And I recall feeling like she would never be able to meet those small goals, even though some of her therapists had said my expectations were too high.

And I remember watching in awe as she gradually learned to bend her little thumb to press the button and say words she loved so much that she hadn't yet said, like "reggae" and "cheese."

And I had to teach her some less interesting words, prepositions, words like "of," "on," and "in."

And we worked on this for several weeks.

And I remember sitting at the dining room table with a bunch of relatives. Then, out of nowhere, Fiona used the iPad app to say, "Poop in the bathroom."

(laughs) Good or bad, it's hard to say.

(Laughter) My child is human, that's all.

It's a lot.

thank you.

(applause)

I'm Dr. David Hanson. We make robots with individuality.

So you're not only developing a robot as a character, but you're also developing a robot that you end up empathizing with.

So we're starting with a range of technologies, all wrapped up in conversational character robots that can recognize faces, make eye contact with users, make all sorts of facial expressions, understand speech, model moods and humanity, and build relationships with users.

I have developed a series of technologies that allow robots to express more realistic facial expressions with lower power consumption than before, and made it possible to realize the first android, a bipedal walking robot.

This means it has a wide range of expressions that simulate all the major muscles of the human face, runs on a very small battery, and is extremely lightweight.

The material that realized the battery-powered expression is a material called "Flubber", but in fact, there are three major innovations in this material that make it possible.

One is hierarchical pores and the other is macromolecular nanoscale pores within the material.

Then he starts walking.

This is the Korea Advanced Institute of Science and Technology.

I made a head. they made a body

So the goal here is to achieve perception in machines, but not just perception, but empathy.

We are working with the Machine Perception Laboratory at the University of California. San Diego.

They have very good facial expression technology that recognizes facial expressions, i.e. what kind of expression you are making.

It also recognizes where you are looking and the orientation of your head.

We emulate all major facial expressions and control them with software we call the Character Engine.

Here's a little introduction to the technology involved.

In fact, let's connect from here now, then connect here, and see if we can get my facial expressions.

have understood. That's why I'm smiling

(laughs) I'm frowning now.

And this is really backlit.

Okay, let's go.

oh so sad

Well, you frown and smile.

Awareness of his emotional state is therefore very important for a machine to be able to empathize effectively.

Machines are beginning to have destructive abilities, such as murder. right?

Those machines have no room for empathy.

And billions of dollars are spent on it.

Character robotics may actually plant the seeds of empathic robots.

Therefore, if they achieve human-level intelligence, or perhaps even surpassing human-level intelligence, it could be a seed of hope for our future.

So, in the course of my PhD, I've built 20 robots in the last eight years.

And I founded Hanson Robotics and have been developing these things for mass production.

This is one of the robots we showed at Wired NextFest a few years ago.

It then looks at multiple people in a scene, remembers where each individual person is, and searches from person to person to remember people.

So two things are involved.

One is human perception, and the other is natural interface, a natural form of interface to make interacting with robots more intuitive.

You begin to believe it is alive and conscious.

One of my favorite projects is to put all this together in an artful exhibition of portraits of androids by sci-fi author Philip K. Dick, who wrote great works like Do Androids Dream of Electric Sheep?

It is based on the movie "Blade Runner".

In these stories, the robots often think they are humans and give them some kind of life.

So we stored his writings, letters, interviews, and correspondence in a huge database of thousands of pages, and used natural language processing to make it possible to actually have a conversation with him.

And it was a little creepy because he says things that sound like he really understands you.

This is one of the most exciting projects we are developing, a small character who is a friendly artificial intelligence, friendly machine intelligence spokebot.

And we mass produce this.

We designed it to be practical with a very low cost bill of materials. Therefore, it can be the childhood partner of children.

Interfacing with the Internet makes us smarter with age.

As artificial intelligence evolves, so does his intelligence.

Chris Anderson: Thank you. can't believe it.

(applause)

This is my first time attending TED. Usually, as an advertising man, I actually speak at TED Evil. TED Evil is TED's secret sister who pays all the bills.

It is held once every two years in Burma.

And I especially remember Kim Jong Il's really great speech on how to get young people to smoke again.

(Laughter) But the truth is, after years of working in this industry, it suddenly occurred to me that what we create in advertising, the intangible value—perceived value, badge value, subjective value, a kind of intangible value, you might call it—is getting pretty badly evaluated.

If you think about it, if you want to live in a future world with less material things, you basically have two options.

You can also live in a poorer world that the general public doesn't like.

Or we can live in a world where really intangible values ​​make up the majority of our overall value, and that really intangible values ​​are in many ways a very good substitute for using up labor and limited resources in making things.

Here is an example. This is the train that goes from London to Paris.

About 15 years ago, the question was asked to many engineers: "How can I make my trip to Paris better?"

And they came up with a very clever engineering solution to build a whole new line from London to the coast at a cost of £6 billion, shortening the three-and-a-half-hour journey by about 40 minutes.

Now, call me Mr. Picky. I'm just an ad man...

...but it seems a bit unimaginative how train journeys can be improved just to save time.

So what is the hedonic opportunity cost of spending £6 billion on these railroad tracks?

Here's my naive advertising man's suggestion.

What you really need to do is hire all of the world's top male and female supermodels, pay them to walk the entire length of the train, and hand out free Château Petrus for the entire journey.

(Laughter) (Applause) Well, there's still about £3 billion left in change, and people will want the trains to slow down.

(Laughter) Well, here's another naive advertising man's question.

This shows that engineers, medical and scientific people are obsessed with solving real problems, but in reality most problems actually become problems of perception once we reach a level of basic wealth in society.

So let me ask you another question.

What's wrong with placebos?

They seem great to me. Little development cost.

they work very well.

No side effects. Any side effects are imaginary and can be safely ignored.

(Laughter) So I was debating this. And I actually went to Tyler Cowen's Marginal Revolution blog. I don't know if anyone knows.

In fact, someone was suggesting that we could take this concept further and actually create placebo education.

The point is that education doesn't work by actually teaching something.

This actually works by giving the impression that you've had a very good education, making your unfounded confidence feel insane and making you very successful later in life.

So, ladies and gentlemen, welcome to Oxford.

(Laughter) (Applause) But really, the point of placebo education is interesting.

How many of life's problems can actually be solved by tinkering with perception, rather than the tedious, laborious, and laborious task of actually changing reality?

Here is a great example of history. I've heard this was by some other king, but a little historical research seems to be about Frederick the Great.

Frederick the Great of Prussia was very enthusiastic about the Germans adopting and eating potatoes. I realized that with two sources of carbohydrates, wheat and potatoes, the price of bread would be less volatile.

And since you actually have to rely on two crops instead of one, the risk of starvation is much lower.

The only problem is that potatoes look pretty disgusting when you think about it.

Also, 18th-century Prussians, much like modern Scots, ate very little vegetables.

(Laughter) So actually he tried to make it mandatory.

A Prussian peasant said, "I can't even feed my dog ​​such terrible things.

They are utterly disgusting and useless. ”

There are even records of people being executed for refusing to grow potatoes.

So he tried Plan B.

He tried marketing solutions. It declared the potato a royal vegetable and no one but the royal family could consume it.

And he planted it in the royal potato patch, and instructed the guards to guard it day and night, but also gave secret instructions not to keep it too tight.

(Laughter) Well, eighteenth-century farmers know one very safe rule in life. It says that what is worth protecting is worth stealing.

Before long, large-scale underground potato farming operations began in Germany.

What he did, in effect, was rebrand potatoes.

It was a masterpiece.

When I mentioned this, a gentleman from Turkey came up to me and said, "You're a very good marketer, Frederick the Great, but not Ataturk's patch."

President Ataturk, rather like Nicolas Sarkozy, was very keen to prevent the wearing of the veil in order to modernize it in Turkey.

Well, boring people would have simply banned the veil.

But that would cause terrible kickback and a great deal of resistance.

Ataturk was a lateral thinker.

He made prostitutes wear veils.

(Laughter.) (Applause.) I can't fully verify that, but that doesn't matter.

By the way, your environmental problems have been solved. Anyone convicted of child sexual abuse must drive a Porsche Cayenne.

(Laughter) What Ataturk actually realized were two very basic things.

That is, in fact, first of all, all values ​​are really relative.

All values ​​are perceived values.

For those who don't speak Spanish, "jugo de naranja" actually means "orange juice" in Spanish.

Because it's not actually dollars. It's actually the Buenos Aires peso. Very clever Buenos Aires street vendors decided to engage in price discrimination to the detriment of passing gringo tourists.

As an advertising man, I have to admire that.

But first of all, all values ​​are subjective.

The second point is that persuasion is often better than coercion.

Some of the new signs on the bottom right are these funny speed signs that actually show a smile or a frown and act as an emotional trigger.

The interesting thing about these signs is that they prevent twice as many accidents at about 10% of the running cost of traditional speed cameras.

So the oddity that baffles traditionally classically trained economists is that a strange little smiley face is more effective in changing behavior than the threat of a £60 fine and three penalties.

A little detail of behavioral economics: In Italy, penalty points are reversed.

You start at 12 and they take them away.

Because loss aversion has been found to have a stronger influence on people's behavior.

In the UK, we tend to feel like, "Oh! There are three more!"

Not so in Italy.

Recall another great example of creating intangible value in place of real or material value. It comes down to what the environmental movement should be about. This is also Prussian, probably around 1812 or 1813.

Wealthy Prussians were encouraged to give up all their jewelry to help fight the French.

And it was replaced with cast iron replica jewelry.

One of them is "I gave gold to iron, 1813".

Interestingly, in the fifty years since then, no gold or diamond jewelry of the highest status could be worn in Prussia.

It was cast iron.

Because, really, I don't care about the intrinsic value of having gold jewelry. This actually had a symbolic value, a badge value.

It was written that your family had made great sacrifices in the past.

So the modern equivalent would of course be this.

(Laughter) But the fact is that some things, like Veblen's goods, depend on whether the goods are expensive and rare. Others, on the contrary, depend on whether their value is actually ubiquitous, classless and minimal.

Come to think of it, Shekelism was a primitive environmental movement.

Adam Smith talks about 18th century America. There, the prohibition against the display of visible wealth was so severe that even wealthy farmers found nothing to spend their money on without incurring the discontent of their neighbors, and New England's economy was all but blocked.

It is entirely possible to create these social pressures that lead to a more equal society.

What is also interesting is that when looking at products with a high component of so-called messaging value, or intangible value, compared to intrinsic value, they are often very egalitarian.

When it comes to dresses, denim is perhaps the perfect example of transposing material values ​​into symbolic ones.

coca cola. Some of you may have a lot of Pinko, and maybe you don't like The Coca-Cola Company, but Andy Warhol's point about Coke is worth remembering.

Warhol said of Coke, "What I really like about Coca-Cola is that the President of the United States can't get a better Coke than the guy on the street corner."

Now, it's actually, when you think about it - we take it for granted - to produce something so democratic is actually an amazing achievement.

Well, we basically have to change our mindset a bit.

There is a basic idea that real value involves making things, labor. It involves engineering.

We use limited raw materials.

And what we added on top of that is kind of wrong. It's a fake version.

And there is reason for suspicion and uncertainty in that.

Clearly turning to propaganda.

But what we have now is a much more diverse media ecosystem to create this kind of value, and it's much fairer.

When I grew up, this was basically my childhood media environment replaced with food.

We had an exclusive supplier. On the left is Rupert Murdoch, or BBC.

(Laughter.) And to your right is a dependent mass of people who are pathetically grateful for what you give them.

(Laughter) Now it's really getting people involved.

This is actually what the digital world calls “user-generated content”.

In the world of food, we call it agriculture.

(Laughter) It's actually called a mashup, where you take content that other people have created and do something new with it.

In the world of food, we call it cooking.

This is food 2.0, food produced with the intention of sharing it with others.

This is portable food. The British are very good at it.

Fish and chips, Cornish paste, pies and sandwiches sandwiched between newspapers.

We invented them all.

We are not very good at food in general. Italians make good food, but it's generally not very portable.

(Laughter) I just found out about this the other day. The Earl of Sandwich did not invent the sandwich.

He actually invented toast. But in that case, Earl Toasti would be a ridiculous name.

(Laughs) Finally, communication according to the situation.

Well, the reason I introduce Pernod is just one example.

Every country has alcoholic beverages for different situations. Pernod is French.

It's delicious within the borders of the country, but it's absolutely useless if you take it outside of that country's borders.

(laughs) For example, Unicum from Hungary.

In fact, the Greeks managed to produce something called retsina. You can even taste being in Greece.

(Laughter) But a lot of communication is so situational these days that the ability to actually prompt people or better inform them is actually in the cell phone, argues B.J. Fogg of Stanford University. He invented the term "persuasion art".

He believes that mobile phones are the most compelling technology devices ever invented because they are location-dependent, situational, timely and immediacy.

Now, if we have all these tools at our disposal, Thaler and Sunstein can just as well ask the question, how can we use them more intelligently?

I will give you an example.

If you had this kind of big red button on the wall of your house that saved you $50 each time you pushed it, and put $50 into your pension, you could save even more.

The reason is that interfaces fundamentally determine behavior. have understood?

Well, marketing does a pretty good job of creating impulse buying opportunities.

But we have never created an opportunity to save impulsively.

That way more people will be able to save more money.

It's just a matter of changing the interface people make decisions on, and the very nature of decision making changes.

As an advertising man, I tend to think of saving as mere consumerism, which is needlessly an afterthought, so obviously I don't want people to do this.

(Laughter) But if someone wants to do that, that's really the kind of thing we need to think about, and it's about the fundamental opportunity to change human behavior.

Well, here's an example from Canada.

There was a young intern at Ogilvy Canada named Hunter Somerville who was improvising in Toronto and got a part-time job in the advertising industry doing an ad for Schreedys.

This is the most perfect case for creating intangible added value without changing the product at all.

Shreddies is a weird square whole grain cereal only available in New Zealand, Canada and the UK.

This is a unique crafting way of rewarding royal loyalty.

(Laughter) He came up with this while looking at ways to reboot Shreddies.

Video: (Buzzer) Man: Shreddies should be square.

(laughter) Woman: Did any of these diamond shapes disappear?

(laughter) Narration: The new Diamond Schreedis cereal.

The same 100% whole wheat in delicious lozenge shapes.

(Applause.) Rory Sutherland: I don't think this is the most perfect example of intangible value creation. All you need is a photon, a neuron, and a great idea to create this.

You could call it the work of a genius.

But of course, none of this can be done without a little market research.

M: So Shreddies is actually making a new product, which is very exciting for them.

So they are introducing the new Diamond Shreddie.

(Laughter) So when you saw it, I'd love to hear your first impressions when you saw the Diamond Schreedys box there.

(laughs) Woman: Wasn't it square?

Woman 2: I'm a little confused. Woman #3: They look like squares to me.

Man: They're -- yeah, it's all about looks.

But it's like flipping six or nine. Like a 6, it looks like a 9 when flipped over.

But 6 is very different from 9.

Woman # 3: Or "M" and "W". M: Exactly "M" and "W".

Man #2: [Unintelligible] It looked like you just turned it upside down. But when you look at it this way, it's even more interesting.

Man: Try both.

First, prepare a square object there.

(laughs) Man: Which do you prefer? Guy #2: First one.

Man: What's the first one?

(Laughter) Rory Sutherland: Well, of course, the discussion escalated.

Unsurprisingly, there were conservatives in Canada who actually resented the invasion.

So in the end the makers really came to a compromise and that was the combo pack.

(Laughter) (Applause) (Laughter) If you find this interesting, remember that there is an organization called the American Wine Economics Institute. The institution has actually done extensive research on perceptions of things and has found no correlation between wine quality and enjoyment, except perhaps between the 5 or 10 percent who are most knowledgeable. However, if you tell people the price of wine, then they tend to enjoy the more expensive ones more.

So let's drink wine blind from now on.

But this is hysterically funny, but I think it's an important philosophical point. It means that we will need more of these kinds of values ​​in the future.

We need to spend less time worrying about what else we can do and more time appreciating what already exists.

It ends with more or less two quotes.

One of them is "Poetry is to see new things and make familiar things new."

This is a good definition of our job. It's not just about helping people understand the unfamiliar, it's about getting a higher rating and placing a much higher value on what already exists.

By the way, there is some evidence that things like social networking help with that.

Because it helps people share news.

Give badge value to small, everyday activities.

That means less need to spend big bucks on actual displays and more third-party fun from the smallest and simplest things in life. It's magic.

The second person is the 2th GK. Chesterton's words in this session, "We are perishing not because we have no wonder, but because we have no wonder", I think this is perfectly true for anyone involved in technology.

And finally, when you learn to value health, love, sex, and other things, and to put material value on what you have hitherto dismissed as mere intangibles and intangibles, you will find yourself much, much, much richer than you ever imagined.

thank you very much.

(applause)

Our mission is to build detailed and realistic computer models of the human brain.

Over the past four years, we have performed a proof of concept on a small portion of the rodent brain. With this proof of concept, we are now expanding the project to reach the human brain.

Why do we do this?

There are three important reasons.

First, understanding the human brain is essential to functioning well in society, and I believe this is an important step in evolution.

The second reason is that animal experiments cannot go on forever and all data and all knowledge must be embodied in a working model.

It's like an archive, like Noah's Ark.

A third reason is that there are 2 billion people on the planet who suffer from mental disorders and most of the drugs currently in use are empirical.

I think you can find very specific solutions on how to treat the disorder.

Now, even at this stage, brain models can be used to explore some fundamental questions about how the brain works.

And here at TED, for the first time, I want to share with you how we approach a theory. There are many theories, but I would like to tell you how we approach one theory of how the brain works.

So the theory is that our brain creates, builds a version of the universe, and projects this version of the universe around us like a bubble.

Now, this, of course, has been the subject of philosophical debate for centuries.

But for the first time, we can use brain simulations to actually tackle this problem and ask very systematic and rigorous questions about whether this theory could be true.

The moon on the horizon is huge simply because our perception bubble is less than 380,000 kilometers.

You will run out of space.

So we compare buildings in our perception bubble and make decisions.

Even if it's not that big, we make the decision that it's that big.

And what this shows is that decision-making is the key underpinning of our perception bubble. It keeps it alive.

Without determination, you cannot see, think, or feel.

You might also think that anesthetics work by inducing deep sleep or by blocking receptors so that you don't feel pain, but in reality most anesthetics don't work that way.

What they do is they introduce noise into the brain so that neurons cannot understand each other.

They are confused and you can't make a decision.

So while you're trying to determine what the doctor, the surgeon, is doing while hacking into your body, he's long gone.

He is having tea at home.

(Laughter) So when you approach the door and open it, what you have to compel to perceive is a thousand decisions about the size of the room, the walls, the height, the things in this room.

Ninety-nine percent of what you see doesn't come through your eyes.

That's what you guessed about that room.

Therefore, with a certain degree of certainty, we can say, "I think, therefore I exist."

But we cannot say, "You think, therefore you are." Because "you" is in my perception bubble.

We can speculate and philosophize about this now, but in reality we won't have to for the next 100 years.

You can ask very specific questions.

“Can the brain construct such perceptions?”

Can it be done?

Do you have the substance to do that?

That is what I will explain to you today.

So it took the universe 11 billion years to build the brain.

I had to improve it a bit.

Since they had to deal with it on land, a front section had to be added to feed their instincts.

But the real big step was the neocortex.

New brain. you needed it

Mammals needed it because they have to deal with parent-child relationships, social interactions and complex cognitive functions.

Therefore, the neocortex can indeed be considered the ultimate solution for the universe as we know it today.

It is the pinnacle, the end product of the universe.

It was so successful in evolution that it expanded the number of neurons about 1000-fold from mice to humans, giving rise to the structure of this almost terrifying organ.

And its evolutionary path has not stopped yet.

In fact, the human brain's neocortex is evolving at an astonishing rate.

If you zoom in on the surface of the neocortex, you'll see that it's made up of tiny computer-like modules: G5 processors.

But there are about a million of them.

They evolved so successfully that what we did was duplicate them over and over until we ran out of space in the skull, adding more of them to the brain.

And the brain began to fold back on itself, which is why the neocortex has become so complex.

We simply pack the columns in order to have more neocortical columns to perform more complex functions.

So the neocortex can actually be thought of as a giant grand piano, a million-key grand piano.

Each of these neocortical columns produces a sound.

you inspire it It creates a symphony.

But it is not just a symphony of perception.

It is your universe, your reality symphony.

Of course, it takes years to master a grand piano with a million keys.

That is why we must send our children to a good school, preferably Oxford eventually.

But it's not just about education.

It's also genetic.

You may be lucky enough to know how to master the neocortical columns and play a wonderful symphony.

In fact, there is a new theory of autism called the 'intense world' theory, which suggests that neocortical columns are supercolumnars.

Autistic people are so reactive and hyperplastic that they are able to construct and learn symphonies that perhaps we cannot even imagine.

But it is also understandable to be distracted if any of these columns are ill.

The perceptions and symphonies you create will decay and symptoms of disease will appear.

Therefore, the holy grail for neuroscience is to understand the design of neocortical pillars. This is not just neuroscience. It is perhaps understanding perception, understanding reality, and perhaps even understanding physical reality.

So what we've been doing over the last 15 years has been to systematically dissect the neocortex.

It's like visiting a piece of the rainforest and cataloging it.

how many trees do you have?

What shape does the tree have?

How many trees of each type do you have? Where are they located?

But this is more than just cataloging. Because neurons don't just like to connect with any neuron, so we really need to describe and discover all the rules of communication and connectivity.

They choose very carefully who they connect with.

And you need to actually build 3D digital models of them, so it's more than just cataloging them.

And we did that for tens of thousands of neurons, building digital models of all the different types of neurons we encountered.

Once we have that, we can actually start building the neocortical columns.

And here we are winding them up.

But when you do this, you'll find that branches can actually cross over in millions of places and form synapses at each of these intersections.

And synapses are the chemical sites where they communicate with each other.

Together, these synapses form the networks or circuits of the brain.

Now, circuits can also be thought of as structures in the brain.

And when you think about brain structure, structure, how is it constructed? What is the pattern of the carpet?

We see that this poses a fundamental challenge to any brain theory, especially the theory that there is some reality emerging from this carpet, from a particular carpet with a particular pattern.

The reason is that the most important design secret of the brain is diversity.

All neurons are different.

The same is true in the forest. Each pine tree is different.

There are many different types of trees, but each pine tree is different. And it's the same in your brain.

So my brain doesn't have the same neurons as other neurons, and my brain doesn't have the same neurons as yours.

And the neurons aren't all oriented in exactly the same direction.

And the number of neurons may be more or less.

So it's highly unlikely that they're using the same fabric, same circuit.

So how can we create a reality where we can understand each other?

Well, no need to guess.

Now we can explore all 10 million synapses.

You can see the fabric. And you can change neurons.

Different neurons can be used in different variations.

You can place them in different locations and point them at different locations.

You can also reduce or increase them.

I found that running it really changed the circuit.

But circuit design patterns do not.

So, the structure of the brain, we actually share the same structure, even if your brain is small or big, has different types of neurons or different forms of neurons.

And we believe this is species-specific. That is, it may explain why we cannot communicate across species.

Now let's flip the switch. But to do that, all you have to do is bring this to life.

We bring it to life with equations and lots of math.

And indeed, the equation that turns neurons into generators was discovered by two Cambridge Nobel laureates.

So the math exists for activating neurons.

There is also mathematics that explains how neurons gather information and how they generate little lightning bolts to communicate with each other.

And when they reach the synapse, they literally and effectively shock the synapse.

It's like an electric shock that releases chemicals from your synapses.

And then we got the math to explain this process.

Therefore, communication between neurons can be explained.

There are literally a handful of equations needed to simulate the activity of the neocortex.

But what you need is a very large computer.

And in fact, it takes one laptop to do all the computations for one neuron.

That means we need 10,000 laptops.

So where are you going? Go to IBM and get a supercomputer. Because IBM knows how to fit 10,000 laptops into the size of a refrigerator.

So now we have this Blue Gene supercomputer.

You can load every neuron into its own processor, fire it up, and see what happens.

Let's go out on a magic carpet.

Activate it here. This allows us to see for the first time what is happening in the brain when a stimulus occurs.

It's the first time I've seen it.

Now, when I see this for the first time, I think, "Oh my god, how does reality come out of that?"

But in fact, you can start even if you haven't trained this neocortical column to create a specific reality.

But you can ask, "Where are the roses?"

You can ask, "Where is it inside if you stimulate it with a picture?"

Where is it inside the cerebral neocortex?

Ultimately, it should be there if you stimulate it.

So the way to look at this is to ignore neurons and synapses and just look at the raw electrical activity.

Because that is what you are creating.

