is, sexual assault is only a symptom of the problem.

The problem is the way these young men are programmed to think, talk and treat women.

Before I get into the whole story, I think I should preface a few disclaimers.

Part 1: It's going to be a mess.

I just accepted it.

Someday my head may turn white, so please be gentle with me.

Add to that the brilliant people who have dedicated their lives to this conversation, and the organizations that have paved the way for it, and I'm just giving my small two cents.

Second: ProtectHer is just a starting point for us.

We know that 1 in 16 men are also sexually assaulted.

We know that the LGBT community is also subject to violence. These communities are definitely notable, but for the sake of this conversation, I'll be talking about "her." Because violence against women is like setting a house on fire, and I'm going to speak in heterosexual stereotypes.

Third: "ProtectHer" is not saying that women are weak, that we cannot protect ourselves, so we need men to come and protect us.

ProtectHer is calling on all of humanity to put women and girls first.

Now, what's interesting is that some schools end up calling me because they care about what's going on in the locker room.

But before I started working in the locker room, I worked in the field of women's empowerment for 10 years.

When I was 19, I founded a non-profit organization called I AM THAT GIRL.

We're basically a bad version of scout girls for college girls.

(Laughter) We have about a million girls now and we just opened our 20th country.

The truth is - thank you dude!

I understand that!

(Applause.) So really, every time someone talks about a girl in statistical form, I have a name, I have a face, I have a story.

Yogi Ross and Trent Dilfer called me three years ago and asked me to talk to the top 18 quarterbacks in high schools on a TV show called "Elite Eleven."

What I didn't realize was that when it aired on ESPN a week later, all of Ray Rice was about to go public.

And suddenly I was that girl in the locker room having tough love conversations with men about the importance of respecting women.

Perhaps it helped that I worked for FOX Sports and ESPN, that I grew up in Texas, where football is a religion, and that I grew up with four older brothers.

My father is the nicest person I know and my husband was a professional athlete for nine years.

What's interesting is that I was suddenly recruited into Division 1 schools across the country and invited behind the velvet curtain to better understand what was going on there.

As I said earlier, some schools hired me because of the incident in the locker room, others were just legitimately concerned, and I had a head coach call me and he said he was worried because he had a daughter, but the way these young men were talking about women was very rude.

Sure enough, I popped out and sat there, and in the middle of my talk--we're sitting in a circle in a locker, you can imagine, the only girl--and in the middle of my talk, one of the guys raised his hand and said,

As you can imagine, my coach says, "You're kidding me."

(Laughter.) He's sitting there shaking his head and looking down at the ground.

So I looked up at this kid and said, "Okay, who said that?"

There was a long silence, and soon he looked left and right at his equally mortified sons and said,

We are definitely sprinting forward now. ”

(Laughter) So after a minute of awkward silence, I looked up and said, "Here's the thing, I'm not necessarily against it, I'm just saying you made a very opinionated statement, you said, 'It's cool to fuck a girl,' and I'm just saying, 'Who said that?'"

And I said, "Yes, that's the problem. You're on autopilot, programmed to think that way. You're being scripted. Someone gave you a definition of cool that wasn't yours, and you have the audacity to pawn it in as if you were original."

Mothers, fathers, preachers, teachers, I am not here to teach you how to live your life. I simply encourage you to carve out your own life, come up with your own definitions, and have the courage to think for yourself.

After the talk he came up to me and gave me a very awkward hug and said 'thank you' so I looked at him and said 'why?

And he said, "Nobody ever asked me to think for myself.

I would like to thank you for your invitation. ”

As the only girl in the locker room now, I have thousands of adventure stories.

There are stories that make you laugh, stories that make you cry, stories that make you cringe, and stories that break your heart.

But most of all, they will give you hope.

As you know, I was born on earth to empower women.

I was made aware of this at a really young age, but it wasn't until I stood in a room full of alpha bastards that I realized I had missed the point and was just preaching half-empty.

We are incredibly capable creatures, but violence against women is not a women's problem.

Violence against women is a human problem and we all need to participate.

And the truth is that the majority of these young people feel they have never been invited to sit at our table.

And I'm not Santa and I can't fly to every school. Lord knows I tried, but for the past 3 years I have spent 220 days a year on the road.

That's why we created the first-ever ProtectHer program that can be integrated into college locker rooms to encourage young men to expand their definition of masculinity.

Because we believe that to protect your dorm room, you need to activate your locker room mind.

What I've learned from being in the field with them is, first and foremost, you have to make them aware of their programming.

We need history's most distracted generation to stop long enough to reflect and ask the tough questions. "Who said that?"

We know they consume 10 hours of media per day.

A media that glorifies violence against women, which is inherently rude, overly sexualized and objectified.

We know they consume 3,000 brand images every day, spoon-feeding definitions of masculinity devoid of morality, self-respect, and genuine self-confidence hijacked by cheap cologne-wearing Ken dolls.

We know that the majority of these young people are learning about sex through porn.

So maybe we can stop being so shocked. Because they are doing exactly what we are programming as a society and they are doing it very well.

So, as a society, we may be able to educate them more about sex and healthy relationships.

We need to talk about identities.

We have to broaden their definition of masculinity. Because at this point consensus in the locker room is pretty easy and fairly achievable.

You need to be as rich as possible, be as famous as possible, and have sex with as many girls as possible.

Well, interestingly enough, my husband had a great idea and said, 'What we have to do' - and here is my husband, he's the poster boy for 6'9 feminism - (Laughter) (Applause) And his brilliant suggestion was, 'We have to get these young men to stop seeing women as mere sexual objects, but we have to remind them that women are human too.'

He added, "So let's be honest, if I were you, I'd pull pictures of their girlfriends, sisters, and mothers from social media.

I'll put it in your presentation. ”

It's my husband's voice.

(Laughter) It was a great idea.

So in the first talk I gave for the Elite Eleven, I took pictures of all the women they loved and put up slides. It read, "One in four girls will be sexually assaulted on a college campus."

And, of course, their eyes were glaring and they were like, "Okay, let's have this conversation."

Then I clicked on the next slide and said, "But not with her."

And I remembered 10 or 15 names and said, "It's different with Sarah, it's with Lauren, it's different with Jenny."

And now they are looking at their 16-year-old sister.

Half the people in the room started crying.

We need to reframe this issue to make it very personal to them.

Third, we need to talk about respect.

You cannot give what you do not have.

We must instill more self-esteem in these young people and enable them to treat others with more dignity.

What I realized was that schools don't teach enough emotional education today. Indeed, because we don't teach young men how to build true confidence, they source their confidence from where they know how to do it.

Through performance, through popularity, and through possession.

We need to broaden the definition of confidence that doesn't rely on social media highlight reels or outside validation.

Number 4: We need to have a serious talk with them.

I've never been in a locker room where words like "consent" and "bystander" are used.

Those are the words we use in our star-studded PSA.

I have yet to hear anyone come up there and raise their hands and say, 'This is such a great opportunity for us on the sidelines.

(Laughter) I've never heard a man say, 'We were in a relationship. I'm not lying. (Laughter) This is not kidding about the intention behind those words.

It's just that we have to give them real words and real tools in the moment we ask them for courage.

We have to work with them, have conversations with them, offer words when they see something sketchy, and be able to say, "Oh, we don't do that."

It's about giving words during sex like, "Oh, we just want to make sure you're cool when we have sex."

Because I think as long as we talk to them like academic robots, we're setting them up to fail.

And speaking of some calls to action, media people, please stop crucifying coaches and colleges when this stuff happens in the locker room. We are at the level of a pandemic and this is happening everywhere.

Instead, we can simply praise the colleges that are doing it right and encourage others to follow suit.

Coaches and educators, invest in programs like this that are preventive medicine. You can't continue to triage these symptoms by putting band-aids on bullet wounds.

Parents, you are the one who holds all the power in your wallet.

Demand that in order for you to pay for tuition, these schools must invest in the safety of both your daughter and son.

Students, please ask the administration to invest in this kind of program.

And tell all of our student-athletes not to sign with colleges that don't put prevention first.

For policy makers, if you need a driver's license to drive a car, why not take the sexual assault prevention program required to attend college or play sports?

National League team owners, are you brave enough to sign ProtectHer's pledge that students convicted of sexual assault will not be drafted?

It's a privilege to be a professional athlete, a real-life superhero in this country, with the ability to literally change the entire game by such standards.

Finally, ProtectHer is a roar, a belief system, a cultural identity rooted in intrinsic respect for women.

Now as we sit in this auditorium, women and bad guys from all over the country are standing and marching in our capital saying this is the transformation - (applause) (cheers) saying this is the transformation that our country wants, it's easy for us to sit in the auditorium and it's easy for us to be inspired by hearing these different stories, but the truth is that this kind of daring cultural change would demand of the warriors, the Gladys. May the guardians in you and me rise to the occasion to create a new definition of normal, where girls, women and all people are treated with dignity and respect.

Because the truth is men aren't just the problem when it comes to violence against women, they're the cure, and we've never needed them so much.

So, real men, consider this your invitation.

Thank you very much.

(Applause) (Cheers)

Hey, guys.

I would like to introduce you to Leica.

For most of us, Laika is simply a very cute pig.

But for the hundreds of thousands of patients in need of life-saving organs, Leica is a symbol of hope.

Organ supply has been a problem since the 1970s, when organ transplantation became a viable option for patients with renal failure and other organ diseases.

Over the last few decades, the problem has only gotten worse as the demand for organs has skyrocketed.

There are now nearly 115,000 patients in the United States in need of life-saving organ transplants.

By the end of my talk, another patient will be added to this list.

Today, about 100 people will be given new organs and a chance to start a new life, but by the end of the day, another 20 will die waiting.

This situation is heartbreaking for patients, their families, and doctors who want to do more.

In some parts of the world, the situation has also become a worrying social problem.

In Asia, for example, media reported desperate patients obtaining organs from the brutal black market.

It is clear that we need a solution to this crisis.

Lives are in danger.

As a biologist and geneticist, it is my mission to help solve this problem.

Now, thanks to Leica, we can be optimistic that we are on our way there.

Gene-editing technology has made it possible to create sophisticated human transplantable organs that can be safely cultured in pigs.

Before we dive into the amazing science that makes it possible, let's take a closer look at what xenotransplantation is all about.

The process of transplanting animal organs into humans.

You may be wondering why there are pig organs.

Because some pigs have organs with similar size and physiology to human organs.

Over the past half-century, pioneers of transplantation have worked hard to make it a reality, but with limited success.

why is that?

Two basic hurdles stood in the way.

First is the issue of denial.

When our immune system sees the new organ as foreign, it rejects it.

Second, and this is specific to pig organs, all pigs carry viruses that are benign to pigs but can infect humans.

This is called porcine endogenous retrovirus (PERV), and this virus can cause viral epidemics similar to HIV.

The field of xenotransplantation has been on hold for over a decade due to the lack of effective methods to address these issues.

To date, little progress has been made.

Let me tell you how Leica and I got here today.

My journey started in Emeishan, China.

It's a place often described in many legendary tales, such as "Crouching Tiger, Hidden Dragon".

That's where I call home.

Growing up in the mountains, I developed a strong connection with nature.

This is me when I was seven years old, standing in front of an ancient temple with a monkey on my shoulder.

I still vividly remember throwing peanuts around to distract the monkeys so my friends and I could cross the valley for a hike.

I love nature.

When it came time to choose my research field, I chose to study biology at Peking University in Beijing.

But the more I learned, the more questions I had.

Our genetic makeup is very similar to that of animals, so why do we look so different?

How is our immune system able to fight off so many pathogens yet so smart that it doesn't attack itself?

Questions like this tormented me.

I know it sounds geeky, but you know I'm a scientist.

After college, I decided that I wanted to answer questions, not just ask them, and I did.

In 2008, I was fortunate enough to be accepted into a PhD program at Harvard University to work with Dr. George Church.

While working in Church's lab, I began to study and experiment with the genetic makeup of mammals.

Of all the experiments, one particular experiment brought me closer to Leica.

In 2013, a colleague and I modified human cells using a tool you may have heard of called CRISPR.

We were one of the first two groups to report success in altering DNA using such tools.

It was an exciting moment in scientific discovery.

The gene editing tool CRISPR has two components.

It has an enzyme called CRISPR and something called a guide RNA.

Think of it like genetic scissors with a microscope.