You are creating an electrical pattern.

So when we did this, we actually saw for the first time electrical objects appearing within these ghostly structures, the neocortical columns.

And these electrical objects carry all the information about what stimulated them.

And when you zoom in on this, it looks like a real universe.

So the next step is to take these brain coordinates and project them into perceptual space.

Then you will be able to step into the reality created by this machine, this part of your brain.

In summary, the universe may have evolved a brain to see itself, and it is possible, but I think that could be the first step towards self-awareness.

Much work remains to be done to test these and other theories.

But I hope you are at least partially convinced that building a brain is not impossible.

We can do it in 10 years. If successful, I will send a hologram to TED that will speak to you in 10 years. thank you.

(applause)

How many of us are tired of seeing celebrities adopt children from the African continent?

(laughs) Well, it's not that bad.

I was adopted.

I grew up in rural Uganda and lost my parents when I was very young.

And when my parents died, I experienced all the ill effects of poverty, like being homeless and eating from a garbage pile.

However, my life changed after being accepted into the orphanage.

Through one of their orphan sponsor programs, I was sponsored and given the opportunity to receive an education.

I started from Uganda.

I went to school, but the way this special program works is that after high school, you go to study a profession to become a carpenter, machinist, etc.

My case was a little different.

The sponsoring family, whom I had never met, who sent $25 a month to the orphanage to sponsor me, said:

I would like to send you to college instead. ”

Oh, it's getting better

(Laughter.) And they said, "Once you get the paperwork, we'll send you to school in America instead."

So with their help I went to the embassy and applied for a visa.

I got my visa.

I remember this day like it was yesterday.

With this piece of paper in my hand, I walked out of the embassy with a smile on my face and my feet hopping, realizing that my life was about to change.

That night, I went home and slept with my passport because I was afraid someone would steal it.

(Laughter) I couldn't sleep.

I kept feeling it.

I have a good idea regarding security.

I thought, "Okay, put it in a plastic bag and take it outside and dig a hole and put it in there."

I did so and went home.

I couldn't sleep. I thought, "Someone might have seen me."

I came back -- (laughter) took it out and carried it around all night -- to say it was all an anxious night.

(Laughter) As other speakers have said, going to America was my first time seeing and riding an airplane, much less getting on an airplane and flying to another country.

December 15, 2006.

7:08 p.m.

I sat in seat 7A.

Take Emirates Airlines.

One of the most gorgeous and beautiful women I have ever seen walked in wearing a little red hat with a white veil.

He looks frightened and doesn't know what he's doing.

She handed me this warm towel. It's warm, steaming, and pure white.

I'm looking at this warm towel. I don't know what to do with this damn towel, much less my life -- (Laughter) (Applause) I did one thing anyone could do in a situation like that. It's about looking around and seeing what other people are doing.

I did the same.

Mind you, it took me about 7 hours to drive from the village to the airport that day.

So I grab this warm towel, wipe my face like everyone else does, and look at it - damn it.

(laughs) It was all earthy brown.

(Laughter.) I remember not giving mine when she came to get it because I was so embarrassed.

(laughs) I still have it.

(Laughter) (Applause) Going to America opened the door for me to reach my fullest God-given potential.

I remember having to hug my sponsor's family and literally teach them everything from scratch when I arrived. This was a microwave oven, this was a refrigerator, something I had never seen before.

It was also my first experience of immersing myself in a new and different culture.

These strangers showed me true love.

These strangers have taught me that I matter, that my dreams matter.

(Applause.) Thank you.

These people had two biological children of their own.

And when I joined the company, I had a need.

They had to teach me English and teach me literally everything, resulting in them spending a lot of time with me.

And it caused a little jealousy in their children.

So if you're a parent in this room and you have teenage kids who don't want to be associated with your affection, in fact they're repulsed by it, I've found a solution. It means adopting a child.

(laughs) That solves the problem.

(Applause.) I then went on to earn two engineering degrees from one of the best institutions in the world.

The point is that talent is universal, but opportunity is not.

And I attribute this to people who embrace multiculturalism, love for others, empathy, and compassion.

We live in a world of wall building, Brexit, xenophobia, and hate here on the African continent.

Multiculturalism can be the answer to many of these worst human qualities.

Today we challenge young children to experience multiculturalism.

We guarantee that it will enrich their life, and in turn yours.

As a bonus, one of them will even give a TED talk.

(Laughter) (Applause) We may not be able to solve the bigotry and racism in this world today, but we can certainly raise our children to create a positive, inclusive, connected world filled with empathy, love, and compassion.

love wins.

thank you.

(applause)

good morning. how are you?

It was very good.

Actually I'm leaving.

(Laughter) There were three themes at the conference, and they are related to what I wanted to talk about.

One is that every presentation we've done and everyone here is an extraordinary testament to human creativity. Just its variety and scope.

Second, we are in a situation where we do not know what will happen in the future.

I don't know how this will unfold.

I am interested in education.

In fact, I got the feeling that everyone is interested in education.

don't you

I find this very interesting.

If you're at a dinner and say you work in education, frankly, you don't actually attend the dinner much.

(Laughter) If you work in education, nothing is expected of you.

(Laughter) And strangely enough, it was never asked back. It's strange to me.

But if you are and you say to someone, they will say, "What are you doing?"

You can see the blood running down their faces when I tell them I work in education.

(Laughter) "I've been out all night for the whole week."

(Laughter) But if you ask about their education, they nail you to the wall because that's one of the things that touches people, am I right?

Like religion and money and other things.

So I have a huge interest in education and I think you do too.

We have a great vested interest in education partly because it is an education that takes us into a future we cannot grasp.

If you think about it, the children who entered school this year will retire in 2065.

A lot of expertise has been showcased over the past four days, but who knows what the world will look like in five years.

Still, we're going to educate them for that.

So I think this unpredictability is extraordinary.

And the third part of this is, nevertheless, we all agree that children have a truly extraordinary capacity: their capacity to innovate.

I mean, last night Sirena was phenomenal, wasn't she?

And while she's extraordinary, I don't think she's been extraordinary for her entire childhood, if you will.

What you have there is an extraordinary and dedicated person who finds talent.

My point is that all kids have great talent, yet we waste it pretty relentlessly.

So I would like to talk about education and creativity.

My argument is that creativity is now as important in education as literacy and should be treated with the same status.

(Applause.) Thank you.

(Applause.) By the way, that was it. thank you very much.

(laughs) So, 15 minutes left.

(Laughter) "Well, I was born..." (Laughter) Recently I heard a wonderful story - which I love to tell - about a little girl who was in painting lessons.

She was six years old and was painting in the back. The teacher said that this girl paid little attention, but in this drawing lesson she did.

She went up to her and said, "What are you drawing?"

Then the girl said, "I am painting a picture of God."

Then the teacher said, "But no one knows what God looks like."

Then the girl said, "I will come soon."

(Laughter) When my son was four in England, he was four everywhere, to be honest.

He was in a nativity play. Do you remember that story?

(Laughter) No, it was a big story.

(laughs) "Nativity II".

But James got the part of Joseph, so we were thrilled with it.

I thought of this as one of the main characters.

The hall was packed with agents wearing t-shirts that read, "James Robinson is Joseph!"

(Laughter) He didn't have to speak, but do you know where the three kings come from?

They come with gifts of gold, frankincense, and myrrh.

This really happened.

We were sitting there, but I think it was just out of order because I spoke to the little boy later and said, 'Is that OK? They said, "Yeah, why? Was that wrong?"

they just switched.

Three four-year-old boys with tea towels on their heads entered.

When they put these boxes down, the first boy said, "I'll bring you gold."

And the second boy said, "I will bring myrrh."

And the third boy said, "Frank sent this."

(Laughter) What they all have in common is that kids take chances.

If you don't know, you will try.

am i right? They are not afraid to be wrong.

What we do know is that you'll never come up with something original if you're not prepared to make mistakes. Unless you're prepared to make mistakes.

And by the time they reach adulthood, most children have lost that ability.

They became afraid of making mistakes.

And this is how we run our company.

We blame our mistakes.

And we now run a national education system where mistakes are the worst thing.

As a result, we are educating people's creative abilities.

Picasso once said, "Every child is a born artist."

The problem is to remain an artist into adulthood.

I believe this passionately. We don't grow creativity, we grow from creativity.

Or rather, we get our education from it.

So why?

In fact, we moved from Stratford to Los Angeles.

(Laughter) We actually lived in a place called Snitterfield just outside of Stratford. It is where Shakespeare's father was born.

You don't think Shakespeare had a father, do you?

you?

Because you don't think of Shakespeare as a child.

Is Shakespeare 7 years old?

So at one point he was 7 years old.

He was in someone's English class, right?

(Laughter) How annoying is that?

(Laughter) As my father sent me to bed, I said to Shakespeare, "Go to bed!"

to William Shakespeare.

"And put down your pencil!"

(Laughter) "You're confusing people."

(Laughter) Anyway, we moved from Stratford to Los Angeles. I just want to say a few words about that transition.

i have two children. He is now 21 and his daughter is 16.

He didn't want to come to Los Angeles.

He loved it, but he had a girlfriend in England.

This was his lifelong love, Sarah.

He had known her for a month.

(Laughs) Just to be sure, they celebrated their 4th anniversary. 16 years old is a long time.

He said, "You will never find a woman like Sarah again."

And frankly, we were rather happy about it -- (laughter) because she was the main reason we left the country.

(Laughter) But when you move to America and travel around the world, one thing surprises you. All education systems on earth have the same subject hierarchy.

everyone. It doesn't matter where you go.

You might think otherwise, but it's not.

At the top are Mathematics, Languages ​​and Humanities.

At the bottom is art. anywhere on earth.

And there are hierarchies in art in almost every system.

Arts and music are usually given higher status in schools than drama and dance.

There is no educational system on earth that teaches children to dance every day the way we teach math.

why?

I think this is pretty important.

Children dance whenever they are allowed, and so do we.

We all have bodies, right? Missed a meeting?

(Laughter) To tell you the truth, as children grow up, we gradually start educating them from the upper body.

And look at their heads.

and a little to one side.

If you, as an alien, visit an educational site and ask, "What is public education for?"

I think we have to conclude by looking at the achievements, who will really succeed, who will do everything they can, who will get all the brownie points, and who will be the winner. I think it is necessary to conclude that the purpose of public education around the world is to produce university professors.

They are the people who are at the top.

And I used to be one of them.

(Laughter.) And I like college professors, but you know, we shouldn't hold them up as the pinnacle of all human achievement.

They are just forms of life.

Another form of life.

But they are quite curious.

And I say this out of love for them. The professor has something interesting.

In my experience, usually, but not all, they live in the head.

They live right next to it.

They see their body as a vehicle for their head.

(laughs) Right?

(Laughter) By the way, if you want real evidence of an out-of-body experience, attend the Senior Scholars' Accommodation Conference and stop by the disco on your last night.

(Laughter) And you see it there.

Adult men and women who are dismayed and writhe uncontrollably.

(Laughter) I'm waiting until it's done so they can go home and write a paper on it.

(Laughter) Our educational system is based on meritocracy.

Prior to the 19th century, there was no public education system in the world.

They were all born to meet the needs of industrialism.

The first is that the subjects that are most useful for work are ranked high.

I mean, you were probably conscientiously pushed away as a kid because of what you did in school or what you love to do and because you couldn't get a job doing it.

is that so?

"Don't do music, you can't be a musician, don't do art, you can't be an artist."

Kind advice, but this is a big mistake.

The whole world is engulfed in revolution.

And the second is academic ability. This has actually come to dominate our view of intelligence. This is because the university designs the system according to the image of the university.

If you think about it, the entire public education system around the world is a lengthy process of getting into college.

As a result, many very talented, brilliant, and creative people were devalued, or indeed stigmatized, for what they were good at in school, leading them to think they weren't.

And I don't think we can afford to continue down that road.

According to UNESCO, in the next 30 years more people around the world will be educated and graduated than in recorded history.

there will be more people.

And it's a combination of everything we've talked about: technology and its transformative impact on jobs, demographics and massive population explosions.

Suddenly the degree was worth nothing.

Isn't that true?

If you didn't have a job, it's because you didn't want one.

Frankly, I didn't want that.

(Laughter) But now kids with degrees often go home and continue playing video games. My previous job required a bachelor's degree, but now I have a job that requires a PhD.

It's the process of academic inflation.

And it shows that the entire structure of education is changing under our feet.

We need to fundamentally rethink the way we look at intelligence.

We know three things about intelligence.

We think of the world in every way we experience it.

We think visually, we think audibly, we think kinesthetically.

We think in abstract terms, we think in motion.

Second, intelligence is dynamic.

If we look at the interaction of the human brain, as we heard from many presentations yesterday, intelligence is surprisingly interactive.

The brain is not divided into compartments.

In fact, creativity (which I define as the process of having a worthwhile original idea) is often born through the interplay of different professional views of things.

By the way, there is a nerve axis that connects the two halves of the brain, called the corpus callosum.

Women are fatter.

Following Helen yesterday, this is probably why women are better at multitasking.

Because you are too, right?

Lots of research, but I know it from personal life.

My wife doesn't often cook at home, but...

(Laughter) No, she's good at some things.

But when she's cooking, when she's talking to people on the phone, when she's talking to her kids, when she's painting the ceiling -- (Laughter) she's doing open-heart surgery here.

It annoys me when she walks in while I'm cooking, the door is closed, the kids are out and the phone is on.

"Terry, please, I'm trying to make an egg here."

(Laughter) Actually, you know that old philosophical saying, "If a tree fell in the forest and no one heard about it, did it happen?"

Remember that old chestnut?

I recently saw an amazing T-shirt. "If a man speaks his mind in the woods and no woman listens to him, is he still wrong?"

(Laughter) And the third thing about intelligence is that it is distinct.

I am currently working on a new book called "Epiphany". It's based on a series of interviews about how people discovered their talents.

I'm interested in how people got there.

It all started with a conversation with Jillian Lynn, an amazing woman that most of you have probably never heard of.

Have you heard of her? Some have.

She is a choreographer and everyone knows her work.

She did "Cats" and "The Phantom of the Opera".

As you can see, I used to be a director of the Royal Ballet of England.

(laughs) One day, Gillian and I had lunch. "How did you become a dancer?" I said.

It was interesting.

When she was in school, she was really hopeless.

And the school wrote to her parents in the 1930s, "We consider Gillian to have a learning disability."

She couldn't concentrate. she was fidgeting.

Now I would say she has ADHD.

But this was the 1930s, and ADHD had not yet been invented.

It was not available.

(Laughter) People didn't know you could do that.

(Laughter) Anyway, she went to see this expert.

So in this oak paneled room, she was there with her mother. Then she was led to sit on this chair for the last time, and sat straight for 20 minutes. Meanwhile, this man was telling his mother about all the problems Gillian was having at school. Because Gillian is always late for her homework because she is annoying people. etc.

Eventually the doctor went and sat down next to Gillian and said, "I heard everything your mother told me.

I need to speak to her personally.

wait here we will be back It won't be long." And they left her.

But when they left the room, he turned on the radio that was on the desk.

And when they left the room, he told his mother, "Just stand and watch."

And the moment they left the room, she got up and started moving to the music.

And as they watched for a few minutes, he turned to his mother and said, "Mr. Lynn, Gillian is not sick.

she is a dancer

Take her to dance school. ”

She said, "She did. I can't express how wonderful it was.

When we entered this room, it was full of people like me, people who couldn't sit still, people who had to move to think. ”

Who had to move to think?

They did ballet, tap and jazz. They did modern things. They did contemporary.

She eventually auditioned for the Royal Ballet School.

She became a soloist. She had a great career with the Royal Ballet.

She eventually graduated from the Royal Ballet School, founded the Gillian Lynn Dance Company, and met Andrew Lloyd Webber.

She has been responsible for some of the most successful musical theater productions in history, has given joy to millions and is a millionaire.

Someone might have drugged her and told her to calm down.

(Applause) I think the bottom line is this. Al Gore spoke last night about ecology and the revolution caused by Rachel Carson.

Our only hope for the future, I believe, is to adopt a new conception of human ecology, to begin rebuilding our conception of human capabilities.

Our educational system has dug up our hearts in the same way we dig up the earth for certain commodities.

And in the future it will not serve us.

We need to rethink the basic principles of educating our children.

A great quote by Jonas Salk, "If all insects disappeared from the earth, within 50 years all life on earth would have disappeared."

If humans disappeared from the earth, all life would flourish within 50 years. ”

and he is right.

TED celebrates the human imagination.

We must now take care to use this gift wisely and avoid some of the scenarios we have been talking about.

And the only way we can make that happen is by seeing our creative abilities in their fullness and giving our children hope.

And our task is to educate their entire beings so that they can face this future.

By the way, we may not see this future, but they will.

And our job is to help them do something about it.

In the next five minutes my intention is to change my relationship with sound.

Let's start with the observation that most of the sounds around us are accidental. Most of them are unpleasant. (Traffic noise) We are standing on a street corner screaming at noise like this and pretending it doesn't exist.

This habit of suppressing sound means that our relationship with sound has become almost unconscious.

There are four main ways sound is always affecting you. I want to bring them up in my mind today.

The first is physiological.

(alarm clock rings) I'm sorry.

Sound has always had an effect on hormone secretion, but it has also had an effect on breathing, heart rate, and, as I did, brainwaves.

These unpleasant sounds are not the only cause.

This is surfing. (Ocean waves) It has a period of about 12 cycles per minute.

Most people find this very comfortable. And interestingly, 12 cycles per minute is about the same as the breathing rate of a sleeping human, so being at rest has a deep resonance.

It is also reminiscent of a stress-free holiday.

The second effect that sound has on you is psychological.

Music is the most powerful form of sound we know that affects our emotional states. (Albinoni's Adagio) I have no doubt that most people will feel pretty sad if this is left alone.

But music isn't the only sound that influences emotions.

Even nature sounds can do that.

For example, chirping birds are a soothing sound for most people.

There's a reason for that. We have learned over hundreds of thousands of years that we are safe when birds are singing.

All you need to worry about is when they stop.

A third effect that sound has on you is cognitive.

It doesn't understand two people talking at the same time (voice-over), or in this case one person speaking twice.

Such noise occurs because there is very little bandwidth to process auditory input...

If you have to work in an open plan office like this, your productivity will suffer significantly.

And whatever numbers you have in mind, it probably isn't this bad.

[Open-plan offices are 66% less productive] Open-plan offices are one-third as productive as quiet rooms.

I have a hint. If you're working in such a space, bring headphones that can make you hear soothing sounds like birds chirping.

Wearing these will restore your productivity to three times normal.

A fourth effect of sound on us is behavioral.

It would be great if our behavior didn't change while other things were happening.

(techno music) So ask yourself. Is this person going to drive at a constant speed of 45 mph?

i don't think so.

Simply put, you move away from unpleasant sounds and toward pleasant sounds.

So if I play this...

(Jackhammer) If it lasts longer than a few seconds, you will feel uncomfortable. After a few minutes or more, you'll be out of the room in droves.

For those who cannot escape such noise, it is very detrimental to their health.

The damage caused by bad sound doesn't stop there.

Voice in most retail stores is inappropriate, incidental, and even hostile, dramatically impacting sales.

Retailers, you might want to look away before showing this slide.

[Inappropriate retail soundscapes reduce sales by 28%] Up to 30% of business is lost when people leave the store faster or turn back at the front door.

We all left the place because it was so loud over there.

I would like to say a few words about the model that we developed. This model allows us to start at the top, examine the drivers of sound, analyze the soundscape, and predict the four outcomes we just talked about.

Or start at the bottom, state what result you want, and then design the soundscape to achieve the desired effect.

Finally, we have science that can be applied.

A word about music.

Music is the most powerful sound that exists, but it is often used improperly.

This is powerful for two reasons. One is that they are recognized quickly and the other is that they are associated very strongly.

Here are two examples.

(first chord of "A Hard Day's Night") Most people recognize it immediately.

Young people may not.

(laughter) (first note on the "Jaws" theme) Most people associate it with something.

Well, these are 1 second music samples.

Music is very powerful, but unfortunately it often graces commercial spaces inappropriately.

I hope things change in the next few years.

Some of you are running brands, so let me talk a little bit about brands.

Every brand is making sounds now.

There are eight expressions of the brand in sound. They are all important.

I am glad that it is starting to happen now.

(Intel advertising jingle) You all know that.

(Nokia ringtone) This is the most played song in the world today. The song is being played 1.8 billion times a day.

(Laughter) And Nokia cost nothing.

If you're running a business, here are four golden rules for commercial sound.

First, try to match and face the same direction as your visual communication.

This increases your influence by more than 1,100 percent.

If the sounds are directed in opposite directions and are not harmonious, the impact is reduced by 86%.

It's an order of magnitude above or below.

This is important.

Second, make it appropriate for the situation.

Third, make it worthwhile.

Don't just hit things, give people something with sound.

Finally, test again and again.

Sound is complicated. There are many conflicting influences.

It might look a little like a bowl of spaghetti. Sometimes you just have to eat it and see what happens.

Therefore, I hope that this story has struck a chord with your consciousness.

If you listen consciously, you can control the sounds around you.

It's good for your health and good for your productivity.

If we all do that, I think we will move to a state where we can live well in the world.

Let me hear more of the birds singing. (birds chirping) We recommend at least 5 minutes per day, but there is no maximum intake.

Thank you for listening to me today.

Everyone, good evening.

Since I am from Japan, I would like to start by talking about a Japanese fishing village.

In the past, every fisherman was tempted to catch as many fish as possible, but if everyone did that, the community's shared resource of fish would disappear.

The result is hardship and poverty for all.

This happened in some cases but not others.

In these communities, fishermen have built a sort of social contract that instructs each to exercise some restraint to prevent overfishing.

The fishermen kept an eye on each other.

Penalties will be imposed if cheating is found.

But once the benefits of the social contract became clear to everyone, the motivation to cheat dropped dramatically.

Similar stories can be found all over the world.

Medieval European villagers managed pastures and forests in this way.

This is how communities in Asia manage their water, and how indigenous peoples in the Amazon manage their wildlife.

These communities found themselves dependent on finite shared resources.

They developed rules and practices on how to manage those resources and changed their behavior so that they would not overfish, overgraze, pollute or deplete watercourses today, and continue to rely on shared resources tomorrow.

This is the story of the commons and how to avoid the so-called tragedy of the commons.

But this is also the story of a largely local economy where everyone had a very strong sense of belonging.

Our economy is no longer local.

As we moved away from home, we began to lose touch with the commons.

We had economic goals, goals, and systems that transcend the region, but we didn't have the concept of valuing the commons.

So the oceans and forests that were once so close to us as local commons have become far from us.

So today we emit millions of tons of greenhouse gases into the atmosphere, dump plastic, fertilizer and industrial waste into our rivers and oceans, and cut down forests that absorb CO2.

We are making wild biodiversity even more vulnerable.

We seem to have completely forgotten that such things as global commons such as air, water, forests and biodiversity exist.

Now, modern science reminds us of the importance of the global commons.

In 2009, a group of scientists proposed a method to assess the health of the global commons.

They defined nine planetary boundaries essential to our survival, then measured how far we could go before crossing tipping points or thresholds that would lead us to irreversible or even catastrophic change.

This is where we were in the 1950's.

We stayed mostly within the safe operating range indicated by the green line.

But look where we are now.

We have crossed four of them and will continue to cross others.

How did we end up in this situation?

Well, my personal story may tell you something.

Five years ago, I was appointed CEO of the GEF (Global Environment Facility), but I am neither a conservationist nor an environmental activist.

I am an economist and have spent the last 30 years working in finance in my home country and around the world.

One thing I can say for sure is that in the last 30 years the concept of a global commons has never crossed my mind.

I never had a conversation with my colleagues about global commons.

From this we can see that the concept of global commons was not really involved in big financial decisions such as national budgets and investment plans.

And I'm wondering, why are we, myself included, so utterly ignorant about the global commons?

One possible explanation might be that it didn't matter much until recently.

Even if we mess up part of the environment, we won't fundamentally change the functioning of the Earth system.

The Global Commons still had enough capacity to take the punches we threw at them.

In fact, the fish were still plentiful and the grazing fields still vast.

Our mistake was to assume that the Earth's ability to repair itself is limitless.

It has its limits.

The message from science is very clear. We humans are the overwhelming force that determines future living conditions on earth, and we are running out of time.

If we do not act on them, we will lose our global commons.

Only our generation can save it. We can save the commons as we know them.

Now is the time for us to start managing our global commons as our parents and grandparents managed their local commons.

The first thing we need to do is simply recognize that we have a global commons and that it is very important.

Second, we need to embed management of the global commons into all of our thinking, business, economics, policy-making and actions.