The microscope is the guide RNA, just bring the scissors where you want to cut, say "here it is", and let the enzyme CRISPR cut and repair the DNA exactly as you want it.

Shortly after we reported our study, doctors at Massachusetts General Hospital became interested in medical applications of our study.

They reached out to us, and together we began to see the potential of using CRISPR to solve the organ shortage crisis.

What should I do?

Simple, but very complicated.

We first modified pig cells to clear the virus and adapt to human immunity.

The cell's nucleus is then implanted into a pig egg and allowed to divide to form an embryo.

The resulting embryo is placed in the surrogate mother's womb and splits into a pig.

Basically, this is the process of cloning.

The piglets then carry organs with genetic makeup that will not be rejected by the human immune system.

In 2015, our team decided to tackle viral infections first.

We wanted to extract all 62 copies of the PERV virus from the pig genome, which was nearly impossible at the time.

Even with CRISPR, only one or two things can be changed inside a cell.

The record for the number of changes that could be made in a particular cell was 5.

Achieving this required a 10x or more increase in throughput.

With very careful design and hundreds of trials, we have successfully removed all viruses and broken records.

More importantly, our study showed that the possibility of transmission of this dangerous virus to humans could be ruled out.

Last year, our startup, eGenesis, used engineered cells and cloning technology to produce Laika, the first pig of its breed born without PERV.

(Applause.) Leica represents the first critical step toward establishing safe xenografts.

It is also a platform for further genetic modification to solve immunological problems.

Since then, we have created over 30 PERV-free pigs. These may be the most advanced genetically modified animals living on Earth.

We named it Laika after the Soviet dog, the first animal to orbit the Earth.

We hope that Leica and its brothers will lead us to new frontiers in science and medicine.

Imagine a world where patients suffering from liver failure could be saved with new livers without waiting for donations or other human deaths.

Imagine a world where diabetics no longer have to rely on post-meal insulin because they can provide the pancreatic cells with superior ability to produce their own insulin.

And imagine a world where renal failure patients don't have to face the burden of dialysis.

We aim to realize that world, a world without organ shortages.

We finally have the tools to tackle the problems we couldn't tackle before. Laika is just the beginning of our journey.

We must be very humble before nature. There are more issues to be addressed, such as immunology and things that weren't even foreseen at this time.

But it is our responsibility to translate cutting-edge science into medicine and save the lives of all waiting patients.

thank you very much.

(Applause) Chris Anderson: So, Luhan, this is an extraordinary job.

Please step forward.

So what's the next step? We've eliminated the virus.

The next step is to reach a state where the human body does not reject transplants.

What would be involved in resolving it?

Luhan Yang: It's a very complicated process.

Therefore, it is necessary to extract pig antigens.

Moreover, we can learn a lot from cancer.

How can cancer invade or evade our immune system so that it can take advantage of cancer tricks to perform it on pig organs and trick our immune system into not attacking them?

CA: When do you expect the first port to be successful?

LY: Giving numbers is irresponsible.

CA: We are at TED. We are always irresponsible.

LY: But we are working day and night to make this happen for our patients.

CA: So you're not saying it could be in 10 years or 5 years or something like that?

LY: Certainly, hopefully within 10 years.

(Laughter) CA: There are a lot of people here who are very, very excited about this. The possibilities are extraordinary.

Others may say here that "that pig is too cute".

Humans should not take advantage of something this cute to our advantage. ”

Do you have any answer for that?

LY: Yeah, sure.

Now imagine that one pig can save the lives of eight people.

Also, just like human donation, pigs are still alive even if only one kidney is collected from pigs, so we pay close attention, but we believe that our purpose is to meet the unmet medical needs of patients and their families.

CA: And no one can tell you that if you're eating bacon, right?

LY: That's a good point.

(laughs) CA: Thank you so much, Luhan. LY: Thank you.

(applause)

One day in 1965, Colombian journalist Gabriel García Márquez was driving to Acapulco on vacation with his family when he suddenly turned around and returned home after asking his wife to take care of the household finances for the next few months.

The beginning of a new book suddenly popped into his head. “Many years later, when confronted by a firing squad, Colonel Aureliano Buendía remembered the distant afternoon his father took him to discover the ice.” Over the next 18 months, those words blossom into a hundred years of solitude.

This novel brought Latin American literature to the forefront of the world's imagination and earned Garcia Marquez the 1982 Nobel Prize in Literature.

What makes One Hundred Years of Solitude so remarkable?

This novel chronicles the fortunes and misfortunes of seven generations of the Buendía family.

With rich and detailed writing, a large number of characters, and a complex story, One Hundred Years of Solitude is not an easy read.

But it's very rewarding, and includes an epic assortment of intense romances, civil wars, political intrigue, globe-hopping adventurers, and more characters named Aureliano than you might think.

But this is more than just a historical drama.

One Hundred Years of Solitude is one of the most famous examples of the literary genre known as Magic Realism.

Here, supernatural events and abilities are described in a realistic and factual tone, but the actual events of human life and history reveal themselves to be full of fantastical absurdities.

The surreal phenomenon of the fictional village of Macondo intertwines seamlessly with events in the real country of Colombia.

The settlement begins in mythical isolation, but is gradually exposed to the outside world, facing multiple calamities along the way.

As the years pass, the characters grow old and die, returning as ghosts or seemingly reincarnated into the next generation.

Whenever the American Fruit Company comes to town, so does the romantic Mechanic, who is always followed by a yellow butterfly.

A young woman stands up and floats away.

The novel progresses from generation to generation, but time progresses almost cyclically.

Many characters have names and traits similar to their ancestors, and they often repeat their mistakes.

Strange prophecies and visits by mysterious gypsies spark skirmishes, firing squads, and recurrent civil wars.

An American fruit company opened a plantation near the village, which eventually led to the slaughter of thousands of striking workers, mirroring the actual "banana massacre" of 1928.

Combined with the novel's magical realism, it creates a sense of history as a downward spiral that the characters seem unable to escape.

Underlying this magic lies a story about the pattern of post-colonial Colombian and Latin American history.

This is the history that the author experienced firsthand.

Gabriel García Márquez grew up in a Colombia torn apart by civil war between the Conservatives and Liberals.

He also lived in authoritarian Mexico, where he covered the 1958 Venezuela coup as a journalist.

But perhaps his greatest influence was his maternal grandparents.

Nicolas Ricardo Marquez was a decorated veteran of the Thousand Days War, and his description of the rebellion against the conservative Colombian government led Gabriel García Marquez to socialist views.

Meanwhile, the omnipresent superstitions of Doña Tranquilina Iguaran Cortés became the basis for the style of One Hundred Years of Solitude.

The little house in Aracataca, where the author spent his childhood, formed the main inspiration for Macondo.

In One Hundred Years of Solitude, Gabriel Garcia Marquez finds a unique way to capture the unique history of Latin America.

He was forced to relive the tragedy of the past and was able to portray the strange reality of living in a post-colonial society.

Despite all this fatalism, there is still hope in this novel.

In his Nobel Prize speech, Garcia Marquez reflected on Latin America's long history of civil wars and rampant injustice.

Yet he ended his speech by acknowledging the possibility of building a better world. "Where no one can let others decide how they die, where love is proven true, happiness becomes possible, and a race condemned to a hundred years of solitude can finally, and forever, get a second chance on earth."

The 18-year-old African-American man enlisted in the United States Air Force, was assigned to Mountain Home Air Force Base, and became a member of the Air Police Squadron.

When I first arrived there, my first goal was to identify an apartment so I could take my wife and newborn baby Melanie to Idaho.

I immediately went to the HR office and spoke with the HR person. "I have no problem finding an apartment in Mountain Home, Idaho.

Local people love us. They know that if there is an airman who comes to rent an apartment, they will always get the money. ”

And it really mattered.

He said, "Here's a list of people you can call so you can choose the apartment you want."

So I got the list. I called.

A woman appeared over there, and I told her my wishes.

She said, "Oh, I'm glad you called.

There are currently 4-5 apartments available. ”

She said "Would you like one bedroom or two?"

Then she said, "Let's stop talking about it.

Now choose the apartment of your choice.

We'll sign the contract and get the keys so we can get the family out of here quickly. ”

That got me excited.

I jumped in my car. I went downtown and knocked on the door.

I knocked on the door and a woman came to the door, looked at me and said, "Can I help you?"

I said, "Yes, I'm the one who called about the apartment.

I just came here to make a choice. ”

She said, "Do you know? I'm really sorry, but my husband rented that apartment and didn't tell me about it."

I said, "So he borrowed all five books in one hour?"

She didn't reply to me, but what she said was: I said, "Could you leave me your phone number? I'll call you when there's space."

Needless to say, I never received a call from her.

Also, I didn't get a response from other people that they gave me a list of places where I could buy an apartment.

So, as a result, and feeling rejected, I returned to base and spoke with the squadron commander.

His name was McDow, Major McDow.

I said, "Major McDaw, I need your help."

I told him what had happened and he said: He said, 'James, I want to help you.

But you know the problem. You can't rent to people who don't want to rent.

On top of that, we have great relationships with people in our community that we really don't want to undermine. ”

He said, 'So maybe this is what you should do.

You know you have 30 days of vacation, so why not let your family stay at home?

So once a year you can go home to your family for 30 days and come back. ”

Needless to say, it didn't resonate with me.

So after I broke up with him, I went back to HR and talked to the clerk. he said: "Jim, I think I have a solution.

There are departing airmen, and they have trailers.

As you may have noticed, there are trailer parks and trailers all over Mountain Home.

You can buy his trailer. And he wants to get out of town as soon as possible, so he'll probably make a very good deal.

Then the problem will be solved and you will have a solution. ”

So I quickly jumped in the car, went downtown, looked at the trailer, and though it was a small trailer, I thought that was the best I could do in this situation.

So I bought a trailer.

So I asked him "Can I just leave my trailer here? Then all the problems will be solved. I don't even have to find another trailer park."

He said, "I need to check with management before saying yes."

So when I got back to base, he called me back. And management said: "No, I can't leave the trailer here because I promised other people the slot."

It was strange that he happened to promise others the slots when there were several other slots open.

So what I did--and he said, "Jim, don't worry, there are plenty of trailer parks."

So I've made another exhaustive list of places to go to trailer parks.

It went on and on.

And I got the same kind of rejection when I was looking for an apartment.

As a result, the comment they put out to me, in addition to saying there were no vacancies, was someone saying, "Jim, the reason we can't rent to you is because there's already a black family in the trailer park."

He said, "That's not me, because I like you guys."

(Laughter) And so did I. I laughed too.

"But here's the problem. If I let you in, the other tenants will move out and I can't afford that kind of blow," he said.

He said, "I can't lend to you."

It was discouraging, but that didn't stop me.

I kept looking and saw a small trailer park on the edge of town at Mountain Home.

So it's really a small trailer park.

There were no paved roads, no concrete slabs, no fences separating trailer slots from other trailer slots.

There were no laundry facilities.

But my conclusion at that point was that I didn't have much of a choice.

So I called my wife and said, 'I'll make it work.'

And we moved there and became homeowners in Mountain Home, Idaho.

And of course, things eventually calmed down.

Four years later, I received papers to move from Mountain Home, Idaho, to a place called Goose Bay, Labrador.

I won't talk about it. It was another great location. (Laughter.) My task then was to get my family from Mountain Home, Idaho, to Sharon, Pennsylvania.

We had just purchased a new car so it was fine.

My mother called me and told me that she was leaving by plane.

She will be with us when we drive and help take care of the kids.

So she came out and she and Alice made a lot of food together for the trip.

We left around 5am that morning.

We had a great trip, had a great time and had good conversations.

Around 6:30 or 7:00, we were getting a little tired, so I said, ``Why don't we go to the motel, get some rest, and leave early in the morning?''

So, as I was driving down the road, I was looking at some motels, and I saw one of them. It was a big, bright flashing light that said, "Vacancy, Vacancy, Vacancy."

So we stopped by.

They were in the parking lot so I went inside.

As I walked in, the woman was just finishing a deal with some people and some others were coming in behind me.

So I went to the counter and she said, "How can I help you?"

I said, "I'd like to get a motel for my family tonight."

She said, "I'm so sorry, I just borrowed the last one.

Nothing more until morning. ”

She said, "But if you go down this road for about an hour and 45 minutes, there's another trailer park."

I said, "Yes, but the 'empty' light is still on and blinking."