The social contract of fishing communities needs to be restructured on a global scale.

But what does that mean in practice?

Where do I start?

I believe there are four major economic systems that need to be radically changed.

First, we need to change cities.

By 2050, two-thirds of the population will live in cities.

We need green cities.

Second, we need to change our energy system.

The global economy must basically decarbonize rapidly in one generation.

Third, we need to change the production and consumption system.

We need to move away from our current take-make-dispose consumption pattern.

And finally, we need to change our food system, what we eat and how we produce it.

And all four of these systems put a lot of pressure on the global commons, and it's also very difficult to overthrow them.

These are very complex and involve many decision makers and stakeholders.

Let's take the example of a food system.

Food production currently accounts for a quarter of greenhouse gas emissions.

It is also a major user of the world's water resources.

In fact, 70 percent of today's water is used to grow crops.

Large areas of tropical forest are used for agriculture.

This deforestation causes extinction.

In fact, we are losing seeds 1,000 times faster than the natural rate.

And on top of all this bad news, one-third of the food produced in the world today goes uneaten.

It's pointless.

But there is good news, good signs.

A coalition of stakeholders is now uniting to transform the food system with a common goal. It is a way to produce enough healthy food for all, while at the same time reducing or substantially reducing the food system's footprint on the global commons.

I had the opportunity to fly over the Indonesian island of Sumatra and witness first-hand the massive deforestation that is taking place to make room for palm oil plantations.

By the way, palm oil is found in thousands of foods we eat every day.

Global demand for palm oil is only increasing.

In Sumatra, I met smallholder farmers who need to make a living by growing oil palms.

I met with global food companies, financial institutions and local government officials.

They all told me that they could not make change on their own and that only by working together under some kind of new contract and new habits would we have a chance to protect our tropical forests.

So, for at least the last few years, it's been very heartening to see this new coalition of these dedicated actors along the supply chain coming together to try and transform the food system.

In fact, what they are trying to do is create a new kind of social contract to manage the global commons.

All change starts at home, your place and mine.

The GEF (Global Environment Facility) is currently developing a new strategy, with the global commons at its heart.

I hope we are not alone.

If everyone is a bystander, waiting for others to intervene, the global commons will continue to get worse, and everyone will get worse.

We must protect ourselves from the tragedy of the commons.

Therefore, I encourage all of you to embrace the global commons.

Remember, the Global Commons exists and awaits your control.

We all share one planet.

We breathe the same air, drink the same water, and depend on the same oceans, forests and biodiversity.

There is no room left for egoism on earth.

The global commons must be maintained within a secure operating area. We can only do it together.

Thank you very much.

(applause)

$13 trillion of wealth has evaporated in the last two years.

We have been questioning the future of capitalism.

We have asked the financial industry.

We've been looking into government surveillance.

We asked where we were going.

But at the same time, this is a landmark moment in American history, and it could very well be an opportunity for consumers to really take control and set us on a new trajectory for America.

I call it "The Great Unwind".

(Laughter) And the idea is a simple, simple idea, and the fact that consumers have moved from anxiety to action.

Consumers, who make up 72 percent of America's GDP, have indeed begun to deleverage, loosen leverage in their everyday lives, and step away from the responsibilities and risks that come with moving forward, just like banks and businesses.

So to understand this, let me stress this, it's not that consumers are going backwards.

To understand this, let's step back and look at what happened over the past year and a half.

So if you're gone, here are the CliffsNotes on what happened in the economy.

(Laughter) The unemployment rate went up. house values ​​go down. Stock market fell.

The product price is like this.

If you're a mom trying to control your budget and oil prices were $150 a barrel last summer and it was between $50 and $70, would you plan a vacation?

What strategies do you have in your household? Will Relief Work?

We have national debt, Detroit, currency valuation, health care, all these issues facing us.

Mixing all of this together into a bouillabaisse will give you consumer confidence like a ticking time bomb.

In fact, let's look back at the causes of this crisis. Because consumers, all of us, contribute significantly to the problem in our daily lives.

This is what I call the "50/20 Paradox".

It took 50 years for the annual savings rate to reach almost 10%.

50 years.

Do you know what this was here? This was World War II.

There was nothing to buy unless you wanted to buy rivets.

But what has happened in the last 20 years is that we went from a 10 percent savings rate to a negative savings rate.

Because we ate and drank too much.

We bought an oversized car, we oversized everything, we bought restless leg syndrome meds.

All of this basically combined to create a factor that puts consumers squarely in the crisis we face today.

The personal debt to income ratio has basically gone from 65 percent to 135 percent in about 15 years.

As a result, consumers have used excessive leverage.

And, of course, banks, as well as the federal government, have acted as well.

This is an absolutely amazing chart.

This shows the trend of leverage from 1919 to 2009.

And what you end up seeing is the whole phenomenon that we're really taking a step and basically capitalizing on future education, future children at home.

So, to put this in the context of visualizing the remedy, if you start stacking dollar bills, you can see that $360,000 is the size of four 5 foot tall men.

But when you stack it up, you see this amazing and amazing amount of dollars being put into this system to fund and bail us out.

This is the first 315 billion.

But I read this fact the other day. One trillion seconds equals 32,000 years.

So given the context and the ease with which we talk about multitrillion-dollar bailouts here and there, we are striving for long-term leverage.

But consumers are moving.

they are taking responsibility.

What we are seeing is an increase in the savings rate.

In fact, it has been saving for 11 straight months since the crisis began.

We are working toward that 10%.

Also notably, spending fell to its lowest level in 62 years in the fourth quarter, down nearly 3.7 percent.

Visa reports that more people now use debit cards than credit cards.

So we are starting to pay for things with the money we have.

And we are starting to be more cautious about how we save and invest.

But this is not all. Because this is also a time of dramatic change.

And we have to admit that over the past year and a half, consumers have been doing weird things.

It's pretty amazing what we've been through.

Considering that 80% of all Americans were born after World War II, this was essentially our Great Depression.

Some crazy things happened as a result.

Here are some examples.

Let's talk dentists, vasectomies, guns and shark attacks.

(laughter) The dentist reports a defect in the back tooth. People come in grinding their teeth and report feeling stressed.

As a result, more and more people are having to replace their stuffing.

Gun sales have increased nearly 25% since January, according to the FBI, which conducts background checks.

According to Cornell Labs, vasectomies are up 48%.

And finally, a very good point, which I hope has nothing to do with the former, is that shark attacks are at their lowest level since 2003.

Anyone know the reason?

(Laughter) No one on the beach.

But seriously, the reason I want to stress what's going on with us and that consumers aren't going backwards is that for the consumers that put us in this recession, this is the perfect opportunity to lead us into a backwards move soon.

So we can move from mindless consumption to mindful consumption.

right?

(Applause.) If you look back over the past 30 years, consumers were familiar with marketing in the 90s, but this decade has brought together all the amazing social and search tools.

But what holds them back is their ability to discriminate.

Limiting demand allows consumers to actually align their spending with their values, leading capitalism and business to do more, not just more.

Based on VML and Young &amp's own tool, Y&R's BrandAsset Valuator. Rubicam, we set out to understand what's going on in the midst of the consumer market crisis.

I found some really interesting things.

We look at four shifts in values ​​that we believe will drive new consumer behaviors and provide new governing principles.

The first shift in cultural values ​​we see is the trend toward what we call "liquid life."

This is a shift towards having liquidity, where Americans define success by having things. Because the less clutter you have around you, the more agile and agile you become.

As a result, the downgrading of consumption has begun.

Declasse consumption is the whole idea that spending money frivolously can make you look a little anti-fashion.

The business philosophy is dollars and cents.

So let's look at some examples of declasse consumption that deviate from this set of values.

First of all, there must be something going on when P. Diddy vows to keep the show down.

(Laughter) But seriously, we're seeing this phenomenon on Madison Avenue and elsewhere, where people are actually walking out of high-end boutiques with plain generic paper bags to hide branded items.

Today, we see haggling for luxury goods in the fashion world, and haggling for luxury goods in luxury goods and real estate.

We also see a mere relaxation of the ego and a sort of dismantling of the artifact.

This is basically a story about a yacht club where everyone is blue collar.

Blue Collar Yacht Club -- You can join, but you must work at a shipyard to be a member.

There is also a trend towards more modest tourism, namely agritourism, which goes to vineyards and farms.

And we also see this move from dollars and cents.

It will be very interesting to see what companies can do to lead to these new ways of thinking.

One is that Frito-Lay understands the liquidity issue with consumers.

They found that consumers had more money at the beginning of the month but less at the end of the month.

So they started changing the packaging. A large pack at the beginning of the month and a small pack at the end of the month.

They just introduced dynamic pricing.

Everything from pitcher matches to weather to team records are considered when setting consumer prices.

Another simple example of this kind of movement is the rise of Zynga.

Zynga was born out of consumer demand for not being tied to fixed costs.

Again, this theme is about variable costs, variable life.

So micropayments have become huge.

And finally, some people are using Hulu as a device to save on cable bills.

So, very smart ideas are getting noticed and marketers are starting to understand.

The second of our four values ​​is a move towards ethics and fair play.

We see it played out with empathy and respect.

Consumers want it.

As a result, companies must not only provide value, but also value.

Consumers are increasingly looking at corporate culture and market behavior.

So with empathy and respect we see a lot of really hopeful things coming out of this downturn.

Here are some examples.

One is a growing interest in communities and neighborhoods, valuing neighbors as a support system.

Also, a wonderful by-product of the really bad thing about unemployment is the increase in volunteerism that we're seeing in our country.

And while some of you may have “boomerang kids,” these are “boomerang alumni,” and we see the phenomenon of colleges actually reuniting with alumni to help them with their jobs, share their skills, and retrain them.

We also talked about character and professionalism.

This miracle happened on New York City's Hudson River in January, and suddenly Sally is the go-to name for BabyCenter.

(Laughter) So, in terms of values ​​and values, what companies can do is connect in different ways.

Microsoft is doing great things.

They have, in fact, vowed to retrain 2 million Americans in IT to do something good with the existing infrastructure.

Also a very interesting company is GORE-TEX.

GORE-TEX values ​​the personal responsibility of management and employees and practically avoids the idea of ​​superiors.

But they also talk about the fact that all executive expense reports are put on the company intranet for everyone to see.

Full transparency.

Think twice before drinking wine.

(Laughter) The third of the four laws of post-crisis consumerism is about durable living.

Data shows that consumers perceive this as a marathon, not a sprint.

They are relentlessly looking for ways to extract value from every purchase.

Witness the fact that Americans have owned cars longer than ever before. Average 9.4 years as of March.

We also see the fact that libraries have become a great resource for America.

Did you know that 68% of Americans now have a library card?

This is the highest percentage ever in the history of our country.

What we see in this trend is also the accumulation of knowledge.

Continuing education begins.

All focus on improvement, training, development and progress.

You can also see a big movement of DIY.

It was intriguing to learn that 30 percent of all homes in America are actually built by an owner.

Cottages are also included, but it is 30%.

People are getting their hands dirty and rolling up their sleeves.

The phenomenon of rearing chickens, chickens and ducks in the backyard shows that.

If you try to calculate it, it will be said that it will not work, but the principle exists. It's about being sustainable and taking care of yourself.

Now let's take a look at New York City's High Line. This is a great use of rethinking existing infrastructure to create something good, a brand new park in New York City.

So what brands and companies can do is pay consumers dividends, be long-lasting brands, provide transparency, and commit to continuing beyond today's sale.

Patagonia's "Footprint Chronicle" essentially explores and tracks every product we make, gives it social responsibility, and helps us understand the ethics behind the products we make.

Another great example is Fidelity.

This is about 529 rewards for student education, not instant cashback rewards for credit or debit purchases.

Alternatively, there is an interesting company called Sunrun.

i love this company.

They founded consumer groups, installed solar panels in homes, and established consumer-based utilities. There, the generated electricity is basically sent to the market.

In other words, it is a consumer-driven cooperative.

The fourth piece of post-crisis consumerism we see is this movement around 'return to the fold'.

It is very important now.

As we all know, trust is not something that is distributed.

It's important now to connect with the community and connect with social networks.

In my book, I talked about the fact that 72 percent of people trust what others say about brands and companies, while 15 percent trust advertising.

In that respect, co-operative consumerism really took off.

This means that consumers work together to get what they want from the market.

Let's look at some simple examples.

The craftsmanship movement is huge. Everything about local products and services supports local neighborhoods, whether it's cheese, wine or other products.

This appreciation of the local currency too.

We recognize that it is difficult to get loans in this environment and you are doing business with trusted people in your local market.

So this local currency appreciation is another very interesting phenomenon.

And they put out a recent report that I found interesting.

They actually started exposing people's electricity usage in certain communities in the United States.

And what they found was that when it was made available for public record, people in those communities reduced their electricity usage.

Next, we turn to the idea of ​​a cow pool. This is a whole phenomenon where consumers band together to buy meat from organic farms, knowing it is safe and managed the way they want it to be managed.

And California has another very interesting movement. It's about the carrot mob.

Boycott is traditional, right? holding a stick

How about carrots?

So these are consumers organizing and sharing resources to encourage businesses to do good.

And consider what companies can do.

Here are all the opportunities to become a community organizer.

You have to understand that you cannot fight and control this.

Actually need to sort it out.

you have to take advantage of it. You have to give it meaning.

Lots of really interesting examples here.

The first is the fact that Zagat has diversified by moving from evaluating restaurants to actually evaluating healthcare.

So what qualifications does Zagat have?

Well, they have a lot because they have connections.

So it can be a very powerful force for making brands more resilient.

Now let's look at the Kogi phenomenon.

This kogi does not exist. It's a moving truck.

This is a truck traveling through Los Angeles and the only way to find it is on Twitter.

(Laughter) Or Johnson &amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp;amp; Johnson's "Momversations" is an amazing blog built, J&J basically harnesses the power of mom bloggers and allows them to create a forum where they can communicate and connect.

And it is a very valuable advertising revenue for J&J.

Add to this the fact that CEOs from Ford to Zappos are doing amazing things like connecting on Twitter, creating an open environment and allowing employees to participate in the process instead of hiding behind walls.

The momentum of full transparency and openness that companies are beginning to adopt is all because consumers want it.

So, looking at this and taking a step back, I think the crisis that exists today is definitely real.

It has become a tremendous force for consumers.

But at the same time, this is also a big opportunity.

The kanji character for “crisis” is actually two sides of a coin.

A crisis is like an opportunity.

What we're seeing with consumers now is that they actually have the power to get us out of this recession.

Therefore, we believe that value-based spending will make capitalism better. It encourages innovation. It will make a longer lasting product. It will create better, more intuitive customer service. And it gives us the opportunity to connect with companies that share our values.

So when we step back and step into this and look at the beginnings of these trends we're seeing in the data, we see a very hopeful picture of America's future.

thank you very much.

(applause)

One of the biggest challenges in computer graphics is the ability to create photorealistic digital human faces.

One of the reasons it's so hard is that unlike aliens and dinosaurs, we see human faces every day.

They are very important for us to communicate with each other.

As a result, we end up looking at the most subtle things that can possibly go wrong in computer renderings in order to believe whether they are realistic or not.

In the next five minutes, I'll walk you through the process of trying to create a fairly photorealistic computer-generated face using computer graphics technology we developed and collaborators at a company called Image Metrics.

And I'm going to try to do a real face like a photo of an actress named Emily O'Brien there.

And it's actually a fully computer-generated rendering of her face.

You'll see it in action by the time the discussion is over.

The way we did this was to start with Emily herself. She kindly came to our lab in Marina Del Rey and sat us down for a session on Light Stage 5.

It's a face-scanning sphere with 156 white LEDs around it that can take pictures of her in a very controlled set of lighting conditions.

And here's the lighting I'm currently using.

All these photos are taken in about 3 seconds.

And we basically capture enough information with the pattern of the video projector covering the contours of her face and the different main directions of light from the light stage to capture both the coarse and fine scales of her face.

If you zoom in on this photo here, you'll see that this is a really great photo of her as the lighting is coming from everywhere at the same time to get a nice textured image of her face.

Additionally, I actually used polarizers for all the lights. Just as polarized sunglasses can block the glare from the road, polarizers can block the glare on your skin, so not all the specular reflections are available to shoot this map.

Now, if you rotate the polarizer just a little bit, you can actually undo the specular reflection of the skin. At this point, you can see that she looks kind of shiny and oily.

If we now take the difference between these two images, we get an image in which only Emily's skin glow is lit from the entire ball of light.

I don't think a photo like this was taken before I did this.

This is the light that is reflected off the first surface of the skin, so it is a very important light to capture.

It doesn't smudge underneath the translucent layer of skin.

And as a result, it's a very good clue to the detailed shape of the pore structure of our skin and all the fine lines we all have, things that actually make us look like real humans.

Therefore, using the information obtained from this specular reflection, a conventional facial scan, including the rough outline and basic shape of the face, can be augmented with all-inclusive information on skin pore structure and fine wrinkles.

And more importantly, it's a photometric process that takes just three seconds to shoot, so you can capture Emily in a variety of poses and expressions in just a fraction of an afternoon.

Here you can see her moving her eyes and moving her mouth.

Use these to create really photorealistic digital characters.

Looking at the scans we have of Emily, we can see that the human face does an enormous amount of amazing things when it comes to expressing different expressions.

I can see things. Not only does it change the shape of your face, but it also causes various skin lines and wrinkles.

It can be seen that the pore structure of the skin has changed significantly from elongated skin pores to normal skin texture.

You can see the frown lines and how the microstructure there changes.

You can see the muscles pulling the flesh down and lowering the eyebrows.

When you frown like that, your forehead muscles swell.

In addition to this kind of high resolution geometry, it's all captured by the camera, giving us a great texture map to use for the face.

And by observing how the different color channels of lighting (red, green, and blue) scatter light differently, we can come up with ways to shade skin on the computer.

Then instead of looking like a plaster mannequin, it actually looks like it's made out of living human flesh.

This was provided to Image Metrics to create a fraudulent digital version of Emily.

We're just looking at rough-scale geometry here.

But they basically create a digital doll of her that you can pull different strings on and actually move her face in a way that matches perfectly with the scans we took.

I also created a set of so-called "displacement maps" to animate as well, using the coarse-scale geometry plus all of its details.

These are the displacement maps you'll find here.

And when you animate it, you can see the different wrinkles actually appear.

So the next process was to animate her.

She actually used her own performance to provide the source data.

By analyzing this video with computer vision techniques, we were able to drive a facial rig with computer-generated performance.

After this, what you see is a fully photorealistic digital face.

If possible, you can turn up the volume a little.

Emily: Image Metrics is a markerless, performance driven animation company.

We specialize in high quality facial animations for video games and movies.

Image Metrics is a markerless, performance driven animation company.

We specialize in high quality facial animations for video games and movies.

Paul Debevec: So if we break this down into layers, this is the diffusion component you saw in the first slide.

This is the animation of the specular component.

You can see all the creases that are occurring there.

And then there's the wireframe mesh underneath.

And it's Emily herself.

So where are we going here?

We're just past Light Stage 5. This is Light Stage 6, and we are looking at applying this technology to the entire human body.

This is Bruce Loumen, one of the researchers in the group. He kindly agreed to film me running on the light stage.

Now let's take a look at a computer-generated version of Bruce running in the new environment.

And thank you very much.

(applause)

A magical moment, a magical moment of command.

It means going up on stage. The orchestra is sitting

They're all warming up or doing something.

and step onto the podium.

You know, this little conductor's compartment.

Or rather, an open space cubicle with plenty of space.

And in front of that noise you make a very small gesture.

Like this, not too fancy, not too sophisticated, this.

And suddenly, out of chaos, order emerges.

Noise becomes music.

And this is great. And it makes me want to think it's all about me.

(Laughter.) The great people here, the virtuosos, are screaming and needing me to do it.

not much. If so, I'll just save your story and teach you the gestures.

So you can go out into the world and do this job in any company, in any job, whatever you want, and you can have perfect harmony. it doesn't work.

Watch the first video.

I hope you will consider it a good example of harmony.

And we'll talk a little bit about how that happens.

(music) Was it good?

So it was kind of a success.

Now, who should we thank for our success?

So clearly the orchestral musicians playing beautifully, the Vienna Philharmonic.

They often don't even look at the conductor.

And then there's the applauding audience, and yes, actually participating in playing the music.

As you know, Viennese audiences usually do not interfere with music.

This is the closest thing to an oriental belly dancing feast you can experience in Vienna.

(Laughter) Unlike in Israel, for example, the audience is coughing all the time.

As you know, pianist Arthur Rubinstein once said, "Everywhere in the world, people with the flu go to the doctor.

They come to my concerts in Tel Aviv. ”

(Laughter) It's kind of a tradition.

But Viennese spectators don't do that.

Here they step out of their ordinary lives just to be part of the orchestra, which is great.

Audiences like you make the event.

But what about conductors? What could the conductor actually be doing?

Oh he was happy

And I show this well to senior management.

People get annoyed.

"Why are you so happy when you come to work?"

Something must be wrong, right? But he spreads happiness.

And that happiness, importantly, I think this happiness doesn't just come from the joy of his own stories and music.

The joy is being able to listen to other people at the same time.

You are talking about the orchestra as a professional organization.

There is a story of the audience as a community. yes.

There are stories of people in the orchestra and people in the audience.

And there is another story that is invisible.

The people who built this wonderful concert hall.

Stradivarius, Amati, the people who made those beautiful instruments.

And all those stories are being heard at the same time.

This is exactly the experience of a live concert.

That's why I leave home. yes?

And not all conductors do that.

Let's look at another person, a great conductor.

Riccardo Muti, please.

(music) Yes, it was very short, but it turned out to be completely different. right?

he is great He's a very good commander. yes?

very clear. Maybe a little too clear.

Can you give me a little demonstration? Will you be my orchestra for a moment?

Can you sing the first note of Don Giovanni?

You have to sing 'Ah ah' and I stop.

have understood? Ready?

AUDIENCE: ♫ Ahhh... ♫ Itai Talgam: Come with me. When you do it without me, I feel even more redundant than I already do.

Please wait for the conductor.

Come on, look at me "Ah ah" I stop you. Alright, let's go.

Audience: ♫ ... ah ah ah ... ♫ (laughter) Itai Talgam: Well, we'll talk a little bit later.

(laughs) But... there's a vacancy...

But -- (laughter) -- it turns out that you can stop an orchestra with one finger.

So what is Riccardo Muti doing? he does something like this...

(Laughter) And then – in a sense – (Laughter) not only are the instructions clear, but the sanctions are clear as well as what happens if you don't follow what I say.

(Laughter) So does it work? Yes, it works up to a point.

When asked, "Why do you act like that?", Muti replied,

“I am responsible,” he says.

I have a responsibility in front of him.

No, he doesn't really mean him. He's referring to Mozart, which is like - (laughter) - the third seat from the middle.

(Laughter) So he said, 'If I - (applause) if I was in charge of Mozart, this would be the only story told.

I, Riccardo Muti, understand Mozart. ”

So do you know what happened to Muti?

Three years ago, he had received a signed letter from all 700 La Scala employees, the music employees, the musicians, saying: "You are a great conductor. We don't want to work with you. Please quit."

(laughter) "Why? Because you don't develop us.

You are using us as tools, not as partners.

And the joy of our music and so on..."

So he had to resign. Isn't it lovely?

(laughs) He's a nice guy. he's a really nice guy

So can it be done with less control, or with a different kind of control?

Let's look at the next conductor, Richard Strauss.

(music) He's getting older, and I'm afraid it feels like I really bullied him.

it's not true. When he was a young man of about 30, he wrote what he called "The Ten Commandments for Conductors."

The first was, "If you're sweating by the end of the concert, then you must have done something wrong."

that's the first one. You will like the 4th better.

It says: "Never look at the trombone. It only encourages the trombone."

(Laughter) So the whole idea is actually to let it happen naturally.

do not interfere.

But how does that happen? Did you see him turn the pages of the score?

Either he's an old man now or he doesn't remember his songs because he wrote them.

Or he's actually giving them a very strong message: "Now folks, we have to act by the norm."

So it's not my story. It's not your story.

It just plays written music, no interpretation. ”

The interpretation is the performer's true story.

So no, he doesn't want that. It's a different kind of control.

Let's look at another superconductor, the German superconductor. Herbert von Karajan, please.

(music) What's the difference? did you see the eyes? Closed.

did you see the hand?

Have you seen this kind of movement? let me direct Twice.

Like Muti, for once you will -- (applause) -- clap.

And like Karajan. Let's wait and see. have understood?

like Muti. do you prepare Because it's muti...

(laughs) Okay? Ready? let's do it.

AUDIENCE: (Applause) Itai Talgam: Hmm... again.

Audience: (Applause) Itai Talgam: Good. It's like Karajan now. You've already trained, so close your eyes and focus. come, come.

Audience: (applause) (laughter) Itai Talgam: Would you like to join us? (laughter) Because I didn't know when to play.

I can tell you now that even the Berliner Philharmoniker doesn't know when to play.

(Laughter) But let me tell you how they do it. No sarcasm.

This is a German orchestra, right?

They are looking at Karajan. And they stare at each other.

(Laughter) "Do you know what this guy wants?"

After that, they look at each other earnestly, and the orchestra's first player leads the entire ensemble to play together.

And when Karajan was asked about it, he actually replied, "Yes, the worst damage I can do to the orchestra is to give them clear instructions.

That's because it prevents the ensemble that the orchestra needs, that is, listening to each other's opinions. ”

That is wonderful. how about your eyes?

why are your eyes closed?

There is a wonderful story that Karajan conducted in London.

And he thus signals with the flutist.

The man doesn't know what to do. (laughter) "Maestro, with all my respect, when should I start?"

What do you think Karajan's response was? When should I start?

oh yeah. He says, "I'll start when I can't take it anymore."

(Laughter) It means you know you don't have the authority to change anything.

that's my music Real music is only in Karajan's head.

And you have to guess my mind. You are under a lot of pressure because I don't give you directions and you have to guess my mind.

So this is a different kind of very spiritual but very tight control.

Can we do it another way? Of course we can. Let's go back to the name of the first conductor we saw, Carlos Kleiber. Please watch the next video.

(music) (laughter) Yeah.

Well, it's not. But isn't it controlling in the same way?

No, it's not. Because he didn't tell them what to do.

When he does this, it's not like, "Pick up a Stradivarius and slam it on the floor like Jimi Hendrix." Although not.

He says, "This is a musical gesture.

We leave space for you to add another interpretation. ”

That's another story.

But how do they actually work together in the absence of instructions?

It feels like riding a roller coaster. yes?

No instructions are actually given, but the force of the process itself keeps you in place.

that's what he does.

The interesting thing is, of course, roller coasters don't really exist.

it is not physical. It's in the players' heads.

And that's what makes them partners.

I have a plan in my head.

Even if Kleiber isn't directing, I know what to do.

But here and there. you know what to do

Then, as you ride, you become a partner in building a roller coaster with sound.

This is very exciting for those players.

After that they have to go to a sanatorium for two weeks.

(laughs) I am very tired. yes?

But it's great music making, like this.

But of course, it's not just about motivating and giving you a lot of strength.

Also must be very professional.

And look at this Kleiber again.

Can I have the next video soon?

You know what happens when you make a mistake.

(music) We see beautiful body language here as well.

(music) And now there's a trumpeter doing things not the way they should be.

Follow along with the video. look.

Look, it's the same player for the second time.

(Laughter) And this is the third time for the same player.

(laughs) “Please wait for me after the concert is over.

I have a short announcement. ”

Authority is there when you need it. It's very important.

But authority alone is not enough to partner people.

Watch the following video. See what happens here.

You may have been surprised to learn that Kleiber is such a hyperactive man.

He conducts Mozart.

(music) The whole orchestra is playing.

(music) Another thing next.

(music) See? He's 100 percent there, but he never commands or dictates what to do.

I rather enjoy what the soloists are doing.

(music) Another solo. Let's see what we can get from here.

(music) Look at my eyes.

First of all, it's the kind of compliment we all want to receive.

It's not feedback. "Hmmm..." Yes, it's coming from here.

That's good.

The second is to actually control it, but in a very specific way.

Did you see eyes going from here when Kleiber does? (singing) Do you know what will happen? No more gravity.

Kryber not only creates the process, but also the conditions of the world in which this process takes place.

Again, the oboist is completely autonomous and therefore content and proud of his work, creativity and all.

And the level that Kleiber is controlling is on another level.

Control is no longer a zero-sum game.

you have this control you have this control And when everyone cooperates and rally together, the best music is born.

In short, Kleiber is process-oriented.

Kleiber is talking about the state of the world.

But creating meaning requires process and content.

Lenny Bernstein, my personal maestro.

Lenny Bernstein was a great teacher, so he always started with meaning. Look at this.

(music) Remember Muti's face at the beginning?

Well, he had a great look, but only one.

(Laughter) Did you see Lenny's face?

you know why? Because the meaning of music is pain.

and make a painful sound.

And when I look at Lenny, he's in pain.

But that doesn't mean I want to quit.

Suffering, as they say, enjoying in a Jewish way.

(Laughter.) But you can see the music in his face.

You can see the baton is out of his hand. No more batons.

The key here is that you, the player, are telling the story.

Now it's the other way around. you are telling a story. And you are telling the story.

And you become the storyteller that the community, the whole community, listens to, even if only for a short period of time.

And Bernstein makes it possible. Isn't that great?

Now, if you've done all the things we've talked about together, and maybe with others, you can get to this great point without doing anything.

And the final video, I think this is simply the best title.

My friend Peter says, "If you love something, give it away." So please.

(music) (applause)

I remember my aunt combing my hair when I was a kid.

I felt my stomach tingle and swell.

All her attention is on me and only on me.

Beautiful Aunt Bee stroked my hair with a fine bristle brush.

Do you have any memories that remain in your body now?

Before language, we are all sensations.

As children, we learn to differentiate ourselves in the world through our sense of touch.

Everything gets into your mouth, your hands, your skin.

Sensation -- It's how we first experience love.

It is the basis of human relationships.

We want our children to grow up in healthy, intimate relationships.

So one of the things we do as parents is teach our children about sex.

We have books that help us and we have basic sex education in school.

We have porn to fill that gap – and it will fill the gap.

(Laughter) We teach kids stories about biology, mechanics, pregnancy and safe sex. And kids grow up thinking that's pretty much what sex is all about.

But we can do more than that.

We can teach our sons and daughters about joy and desire, consent and boundaries, what it feels like to be present in their own bodies, and knowing when they are not.

And we do that by modeling all the ways to stimulate their senses, such as touching, playing, making eye contact.

We can teach our children about sensuality as well as sex.

This is the kind of story I needed as a girl.

I was very sensitive, but I was paralyzed during my adolescence.

The embarrassment that boys mocked my changing body and, ironically, that girls ostracized me for my interest in boys, was so great.

I didn't have the words to express what I was going through. I didn't know it would pass.

So I did the best I could at the time and checked out.

And since only difficult emotions cannot be separated, I lost access to joy, fun and play, and spent decades that way with his mild depression, thinking this is what it means to be an adult.

Over the past year, I've interviewed men and women about their relationships with sex and heard my story many times.

``Don't be too emotional,'' boys were taught to be masculine.

Turns out I'm not the only one checking out.

It was my daughter who reminded me how I used to feel.

we were on the beach

It was such a rare day.

I turned off my phone and marked a beach day with a girl on my calendar.

I laid a towel out of the waves and fell asleep.

And when I woke up, I saw my daughter dropping sand on her arms like this. There was a light tickle of sand on my skin and I remembered my aunt combing my hair.

So I curled up next to her and sanded her other arm and leg.

Then I said, "Hey, do you want me to bury you?"

Then her eyes got really big and I was like, "Yeah!"

So we dug a hole and covered her with sand and shells and painted this little mermaid's tail.

Then I took her home, lathered in the shower, massaged her scalp and wiped her body with a towel.

And I thought, "Oh, how many times have I bathed her and wiped her down, but have I ever stopped and paid attention to the feeling I was creating for her?"

I treated her like she was on an assembly line of kids who needed to be fed and put to bed.

And when I gently towel my daughter like a lover, I realize that I am teaching her to expect such touch.

I am teaching her about intimacy at that moment.

On how to love her body and respect her body.

I realized that there are parts that cannot be expressed in words.

Writer Peggy Orenstein, in her book Girls and Sex, found that young women focused on their partner's pleasure rather than their own.

I'll talk about this when my daughters are older, but for now I'm looking for ways to help them identify what brings them joy and practice articulating it.

As I pushed myself in, my daughter said, "Rub my back."

And I say, "Okay, how can I give you a back rub?"

"I don't know," she says.

So I stopped and waited for her instructions.

Finally she said, "Okay, up and right, like a tickle."

I ran my fingertips down her spine.

"What else?" asks.

"To the left, it's a little more difficult."

We need to teach our children how to express their feelings so that they can understand them.

So I'm looking for a way to play games with girls at home.

I scratched my daughter's arm with my fingernail and said, "Please describe this in one sentence."

"Violent," she says.

I hug her and hold her tight.

“I am protected,” she told me.

Finding opportunities to tell them how I am feeling and what I am going through, we have a common language.

The tingling from my spine down to my scalp, like now, means I'm nervous and agitated.

You are probably experiencing sensations in response to me.

The language I use, the ideas I share.

And our tendency is to judge these reactions, sort them into hierarchies of good and bad, and then look for them or avoid them.

That's because we live in this dualistic culture, and we've been taught from an early age to categorize the world into good and bad.

"Did you like the book?"

"Have you had a nice day?"

How about "What did you learn from the story?"

"Tell me a little bit about your day.

What did you learn? "

Teach your children to stay open and curious about their experiences, like foreign travelers.

That way you can keep your senses in check without checking them out, even if they're lofty and challenging, as I and many of us do.

This sensory education, this is the education I want for my daughters.

Sensory education is what I needed as a girl.

That's what I want for all my children.

This sensory awareness is where we started when we were children.

It's something we can learn from our children, and something we can remind them of when they grow up.

thank you.

(applause)

Twenty-five years and four months ago, I read a newspaper article that one day syringes would become one of the main causes of the AIDS epidemic, the transmission of AIDS.

I thought this was unacceptable. So I decided to do something about it.

Sadly, it has become a reality. As you all know, malaria kills about 1 million people a year.

Today, syringe reuse has surpassed that, killing 1.3 million people a year.

This young girl and her friend, who met at an orphanage in Delhi, became HIV-positive through a syringe.

And what was so sad about this particular story is that after my parents found out about it, they threw them out on the street, not forgetting they took them to the doctor.

And they ended up in an orphanage.

And in situations like this, it arises from the situation that there is a skilled or unskilled practitioner and blindly injects someone.

And because this injection is so precious, people basically believe that doctors are right next to God, and that's what we've heard so many times, that they're going to do the right thing. But in reality this is not the case.

And of course you can understand the problem of transmission among people in areas where the virus is endemic.

In this video we shot undercover, you can watch a medicine tray containing 42 vials being administered with just two syringes in a public hospital in India for 30 minutes.

And not a single unwrapped syringe was photographed over the 30-minute period.

They started with two and ended with two.

And now I see the nurses come back to the modular station-like trays and put the syringes they just used back into the trays so they can be picked up and used again.

So you can imagine the scale of this problem.

And indeed, in India alone, 62% of all injections given are unsafe.

Pakistani children do not go to school.

they are lucky they already have a job.

Its job is to pick up and clean syringes from the back of the hospital, apparently picking them up and hurting yourself in the process.

And then repackage them and sell them on the market for literally more than the first sterile syringe, which is very strange.

In the interesting picture, while we are talking to him, their father picks up a syringe, pricks his finger, you don't know if you can see it dripping blood on the edge, but quickly takes out a box of matches and sets it on fire, burning the blood on the edge of his finger. That convinced me completely that's how you stopped HIV transmission.

Recycling is a big issue in China.

And they were collected in large numbers, and you can see their scale here. They are hand-picked, re-sized, and put back on the road.

So recycling and reuse are the main issues here.

However, there was one interesting anecdote I found in Indonesia.

All schools in Indonesia usually have toy vendors in the schoolyard.

In this case, the toy seller usually kept the syringe next to the excavator, which is clearly to be expected.

And use it instead of a water gun during breaks.

They squirt each other and it's beautiful and innocent.

And they are having a lot of fun.

But it's hot, so I'm going to drink it during my break.

And they blow water into their mouths.

And these are used with visible blood stains.

Therefore, we need a better product. And we need better information.

So, if you could lend me this camera, I thought I'd show you an invention I came up with.

So it looks like a normal syringe.

Load it normally. It is manufactured using existing equipment in our 14 licensed factories.

Inject and then take it off.

If someone then tries to reuse it, it will be locked and broken.

It's very, very simple. thank you.

(Applause) And it costs the same as a regular syringe.

In comparison, Coca-Cola costs ten times as much.

That way you don't have to reuse the syringe 20-30 times.

I have an information charity and I do extensive work in India.

And we are very proud to keep people informed so that little kids like this don't do stupid things.

thank you very much.

(applause)

As we know the future is very unpredictable.

The best minds in the best institutions commonly get it wrong.

This is the field of technology. This is an area of ​​politics that pundits, the CIA and MI6 always get wrong.

And it's clearly in the financial realm.

The IMF, the BIS, and the Financial Stability Forum did not know what would happen, even though there were institutions set up to think about the future.

The 20,000-plus economists whose job it is to get there by entering the race could not understand what was going on.

Globalization is becoming more and more complex.

And this change is becoming even more rapid.

The future will become even more unpredictable.

Urbanization, integration and unity will lead to a new renaissance.

It took place a thousand years ago.

The last 40 years have been extraordinary times.

Life expectancy has increased by about 25 years.

It has taken since the Stone Age to achieve it.

Income increased for most of the world's population, even though the population increased by about 2 billion people during this period.

And illiteracy has decreased from half to about a quarter on earth.

A great opportunity to unlock new possibilities for innovation and development.

But there is a flip side.

Globalization has two Achilles heels.

There is an Achilles heel of widening inequality. Those who are left behind, those who are angry, those who are not participating. Globalization is not all-inclusive.

The second Achilles heel is complexity: growing vulnerability, growing fragility.

What happens in one place immediately affects everything else.

This is systemic risk, systemic shock.

We saw it during the financial crisis. We saw that with the pandemic flu.

It becomes toxic and you need to build resilience against it.

Much of it is caused by what is happening in the world of technology.

There was a big leap. By 2030, we will have a million times more computing power for the same price.

That's the experience of the last 20 years.

it goes on.

Our computers and systems will be as primitive as Apollo is today.

Our mobile phones are more powerful than the entire Apollo space engine.

Our mobile phones are more powerful than the mightiest computers of 20 years ago.

So what does this do?

It will create great opportunities in technology.

Also downsizing.

Invisible abilities exist. Invisible abilities of our bodies, brains and air.

This is a tick on a nanoreplica.

This kind of ability to do everything in new ways unlocks possibilities, especially in the medical field.

This is a stem cell that we have developed here in Oxford from embryonic stem cells.

We can develop any part of our body.

Over time, this will be possible from our own skin, allowing us to replicate body parts.

Great potential for regenerative medicine.

Due to the ability to regenerate body parts, I don't think there will ever be a Special Olympics after 2030.

But the question is, "Who will get it?"

Another big development will be in the area of ​​what can happen in genetics.

Because this mouse is genetically engineered, it has the ability to go 3 times faster and produce something that lasts 3 times longer, so like this mouse, it will use the same amount of food as we do and will produce to the equivalent of our 80th birthday.

But is this only available to the ultra-rich – those who can afford it? Are we moving toward a new eugenics?

Will only those with money be able to become super racers of the future?

(Laughter) So the big question for us is, "How do we deal with this technological change?"

How can we enable more inclusive technology, one that means we can not just grow older, but grow smarter and support people in the future?

One of the most dramatic manifestations of these improvements is the transition from population pyramids to what should be called artificial coffins.

It is unlikely that pensions and retirement age will disappear in 2030.

These become redundant concepts. And this is not just for the West.

The most dramatic change will be the new skyscraper-style pyramids in China and many other countries.

So young people, forget about retirement.

Forget about pensions. Think about life and where it's going.

Migration, of course, becomes even more important.

The competition for talent, the need to attract people of all skill ranges, the need to not only push us around in wheelchairs, but also the economy. Our innovation becomes essential.

Employment in rich countries will fall from about 800 million to about 700 million of these people.

This represents a massive leap in immigration.

So when we look for someone to help us organize our future pensions and economy, concerns about immigration, today's xenophobic concerns will be overturned.

and systemic risk.

We understand that these are going to become more toxic, and that what we are seeing today is an interweaving of societies and systems, enhanced by technology and accelerated by just-in-time management systems.

Low levels of stock push resilience into responsibility for others.

Biodiversity collapse, climate change, pandemics, financial crises. These will be the currencies we think of.

Therefore, there must be a new awareness of how to address these, mobilize ourselves in new ways, and come together as a community to manage systemic risks.

It requires innovation.

We need to understand that the glory of globalization can also be its downfall.

Thanks to what we have achieved so far, this century could be our best century, or our worst.

And, of course, we need to worry about individuals, especially those who feel alienated in some way.

By 2030, for the first time in human history, individuals will have the ability to destroy the planet and destroy everything, including through the creation of biopathogens.

How do I start weaving these tapestries?

How can we think about complex systems in new ways?

It will challenge scholars and all of us involved in thinking about the future.

The rest of our lives are in the future. We need to prepare for it now.

We need to understand that the world's governing structures are fossilized.

We can't begin to deal with the challenges that this poses.

Through collective wisdom, we must develop new ways of managing the planet.

We know, and I know from my own experience, that when individuals and societies come together to change the future, amazing things can happen.

After 15 years of leaving South Africa and thinking I would never return, I had the privilege and honor of working for Nelson Mandela's government.

It was a miracle. We can collectively do miracles in our lifetime.

It's important to do so.

It's vital that the ideas that are nurtured at TED, the ideas that we think of, look to the future, and that this century is our brightest, not the century of environmental disasters and environmental collapse.

thank you. (applause)

Hundreds of thousands of years after our species existed, and even before that, our ancestors must have looked up at the night sky and wondered what the stars were and how to explain what they saw in terms of the unseen.

Well, most people, like today, take a break from what they are usually obsessed with and just wonder about it from time to time.

But it was also their yearning to know that they were usually preoccupied.

They wished they knew how to prevent the occasional food supply cut or how to rest warmer, cooler, safer and less painful without risking starvation when tired.

I think prehistoric cave artists would have liked to know how to paint better.

(Laughter) Like us, they wanted progress in every aspect of their lives.

But they were almost completely incapable of making anything.

They didn't know how.

Discoveries like fire are so rare that the world was never better from an individual's point of view.

I didn't learn anything new.

The first clue to the origin of starlight came as recently as 1899. it's radioactive.

And within 40 years, physicists have found a whole explanation, expressed in the usual elegant symbols.

But don't worry about the symbols.

Consider how many discoveries they represent.

Of course, atomic nuclei and nuclear reactions.

But isotopes, particles of electricity, antimatter, neutrinos, mass-to-energy conversion, ie E=mc2, gamma rays, nuclear transmutation.

The ancient dreams that alchemists always failed to fulfill were achieved through the same theories that explain starlight and other ancient mysteries, as well as new and unexpected phenomena.

All these discoveries in 40 years that did not exist in the previous 100,000 years were not due to a lack of thought about stars or other pressing problems they have.

They even arrived at answers such as myths that ruled their lives but bear little resemblance to the truth.

I think the tragedy of protracted stagnation is under-recognised.

These are people with essentially the same brain design, and eventually found them all.

But its ability to progress remained largely unused until an event occurred that revolutionized the human condition and changed the universe.

Or we should hope so. Because that event was a scientific revolution, and since then our knowledge of the physical world and how to adapt it to our wishes has grown steadily.

So what's changed?

What were people doing now, and did that make a big difference between stagnation and rapid, free-flowing discovery?

How we make that difference is certainly the most important universal truth we can know.

And worryingly, there is no consensus on what it is.

So let me tell you.

(Laughter) But first we have to step back a little.

Before the Scientific Revolution, they believed that everything important and knowable was already known and embedded in ancient texts, institutions, and rules of thumb that were truly useful, but which were entrenched in doctrine with many falsehoods.

As such, they believed that knowledge came from an authority with little real knowledge.

Progress therefore depended on learning how to reject the authority of learned people, clerics, traditions and rulers. That is why the scientific revolution needed a broader context. It is the Enlightenment, a revolution in the way people seek knowledge and seek to be independent of authority.

"Don't believe a word of anyone."

But that's not what made the difference.

Authorities have repeatedly refused.

And it rarely, if ever, sparks anything like a scientific revolution.

At the time, they thought, what distinguished science was a radical way of thinking about the unseen, known as empiricism. All knowledge comes from the senses.

Well, it turns out that's not true.

It certainly helped by facilitating observation and experimentation.

But it was clear from the beginning that something was terribly wrong.

Does knowledge come from the senses?

in what language?

Certainly not the language of mathematics in which the Book of Nature is written, as Galileo rightly said.

Look at the world

You can't see the equations carved into the mountainside.

If so, it must have been carved by humans.

By the way, why not?

(laughter) What's wrong with us?

(Laughter) Empiricism is inadequate because scientific theories explain the visible in terms of the invisible.

And we must admit that what we cannot see is not what we perceive through our senses.

Such nuclear reactions are not seen in stars.

The origin of the species is unknown.

We cannot see the curvature of space-time or any other universe.

But we know them.

how?

Well, the classic empirical answer is induction, that is, the invisible resembles the visible.

But it's not.

Do you know what was the definitive proof that space-time is curved?

It wasn't a picture of space-time, it was a picture of a solar eclipse, and the dot was there, not there.

And what is the evidence for evolution?

some rocks and some finches.

And parallel worlds?

Again, on the screen the point is there, not there.

What we see in all these cases bears no resemblance to the reality we conclude to be responsible. Only long chains of theoretical reasoning and interpretation bind them together.

"Oh!" says the creationist.

"So you admit it's all interpretation.

No one has ever seen evolution.

I can see rocks.

you have your interpretation. we have ours.

Your opinion comes from speculation. Ours is from the Bible. ”

But what both creationists and empiricists ignore is that no one has seen the Bible in that sense, the eye only senses light, we do not perceive it.

The brain only detects nerve impulses.

And they don't even recognize that it's a real thing, an electrical crackle.

Therefore, we do not perceive anything as real.

Our connection to reality is never just a perception.

As Karl Popper said, it's always full of theory.

Scientific knowledge does not come from anything.

Like all knowledge, it is speculation and guesswork, tested by observation, not derived from it.

So was testable speculation the great innovation that opened the gates of an intellectual prison?

No, contrary to what is commonly said, testability is common in myths and all sorts of other irrational modes of thought.

Anyone who claims the sun will disappear next Tuesday has a verifiable prediction.

Consider the ancient Greek myths that explain the seasons.

Hades, god of the underworld, kidnaps the goddess of spring, Persephone, makes a forced marriage contract that requires her to return regularly, and sets her free.

And every year she is magically forced to return home.

And her mother, the earth goddess Demeter, grieves and makes the earth cold and barren.

That myth is verifiable.

If winter is caused by Demeter's grief, it must happen everywhere on earth at the same time.

So if the ancient Greeks knew that Australia was warmest when Demeter was at her saddest...

(Laughter.) They knew their theory was wrong.

(Laughter.) So what was wrong with that myth and all that forward thinking?

So what made that significant difference?

I think there is one thing to watch out for. It means testability, scientific method, enlightenment and all.

The point here is that stories have flaws.

I don't mean just a logical flaw.

what do you mean?

Well, an explanation is a claim that explains what is visible about what is there, which is not visible. For the explanatory role of Persephone's marriage covenant could equally well be served by an infinite number of other extraordinary beings.

Why marriage contracts and not other reasons for regular yearly action?

One of them is that Persephone was never released.

She escapes and returns each spring to use the power of the spring to take revenge on Hades.

She cools his realm with spring air and releases heat to the surface to create summer.

This explains the same phenomenon as the original myth.

can be tested as well.

But what it claims about reality is in many ways the opposite.

And it is possible because the details of the original mythology are season-independent, except via the mythology itself.

This easy variation is a sign that the explanation is wrong. Without a functional reason to prefer one of the myriad variations, it would be irrational to insist on one over the others.

So for the differentiating essence that allows progress, while explaining the phenomenon, look for good explanations that cannot be easily changed.

An explanation for the current seasons is that the Earth's axis is so tilted that each hemisphere tilts toward the sun for half the year and away from the sun for the other half.

[Not to scale!] Better put it down.

(Laughter) That's a good explanation. Every detail plays a functional role and is difficult to change.

For example, we know that surfaces tilted away from radiant heat heat less, regardless of the season, and that spheres rotating in space are oriented in a certain direction.

This tilt also explains the elevation of the Sun at different times of the year, predicting seasonal shifts in both hemispheres.

If they were observed in phase, the theory would have been refuted.

But now the fact that it's also a good description and hard to change makes a crucial difference.

If the ancient Greeks knew about the seasons in Australia, they could easily have changed their myths to predict them.

For example, when Demeter gets upset, it expels heat from her surroundings to the opposite hemisphere, creating summer there.