“Oh, I forgot,” she said.

Then she reached out and turned off the light.

She looked at me and I looked at her.

There were other people in the room as well.

She looked at them with some kind of eye. No one said anything.

So I took a hint and went to the parking lot outside.

And I told my mother about it to my wife and Melanie. And I said, "I think I'll have to drive a little further down the road to sleep tonight."

And we drove down the road, just before we left and pulled out of the parking lot, what do you think happened?

The lights came on again.

And I said, "Vacancy, vacancy, vacancy."

We found a nice place.

Not to our liking, but safe and clean.

And I slept very well that night.

Importantly in this regard, we have experienced similar denials of accommodation from hotels, motels and restaurants from Idaho to Pennsylvania.

But we have arrived in Pennsylvania.

We reconciled our families. Everyone was overjoyed to see the children.

I jumped on a plane and left for Goose Bay, Labrador. That's another story, right?

(Laughter) Fifty-three years later, I now have nine grandchildren and two great-grandchildren.

Five of my grandchildren are boys.

I have masters, doctoral, undergraduate, and medical degrees.

There are couples who are trending.

They are almost there, but not quite. (Laughter) I have someone who has been in college for eight years now.

(Laughter) He doesn't have a degree yet, but he wants to be a comedian.

So we are just trying to keep him in school.

Because being funny at home doesn't make you a comedian, right?

(Laughter) But the thing is, they're all good kids, no drugs, no high school babies, no crime.

With that as a backdrop, I was sitting in the TV room watching TV and they were talking about Ferguson and the chaos going on there.

And suddenly, one of the news commentators jumped on the air and said, "Eight unarmed African-American men have been murdered by police, white homeowners, or white citizens in the last three months."

Somehow, in that moment, everything hit me.

I said, "What? That's so insane.

What is the hatred that drives people to act like this? ”

Just then, one of my grandchildren called me.

He said, "Grandpa, did you hear what they were saying on TV?"

I said, "Yes, I did."

“I am very confused,” he said.

We do everything, but it seems dangerous to drive black, walk black, and talk black.

what can we do We do everything you tell us to do.

When stopped by the police, we place both hands on the steering wheel at 12 o'clock.

When asked to get ID, we say, "I'm slowly reaching into the glove box to get my ID." When we are pulled out of the car for the search, when we lie on the ground for the search, when the trunk is opened for the search, we do not push back, we do not resist. Because you told us, 'Don't resist the police.

Call me when you're done, we'll try. ”

He said, "And this is the part that really bothers me: our white friends, our mates, we kind of get along.

When they hear that something like this is happening to us, they say, "Why accept it?"

you have to push back. Must challenge.

"We need you to show us your ID." And the boys have been taught: "I know you can do it, but don't do it while we're in the car, because the results for you are very different from the results for us."

So what can you say to your grandchildren as grandparents?

How do I keep them safe? How do I keep them alive?

As a result, people started coming to me and saying, "Jim, are you mad?"

Here is my answer to that. "I can't afford to be angry, and I know the consequences of being angry."

So the only thing I can do is dedicate all my intellect, energy, ideas and experience to challenge anything that is perceived as racist at all times.

So the first thing I have to do is to educate, the second thing I have to do is to expose racism, and the last thing I have to do is do everything in my life to eradicate racism by any means necessary.

The second thing I do is this: I want to appeal to Americans.

I want to appeal to their humanity, their dignity, their civic pride, and their ownership of not reacting adversely to these heinous crimes.

But instead, in order to raise your level of social knowledge, your level of social awareness, your social awareness and collectively unite, we all stand together to speak out and challenge all kinds of insanity, any kind of insanity that condones the killing of unarmed people, regardless of ethnicity, race, diversity composition.

we have to challenge it. It makes no sense.

I think the only way we can do that is through collectives.

It takes blacks and whites, Asians and Hispanics to come forward and say, "We will no longer accept such behavior."

As anyone who has been to Roosevelt Island knows: 6,000 miles of roads, 600 miles of subway tracks, 400 miles of bike lanes, and half a mile of streetcar tracks.

These are the numbers that make up New York City's infrastructure.

These are infrastructure stats.

Those are the numbers that appear in a report released by city officials.

For example, the Department of Transportation will probably tell you how many miles of road they maintain.

The MTA boasts how many miles of subway tracks it has.

Most city authorities will provide you with statistics.

That's according to this year's report from the Taxi and Limousine Commission, which found that there are about 13,500 taxis here in New York City.

Pretty interesting, right?

But have you ever wondered where those numbers come from?

Because for those numbers to exist, someone from city officials had to stop and say, "Hmm, this is a number someone might want to know."

Here are the numbers that people want to know.

So they go back to the raw data, count, add, calculate and issue a report. The report contains figures such as:

The question is how do they know all our questions?

I have a lot of questions.

In fact, in a way, there are literally endless questions to ask about our city.

Agencies never catch up.

So this paradigm is not exactly working. I think policy makers recognize that too. In 2012, Mayor Bloomberg signed into what he called the most ambitious and comprehensive open data bill in the country.

In many ways he is right.

Over the past two years, the city has released 1,000 datasets on its open data portal. This is very nice.

Looking at data like this, you can start asking other questions than just counting taxis.

I had a question there.

When is rush hour in New York City?

It can be quite a hassle. When is rush hour?

And I suspected that these taxis were not just numbers, but GPS recorders cruising the streets of the city, recording each ride.

The data is there, so I looked at it and created a plot of the average daily speed of taxis in New York City.

You can see that it picks up speed from about midnight until about 5:18 in the morning, at which point things improve, and then slows down more and more until about 8:35 in the morning, ending up around 11.5 miles per hour.

It turns out that the average taxi travels through the city streets at 11.5 mph, and stays at that speed all day long.

(Laughter) So I said to myself, there will be no rush hour in New York City.

There are just rush days.

Makes sense. This is important for several reasons.

If you are a transportation planner, it may be very interesting to know this.

But if you want to get somewhere in a hurry, set your alarm clock for 4:45 in the morning and you're good to go.

New York, right?

But this data has a story behind it.

It turns out that this data was not just available.

This was actually from what is called a Freedom of Information Act request, or FOIL request.

This is the form on the Taxi and Limousine Commission website.