Thus, even if observations were disproved, and the theory changed accordingly, the ancient Greeks would not have come one step closer to understanding the seasons. Because their explanations are bad and change easily.

And it even matters if it's testable, only if the description is good.

If the axis tilt theory had been refuted, its advocates would have had nowhere to go.

There is no change that can be easily implemented such that this tilt causes the same seasons in both hemispheres.

The quest for hard-to-change explanations is the source of all progress.

It is the basic regulatory principle of the Enlightenment.

So, in science, two wrong approaches are undermining progress.

A well-known theory is the unverifiable theory.

But more important is the theory without explanation.

When an existing statistical trend is said to continue, but no hard-to-change explanation for the cause of the trend is given, it's like being told that a witch did it.

If you are told that carrots have human rights because they share half of your human genes, but that genetic proportions don't give you rights -- witches.

There is evidence that a certain percentage of our political opinions are inherited genetically, so when someone announces that the argument for nurture is settled, but does not explain how genes generate opinions, they are not solving anything.

They say our opinion is caused by witches, but perhaps their own as well.

(Laughter) The most important fact about the physical world is that the truth consists of hard-to-change claims about reality.

It is a fact that is invisible in itself but impossible to change.

thank you.

Let's talk about how the stories of Africa are being told and by whom.

We would like to share with you a selection of works by contemporary artists from Africa and its diaspora.

i love this art

I find it beautiful, moving and thrilling. And I hope that I can interest you.

I would like to share about myself and why art is important to me.

I am the daughter of an artist, so from an early age I had the opportunity to watch my father create art in his studio.

My home was surrounded by art, and summer vacations dragged me to museums and exhibitions, giving me an early art education.

What I really didn't understand at the time was that this piece gave me an early understanding of why art is important, how to look at it, how to understand it, and also how to love it.

Therefore art is important to me on a personal level. Not just because it's beautiful, inspiring, and thrilling, but because art tells powerful stories.

All of these artists have stories that tell what it means to be African, stories that tell and touch on our African identity, stories that not only tell us who we are as Africans, but stories that tell about our complex histories.

So how can art tell powerful stories?

I would like to share with you this series by Senegalese artist Omar Victor Diop.

This is a series of self-portraits, and the artists in this particular series focus on the representation of Africans in art history from the 15th to the 19th century.

I want to show you how Diop can touch in one image not only our African identity, our representative politics, but also our social value system.

In this particular self-portrait, Diop actually references another portrait by Anne-Louis Girodet.

This photo depicts a portrait of Jean-Baptiste Beret.

Born in Senegal, Jean-Baptiste Bellais was a former slave in Haiti, but during his lifetime he was elected as a representative of the colonies in the third government of the French Revolution and strongly advocated the abolition of slavery.

What's so smart and clever about Diop here is that he's back in history.

He's recreated this look by reimagining this beautiful royal blue uniform, reimagining the pose, and indeed doing so to highlight issues that still affect people of color today.

There was nothing special about this very typical political portrait of the time, except that for the first time a person of color, in this case Jean-Baptiste Berret, was actually named and recognized in the painting.

What Diop adds to this picture is the important element of football under his arm, by which he really taps into the hero-worshipping culture of African football stars, despite their fame, immense talent and royal status, unfortunately still unseen.

Diop asks us to dig deeper and go beyond history and what was written to basically see how it still affects and influences us today.

I would like to introduce another beautiful series called 'Kesh Angels' by artist Hassan Hajjaj.

So in this particular series, the artist really pushes the boundaries of stereotypes and clichés.

Hassan Hajjaj is a friend and, to be honest, I have a lot of respect for him, but this particular series speaks directly to me as a Muslim woman.

I go through this all the time, people have a lot of expectations, some religious, some cultural, but what I love about this artist is that he keeps all of that in mind.

In fact, he refutes all representations of Muslim and Arabian women.

Hassan Hajjaj is a child of the Diaspora.

He grew up in Morocco, among the brightly logoed goods sold in the souks: original counterfeit goods.

It is therefore not surprising to see these symbols representing the celebration of global culture in his work as a global urban culture critic, but really at the heart of his work is his desire for nuanced representation.

He wants us to suspend all perceptions we may have of ourselves, people, cultures and environments.

For example, this particular photo is commonly associated with, you know, a particular street brand for a particular Western distinctive consumer.

Well, he puts it all together and boldly imagines female biker culture where actually Chanel and Louis Vuitton designed Djeraba and Nike designed Babouche and this is the actual standard uniform.

What I like about the women of "Kesh Angels" is that you can keep your eyes on them.

We are fully in the image, but they invite us on their own terms.

Hassan Hajjaj's Kesh Angels and Omar Victor Diop's Project Diaspora provide me with two powerful examples of why art can be so useful.

It is beneficial in that it encourages us to ask questions, but it is also beneficial in that it causes change.

Seeing racial and ethnic diversity in contemporary art is the only way we can see not only the changes in the art industry, but also the changing relationship between Africa and the Western canon.

How we participate in all this is really up to us.

There is a lot to be done, but we still need to support stronger voices because, honestly, they are the ones who are shaking things up and bringing new perspectives.

I would like to share this beautiful old painting by young emerging artist Kuzanai-Violet Fami.

For me, when I look at her work, it really stands for freedom.

Fami has a great perspective on being African and what it means to live an African life.

Having lived in three different countries, Zimbabwe, South Africa and the United Kingdom, she has been influenced by different layers of communities and cultures, from LGBT to eco, xhosa, emo and British culture.

And as she herself puts it, the beauty of being a diaspora child is being able to reinvent yourself and what it means to be African.

I would like to present to you this powerful work by South African artist Lawrence Lemaoana.

Lawrence Lemaoana, too, has criticized the media's influence on our moral consciousness, using those fabrics as banners in political demonstrations, urging us to take back our voices.

I believe in the transformative power of art. Because it's the only way to paint not just a nuanced image of Africa, but an image of its diaspora. The images will be painted by African artists and cultural producers with a radical yet very unique perspective on the world and their place in it.

It is precisely through art that we can regain our independence and authority.

Through art, we can truly tell our own stories.

So, as Lawrence Lemaoana says, power is ours.

thank you.

(applause)

Many of us who care about sustainable development and local livelihoods do so for very personal reasons.

I grew up in Cameroon, a country of enchanting beauty and rich biodiversity, plagued by poor governance, environmental destruction and poverty.

Like most children in Sub-Saharan Africa today, I suffered from malaria on a regular basis as a child.

To date, malaria kills more than one million people each year, mostly in children under the age of five, and 90% of it occurs in sub-Saharan Africa.

At the age of 18, I left Cameroon in search of better educational opportunities.

At the time, Cameroon had only one university, but neighboring Nigeria offered English-speaking Cameroonians the opportunity to train in a variety of fields.

So I moved to Nigeria, where it was even more of a challenge to practice my profession after graduating as an ecologist.

So I left the continent when I was offered a scholarship to Boston University for my PhD.

It is disappointing to see that on the continent of Africa we have all the challenges, all the talents, all the skills we have, tending to solve problems by parachuting in experts from the West for short stays, exporting the brightest from Africa, and treating Africa as a continent in permanent need of aid.

After my internship at Boston University, I joined the research team at the University of California Institute for Environmental Sustainability. That's because the university has a reputation for groundbreaking research and the development of policies and programs that save the lives of millions of people around the world, including in developing countries.

And it has been shown that nine new jobs are created in the formal and informal sectors for every skilled African who returns home.

Therefore, as part of our program to build a sustainable Africa together, we are leading multiple initiatives to develop the Congo Basin Institute. The Institute is a permanent hub where Africans can find original solutions to their own problems while collaborating with international researchers.

We use an interdisciplinary approach to show how universities, NGOs and the private sector can work together in international development.

So rather than parachuting experts from the West for short stays, we are building a permanent base in Africa as a one-stop-shop for logistics, housing and joint project development between Africans and international researchers.

So students like Michelle have access to quality training in Africa.

Michelle is currently working in our lab investigating the effects of climate change on insects for her PhD and has already secured a postdoctoral fellowship that allows her to remain on the continent.

Also, through our field support program, young Nigerian scientist Dr. Guvenga Abiodun will be able to work concurrently as a postdoctoral fellow at the University of the Western Cape in South Africa and the Professional Development Foundation at the University of California to investigate the impact of climate variability and change on malaria transmission in Africa.

In fact, Gubenga is currently developing a model that will be used as an early warning system to predict malaria transmission in Africa.

Therefore, rather than exporting top talent from Africa, we develop and support local talent in Africa.

For example, like me, Dr. Eric Fokam was trained in the United States.

He returned home to Cameroon, but could not secure the funding he needed and found it very difficult to practice and learn the science he knew he could do.

So when I met Eric, he was on the verge of returning to the US.

But we convinced him to start working with the Congo Basin Institute.

His lab in Buea now has more than six joint grants with US and European researchers and supports 14 graduate students, nine of whom are women, all doing groundbreaking research to understand biodiversity, human health and nutrition in the face of climate change.

(Applause.) So, rather than advocate for the idea of ​​Africa receiving handouts, we are using an interdisciplinary approach to empower Africans to find their own solutions.

Today, we are working with local communities, students, US entrepreneurs, and US and African scientists to find ways to sustainably grow ebony, Africa's iconic hardwood.

Ebony, like most African hardwoods, is used as timber, but little is known about its biology, what disperses it, and how it survives 80 to 200 years in the forest.

This is Irvine. A young PhD student working in our lab, doing what turned out to be state-of-the-art tissue culture research.

Irvine holds in his hands the first ebony wood manufactured entirely from tissue.

This is unusual in Africa.

We have now been able to show that African wood can also be produced from various plant tissues (leaves, stems and roots) in addition to generation from seeds, which is a very difficult task.

(Applause.) So other students will take the ebony varieties that Irvine has identified in our lab, graft them to produce seedlings, and work with local communities to co-produce ebony with local fruit tree species on various farms using our unique tree farming approach. This invites all farmers to choose the unique tree species they want for their farm.

So, in addition to ebony, farmers' own seeds will be produced using modern technology and incorporated into the land use system, and farmers will begin to benefit from these products while the ebony is waiting to mature.

We currently have 15,000 ebony trees planted in Cameroon and for the first time the ebony is no longer harvested from the middle of the primeval forest.

This is our African hardwood model, which we extend to include sapele, bubinga and other very valuable hardwoods.

So if these examples existed when I was 18, I would never have left here. But thanks to the efforts of the Congo Basin Institute, I'm back, but not alone.

I bring in Western scientists, entrepreneurs, students, the best science from the best universities in the world to work and live in Africa.

But we all need to scale up this local, powerful and empowering approach.

So far, we have 6 universities and NGOs as partners.

We plan to build a green facility that will expand the existing lab space and add more housing and conference facilities to facilitate a long-term disciplined approach.

I want to provide more opportunities for young African scholars, and I want to leverage and scale up the International Institute for Tropical Agriculture's existing network of 17 research stations across Sub-Saharan Africa.

The tide is starting to turn...

And I hope they continue to change course to reach out to some African countries like Côte d'Ivoire, Tanzania and Senegal, which are among the fastest growing economies that can attract some opportunities for private sector investment.

We want to give African scholars more opportunities. And we long for the day when the most intelligent Africans stay on the continent and receive quality education through initiatives like the Congo Basin Institute. At that time, Africa will begin to walk the path of solving its problems.

And in 50 years, I hope someone will give a TED talk on how to stop the brain drain so that Westerners can leave their homes and work and live in Africa.

(Applause.) Thank you.

(applause)

All buildings today have one thing in common.

Made using Victorian-era techniques.

This includes blueprints, industrial production, and construction using teams of workers.

The result of all this effort is the creation of inert objects.

And that means there is a one-way transfer of energy from our environment to our homes and cities.

This is not sustainable.

I believe that the only way we can build truly sustainable homes and cities is by connecting them with nature, rather than isolating them from it.

You need the right kind of language to do this.

Living systems are in constant dialogue with the natural world through a series of chemical reactions called metabolism.

This is the transformation of one group of matter into another through the production or absorption of energy.

This is how biomaterials make the most of local resources in a sustainable way.

I am therefore interested in the use of metabolites in architectural practice.

But they don't exist. So i have to make them.

I am working with architect Neil Spiller of the Bartlett School of Architecture, working with international scientists to generate these new materials from a bottom-up approach.

In other words, it's being generated from scratch.

One of our collaborators is chemist Martin Hanczyc, who is very interested in the transition from inert to living matter.

It is precisely such processes that interest me when thinking about sustainable materials.

So Martin, he works with a system called the Protocell.

Well, all this, and that's the magic of it, is a small chunky bag. There is a chemical battery inside.

And it has no DNA.

This little bag can act in a way that can only be described as alive.

It can move around its environment.

A chemical gradient can be followed.

Complex reactions can occur, some of which are fortunately architectural.

So here we are. These are progenitor cells, patterning their environment.

I still don't know how they do it.

This is the progenitor cell, actively molting.

Now, this looks like a kind of chemical birth.

This is a violent process.

Here is a protocell that extracts carbon dioxide from the atmosphere and turns it into carbonate.

That's the shell around the globular fat.

they are very fragile. So there is only one part there.

What we are trying to do is push these technologies towards building a bottom-up construction approach to architecture, as opposed to the current Victorian top-down method of imposing structure on matter.

It is energetically irrational.

So the bottom-up material still really exists today.

They have been used in architecture since ancient times.

If you walk around the city of Oxford, where we are today, and look at the brickwork that I've been enjoying the last few days, you can actually see that much of it is made of limestone.

If you take a closer look, you can see small seashells and small skeletons piled up in the limestone.

And it's been fossilized for millions of years.

Now, the limestone chunks themselves aren't particularly interesting.

It looks beautiful.

But imagine what the properties of this block of limestone would be like if its surface were actually talking to the atmosphere.

Maybe we can extract carbon dioxide.

Will this limestone block be given new properties?

Well, it probably will. maybe you can grow.

It has the potential to self-repair and be able to respond to dramatic changes in the immediate environment.

Architects are therefore never satisfied with just one block of interesting material.

they think big. have understood?

So when we think about scaling up metabolites, we can start thinking about ecological interventions such as atoll restoration and reclamation of parts of cities damaged by water.

So one of these examples would naturally be the historic city of Venice.

Well, as you know, Venice has a violent relationship with the sea and is built on wooden stakes.

So we devised a possible way to sustainably regenerate Venice using the protocell technology we're working on.

And architect Christian Kerrigan has come up with a series of designs that show how it's actually possible to grow a limestone coral reef beneath a city.

So this is the technology we have today.

This is our Protocell technology, which creates shells as effectively as their limestone ancestors and deposits them in highly complex environments relative to their natural materials.

We are examining crystal lattices to confirm this bonding process.

Now comes the very interesting part.

We don't just want to dump limestone all over our beautiful canals.

All we need to do is craft creatively around the wooden stake.

So from these figures we can see that the protocells are indeed moving away from the light and towards the dark foundations.

We have observed this in the lab.

Protocells can actually move away from the light.

You can also actually move towards the light. Just select your race.

Rather than simply exist as one entity, they are chemically engineered.

And here, proto-cells have so specifically deposited limestone around the foundations of Venice, effectively petrifying it.

Well, this won't happen tomorrow. It will take some time.

It will take years of tuning and monitoring the technology before it can be tested on a case-by-case basis in the most damaged and stressed buildings in the city of Venice.

However, as the buildings are gradually restored, limestone reefs can be seen depositing beneath the city.

Accretion itself is a huge sink of carbon dioxide.

The architecture also attracts local marine ecosystems, who will find their own ecological niche within this architecture.

So this is really interesting. Now we have architecture that connects the city and the natural world very directly and instantly.

But perhaps the most interesting point is that drivers for this technology are available everywhere.

This is chemistry on earth. This means that the technology is suitable for developing countries as well as first world countries.

In summary, I generate metabolites as a counterpoint to Victorian-era technology and build architecture with a bottom-up approach.

Second, these metabolites possess some properties of biological systems, which means they can function in a similar way.

Many forms and functions can be expected in architectural practice.

And finally, in the future, an observer marveling at a beautiful structure within an environment may find it almost impossible to tell whether this structure was created by natural processes or is man-made.

thank you.

(applause)

I want to talk about Manson.

Manson was this 28-year-old interior designer, father to a beloved daughter, and son to prison after the collapse of the justice system.

He was falsely accused of murder and sent to the gallows.

There were two victims in this murder case - the victim who actually died in the murder and Manson who was wrongly convicted and sentenced to prison.

He, along with 13 other adult men, was held in an 8:00 by 7:00 cell for 23.5 hours a day.

There was no guarantee that food would be available.

And yesterday, when I walked into the room I was in, I remember imagining something like the cell that Manson would have lived in.

Because the toilets--the rows of little rooms there--were slightly larger than an eight-by-seven cell.

However, while Manson was waiting for his executioner in his cell, he was known by number as he had no name in prison.

He was just a statistic.

He didn't know how long he would have to wait.

The wait could have been a minute, the executioner could come the next moment, the next day, or it could have taken 30 years.

The wait was endless.

And Manson knew he wasn't going to play the victim in the face of excruciating pain, mental torture, and many unanswered questions.

He refused to play the part of the victim.

He was angry with the justice system that kept him in prison.

But he knew that playing the victim wasn't the only way he could change that justice system or help others get justice.

The change for Manson came when he decided to accept forgiveness from those who imprisoned him.

I speak it as a fact.

Because I know who Manson is.

I'm Manson

My real name is Peter Manson Oko.

And after being convicted and having an awakened heart of forgiveness, I took this action to change the system.

I had already decided not to be a victim anymore.

But how was I going to help change the system of bringing in young inmates who should be with their families every day?

So I began to mobilize my colleagues in prisons and fellow inmates to write letters and memorandums to the judicial system and judicial commissions, the numerous task force that has been set up in our country, Kenya, to assist in constitutional reform.

And we've decided to take those words, grab them at the straw, just to make the justice system work and work for everyone.

Around the same time, I met a young college graduate from England named Alexander McLean.

Alexander had come with three or four college colleagues for his gap year and wanted to help set up a library at Camiti Maximum Prison. If you google it you will find it written as one of the 15 worst prisons in the world.

It was then.

But when Alexander came along, he was still a boy of twenty.

And at that time I was on death row.

And we have him under our protection.

It was an honest trust issue.

He trusted us even though we were on death row.

And through that trust, we have seen him and his college colleagues refurbish libraries with the latest technology, set up infirmaries to very good standards, and ensure that those who fall ill in prison do not necessarily die a humiliating death.

Meeting Alexander was an opportunity for me and he gave me the opportunity and support to enroll for my degree at the University of London.

Like Mandela from South Africa, I had the opportunity to study at Kamiti High Security Prison.

Two years later, I became the first graduate of the University of London program from prison.

Graduation and what happened next -- (Applause) Thank you.

(Applause.) I graduated and now feel empowered.

I didn't mean to play the helpless victim.

But I felt empowered not only to support myself and prosecute my own case, but also to help other inmates who have suffered similar injustices just spoken of here.

So I started writing legal briefs for them.

With other colleagues in prison, we did what we could.

It just wasn't enough.

African Prison Project Alexander McLean and his team are determined to help more prisoners.

And as I am telling you today, Kenya Prison has 63 inmates and staff studying law at the University of London via distance learning.

(Applause.) They are changemakers motivated not just to help the laziest people in society, but to help inmates and others access justice.

In my prison cell, something kept me excited.

Martin Luther King Jr.'s words kept haunting me.

And he always said to me, "Pete, if you can't fly, you can run.

And even if you can't run, you can walk.

But even if you can't walk, you can still crawl.

But whatever it is, whatever it takes, just keep moving. ”

And I had the urge to keep moving.

I still have the urge to keep moving no matter what I do.

Because I feel that the only way we can change society, a truly improved justice system in this country, is by helping get the system right.

So, on October 26th last year, after 18 years in prison, I received a presidential pardon and was released from prison.

My current focus is on training APP (African Prisons Project) and helping them achieve their mission of establishing the first law school and law college inside a prison.

Where we train -- (Applause.) Where we train is where we train inmates and staff not only to help fellow inmates, but to assist the wider community of poor people who have no access to legal justice.

So, as I speak before you today, I stand here fully aware that we can all re-examine ourselves, we can all re-examine our circumstances, we can re-examine our circumstances, and we can not play the victim narrative.

Victim stories get us nowhere.

Yes, I was in prison.

But I never felt and was never a prisoner.

The basic thing I learned is that if I think, and if you think, you can, you can.

But if you sit around thinking you can't do it, it won't happen.

It's that simple.

That's why I was encouraged by the peaceful revolutionaries I heard on this stage.

The world needs you now, the world needs you now.

And as I conclude my talk, I ask each and every one of you here, the great thinkers, the change-makers, the innovators, and the great global citizens at TED, to remember the words of Martin Luther King:

Keep ringing in your heart and in your life.

Whatever it is, wherever you are, whatever it takes, keep moving.

thank you.

(Applause.) Thank you.

(applause)

As I am from Tanzania, I feel I have a responsibility to welcome you all again.

Thanks for coming.

So, first of all, before we start, how many people in the audience have been affected by this bug in the past?

On behalf of all mosquito repellents, I would like to apologize.

(Laughter) Guys, imagine being bitten by an infectious mosquito seven times a day.

This equates to 2,555 infectious bites each year.

When I was in college, I moved to the Kilombero River Valley in southeastern Tanzania.

This was historically one of the most malaria-infested areas in the world at the time.

Life here was hard.

In the late stages of malaria, extreme attacks appeared, locally known as Degedege.

Women and men, adults and children are slaughtered without mercy.

My alma mater, Ifakara Health Institute, was established in this valley in the 1950s to address the priority health needs of the community.

In fact, the name Ifakara refers to a place to die, reflecting what life was like here in the days when there was no organized public health care system.

When I first moved here, my main role was to estimate how much malaria transmission was going on throughout the village and which mosquitoes were transmitting the disease.

So my colleague and I came 30 kilometers south across the river from the town of Ifakara.

Every night we went to the village with flashlights and siphons.

We rolled up our pants and waited for a mosquito to bite us. It's for collecting mosquitoes to see if you have malaria.

(Laughter) My colleague and I chose one household and started swapping positions between indoors and outdoors every 30 minutes.

And I did this for 12 hours every night, 24 nights in a row.

We slept four hours each morning and spent the rest of the time sorting, identifying, and decapitating mosquitoes so they could be analyzed in the lab to see if they had malaria parasites in their blood mouthparts.

In this way, we were able to not only find out how much malaria was occurring here, but also which mosquitoes carried this malaria.

We were also able to find out if malaria was occurring primarily inside the home or outside the home.

Folks, I still make my living by catching mosquitoes.

But I'm doing this primarily to improve people's lives and well-being.

Some people call it the most dangerous animal on earth and unfortunately it's true.

But what do we really know about mosquitoes?

It turns out that we really know very little.

Consider the fact that our best defense against malaria at the moment is bed nets – insecticide-treated bed nets.

We now know that resistance to pesticides is widespread across Africa.

These are the same pyrethroid insecticides used in mosquito nets.

These mosquito nets protect against bites, but have been shown to kill the least amount of mosquitoes they should.

What that means is that you have to try harder to get to zero.

And it's part of our duty.

Ifakara Health Institute focuses on mosquito biology and strives to identify new opportunities.

new approach.

You can try new methods to get new options and combine them with things like mosquito nets to zero.

Here are some examples of what my colleagues and myself are doing.

Consider this for example.

Mosquitoes breed in small puddles.

Not all of them are easy to find. They may be scattered throughout the village, or they may be as small as a hoofprint.

They may be behind your house or far away from home.

Therefore, if you want to control mosquito larvae, it is actually very difficult to obtain them.

What my colleagues and I decided to do was imagine what would happen if we used the mosquito itself to transport the pesticide from a location of our choice to our own breeding grounds so that the eggs they lay there would not survive.

Dixon Leweteijera.

This is my colleague who runs this show at Ifakara.

And he deftly demonstrated that he could actually get mosquitoes to come where they usually draw blood, ingest sterilants and pesticides, and bring them back to their breeding grounds to kill all their offspring.

And we've demonstrated that doing this can very quickly crush a population.

this is beautiful

This is our mosquito city.

This is the world's largest mosquito farm available for malaria research.

There are large self-sustaining colonies of malarial mosquitoes here, which are reared in these facilities.

Of course they are disease free.

But what these systems allow us to do is bring in new tools and test them quickly, very quickly, to see if we can crush these groups or control them in some way.

And my colleagues have demonstrated that just putting two or three places where mosquitoes go to pick up these deadly substances can crush these colonies in as little as three months.

That's what we call auto-diffusion.