To access this data, you must obtain and complete this form. You will then receive a notification. A guy named Chris Whong did just that.

When Chris got off they said to him: "Bring a brand new hard drive to the office and let it sit for 5 hours. We'll copy the data so you can take it home."

And from there this data was born.

Well, Chris is the type of person who likes to publish data, so it ended up being available online for everyone, and that's where this chart came from.

And the fact that it exists is amazing. This GPS recorder is really cool.

But the fact that citizens are walking around with hard drives and collecting data from city authorities and making it public is already a kind of publicity, accessible, but it was "public" and not public.

And we as cities can do more.

Citizens don't have to carry hard drives around.

Not all datasets are currently behind FOIL requests.

Here's a map of New York City's most dangerous intersections based on bicycle accidents.

Red areas are therefore more dangerous.

And what it shows is that first of all, there are many bicycle accidents in the eastern part of Manhattan, especially in the lower part of Manhattan.

It may be natural, because there are more bicycles coming down from the bridge there.

But there are other hotspots worth studying.

We have Williamsburg. Queens has Roosevelt Avenue.

And this is exactly the kind of data that Vision Zero needs.

This is exactly what we are looking for.

But there is also a story behind this data.

This data didn't just show up.

How many people know this logo?

Yes, you can see some shaking.

Have you ever copied and pasted data from a PDF and tried to make sense of it?

I see more shaking.

More people tried to copy and paste than to know the logo. i like that

So what happened was that the data you just saw was actually in a PDF.

In fact, there are hundreds, hundreds, hundreds of pages of PDFs issued by the NYPD that either require hundreds of hours of copy and paste or become John Krause.

John Krauss said, "I'm not going to copy and paste this data." I will write the program.

It's called the NYPD Crash Data Band-Aid, and you can download the PDF by visiting the NYPD website.

Every day it searched. Once it finds the PDF, it downloads it and runs a PDF scraping program. The text is then output and sent over the internet, allowing people to create such maps.

And the fact that the data is here, and that we can access it -- by the way, all the accidents are rows in this table.

You can imagine what a PDF this is.

The fact that we have access to it is great, but let's not publish it in PDF format. Because that would force the public to write a PDF scraper.

This isn't the best use of our citizens' time, but as a city we can do more.

Well, the good news is that the de Blasio administration actually recently released this data a few months ago, so now we can actually access the data, but a lot of it is still embedded in PDFs.

For example, crime data is still only available in PDF.

Not just crime data, but city budgets as well.

City budgets are currently only available in PDF format.

And we're not the only ones who can't analyze it. Our members of parliament who vote for the budget also only get the budget in PDF.

As such, MPs are unable to analyze the budgets they vote for.

And I think the city can do a little better than that.

Well, there is a lot of non-hidden data in PDFs.

Here's an example of a map I made showing the dirtiest waterways in New York City.

Now, how can we measure the presence or absence of dirt?

Just a little weird, I looked at the fecal coliform level, a measure of faeces in each flume.

The larger the circle, the dirtier the water, so a large circle is dirty water and a small circle is clean water.

What you see is the inland waterway.

This is all data sampled by the city over the last five years.

And inland waterways are generally dirty.

That's natural, right?

And the big circle is dirty. And I learned a few things from this.

Number one: Never swim in anything that ends in a "stream" or "canal".

But second, we also found New York City's dirtiest waterway by this measure.

Luckily, at Coney Island Creek, which is not Coney Island where you swim.

It's on the other side.

But at Coney Island Creek, 94 percent of samples taken over the last five years had fecal levels so high that swimming in the water violates state law.

And this is not a fact to be boasted about in city reports, is it?

It won't be the front page of nyc.gov.

You can't see it there, but the fact that you have that data is great.

But again, this data wasn't posted on an open data portal, so it wasn't very easy.

When you visit the Open Data Portal, you'll only see snippets of data for a year or months.

Actually, it was on the website of the Ministry of Environmental Protection.

Each of these links is an Excel sheet and each Excel sheet is different.

All headings are different. Copy, paste, reorganize.

Then we can map and that's great, but again, we as a city can do more than that and normalize things.

We're getting there because of the Open Data Portal NYC website created by Socrata.

There are 1,100 data sets here that are immune to the issues I just talked about, and that number keeps growing. This is great.

You can download the data in any format, including CSV, PDF, and Excel documents.

You can download the data that way if you want.

The problem is that in practice, you will find that each government agency has a different address code.

That is, one is street name, intersection street, street, district, address, building, building address.

Again, even when we have this portal, we spend time normalizing address fields.

And that's not the best use of a nation's time.

As a city, we can do more.

Standardizing addresses will make more such maps available.

This is a map of New York City's fire hydrants, but they're not just fire hydrants.

These are the top 250 hydrants by parking ticket sales.

(Laughter) So I learned a few things from this map, and I really like this map.

First, don't park on the Upper East Side.

just stop. You get a fire hydrant ticket wherever you park.

Second, you've found the two most profitable fire hydrants across New York City. They were on the Lower East Side and brought in over $55,000 in parking tickets a year.

It seemed a little strange when I noticed it, so I did a little digging and found out it's a fire hydrant and then what's called a curb extension which is like a seven foot walking space and then a parking lot.

And then these cars came in and the hydrant said, 'It's all the way over there, it's okay,' and there was actually a beautifully painted parking lot for them.

They would park there, but the NYPD disagreed with the designation and issued a citation.

I wasn't the only one to find a parking ticket.

This is the Google Street View car driving after finding the same parking ticket.

So I wrote about this on the blog I Quant NY. The DOT then replied, "DOT has not received any complaints about this location, but will review the road signs and make appropriate changes."

And I thought, typical government response, okay, get on with your life.

But a few weeks later, the unbelievable happened.

They repainted the place. Think about what happened here. For a moment, I felt like I could see the future of open data.

For five years this place was ticketed and chaotic, but one citizen found something, reported it to the city, and within weeks the problem was resolved.

very. And many consider open data to be a watchdog.

Instead, it's about being a partner.

We can empower our people to be better partners with government, and it's not that hard.

All it takes is a few changes.

If you're FOILing data, and you're seeing it being FOILed over and over again, make that data public. That's a sign that the data needs to be made public.

And if you're a government agency that publishes PDFs, pass a bill requiring you to post PDFs along with the underlying data, because that data comes from somewhere else.