But what if we could use their sexual behavior to control them?

So, first of all, I would like to tell you that mosquitoes actually mate in so-called swarms.

Male mosquitoes usually gather in groups around the horizon after sunset.

The males go there for the dance, the females jump into the dance and choose male mosquitoes of their own choosing, usually the most beautiful males in their eyes.

They harden and fall to the floor.

Looking at this, it looks beautiful.

It's a wonderful phenomenon.

This is where our mosquito catching job is really interesting.

What we have seen when going herd hunting in villages is that the location of these herds tend to be in the exact same location every day, every week, every month, every year.

They start at exactly the same time in the evening and are in exactly the same place.

What does this tell us?

This means that if you can map all these locations across a village, you can actually crush these populations with one blow.

It's like dispersing bombs or nukes.

And that's what we're trying to do with young men and women across the village.

We organize these crews, teach them how to identify herds, and disperse them.

A colleague and I believe we have a new window to keep mosquitoes out of the valley.

But perhaps the fact that mosquitoes feed on blood—human blood—is why mosquitoes are the most dangerous animals on earth.

But think about it. Mosquitoes actually smell you.

And they have developed incredible sensory organs.

Sometimes you can smell it from 100 meters away.

And when they get closer, they can even tell the difference between the two families.

They know who you are based on what comes out of your breath, skin, sweat and body odor.

What Ifakara has done is identify what mosquitoes like in your skin, body, sweat and breath.

Having identified these substances, we created a formulation, a kind of mixture, a blend of synthetic substances reminiscent of those produced by the body.

And we created a synthetic blend that attracts 3-5 times more mosquitoes than humans.

What can you do with this?

Set a trap, lure a lot of mosquitoes and kill them, right?

Of course, it can also be used for surveillance.

At Ifakara, we want to deepen our knowledge of mosquito biology. Not just malaria, of course, but many other diseases, including dengue, chikungunya, Zika and other mosquito-borne diseases.

This is why, for example, my colleague looked into the fact that some mosquitoes like to bite people's leg areas.

And we made mosquito repellent sandals for tourists and locals to wear when they come.

And you won't get bitten. This will protect your body for 24 hours before entering the mosquito net.

(Applause.) My love-hate relationship with mosquitoes continues.

(Laughter) And it turns out it's going to be a long road.

But it's okay.

WHO has set a goal to eliminate malaria from 35 countries by 2030.

The African Union has set a goal of eradicating malaria from the African continent by 2030.

Ifakara firmly supports these goals.

And we have assembled a group of champion young scientists, men and women, who are interested in uniting to make this vision a reality.

They do everything they can to make it work.

And we support them.

We are here to make sure these dreams come true.

Ladies and Gentlemen, I believe that even if it doesn't happen in our lifetimes, or before you and I leave this world, your children and mine will inherit a world free of malaria-carrying mosquitoes and malaria.

Thank you very much for your attendance.

(Applause.) Thank you.

Kero Kubu: Well, Fredros.

Let's talk a little bit about CRISPR.

(Laughter) It takes the world by storm and promises great things.

What are your thoughts on scientists using CRISPR to kill mosquitoes?

Fredros Okumu: To answer this question, let's start with what the problem is.

First of all, we are talking about a disease that still kills 429,000 people according to the latest figures we got from WHO.

Most of them are African children.

Of course, we are making progress, and some countries have achieved reductions in the malaria burden of up to 50-60 percent.

But we still need to work hard to get it to zero.

There is already proof of principle that gene-editing techniques such as CRISPR can be used effectively to change mosquitoes so that they no longer carry malaria (this is called population modification) or that they no longer exist (called population control).

This has already been proven in the laboratory.

There are also modeling studies demonstrating that even if a small number of genetically modified mosquitoes are released, control can actually be achieved very quickly.

So CRISPR and tools like this offer us some real opportunities. So it's a real opportunity to make high-impact interventions that you can use on top of what you have now to ultimately get to zero.

This is important.

Now, of course, people ask us all the time -- it's a common question, and I'm sure you'll ask the same -- "What if we got rid of the mosquitoes?"

KK: Then I won't ask, you answer.

FO: Okay. In this regard, I would like to remind my colleagues that there are 3,500 species of mosquitoes in the world.

Maybe more than that.

About 400 of these are Anopheles mosquitoes, of which only about 70 are capable of transmitting malaria.

In Africa you have to deal with 3 or 4 of these as the main characters.

They carry most of the malaria. For example, 99% of all malaria we have.

If we tackle gene editing like CRISPR, or gene drives to control malaria, we're going to pursue just one or two.

I don't think it's a diversity issue.

But that's my personal opinion.

I think that it is all right.

By the way, remember. Over the years we have tried to effectively eliminate mosquitoes by spraying – our colleagues in the US use sprays as well – really bombing out villages.

Domestic spraying is popular in Africa.

All of these are intended only to kill mosquitoes.

So it really doesn't matter if you have new tools.

But having said that, I have to say that we have to be very responsible here as well.

So there is also the regulatory side and we have to work with them to ensure that everything we do is done right and responsibly. An independent risk assessment should also be conducted to ensure that all these processes do not fall into the wrong hands.

thank you very much.

KK: Thank you.

(applause)

I am a writer, a journalist, and a very curious person, so in my 22 years as a journalist, I have learned how to do a lot of new things.

And three years ago, one of the things I learned how to do was to be transparent.

I also became one of the working homeless.

After my father passed away in February of the same year, I quit my job as a newspaper editor and decided to travel.

His death gave me quite a shock.

And there were so many things I wanted to feel and deal with while doing so.

I have been camping all my life. And I decided that living in a van for a year to do this would be like one long camping trip.

So I packed my cat, Rottweiler, and camping gear into a 1975 Chevrolet van and drove off into the sunset without really understanding three key points.

The first is that society equates living in a permanent building, even a hut, with having value as a person.

2: I never understood how quickly the negative perceptions of others can affect our reality if left unchecked.

3: I didn't realize that homelessness is an attitude, not a lifestyle.

At first, life in the van was great.

I took a shower at the campsite. I used to eat out regularly.

And I had time to relax and grieve.

But then the anger and depression over my father's death began.

My freelance work is over. And I had to get a full-time job to pay the bills.

What should have been a mild spring turned into a sweltering heat.

And I couldn't park anywhere -- (laughter) -- it wasn't very obvious that I had a cat and a dog, but it was really hot.

The cat entered and exited through the van's open window.

The dog went to a dog nursery.

and sweated.

Whenever possible, I used employee showers in office buildings and truck stops.

Or I washed myself in a public toilet.

Nighttime temperatures in the van rarely dropped below 80 degrees Fahrenheit, making it difficult or impossible to sleep.

The food has spoiled in the heat.

The ice in the ice box melted within hours and was in pretty miserable condition.

I couldn't afford to find an apartment, and I couldn't afford an apartment to keep my Rottweiler and cat.

And I refused to let them go, so I remained in the van.

And at night, when the heat made me sick and I couldn't walk 50 feet to the public toilet outside the van, I used a bucket and a garbage bag as a toilet.

With the onset of winter weather, temperatures dropped below freezing. and they stayed there.

And I faced a whole new challenge.

I parked in a different spot every night to avoid the hassle of being spotted by the police.

Not always successful.

But I felt I lost control of my life.

I don't know when or how that happened, but the speed at which she went from being a talented writer and journalist to being a homeless woman living in a van was breathtaking.

I hadn't changed. My I.Q. hadn't dropped.

My talent, my integrity, my values, everything about me remained the same.

But somehow I have changed.

I became more and more depressed.

And eventually someone referred me to a homeless clinic.

And so I went. I hadn't taken a bath in three days.

I was smelly and depressed just like the people in line.

I just wasn't drunk or high.

And when several homeless men, including a former university professor, noticed it, they said, "You're not homeless. Why are you really here?"

Other homeless people didn't see me as homeless, but I was.

Then the professor listened to me and said, "You have a job. You have hope.

The real homeless have no hope. ”

I had suicidal thoughts because of my reaction to the medicine prescribed at the clinic to treat my depression. And I remember thinking, 'If I kill myself, no one will notice.

Shortly after, a friend told me that he heard Tim Russert, a nationally known journalist, talking about me on national television.

An essay I wrote about my father the year before he died appeared in Tim's new book.

And he was doing the talk show circuit. And he was talking about my writing.

And when I was living in a van in a Walmart parking lot when I noticed former “Meet the Press” host Tim Russert talking about my writing, I started laughing.

you should too

(Laughter) Am I a writer or am I a homeless woman and I started laughing.

So I went to the bookstore. Then I found Tim's book.

And I was standing there Then I read my essay again.

And I cried.

Because I was a writer.

I was a writer;

Shortly thereafter I returned to Tennessee.

I alternated between living in the van and surfing on the couch with my friends.

And started writing again.

By the following summer I was working as a journalist.

had won an award. I lived in my own apartment.

I was no longer homeless.

And I am no longer visible.

Thousands of people work full-time or part-time and live in their cars.

But society continues to stigmatize and criminalize life in cars and on the streets.

Therefore, the homeless, working homeless remain largely invisible.

But if you do meet someone like that, be proactive, encourage them, and give them hope.

The human spirit can overcome anything if it has the will.

And I'm not here to be a homeless poster girl.

I am not here to advise you to give money to the next beggar you meet.

But what I want to tell you here is not where people live, where they sleep, or what their living conditions are like at any given time, based on my experience.

Three years ago I was living in a van in a Walmart parking lot and today I am speaking at TED.

Hope always, always finds a way. thank you.

(applause)

As other speakers have said, speaking in front of this audience is a pretty daunting experience, an especially daunting experience.

But unlike other speakers, I'm not going to talk about the mysteries of the universe, the wonders of evolution, or the really clever and innovative ways people are attacking the great inequalities of the world.

Or even the challenges of nation-states in the modern global economy.

My summary, as you just heard, is to talk about statistics. More precisely, I would like to tell you some interesting things about statistics.

And it's -- (laughter) -- it's a lot more challenging than all the speakers before me and all the speakers that come after me.

(Laughter) One of my seniors told me quite proudly when I was new to this profession that statisticians were people who liked numbers but didn't have the personality skills to be an accountant.

(Laughter) And there's another inside joke among statisticians. The question is, "How do you tell an introverted statistician from an extroverted statistician?"

The answer is, "An extroverted statistician is someone who looks at other people's shoes."

(Laughter) But I want to tell you something useful -- and it's here, so focus now.

A reception will be held tonight at the University's Natural History Museum.

And you will find it to be a wonderful setting and the epitome of Victorian heritage at its finest.

In this particular setting, and in this group of people, that is unlikely, but you may find yourself talking to someone you would rather not be.

So here's what you should do:

When they say to you, "What are you doing?" -- you say, "I'm a statistician."

(Laughter.) Well, they've been forewarned, so they'll know you're making it up.

Then one of two things will happen:

They either find their long lost cousin in the opposite corner of the room and run over to talk to him.

Or they may suddenly feel parched, hungry, or both, and run for food or drink.

And you will be able to talk to the person you really want to talk to with confidence.

Describing our work is one of the challenges of our profession.

We're not at the top of people's lists when it comes to dinner party guests, conversations, and so on.

And that's something I've never really found a good way to do.

But my wife, who was my girlfriend at the time, coped much better than I could ever have.

Many years ago when we first started dating she was working for the BBC in England and I was working in the US at that stage.

I came back to visit her.

When she mentioned this to one of her colleagues, she said, "So what is your boyfriend doing?"

Sarah took pretty seriously what I was explaining and was focused on listening at the time.

(laughter) Don't tell her what I said.

And she was thinking about the work I did developing mathematical models for understanding evolution and modern genetics.

So when her colleague asked, "What is he doing?"

She stopped and said, "He models things."

(Laughter) Well, suddenly her colleague was more interested than I expected, and she went on to say, "What is he modeled after?"

Well, Sarah thought a little more about my job and said "genes."

(Laughter) "He's modeling genes."

That's my first love, let me tell you a little bit about it.

More generally, what I want to do is ask you to think about where uncertainty, randomness, and chance are in our world and how we react to it, and how well or not we think about it.

In other words, in the meetings so far, you've had a very carefree time, including laughing a little.

I want you to think about it, but I have a few questions.

This is the scene of the first question I ask you.

Can you imagine tossing coins back to back?

And for some reason, we are interested in a particular pattern, although it remains rather vague.

This is one. Head, followed by tail, then tail.

So let's say you toss a coin repeatedly.

And here comes the head-tail-tail pattern that we suddenly became obsessed with.

And you can count 1, 2, 3, 4, 5, 6, 7, 8, 9, 10. This happens after the tenth toss.

So you may wonder if there's something more interesting going on, but for now, use humor to talk about it.

Imagine that this half of the spectator each picks up a coin and tosses it until they see the first face, back, back pattern.

The first time you do it is probably after the 10th toss, like here.

The second time may be after the fourth toss.

Next time, after the 15th toss.

So repeat it over and over and average those numbers.

That's what I want you to think about.

The other half of the audience doesn't like head-tail-tail. For deep cultural reasons, we consider it boring. And I'm much more interested in another pattern, head-tail-head.

So, on this side, we take out a coin and toss it toss it.

Then count the number of times the head-tail-head pattern appears and average them. OK?

So, on our side, we get the number of average tosses from head to tail to tail. I've done this many times so I know exactly what it is.

A number is displayed here. Average number of tosses to head, tail, head.

There is a deep mathematical fact here. Given two numbers, one of the three must be true.

Either they are the same, or this is bigger than this, or this is bigger than that.

So what is going on here?

So you have to think about it and you have to vote too. Then we won't move on.

And I don't want to end with two minutes of silence to give more time to think until everyone has their say. OK.

So what you want to do is compare the average number of tosses before first sighting head-tail-head with the average number of tosses before first sighting head-tail-tail.

Who would think that A is true, that on average it takes longer to look head-to-tail-to-head than to see head-to-tail-to-tail?

Who thinks that B is true, that on average they are the same?

Who would have thought that C would be true, that on average it would take less time to look head-to-tail-to-head than to see head-to-tail?

Yes, who hasn't voted yet? Because that's really naughty—I said I had to.

(laughter) Okay. So most people think B is correct.

And it may be comforting to know that even some fairly eminent mathematicians think so.

it's not. A applies here.

On average, it will take longer.

In fact, the average head-tail-head toss is 10, and the average head-tail-tail toss is 8.

How could that be?

Is there any difference between the two patterns?

There is The head, tail and head overlap.

If you go heads, tails, heads, tails, cleverly, the pattern can appear twice in just 5 tosses.

You can't do that with head-tail-tail.

I can see it being important.

There are two ways of thinking about this.

I'll give you one of them.

So imagine -- let's assume we're doing it.

Remember, on this side, we're excited about heads, tails, and tails. You are excited about head and tail and head.

We start tossing a coin, and we get a head -- and you start sitting on the edge of your seat because something great, great, or wonderful might be about to happen.

The next toss is the tail. I am very excited.

Champagne is on ice right next to you. Chilled glasses for celebration.

You wait with bated breath for the final toss.

And if it's out of your mind, that's great.

Let's celebrate because it's over.

If it was a tail, unfortunately put away the glass and put the champagne back.

Then wait for the next head and keep throwing to get excited.

This side is a different experience.

The first two parts of the sequence are also the same.

The first head excites a little, but the second tail excites more.

Then flip a coin.

If it's a tail, crack the champagne open.

If you're a head, you'll be disappointed, but you're still a third away from getting back into the pattern.

It makes a difference because it's an informal way of saying it.

Another way of thinking is that if you toss a coin 8 million times, you would expect to get 1 million heads and tails and 1 million heads and tails, but the heads and tails can happen in clumps.

So if you want to put a million things inside 8 million positions, you can overlap some of them and the clumps will be further apart.

It's another way to get intuition.

what do i mean

This is a very, very simple example, an easily stated problem of probability, a problem that everyone -- if you're in good company -- makes mistakes.

This is a little distraction to my true passion, genetics.

The relationship between head-to-tail-to-head and head-to-tail-to-tail in genetics is as follows:

When you toss a coin, the heads and tails appear consecutively.

If you look at the DNA, instead of the two letters head and tail, there are four letters arranged side by side: As, G, C, and T.

And then there are the little chemical scissors called restriction enzymes that cut the DNA whenever a certain pattern is found.

And they are very useful tools in modern molecular biology.

And instead of asking "How long will it take to see head-to-tail?" -- you can ask -- "For example, how big would the chunk be if you used a restriction enzyme that cuts every time it sees a G-A-A-G?"

How long will the clump be? ”

It's a fairly trivial relationship between probability and genetics.

There is a deeper connection, but I won't go into detail about this. That said, modern genetics is a very interesting scientific field.

We'll be hearing some specifics about that later in the conference.

But it turns out that unlocking the secrets of information generated by modern experimental techniques, a significant part of it, has to do with something quite sophisticated. Rest assured knowing that I am doing something helpful in my daily work. Rather sophisticated than a head-to-tails-to-heads story, it is very sophisticated computer modeling, mathematical modeling, and modern statistical methods.

Here are a couple of small snippets and two examples of projects we're involved in in my group at Oxford. I think both are pretty exciting.

Are you familiar with the Human Genome Project?

It was a project aimed at reading one copy of the human genome.

It's a given when it's done. That's this project, the International HapMap project. This project is a collaboration between laboratories in 5-6 countries.

Think of the Human Genome Project as learning about our commonalities, and the HapMap project as trying to understand where different people differ.

why do we care?

Well, there are many reasons.

The most pressing challenge is to understand how certain differences predispose some people to certain diseases, such as type 2 diabetes, while others predispose them to heart disease, stroke, and autism.

It's one big project.

There is a second major project recently funded by the country's Wellcome Trust, which involves a very large study trying to understand genetics, involving thousands of people with each of eight different diseases, common diseases such as type 1 and type 2 diabetes, coronary heart disease, bipolar disease and others.

Trying to understand what genetic differences are responsible for disease.

why would you want to do that?

Because we understand very little about most human diseases.

I don't know what caused it.

And if we can get down to the roots and understand genetics, we can understand how disease works, and we can start thinking about how to treat, prevent, and treat disease in a whole new way.

Like I said, it's a little distraction for my main love.

Let us return to some of the more mundane problems of thinking about uncertainty.

Here's another quiz. Now suppose we have a pretty good, if not foolproof, test for the disease.

99% of the time it will run correctly.

And I'll take one of you, or someone off the street, and test it for the disease in question.

Suppose there is a test for HIV (the virus that causes AIDS) and the results show that the person has the disease.

What are the chances that they will?

The test is correct 99% of the time.

So the natural answer is 99%.

who likes that answer?

Come on, everyone has to participate.

Please don't think you don't trust me anymore.

(Laughter) Well, you're right to be a little skeptical. Because it's not the answer.

You may think so.

It's not the answer, nor is it just part of the story.

It really depends on how common or rare the disease is.

So let's try to explain it.

Here's a little caricature of a million people.

Now let's think about the diseases that we suffer from. It is extremely rare, affecting 1 in 10,000 people.

Of these millions of people, most are healthy, but some of them will get sick.

And indeed, if the disease were to spread, about 100 people would get the disease and the rest would not.

So let's say we test them all.

what happens?

Of the 100 people who actually have the disease, the test will test correctly 99 percent of the time, and 99 will test positive.

Among other people who do not have the disease, the test correctly diagnoses them 99% of the time.

You only have a 1% chance of being wrong.

However, the sheer number of them would result in a huge number of false positives.

In other words, less than 1 in 100 of all people who test positive are actually infected.

So we think the test is accurate, but the important part of this story is that there is one more piece of information we need.

Here is an important intuition.

When we find a positive test result, all we have to do is weigh the plausibility, or likelihood, of two competing explanations.

Each explanation has a probable part and an unlikely part.

One explanation is that the person does not have the disease, which is overwhelmingly likely if you pick someone at random, but the test will be misdiagnosed, which is unlikely.

Another explanation is that the person actually has the disease, which is less likely, but more likely that the test will correctly diagnose it.

And the final number we get is a little less than 1 in 100, but it has to do with how likely one of these explanations is compared to the others.

Considering each of them together is inconceivable.

Here's a more topical example of the exact same thing.

If you live in the UK, you probably know the rather famous case of a woman named Sally Clark who died suddenly with two babies in her arms.

And at first, they were thought to have died of what is informally known as "cot death," more formally, "sudden infant death syndrome."

For various reasons, she was later charged with murder.

And at her trial, a very eminent pediatrician presented evidence that in a family like hers (professional and non-smoker), the odds of two cot deaths, or innocent deaths, occurring are 1 in 73,000,000.

Long story short, she was convicted at the time.

Then, most recently, he was acquitted on appeal, but was actually acquitted on a second appeal.

Given the circumstances, you can imagine how awful it would be to lose a child and be convicted of murdering two more, even if they were innocent.

Being under the stress of a trial, being convicted of murdering children, and spending time in a women's prison where all the other inmates think you killed them is really awful for someone.

And this incident happened largely because the experts got the statistics horribly wrong in two different ways.

So where did you get the 1 in 73 million figure?

He found that the odds of one crib dying in a family like Sally Clark's is about 1 in 8,500.

So, he said, "assuming that even if one cot dies in the family, the chances of a second child dying in the cot remain the same."

So this is what statisticians call the independence assumption.

It's like saying, "If you toss a coin and it comes up heads first, it doesn't affect the odds of getting heads the second time."

In other words, if you toss a coin twice, the odds of getting heads twice are 1/2 of the first chance and 1/2 of the second chance.

So he said, "Here we assume that these events are independent.

Multiplying 8,500 twice gives us approximately 73 million. ”

And none of these were stated in court as hypothetical or presented as such to a jury.

Unfortunately here, and really unfortunately, first of all, in such a situation it is necessary to verify it empirically.

And second, it's an obvious fallacy.

There are many unknowns about sudden infant death.

It is quite possible that there are environmental factors that we are unaware of, and very likely that there are genetic factors that we are unaware of.

Therefore, if a family suffers from one crib death, we would classify that family in the high-risk group.

They probably have environmental or genetic risk factors that we don't know about.

And it's really ridiculous to claim that a second possible death is as if you didn't know the information.

It's worse than it's ridiculous, it's really bad science.

Nevertheless, that was the way it was presented, and no one even disputed it at trial.

That's the first problem.

The second question is what does the number 1 in 73 million mean?

So after Sally Clark's conviction -- which, as you might imagine, has caused quite a bit of press coverage -- one of Britain's more reputable newspaper reporters wrote that the expert statement was "1 in 73,000,000 chances of her being innocent."

Well, it's a logical error.

This is exactly the logical fallacy of assuming that you have a 99% chance of having the disease after a test for the disease that is 99% accurate.

In the disease example, we had to keep two things in mind. One of them was the possibility that the test was correct.

And the other is the a priori probability of determining whether the person has the disease.

Exactly the same in this context.

There are two things involved. The description is divided into two parts.

We want to know how likely, or relatively likely, the two different explanations are.

One of them is that Sally Clark was innocent. So, a priori, and overwhelmingly likely, most mothers don't kill their children.

And the second part of the explanation is that she had an incredible event.

It's not as unlikely as 1 in 73 million, but it's still pretty unlikely.

Another explanation is that she was guilty.

Well, we probably a priori think that it is unlikely.

And in the context of a criminal trial, it should be considered unlikely because of the presumption of innocence.

And if she tried to kill children, she succeeded.

So the chances of her being innocent aren't 1 in 73 million.

I don't know what it is.

It has to do with weighing the strength of other evidence against her and the statistical evidence.

We know our children died.

What matters is how likely or unlikely the two explanations are relative to each other.

And they are both incredible.

There are situations where statistical errors have been very serious and have had very disappointing results.

In fact, there are two other women who were convicted based on the pediatrician's evidence and have since been released on appeal.

Many cases were considered.

And it's a particularly hot topic because he's currently facing defamation charges before the UK's General Medical Council.

In conclusion, what is the message we get from this?

We know that randomness, uncertainty and chance are part of our daily lives.

It's also true. And you as a group are very special in many ways, but completely typical in that you fail to get the examples I gave right.

It's very well documented that people get things wrong.

They make errors of logic in reasoning with uncertainty.

We are admirable at dealing with language subtleties. And there are interesting evolutionary questions about how we got here.

We are not good at reasoning because of uncertainty.

It's a problem in our daily life.

As you've heard in many talks, statistics underpin a vast amount of research in science, social sciences, medicine, and indeed many industries.

All quality control, which has a major impact on industrial processing, is backed up by statistics.

That's what we're not good at.

At least we should be aware of that, but we tend not to.

Returning to the legal context, in the Sally Clark case, all attorneys took the expert's verbatim.