I don't know where it came from, but it came from somewhere and it can be published in PDF.

And adopt and share some open data standards.

Let's start with the address here in New York City.

Let's start normalizing addresses.

Because New York is a leader in open data.

Despite this, we are the absolute leader in open data, and once we start normalizing things and set open data standards, other companies will follow. States will follow, and perhaps the federal government, and it won't be long before you can create one program to map information for 100 countries.

It's not sci-fi. I'm actually pretty close.

By the way, who are you giving authority to with this?

Because it's not just Jon Krauss, it's not just Chris Fong.

There are now hundreds of meetups in New York City, and the meetups are thriving.

Thousands of people attend these meetups.

These people meet after work and on weekends to explore open data and participate in making our city a better place.

Groups like BetaNYC released something called citygram.nyc last week that lets you subscribe to 311 complaints around your home or office.

If you enter your address, you will receive complaints from locals.

And it's not just the tech community that's gunning for these things.

It's urban planners like the students I teach at Pratt University.

It is policy advocates, it is all, it is a nation of diverse backgrounds.

And with a few small, incremental changes, we can unleash the passion and ability of citizens to harness open data to make cities even better, whether it's one dataset or one parking lot at a time.

thank you.

(applause)

Even after writing 11 books and receiving several prestigious awards, Maya Angelou could not escape the deep-seated suspicion that her achievements were not truly earned.

Albert Einstein had a similar experience. He described himself as an "unwitting impostor" and that his work had never received as much attention.

Achievements on the level of Angelou or Einstein are rare, but feeling cheated is very common.

Why are so many of us unable to shake off the feeling that we're underperforming, or that our ideas and skills aren't worthy of the attention of others?

Psychologist Pauline Rose Crans was the first to study this feeling of undue anxiety.

In her work as a therapist, she noticed that many of her undergraduate patients had the same problem. They have good grades, but they don't believe they are qualified to go to college.

Some even believed that their passing was due to admission errors.

Crance knew these fears were unfounded, but she remembered feeling exactly the same way back in graduate school.

She and her patients experienced a phenomenon that goes by many names, including the impostor phenomenon, impostor experience, and impostor syndrome.

Crance, along with his colleague Suzanne Aymes, first studied college student and faculty fraud.

Their activism pervaded the group with feelings of misconduct.

Since the first study, the same has been established across gender, race, age and a wide range of occupations, but it is more prevalent and may disproportionately affect the experience of underrepresented and disadvantaged groups.

To call it a syndrome belittles how universal it is.

It is not an illness or disorder and is not necessarily associated with depression, anxiety or self-esteem.

Where does this feeling of cheating come from?

Highly skilled and accomplished people tend to think others are equally skilled.

This can create swirling feelings that you are less entitled to praise and opportunities than others.

And, as Angelou and Einstein experienced, often there is no standard of achievement to quell these feelings.

Scammer-like feelings are not confined to highly skilled individuals.

Everyone is prone to the phenomenon known as pluralistic ignorance. In this phenomenon, each of us secretly doubts ourselves, but believes that we are the only ones who think so, because no one else expresses doubts.

It's hard to really know how hard your co-workers are working, how hard it is to find a particular task, or how much they question themselves, so there's no easy way to shake off the feeling that you're less competent than the people around you.

A strong feeling of being an impostor keeps people from sharing their great ideas and applying to jobs and programs in which they excel.

The surest way to combat imposter syndrome, at least for now, is to talk about it.

Many people who suffer from imposter syndrome fear that asking about their performance will confirm their anxiety.

And even receiving positive feedback often fails to assuage feelings of fraud.

On the other hand, however, hearing that an advisor or mentor experienced feelings of imposter can help ease those feelings.

The same goes for allies.

Just knowing that there are words to describe these feelings is incredibly comforting.

Once you notice this phenomenon, you can fight your own impostor syndrome by collecting and reviewing positive feedback.

A scientist who kept blaming himself for lab problems began documenting the cause whenever something went wrong.

Eventually, she realized that most of her problems stemmed from equipment malfunctions, and she became aware of her abilities.

You may never be able to get rid of these feelings completely, but you can openly discuss academic and professional challenges.

Perhaps as we become more aware of how common these experiences are, we may be able to speak more freely and openly about how we feel, confident in the simple truth that we are gifted, capable, and where we belong.

My name is Michael Shermer. He is a board member of the Skeptics Society and publisher of Skeptics magazine.

We investigate paranormal phenomena, pseudoscience, claims of non-scientific groups and cults, and all sorts of claims between science and pseudoscience, nonscience and junk science, voodoo science, pathological science, bad science, nonscience, and plain old nonsense.

Unless you've been to Mars recently, you know there's a lot of stuff out there.

Some people call us “exposed,” which is a kind of negative term.

But let's be honest, there are a lot of bunks.

We are like the paperback squad at your local police station. Well, we're like the bad idea Ralph Naders trying to replace a bad idea with a good one (laughs).

Give an example of a bad idea.

This is what I brought with me, provided by the NBC Dateline for testing.

Manufactured by Quadro Corporation of West Virginia.

Quadro 2000 dowser rod.

(Laughter) This was being sold to high school administrators for $900 each.

This is the piece of plastic with the Radio Shack antenna attached.

You can dows all sorts of things, but this particular one was made for dowsing marijuana in student lockers.

(Laughter) The mechanics is that you go down the hallway, see if the locker is tilted towards a particular locker, and then open the locker.

So it looks like this.

I will show you.

(Laughter) Well, there is a certain right-leaning tendency.

Well, this is science, so we do controlled experiments.

Always go this way.

(laughter) Doctor, may I empty my pockets?

(Laughter.) So the question was, can you actually find marijuana in the student's locker?

The answer is yes if you open enough.

(Laughter) (Applause) But science has to track misses as well as hits.

And that is perhaps the key lesson of my short story here. This is how psychics, astrologers, tarot card readers, etc. work.

People remember hits and forget misses.

In science, we store the entire database and see if the number of hits somehow stands out from the expected total by chance.

In this case, I tested it.

There were two opaque boxes, one containing government-approved THC marijuana and the other empty.

And it succeeded 50% of the time -- (Laughter) which is exactly what you'd expect in a coin tossing model.