So if the pediatrician came out and said to the jury, "I know how to build bridges. I have built bridges in the future.

Drive home through there,' they would say, 'the pediatrician doesn't know how to build a bridge.

That's the engineer's job. ”

On the other hand, he came out and effectively said or implied, "I know how to reason about uncertainty. I know how to calculate statistics."

And everyone said, "Well, that's fine. He's an expert."

Therefore, we need to understand where our abilities are and where they are not.

In the early days of DNA profiling, the very same kind of problem arose, where scientists, lawyers and even judges routinely falsified evidence.

We usually hope to be innocent, but the evidence is misrepresented.

Forensic scientists said, "The odds of this man being innocent are one in three million."

Even if you believed that number, like 73 million to 1, it doesn't mean it.

And that is the reason for the high-profile appeals in the UK and elsewhere.

Finally, we end in the context of the legal system.

It's very nice to say, "Let's do our best to present the evidence."

But in the case of DNA profiling, which is another case, we expect jurors. Jurors are ordinary people, but jurors are documented to be very bad at this. We expect the jury to be able to deal with the kind of reasoning that is going on.

In other areas of life, if people argued, perhaps not in politics, but in other areas of life, if people argued illogically, we would say that it is not a good thing.

We expect that from politicians and nothing more.

In the case of uncertainty, we will always make mistakes. At least we should be aware of that, and ideally we might try to do something about it.

Thank you very much.

On May 30, 1832, gunshots rang out in the 13th arrondissement of Paris.

(Gunshot) That morning a farmer walking to the market ran to the direction of the gunshot and found a young man writhing on the floor with wounds apparently from a duel.

The young man's name is Evaristo Galois.

He was a famous revolutionary in Paris at the time.

Galois was taken to a local hospital and died the next day in his brother's arms.

And the last words he said to his brother were, "Don't cry for me, Alfred.

To die at 20, you need all the courage you can."

In fact, it was not the revolutionary politics that Galois was famous for.

But a few years earlier, while still a student, he had actually solved one of the big math problems of his time.

And he wrote to scholars in Paris, trying to explain his theory.

But scholars could not understand anything he wrote.

(Laughter) That's how he wrote most of the math.

So, on the eve of the duel, he realized that this might be his last chance to explain his great breakthrough.

So he stayed up all night writing and trying to explain his thoughts.

And when dawn came and he went to meet his destiny, he left this stack of papers on the table for the next generation.

Perhaps the fact that he stayed up all night to do math was the fact that he took a very bad shot that morning and was killed.

But those documents contained a new language—a language for understanding one of science's most fundamental concepts: symmetry.

Now, symmetry is almost a language of nature.

It helps us understand different parts of the scientific world.

For example, molecular structure.

We can understand what crystals are possible through the mathematics of symmetry.

In microbiology, you don't really want to get symmetrical objects because they are generally a nuisance.

At the moment, the swine flu virus is a symmetrical object.

And we can take advantage of the efficiency of symmetry to propagate very well.

However, on the larger scale of biology, symmetry is actually very important as it does carry genetic information.

I took two pictures here and made them artificially symmetrical.

And if you ask me which one I think is more beautiful, I would probably go for the bottom two.

This is because it is difficult to achieve symmetry.

And if you can make yourself symmetrical, it's a sign that you have good genes and a good upbringing, and that you can be a good spouse.

Thus, symmetry is a useful language for transmitting genetic information.

Symmetry also helps explain what is happening at CERN's Large Hadron Collider.

Or what's not happening at CERN's Large Hadron Collider?

To be able to make predictions about the elementary particles we might see there, they all seem to be strangely symmetrically shaped surfaces in high-dimensional space.

And I think Galileo very nicely sums up the power of mathematics for making sense of the scientific world around us.

He wrote, "We cannot read the universe until we have learned the language and become familiar with the letters in which it is written.

It is written in a mathematical language, the letters of which are triangles, circles and other geometric figures, without which it is impossible for humans to understand a single word. ”

But scientists aren't the only ones interested in symmetry.

Artists also love to play with symmetry.

Also, the relationship with it is a bit more vague.

This is Thomas Mann talking about symmetry in "The Magic Mountain".

He has a character that describes snowflakes, and said, "I shuddered at the sheer accuracy of it, and felt it was like death, the very essence of death."

But what artists love to do is set expectations of symmetry and break them.

And I found a great example of this when I actually visited my colleague in Japan, Professor Kurokawa.

Then he took me to a temple in Nikko.

And right after I took this photo, I went up the stairs.

The gate seen behind has eight pillars and has a beautiful symmetrical design.

7 of them are exactly the same and the 8th is upside down.

And I said to Professor Kurokawa, "Oh, the architects must have really kicked themselves when they realized they made a mistake and put this upside down."

And he said, "No, no, it was a very intentional act."

And he introduced me to this lovely quote from the fourteenth-century Japanese Tsurezure Zuisou. In it the essayist writes, "In all things uniformity is undesirable.

It's interesting to leave it unfinished, and you can feel the room for growth. ”

Even when we build the Imperial Palace, we always leave one part unfinished.

But if I had to choose one building in the world to live the rest of my life as a symmetry junkie, cast on a deserted island, it would probably be the Alhambra in Granada.

This is a palace that celebrates symmetry.

Recently I took my family there. I have a slightly geeky math trip that my family loves.

This is my son Tamer. We can see that he really enjoys his mathematical trip to the Alhambra.

But I wanted to make him rich.

I think one of the problems with school mathematics is that we don't look at how mathematics is embedded in the world we live in.

So I wanted him to open his eyes to how much symmetry runs through the Alhambra.

As you can see. As soon as you step inside, the reflective symmetry in the water appears.

But it's on the wall that all the exciting events are happening.

Moorish artists were denied the possibility of painting with soul.

So they explored a more geometric art.

So what is symmetry?

The Alhambra somehow begs all these questions.

What is symmetry? If there are two of these walls, do they have the same symmetry?

Can we say if they discovered all the symmetry of the Alhambra?

And it was Galois who created a language that could answer some of these questions.

For Galois, symmetry was all about motion, unlike Thomas Mann, who was like static death.

What can we do with symmetrical objects? How can I move the object so that it looks the same as it did before it was moved?

I like to describe it as magic tricks.

What can you do about something? you close your eyes

If I do something, I will put it back again.

It feels like it was there before it started.

For example, the Alhambra wall - take all these tiles, pin them to the yellow spot, rotate them 90 degrees, put them all back together, and they're perfectly there.

And when you open your eyes again, you won't notice that your eyes have moved.

But it's the movement that really characterizes the symmetry inside the Alhambra.

But it's also important to create a language to describe this.

And the power of mathematics often turns one thing into another, or geometry into language.

So, I'll walk you through and maybe push you a little mathematically - so brace yourself - to help you understand a little how this language works and how it allows you to capture what symmetry is.

So let's take these two symmetrical objects for now.

Look at the twisted hexagram.

How can I make the starfish look the same?

Now, I've rotated it a sixth turn and it still looks the same as it did before it started.

You can rotate it a third of a turn, or a half a turn, you can put it back on the image, or you can rotate it a two-thirds of a turn.

And the 5th symmetry allows us to rotate it 5/6 of a turn.

These are things you can do to your symmetrical object to make it look the same as it did before you started.

Now, for Galois, there was actually a sixth symmetry.

Can anyone give me an idea of ​​what else I can do to make it the same as it was before I started?

It's a little twisted, so you can't turn it over.

No mirror symmetry.

But all I can do is leave it there, pick it up, and put it back down.

And for Galois, this was like zero-order symmetry.

In fact, the invention of the number zero was a very modern concept made by the Indians in the 7th century AD.

It seems insane to say nothing.

And this is the same idea. This is symmetrical. That is, everything should be symmetrical and just leave it as it is.

So this object has 6 symmetries.

But what about triangles?

Well, you can rotate it 1/3 turn clockwise or 1/3 turn counter-clockwise.

But it has some mirror symmetry.

You can reflect it in a line through X, a line through Y, and a line through Z.

For the 5th symmetry, and of course the 0th symmetry, pick it up and leave it there.

So both of these objects have 6 symmetries.

Now, I strongly believe that math is not a spectator sport and that you need to study some math to really understand it.

So I have a small question.

And at the end of my talk, I'll give a prize to the person who comes closest to the answer.

Rubik's Cube.

How many symmetries does the Rubik's Cube have?

How many things can you do to this object to make it look like a cube?

have understood? So count how many symmetries you have while thinking about this problem.

And whoever comes closest to the end gets a prize.

But let us return to the symmetry obtained for these two objects.

What Galois noticed: It is not just the individual symmetries that really characterize the symmetry of an object, but how they interact with each other.

If one magic trick move is followed by another magic trick move, the combination becomes the third magic trick move.

And here we see that Galois begins to develop a language for seeing the essence of the invisible, a kind of abstract notion of the symmetry that underlies this physical object.

For example, what would happen if you turned a starfish 1/6th of a turn, then 1/3rd of a turn?

That's why I named it. Uppercase A, B, C, D, E, and F are rotation names.

For example, B rotates the small yellow dot to B on the starfish. and so on.

So what happens if you do a 1/6 turn B and then a 1/3 turn C?

So let's do it. A 1/6 turn followed by a 1/3 turn gives the effect of a half turn at a time.

A small table here records how the algebra of these symmetries works.

Doing one in a row, the answer is rotation D, half a rotation.

What if we do it in a different order? Does it make any difference?

let's see. Let's do turn 3 first, then turn 6.

Of course there is no difference.

It still ends in half a turn.

And there is a certain amount of symmetry here in the way symmetries interact with each other.

But this is quite different from triangular symmetry.

Let's see what happens when we alternately perform two symmetries on a triangle.

Let's rotate it one-third counterclockwise and reflect it on the line through X.

Well, the combined effect is as if we were doing a reflection on the line through Z from the beginning.

Now let's do it in a different order.

Let's do a reflection with X first, then rotate counterclockwise one-third of a turn.

Composite effects take the triangle to a completely different place.

It is as if it is reflected in the line through Y.

Now the order in which you perform the operations becomes important.

This will allow us to distinguish the reasons for the symmetry of these objects. Both have 6 symmetries. So why shouldn't we say they have the same symmetry?

But the interplay of symmetries has given us a language that distinguishes why these symmetries are fundamentally different.

Try this later when you go to the pub.

Turn the beer mat a quarter turn and flip it over. Then do it in a different order and the pictures will face the opposite direction.

Now, Galois produced some laws about how the symmetries of these tables interact.

It's like a small Sudoku table.

No 2-fold symmetry is found in any row or column.

And using these rules, he could say that there are really only two objects with 6 symmetries.

And they become the same as the symmetry of the triangle and the symmetry of the hexagram.

I think this is a great development.

It is similar to the number concept developed for symmetry.

Here in front of you sit one, two, three people on one, two, three chairs.

People and chairs are very different, but the number, the abstract concept of numbers, is the same.

Let's go back to the walls of the Alhambra.

Here are two very different walls, very different geometric paintings.

But using Galois' language, we can see that the abstract symmetry underlying these things is actually the same.

For example, consider this beautiful wall with a slight twist on the triangle.

If you ignore the color, you can rotate it by one-sixth of a turn. The colors don't match.

But if you rotate a sixth around the point where all the triangles meet, the shapes match.

What about the center of the triangle? A third rotation around the center of the triangle makes everything coincide.

And there's an interesting spot in the middle of the edge where you can rotate 180 degrees.

And all the tiles match again.

So if you rotate halfway along the edge, everything will match.

Now let's move on to the very different looking walls of the Alhambra.

And here we see the same symmetry and the same interactions.

So the turn was 1 in 6. A third turn where Z pieces meet.

And the half-turn is the middle of the hexagram.

And although these walls look very different, Galois has coined a language that says that in fact the underlying symmetry of these walls is exactly the same.

And it's a symmetry called 6-3-2.

This is another example from the Alhambra.

These are walls, ceilings, and floors.

They all look very different. But using this language we can say that they are representations of the same symmetrical abstract object called 4-4-2. It has nothing to do with soccer, but it's because there are 2 places where you can do a quarter turn and 1 place every half turn.

Now, the power of this language is even greater. For Galois can say, "Did the Moorish artists discover all possible symmetries in the walls of the Alhambra?"

And it turns out they were pretty much right.

Using Galois' language, it can be proved that there are actually only 17 possible symmetries in the walls of the Alhambra.

And if you try to make another wall with this 18th wall, it must have the same symmetry as one of these 17th walls.

But these are the things we can see.

And the power of Galois' mathematical language also lies in its ability to create symmetrical objects in the unseen world, beyond two and three dimensions, to four, five, or even infinite space.

And that's where I work. I use Galois language to create mathematical objects, symmetrical objects, in very high dimensional space.

So I think this is a great example of how the power of mathematical language can create the invisible.

So, like Galois, I stayed up all night last night to create a new mathematical symmetric object. And here is a photo of it.

Well, unfortunately not the actual photo. If I could lay my board here on its side, great, great.

I'm here. Unfortunately, we are unable to show you a photo of this symmetrical object.

But here is the language that describes how symmetries interact.

Well, this new symmetrical object doesn't have a name yet.

Now people like to name objects, lunar craters, and new animal species after themselves.

So I'd like to give you a chance to name a new, previously unnamed symmetry object with your name.

And this is like a species going extinct and a satellite hitting a meteor and exploding, but this mathematical object will live forever.

it makes you immortal.

To acquire this symmetrical object, you must first answer the question I asked.

How many symmetries does the Rubik's Cube have?

Well, let's sort it out.

I'd rather you count how many digits there are than scream out loud. have understood?

If you get it as a factorial, you need to expand the factorial.

Now, if you want to play, I want you to stand, okay?

If you're thinking you've got a quote in the order of magnitude, you're right -- there's already one competitor here.

If you are all down, he automatically wins.

have understood. wonderful. So there are 4, 5, 6 here.

wonderful. wonderful. That should drive us forward. have understood.

Those with 5 or less digits are underestimated and should sit down.

5 digits or less. So if you have tens of thousands of people, you have to sit down.

60 digits and above must sit.

It's overrated.

If it's 20 digits or less, sit down.

How many digits does your number have?

two? I should have sat down earlier.

(Laughter) Let's get the other people who have been sitting for 20 minutes to stand up again. have understood?

Please stand up when I say less than 20 people.

Because this. I think there were a few here.

Last seated.

Now, how many digits is your number?

(laughs) 21. Alright, alright. how many do you have

18. So it comes down to this woman.

21 is the closest.

In fact, the Rubik's Cube has 25 digits of symmetry.

So you have to give this object a name.

so what is your name

I need your last name. Generally symmetrical objects spell it out for me.

G-H-E-Z No, SO2 is already used in math languages. So you can't have it.

So Gez, let's go. That's the new symmetry object.

you are immortal now

(Applause.) And if you want your own symmetrical object, I have a project to raise funds for a charity in Guatemala. So I spent all night devising an object for you to donate to this charity that helps children in Guatemala get an education.

And I think it's the unseen, the undiscovered, that drives me as a mathematician.

What makes mathematics a living subject are all unanswered questions.

And I always come back to this phrase from the Japanese Tsurezure Naru Essay. "In anything, uniformity is undesirable.

It's fun to leave it unfinished, and I can feel the room for growth." Thank you.

(applause)

One of my favorite cartoon characters is Snoopy.

I love how he sits and lies in his kennel contemplating the great things in life.

So when I thought about compassion, my head immediately went to one of those cartoons, where he lay there and he said, "I really understand, and I really appreciate how I should love my neighbor as I love myself."

The only problem is the people next door. I can't stand them. ”

In some ways, this is one of the challenges of how to interpret really good ideas.

I think we all believe in compassion.

If you look at all the religions of the world, all the major world religions, you will find that within them is the teaching of compassion.

Therefore, in Judaism the law decrees that we should love our neighbors as we love ourselves.

And in the teachings of Judaism, the teachings of the rabbis, there is Hillel who taught that you should not do to others what you do not want done to yourself.

And all major religions have similar teachings.

And also in Judaism there is a teaching about a God called Halachaman, a merciful God.

After all, how could the world exist without God having mercy?

And as the law teaches, we are made in God's image, so we too must be compassionate.

But what does that mean? What impact does it have on our daily lives?

Of course, compassion can create emotions within us that are very difficult to control.

Many times, when conducting a funeral or sitting next to the bereaved or the dying, we are overwhelmed by the grief, the hardships, and the challenges for the family and the individual.

And I am moved to tears.

Still, if I allowed myself to just be overwhelmed by these feelings, I wouldn't be able to do my job. Because I really have to be there for them so that the ritual takes place and the practicality is seen.

But on the other hand, I feel that if I could not feel this compassion, it would be time to throw off my robes and give up being a rabbi.

And this same feeling exists for all of us in the face of the world.

Seeing the tragic consequences of wars, famines, earthquakes, and tsunamis, who can't inspire compassion?

Some people say, "Well, I know there's a lot out there, but I can't do anything. I'm not even going to start trying."

And some philanthropists call this compassion fatigue.

Some people turn off the TV and stop watching because they feel they can no longer face compassion.

But Judaism tends to always say that there must be a middle way.

Of course, you have to be conscious of other people's needs, but you also have to be conscious so that you can move on with your life and serve people.

So part of compassion involves understanding what excites people.

And of course you can't do that unless you understand yourself a little more.

And there's a nice rabbinical interpretation of the beginning of creation, that when God created the world, He thought it best to create it with only His attributes of justice.

Because, after all, God is just.

Therefore, there must be justice all over the world.

And God looked to the future and realized that the world could not exist if justice alone created it.

So God thought, "No, I will create the world out of mercy alone."

And God looked to the future and realized that if indeed the world were only full of mercy, there would be anarchy and chaos.

All things must have limits.

The rabbis describe this as something like a king with a beautiful, fragile glass bowl.

If you add too much cold water, it will crack.

If you put hot water in it, it will break.

what do i have to do? Add a mixture of the two.

So God gave the world both of these possibilities.

But there should be more than that.

And it's about translating our feelings about compassion into the wider world and into action.

So like Snoopy, we can just lay there and not think deeply about our neighbors.

In fact something has to be done about it.

And within Judaism there is also the concept of love and kindness, chess, which has become very important.

So we need to blend all three of these things together.

The idea of ​​justice that gives our lives boundaries and gives us a sense of what is right about life, what is right about living, what should we do, what is social justice.

There must be a willingness to do good deeds, but, of course, not at the expense of our own sanity.

Well, if you push yourself too hard, you won't be able to do it for anyone.

And balancing all that in the middle is the concept of compassion, which should be at our core, if you want it.

This idea of ​​mercy comes to us because we are ultimately made in the image of God, who is the Most Merciful.

What does this caring mean?

It requires understanding the pain of others.

But more than that, it means understanding our connection to the whole of creation, knowing that we are part of that creation, that there is an underlying unity in everything we see, hear, and feel.

I call that unity God.

And that unity is what unites all creation.

And of course, in the modern world, the environmental movement has made us more aware of the connections between things, and what I'm doing here actually means a lot in Africa, and it seems that if I overuse the carbon allowance, I'm causing major rain shortages in Central and Eastern Africa.

So there is a connection, which I must understand as part of creation, part of me made in God's image.

And we also need to understand that our own needs must sometimes be sublimated into other needs.

I think this business of "18 minutes" is very attractive.

Because, in Judaism, the number 18 in Hebrew letters represents life, or "life."

So, in a way, these 18 minutes are asking me, "This is what matters in life in terms of compassion."

But there is also another thing. 18 minutes is really important.

Because at Passover, when unleavened bread is to be eaten, the rabbis say what is the difference between the dough that is made into bread and the dough that is made into unleavened bread, or “matzah.”

And they say, "18 minutes."

Because it is said to be the time it takes for this dough to become leaven.

What does "the dough becomes leaven" mean?

In other words, it is filled with hot air.

What is matza? What is Unleavened Bread? I do not know.

Symbolically speaking, the rabbis are saying that all we have to do at Passover is try to get rid of the hot air, the pride and feeling that we are the most important people in the whole world and that everything should revolve around us.

So we try to get rid of them and in doing so try to free ourselves and free ourselves from the habits, feelings and thoughts that enslave us, close our eyes, narrow our vision and blind us to the needs of others.

And it is also the basis for having compassion and understanding our place in the world.

Well, Judaism has a wonderful story of a rich man who was sitting in a synagogue one day.

And, like many people, he fell asleep during his sermons.

And while he was asleep, they were reading Leviticus of the law.

And they said that in ancient times, in the temple of Jerusalem, the priests had bread and put it on a special table in the temple of Jerusalem.

The man was asleep, but when he heard the words bread, temple, and God, he awoke.

"God wants bread, that's all. God wants bread. I know what God wants," he said.

And he hurried home. And after the Sabbath he made twelve loaves of bread, took them into the synagogue, entered the synagogue, opened the ark, and said, "God, I do not know why you ask for this loaf, but I am here."

And he put it in the ark with the Torah scroll.

Then he went home.

A cleaner entered the synagogue.

"Oh God, I'm in a lot of trouble. I have children to feed.

My wife is sick. I don't have money. what can i do? "

he enters the synagogue. "God, can you help me?

Oh how wonderful it smells! ”

he goes to the ark. he opens the ark.

"I have bread! God, you have answered my request. You have answered my question."

I go home with bread.

On the other hand, the rich think, "I am stupid. Does God want bread?"

God who rules the whole universe wants my bread? ”

He rushes to the synagogue. "I will get you out of the ark before anyone finds you."

He walks in, but he's not there.

And he says, "God, you really wanted it. You wanted my bread.

Raisins next week. ”

This went on for years.

Every week the man brought bread with raisins and all sorts of good things, which he put into the ark.

A cleaner came every week. "God, you answered my request again."

take the bread Please take it home.

It continued until a new rabbi came. A rabbi always messes things up.

A rabbi came in and saw what was going on.

Then he called them into his office.

And he said, "This is what is happening."

And the rich man--oh, dear--was utterly depressed.

"So God didn't want my bread?"

Then the poor man said, "So God did not answer my request?"

Then the rabbi said, "You have misunderstood me.

You are completely misunderstood," he said.

"Of course, what you are doing is responding to God's plea that we should be compassionate," he said to the rich man.

And God, he said to the poor man, "is responding to your request that people should give with mercy."

He saw the rich man. He took the rich man's hand and said, "Don't you know?" He said, "This is the hand of God."

That's how I feel. All I can do is try to approach the concept of being compassionate and understanding that there is connection and unity in this world. I want to serve that unity, and I believe that understanding the pain of others helps me do that. But understand that there are limits and that people must be held accountable for some of the problems they face. And you must understand that there are limits to your energy and the donations you can give.

I have to re-evaluate them and separate my emotions from the material things that may be enslaving me so I can see the world clearly.

And we must try in what ways we can make this the hand of God.

And try to bring compassion into this world.

Human children are born and become consumers for quite some time.

You cannot be a conscious contributor.

it is powerless.

Despite having survival instincts, they don't know how to survive.

They need the help of their mother or adoptive mother to survive.

We cannot doubt the person who takes care of the child.

You must surrender completely, just as you would surrender to an anesthesiologist.

You must surrender completely.

It means great trust.

This means that trusted persons do not violate trust.

As children grow up, they begin to realize that the people they trusted are betraying their trust.

I don't even know the word "violation".

So it has to blame itself. It is a wordless condemnation, which is actually harder to resolve: a wordless self-blame.

As a child grows into an adult, previously a consumer, human growth lies in the ability to contribute, to become a contributor.

You cannot contribute unless you feel secure, you feel big, you have enough.

Being considerate is no joke.

It's not that simple.

One has to discover within oneself a certain greatness.

That greatness should be centered not in terms of money, not in terms of power wielded, not in terms of commanding position in society, but in oneself.

Self: You are self-aware.

Centered on that self, it must be of size, wholeness.

Otherwise, compassion is just a word, a dream.

You are compassionate at times and can be driven more by empathy than sympathy.

thank god we can empathize.

When someone suffers, we receive that pain.

These two men will go head-to-head in the Wimbledon final.

Each has two games.

It doesn't matter who's game it is.

There is no meaning in what they have sweated so far.

One wins.

Tennis etiquette requires both players to come to the net and shake hands.

The winner circles in the air, kisses the ground, and throws his shirt as if someone is waiting for it.

(laughter) And this guy has to come to the net.

When he comes to the net, his whole face changes.

It's as if he hoped he didn't win.

why? sympathy.

That is the human heart.

The human heart cannot deny its sympathy.

No religion can destroy it by indoctrination.

No culture, no nation, no nationalism can touch this because it is sympathy.

And that ability to empathize is the window through which you reach out to people, and you do something that makes a difference in someone's life, even if it's words or time.

Compassion is not defined in one single form.