This is just a fun little example of what we do.

Skeptic is a quarterly magazine. Each has a specific theme.

Are people getting smarter or stupider?

I think so because I work, and people are actually getting smarter.

It's kind of interesting.

Don't objectify skepticism about science, don't objectify science.

Can science and religion coexist?

Can science and plumbing work together?

They are simply two different things.

Science is not a thing. it's a verb.

It's a way of thinking about things.

This is how we look for natural explanations for all phenomena.

So, which is more likely, that extraterrestrials or multidimensional beings leave a crop circle in Farmer Bob's field in Packerbrush, Kansas, and travel across the vastness of interstellar space to promote our web page, sketic.com?

And in any case, we have to ask -- (laughter) what's the more likely explanation?

Before we can say that something is not of this world, we must first make sure that it is not of this world.

Which is more likely, that Arnold was aided by extraterrestrials in his run for governor, or that World Weekly News made it up?

(Laughter) The same theme is well represented in this Sidney Harris cartoon.

I think step 2 needs more clarification. ”

This one slide completely deconstructs the intelligent design debate.

Nothing more.

(Applause.) You could say that miracles do happen, but that explains nothing and offers nothing.

Nothing to test.

That's the end of the conversation for intelligent design creators.

And it's true, scientists sometimes toss dark energy or dark matter or something like that as a term to fill a linguistic space, but until we figure out what it is, we'll call it this.

It is the beginning of the causal chain of science.

For intelligent design creators, it's the end of the chain.

So again we can ask: Which is more likely?

Are UFOs Alien Spaceships, Perceptual Errors, or Fakes?

This is a UFO taken from my home in Altadena, California overlooking Pasadena.

If it looks a lot like a Buick hubcap, it's because it is.

No Photoshop, no high-tech gadgets, no computer needed.

This was taken with a disposable Kodak Instamatic camera.

Just make sure someone puts on a hubcap and is ready to go.

Your camera is ready. That's all.

(Laughter.) So most of these things are fake or hallucinations or whatever, some of them could be real, but more likely they're all fake, like crop circles.

On a more serious note, in science in general we are looking for a balance between data and theory.

For Galileo, two problems arose when pointing the telescope at Saturn.

First of all, the theory of planetary rings did not exist.

Second, his data was grainy and vague, and I didn't quite understand what I was looking at.

So he wrote what he saw: "I observed three bodies on the farthest planet."

And came to the conclusion that this is the conclusion he saw.

Therefore, without a theory of planetary rings, it is impossible to come up with a good theory with only rough data.

It was not resolved until 1655.

This is a book by Christian Huygens that catalogs all the mistakes people have made in trying to understand what is happening on Saturn.

Huygens got two things for the first time. One, they had a good theory of how the planetary rings and the solar system worked, and another, they had better telescopic data, which allowed them to understand that, according to Kepler's laws, the Earth was orbiting faster than Saturn, and humans would catch up.

And there you can see the angles of the rings at different angles.

And in fact it turned out to be true.

The problem with having a theory is that it can contain cognitive biases.

So one of the problems with explaining why people believe strange things is that it's problematic on a simple level. Then move on to more serious problems.

This is the face of Mars.

In 1976, there was a whole movement to get NASA to photograph the area because people thought it was a monumental structure built by Martians.

Here is a close-up photo from 2001.

I can see your face even if I close my eyes.

And if you squint, it will change from fine-grained data to coarse-grained data, which will reduce the quality of the data.

And even if I didn't tell you what to look for, you would still see faces, because we are programmed by evolution to see faces.

Faces are socially important to us.

And of course you can easily see happy faces, all kinds of faces.

The happy face of Mars is there.

(Laughter) If the astronomer was a frog, you'd probably see Kermit the Frog.

can you see him there? little frog legs.

Or what if geologists were elephants?

religious iconography.

(Laughter) It was discovered in 1996 by a Tennessee baker.

He charged $5 each to come see Nun Pan until he got a cease and desist order from Mother Teresa's lawyers.

This is Our Lady of Guadalupe and Our Lady of Watsonville. Is it just down the street or up the street from here?

Tree bark is especially good. Because it's nice, gritty, branchy, black and white speckled, and you can ask for a pattern. Humans are pattern-seeking animals.

This is the Virgin Mary on the side of the São Paulo glass window.

This is what the Virgin Mary looks like when she appears in a cheese sandwich. I was able to actually get it at a casino in Las Vegas. Of course, this is America.

(Laughter) This casino paid $28,500 for a cheese sandwich on eBay.

(Laughter) But who exactly do you look like? Virgin Mary?

(Laughter) It has a 1940s look with pursed lips.

Virgin Mary of Clearwater, Florida.

I actually went to see this.

There were many people there.

Believers come in wheelchairs and crutches.

We went down and investigated.

Speaking of sizes, these two, two and a half story-sized images have Dawkins, me, and Amazing Randy next to them.

All these candles, thousands of candles, people lit in this honor.

So I walked around the back side to see what was going on.

I've found that anywhere there is a sprinkler head and a palm tree, it works.

This is the Virgin Mary on the reverse side and they started wiping it.

I believe there is only one miracle per building.

(Laughter.) So is it really Mary's miracle or Marge's miracle?

(Laughter) And finally, I'll show you another example using an auditory illusion.

There is a movie called "White Noise" starring Michael Keaton where the dead speak to us.

By the way, the task itself of talking to the dead is not that big of a deal.

After all, anyone can do it.

It's really hard to make the dead talk back.

(Laughter) In this case, perhaps these messages are hidden in electronic phenomena.

I downloaded this on the ReverseSpeech.com web page.

This is the most famous of all these.

A forward version of a very famous song.

(music ends) Can't you just listen to it all day?

Now, go backwards here and see if you can hear the hidden message that you think is there.

(Gibberish lyrics follow) What did you get? Audience: Satan!

Satan. OK, at least "Satan" was found.

Now let me prime the auditory part of your brain to tell you what you should hear and then listen to it again.

(music with lyrics) (music ends) (laughter) (applause) If you tell me what's out there, you won't miss it.

(laughter) I would like to end with a positive and nice little story.

Skeptics is a non-profit educational organization.

We are always looking for small good things people do.

And England has pop singers.

Katie Melua is one of the most popular singers in the UK right now.