Indians have no compassion.

Americans have no compassion.

It transcends nationality, gender and age.

why? Because it is in everyone.

It's something people experience sometimes.

Then this occasional compassion never stays occasionally, not what we are talking about.

Commands cannot make people compassionate.

I can't say "I love you".

Love is what you discover.

It's not an action, but it's also an action in English.

More on that later.

Therefore, one has to discover some kind of wholeness.

I'm going to mention the possibility of being whole, but it's in our experience, everyone's experience.

Despite a very tragic life, a person feels happy for a few moments.

And happy people accept themselves and the structure of things they find themselves in, even if it's just a slapstick joke.

It means the entire universe, both known and unknown.

They are all fully accepted because you discover your wholeness within yourself.

The subject--"I"-- and the object--the mechanism of things--melt into one, and it is an experience in which no one can say, "I am denied," and it is a variety of experiences common to all people.

The experience confirms that you can be happy in spite of all your limitations, in spite of all your wants, aspirations, unfulfillment, credit cards, layoffs, and finally baldness.

But if we extend that logic, we don't need to satisfy our desire to be happy.

You are just happiness, the whole you want to be.

There is no choice for this. It only confirms the reality that wholeness cannot be different from you and cannot make you negative.

It must be you.

You cannot be part of wholeness and still be whole.

Your moment of happiness reveals its reality, its perception, its perception: "Perhaps I am whole.

Perhaps Swami is right.

Perhaps Swami is right. ” You start a new life.

Then everything will make sense.

There is no reason to blame yourself anymore.

If he has to blame himself, he has a million reasons, and many more.

But if I say it, black is not white, and white is not black, despite the limitations of my body. No matter how you look at it, the body is limited. exclusive.

Your knowledge will be limited, your health will be limited, your strength will be limited, and your cheerfulness will be limited.

Compassion will be limited.

Everything expands to infinity.

Mercy cannot be commanded unless you are infinite, and no one can be infinite, whether you can be infinite or not. period.

And you can't be infinite either.

Your own experience reveals that you are whole despite all limitations.

And wholeness is your reality as you relate to the world.

It is love first.

The dynamic manifestation of wholeness is what we call “love” as you interact with the world.

And when the subject you relate to evokes that feeling, it becomes compassion in itself.

And it turns again to giving and sharing.

I can express myself because I am caring.

To discover compassion, you have to have compassion.

To discover the ability to give and share, you need to give and share.

There are no shortcuts. It's like swimming and swimming.

Learn to swim by swimming.

You cannot go into the water while learning to swim on a foam mattress.

(Laughter) You learn to swim by swimming. Learn cycling through cycling.

You learn to cook by cooking, with sympathetic people around you who will eat what you make.

(Laughter) So what I say has to be faked.

(Laughter) You have to.

My predecessor meant that.

you have to play it.

We must act with compassion.

There are no verbs for sympathy, but there are adverbs for sympathy.

That's interesting to me.

You act compassionately.

But how do we act compassionate when we are not compassionate?

That's the fake place.

You fake it and make it. This is the credo of the United States.

(Laughter) I copy it and make it.

You act sympathetically as if you have a sympathetic heart. Grit your teeth and utilize any support system.

If you know how to pray, pray.

Seek compassion.

Please act compassionately.

Do it.

You discover mercy and slowly discover relative mercy. And perhaps with the right teachings, slowly you will realize that compassion is a dynamic manifestation of oneness, wholeness, and the reality of yourself, which is who you are.

Thank you very much for your kind words.

(applause)

Sympathy: what does it look like?

Come join me at 915 South Bloodworth Street in Raleigh, North Carolina where I grew up.

Come and sit down at your table in the evening when dinner is ready. It's set to seat 10, but not all seats are necessarily occupied.

Mom had 8 kids and sometimes said she didn't know who was who or where they were.

Before we ate she asked, "Are all the kids in?"

And if someone happens to be missing, we have to say "fix the plate" for that person and put it in the oven so we can say grace and we can eat.

Also, the family had a ritual while we sat at the table. When something significant happened to any of us—whether mom had just been elected president of the PTA, dad got a job at our denomination's college, or someone won the Jabberwocky contest for talent, the family ritual was that once the announcement was made, we had to take five or ten minutes to so-called "remake" that person, or hype about the person of honor. Edited in some way.

Because when one is respected, all are respected.

I also had to report on our extended "visiting" members, extended members of the family, sick and elderly withholding.

My job was to visit Mother Lassiter on East Street, Mother Williamson on Bledsoe Avenue, and Mother Lazars on Oberlin Road at least once a week.

why? They were old and infirm and we had to go to see if they needed anything.

The mother said, "To be a family is to care, to share, to care for each other.

they are our family. ”

And, of course, there were occasional bonuses for going.

They offer sweets and money.

Mom says, "When asked how much it costs to go shopping, you must always say 'nothing'." ” Such was the nature of those at that table.

In fact, not only would she have the joy of receiving words of thanks from members of her extended family, but she said, "Even God will smile, and when God smiles there will be peace and justice and joy."

So at table 915, I learned something about compassion.

Of course, since it's the pastor's family, I had to add God to it.

So I started to wonder if Mama Eternal, Mama Eternal is always wondering. "Do you have any children?"

And I felt that there is a possibility of justice and peace in the world if we are sincere in caring and sharing.

Well, it wasn't always great at that table.

Let me explain why we weren't available.

It was Christmas that day. Our family was like, oh, what a morning.

On Christmas morning we open our presents, say a special prayer and sing carols to an old upright piano. It was a very intimate moment.

In fact, you can go down to the tree to get the presents, get ready to sing, and then, if Daddy doesn't fail, you can prepare breakfast without bathing or getting dressed.

Some of his staff had no place to celebrate that Christmas.

And Papa took Elder Rebels to a family Christmas celebration.

We thought he must be insane.

Now is our time. This is intimate time.

This is when we can be who we are, and now we have this stuffy brother in a shirt and tie while we're still in our pajamas.

Why is Papa bringing Elder Rebels?

Any other time of the year is fine, but it's not a celebration of Christmas.

Then my mother heard us and said,

That's what celebration is all about.

It's time to create a space and share the joys of life in a community you love. ”

So we sucked.

(Laughter.) But when I grew up at 915, compassion was not a word to be discussed. It was a feeling of how we were together.

We are sisters and brothers united.

And as Chief Seattle said, "We have not spun the web of life.

We are all caught up in it.

And whatever we do to the web, we do to ourselves. ”

Now it's compassion.

So let me tell you, this is how I see the world.

When I look at the picture, something says, "This is compassion."

Harvested grain fields. It reminds us of the Hebrew tradition that there is some grain in the corner, and that it may certainly be harvested, but should always be left a little at the edge in case someone does not have the share necessary for good nourishment.

Talk about caring pictures.

I am always moved when I see a picture of Dr. Martin Luther King Jr.

Walking arm in arm with Andy Young and Rabbi Heshel, perhaps joined by Thich Nhat Hanh and other saints, they crossed the bridge into Selma.

just a photo.

We will fight hand in hand.

We suffer together in the common hope that we can be brothers and sisters, not robbed of our identity by birth accidents or ethnicity.

So here's another photo. Look, this. I really like this picture.

When Dr. Martin Luther King Jr. was assassinated that day, everyone in my community was shaken.

You've heard of riots taking place all over the country.

Bobby Kennedy was scheduled to deliver a message in Indianapolis.

Here is the photo. They said, "It's going to be too precarious for you to go."

"I have to go," he insisted.

So, sitting in the flatbed truck, the community elders were there, and Bobby got up and said to the people, "I have bad news for you guys.

Some of you may have never heard of Dr. King being assassinated.

I know you're angry, and I know you want the opportunity to get involved in your revenge campaign right now. But," he said, "what I really want you to know is that I know how you feel.

Because someone important to me was taken away.

I understand how you feel. "

And he said, "I hope you have the strength to do what I did.

I let my anger, bitterness, and sadness boil for a while before deciding to make another world. Let's make it happen together. ”

it's a picture. Compassion? I think you get it.

When I was a pastor, I saw the Dalai Lama come to Riverside Church and invite representatives of faith traditions from all over the world.

He asked them to give them a message, and they each read a central affirmative sentence in their own language. It was a kind of golden rule: "Do unto others as you would like them to do unto you."

Twelve people dressed in church, culture, and tribal costumes advocate a single message.

We are so connected that we must treat each other as if our actions towards you were towards me.

Another photo while I'm thinking about Riverside Church while smelling it. 9/11. Last night at Chagrin Falls, a newspaper reporter and television worker said, "When a service was held that night at Riverside Church, we broadcast it on the city's stations.

"It was one of the most powerful moments of our lives together," he said.

We were all in pain.

But you invited representatives of all traditions and invited them.

“Find what it is in your traditions that tells us what to do when we are humiliated, scorned and rejected.” And they all spoke of the healing power of solidarity with each other, based on their own traditions. ”

I was born with a compassionate heart, but I became a preacher.

Now I got a job as a preacher. I have to preach, but I have to do it.

Or, as the Harlem priest used to say to the people, "Some people preach the gospel.

I have to preach the gospel specifically. ”

The real question, then, is how can compassion be tangible?

How do you make it real?

My faith has always lifted my ideals and challenged me when they fell.

My tradition has a gift that I have given to everyone in the world who knows the story of another tradition, the Good Samaritan.

Many people think of it primarily in terms of philanthropy, random acts of kindness.

But if you study the passage a little more thoroughly, you will see that the parable raises questions.

The question was, "What is the most important commandment?"

And Jesus says, "You must love yourself. You must love the Lord your God with all your heart, with all your mind, with all your soul. And you must love your neighbor as yourself."

The man then asked, "What, then, do you mean by 'neighbor'?" He answered by telling the story of a man who had fallen for thieves and how the religious authorities had gone the wrong way and how their followers in the congregation had taken the wrong way. But a man who was despised without any doubt came, saw the man in need, and offered him oil and wine for his wounds, put him in his own transport, took him to the inn, and asked the innkeeper, "Take care of him."

And he said, "This is an initial investment, but if the need continues, be sure to provide it.

If you need anything else, I'll have it ready for you and I'll pay for it when I get back. ”

This has always seemed to deepen my sense of what it means to be a Good Samaritan.

A Good Samaritan is not just someone who is moved by immediate care or acts of charity, but someone who provides a system of continuous care - I like this "system of continuous care" - at the inn, take care.

Perhaps this is when the Bible talks about health care systems and promises to do whatever it takes. It is to ensure that all of God's children have their needs met so that when Eternal Mama asks, "Are all your children healthy when it comes to health?" And we can say yes.

Oh, what a joy it is to be someone who wants to embody compassion.

I remember that my work as a pastor always involved caring for their spiritual needs. They worry about housing, health care, prisoners, the sick, children, and even children in foster homes where no one can keep track of where they start and where they go.

Becoming a pastor is about meeting these individual needs.

But now, for me, being a Good Samaritan, and as I always say, being a good American is not just about praising yourself for individual acts of kindness.

Compassion drives the company.

Whatever we did around that table in Bloodworth Street, I believe, must be done around the table and the ceremony of faith until we are that family, that family that understands the essence of our unity.

we are one human being together.

So let me explain what I mean when I think of compassion and why I think it is so important at this point in history.

We decide to enact this Charter of Mercy.

The reason it matters is because this is a very special time in history.

It is the time of year that, biblically speaking, is called the day, or year, of God's grace.

This is the season of grace.

Weird things are starting to happen.

As a black man, forgive me for celebrating Obama's election as an unusual sign of the fact that this year is going to be my favourite.

Still, there is much work to be done.

We need to bring health, food, education and respect to all God's nations, all God's children, remembering Eternal Mama.

Now, I would like to end my comment by telling you that when I feel something very deeply, it usually takes the form of poetry.

Finally, I would like to end with a small song.

I finish with this song. This is a nursery rhyme. Because we are all children at Eternal Mom's table.

And if Mama Eternal has taught us right, this song will make sense not only for those of us in this gathering, but also for all who sign the Charter of Mercy.

And this is why we do it.

This song says: ♫ ♫ "I made Heaven so happy today ♫ ♫ I received God's love and gave it ♫ ♫ I looked up and Heaven smiled at me ♫ ♫ Now I'm so happy. Can you see it? ♫ ♫ I'm happy. Look at me. I'm happy. Can you see it? ♫ ♫ Let me share my happy, loving smile with you ♫ That's caring. (Applause)

I'm talking about mercy from an Islamic point of view, but perhaps my faith is not often thought of as being based on mercy.

The truth of the matter is not.

Our holy book, the Qur'an, consists of 114 chapters, each beginning with the so-called Bhasmara, or "In the name of the Merciful and Merciful God." So not Richard Burton, who married Elizabeth Taylor, as Sir Richard Burton translated it, but Sir Richard Burton, who lived a century before that, traveled the world, and translated many literary works. "In the name of the merciful and merciful God."

And in the Quranic maxims God speaks to mankind for Muslims, God says to the Prophet Muhammad (who we believe is the last in a series of prophets that begins with Adam, includes Noah, includes Moses, includes Abraham, includes Jesus Christ, and ends with Muhammad): "O Muhammad, we have sent you only as 'Rama' or as a source of mercy to mankind."

For us humans and, of course, for Muslims whose mission and purpose in following the path of the Prophet is to make oneself like him.

And the Prophet said in one of his words, "Adorn yourself with the attributes of God."

And since God Himself has said that His chief quality is mercy, and indeed the Koran says that 'God ordained mercy' or 'God governed himself by mercy', our purpose and mission must be to be the source of mercy, the activator of mercy, the doer of mercy, the speaker of mercy and the practitioner of mercy.

That's all well and good, but where are we going wrong and what's causing the lack of compassion in the world?

To get the answer to this, we turn to the spiritual path.

In every religious tradition there is an outer way and an inner way, or an exoteric and an esoteric way.

The esoteric path of Islam is better known as Sufism, or 'tasawhuf' in Arabic.

And these doctors and these masters, spiritual masters of the Sufi tradition, refer to teachings and examples of prophets that tell us where our problems lie.

In one of the battles waged by the Prophet, the Prophet said to his followers: "We are going back from small wars to bigger wars to bigger battles."

And they said, "God's messengers, we are weary of battle.

How could I go to a bigger battle? ”

"It's a battle of the self, a battle of the ego," he said.

The root of human problems is related to the egoism of the "I".

Rumi, a famous Sufi master that most of you are familiar with, tells the story of a man who goes to a friend's house, knocks on the door, and replies, "Who's there?"

"It's me", or, more grammatically, "It's me" in English.

A voice said, "Go away."

After years of training, discipline, quest and struggle, he is back.

He humbled himself even more and knocked on the door again.

A voice asks, "Who's there?"

He said, "That's you, oh broken hearted man."

The door swings open and a voice says. "Come in, there is no room for two mes in this house"--not this eye, but two mes in capital letters--"because of two egos."

And Rumi's story is a metaphor for the spiritual path.

There is no room for more than one "I" before God. That is the divine “I”.

In the teachings called "hadith kudsi" in our tradition, God says, "My servants" or "My creatures, my people, do not approach me with anything more dear to me than what I ask of them."

And you, employers, know exactly what I mean.

You want your employees to do what you tell them to do, and if they do, you can do additional work.

But don't ignore what you asked them to do.

"And until I love him or love her, I keep coming closer to me by doing more of what I ask of them," says God—an extra feat, if you will.

And when I love myself, God says, "I will be his eyes to see, his ears to hear, his hands to hold, his feet to walk on, and his heart to understand."

This union of Self and Divinity is the precept and purpose of all our spiritual paths and faith traditions.

Muslims regard Jesus as the Master of Sufism, the greatest prophet and messenger who came to emphasize the spiritual path.

When he said, "I am the spirit, and I am the way," and the Prophet Muhammad said, "Whoever sees me sees God," it is because they became instruments of God, members of God's team, so that God's will was revealed through them, and they were not acting out of themselves or their ego.

Mercy is given on earth and it is within us.

All we have to do is get our ego out of the way, get our selfishness out of the way.

Probably all of you here, and I'm sure most of you, have had so-called spiritual experiences, moments in your life when the boundaries of your ego dissolve for a few seconds, maybe a minute.

And in that moment you felt oneness with the universe, oneness with the jug, oneness with all humans, oneness with the Creator, a presence of power, awe, the deepest love, the deepest compassion and mercy that you have never experienced in your life.

It is a moment that is a gift from God to us. God's gift when you momentarily remove the boundaries that make us insist on "I-I-I-I-I-I" and instead say, like the man in Rumi's story, "Oh, this is all you are."

this is all for you And this is all of us.

And we, I, and we are part of you.

O Creator! Oh, purpose! You, the source of our existence and the destination of our journey, are also the ones who break our hearts.

You are to whom we should all turn, for which purpose we live, and for which purpose we die, and for which purpose we rise again, to explain to God how merciful we have been. ”

Our message today, and our purpose today, and everyone here today, and this Charter of Compassion, is to be a reminder.

Because the Quran always invites us to remember and remind each other, because truthful knowledge is in every human being.

we know it all.

we have access to everything.

Jung may have called it the "subconscious".

Through our subconscious mind, in dreams - the Koran calls our sleep state "less death", "temporary death" - in our sleep state we dream, see visions, even travel outside the body for many and see wonderful things.

We travel beyond the limits of space as we know them and beyond the limits of time as we know them.

But all this is to glorify the name of the Creator, whose main name is the Merciful, the Merciful.

God, Bok, whatever name you may call Allah, Ram, Om, whatever name you name or access the Divine Presence, it is the Absolute Presence, the Absolute Love and Mercy and Compassion, and the Absolute Knowledge and Wisdom Base, what Hindus call 'Satchidananda'.

The language is different, but the purpose is the same.

Rumi has another story about a Turk, an Arab and a third man. I forget the third person, but in my case it might be Malay.

One wants Angour, another is, say, an Englishman, one wants Eneb, another wants grapes.

And they quarrel and quarrel because - they want grapes. "I want Eneb." "I want Angur." -- I didn't know that the words they use refer to the same reality in different languages.

By definition, there is only one absolute reality, and by definition, there is only one absolute existence. Because the absolute is by definition singular, absolute and singular.

There is an absolute concentration of being, an absolute concentration of consciousness, an absolute place of mercy and love that defines the primary attributes of awareness, divinity.

And these should also be the main attributes of what it means to be human.

Because perhaps what defines us biologically is our physiology, but God defines us by our spirituality, our nature.

And the Koran says, "He spoke to the angels and said, 'When I have made Adam out of clay and breathed into him my spirit, bow down to him.

Angels prostrate before the human soul, not before the human body.

why? For the soul, the human soul, embodies part of the breath of God, part of the soul of God.

This is also expressed in biblical vocabulary when we are taught that we were created in God's image.

What is the image of God?

The image of God is absolute existence, absolute knowledge and knowledge and wisdom, and absolute mercy and love.

That we are human, therefore, in the greatest sense of what it means to be human, in the most pleasant sense of what it means to be human, means that we too must become proper stewards of the Divine Breath within us and strive to perfect within ourselves the qualities of being, living and being. Attributes of wisdom, consciousness and cognition. And the quality of being a benevolent and loving being.

This is what I understand from my tradition of faith, and what I understand from my study of other faith traditions, that this is the common foundation upon which we all must stand, and I am convinced that when we stand upon such foundations, we can create a wonderful world.

And I personally believe that we are on the brink and with the presence and help of people like you here, Isaiah's prophecies can be fulfilled.

For he prophesied a time when men would turn their swords into plowshares, and would no longer learn warfare and wage war.

We have reached a stage in human history where we have no choice. We must lower our ego and control our ego. Whether it's an individual ego, an individual ego, a family ego, or a national ego, let's do it all for one glory.

Thank you and may God bless you.

(applause)

To reassure people that the great scientists of the 20th century agree with us and call us to action, I would like to quote Einstein's wonderful words at the outset.

"Human beings are part of the whole that we call 'the universe', a limited part of time and space.

He experiences himself, his thoughts and feelings as something separate from the rest, a kind of optical delusion of consciousness.

This delusion is a kind of prison for us, limiting us to our personal desires and affections for the few people closest to us.

Our mission must be to widen our circle of compassion to free ourselves from this prison and embrace all living things and the whole of nature in its beauty. ”

This insight of Einstein is surprisingly close to that of Buddhist psychology. Compassion--called 'karna'--is defined as 'sensitivity to the suffering of others and the corresponding willingness to liberate them from that suffering'.

It goes hand in hand with love, the will to make the other person happy, but of course it requires that you yourself feel a certain amount of happiness and want to share it.

It is perfect in that it articulates the stark contrast between self-centeredness and selfishness and concern for others and compassion, and it further shows that those caught in the cycle of self-interest are helpless and suffer, while compassionate people are freer and tacitly happier.

The Dalai Lama often said that compassion is his best friend.

It helps him when he is overwhelmed with grief and despair.

Compassion helps one to turn away from the feeling that one's own suffering is the most absolute and most terrible suffering that anyone has ever experienced, and it helps to expand awareness of the suffering of others, even the perpetrators of his misery and the suffering of the masses as a whole.

In fact, the suffering is so enormous and enormous that his suffering becomes less and less monumental.

And he begins to move beyond his own concern to a broader concern for others.

And this immediately cheers him up and inspires him with the courage to face this situation.

Therefore, he uses his own suffering as a doorway to widen his circle of compassion.

I must say that he is a very good colleague of Einstein.

Now, I would like to tell the story of the great saint Asanga, a contemporary of Augustine in the West, who was like Augustine in Buddhism, a very famous story in the Indian and Buddhist traditions.

And Asanga lived 800 years after the time of Buddha.

And he was dissatisfied with the state of the Buddhist faith of the Indian people at that time.

So he said, "I'm sick of this. No one really practices the doctrine.

They talk about love and mercy and wisdom and enlightenment, but they act selfish and pathetic.

In other words, the teachings of the Buddha lost momentum.

We know that the next Buddha will come thousands of years from now, but currently resides in a particular heaven. ”—That is Maitreya Bodhisattva.

So he set out on this retreat. He meditated for three years and never saw the future Maitreya Buddha.

and he walked away in disgust.

And as I was leaving, I saw a man--a funny little man sitting halfway up the mountain.

And he had a lump of iron.

And he was rubbing it with a cloth.

And he became interested in it.

He said, "So what are you doing?"

Then the man said, "I am making needles."

Then he said, "That's ridiculous. You can't make a needle by rubbing a piece of iron with a cloth."

Then the man said, "Really?" And he showed me a plate full of needles.

So he said, "Okay, I get the point."

he returned to the cave. he meditated again.

3 more years, no vision. he leaves again.

This time he comes down.

And as he was leaving he saw birds nesting on the ledges of the cliffs.

And where it lands to carry twigs to cliffs, its feathers graze the rock — and it cuts six to eight inches into the rock. The rock was cracked by the rubbing of generations of bird feathers.

So he said, "Okay, I get the point." he went back

3 more years.

Again, nine years later there was still no vision of Maitreya.

And he leaves again, and this time the water drips, forming a huge bowl in the rock, from which the water flows down.

And then he will come back. And 12 years later, I still don't see the vision.

And he panics. And he will not look left or right to see an encouraging vision.

And he comes to town. he is a broken man

And in town he approached the dog who came in this way. It is a kind of fearsome dog that can be seen in some areas, even in poor countries, America. And it looked really bad.

And he takes an interest in this dog because it's so poor that it's trying to get his attention. Then he sits and looks at the dog.

And the dog's entire hind leg is a fully open sore.

There is also something like gangrene, with maggots bubbling up in the body. And it sucks.

He thinks, "How can I fix this dog?"

Well, at least this wound can be cleaned and washed. ”

So he takes it to the water's edge. He's about to clean up, but his attention is focused on the maggots.

And when he sees maggots, maggots look kind of cute.

And they are happily maggoting on the dog's rear there.

"Cleaning the dog will get rid of the maggots. So how is that possible?"

that's it. I am a useless person, there is no Buddha, no Maitreya, and everything is hopeless.

So, are you going to kill the maggots this time? ”

So he came up with a brilliant idea.

And he picked up a piece of something, cut a piece of meat out of his thigh, and put it on the ground.

He didn't think too carefully about the ASPCA.

He quickly grasped the situation.

So he thought, "Let's get some maggots and put them on this piece of meat, then clean the dog's wounds, and then figure out what to do with the maggots."

So he starts it. He can't catch maggots.

Apparently they are wriggling. A little hard to catch, maggots.

So he said, "Then I will put my tongue on dog meat.

And maggots pounce on my warm tongue. - The dog got a little tired - "Then I spit them on the object one by one."

So he's back down and sticking out his tongue like this.

And he had to close his eyes, it was so disgusting, the smell and everything was unpleasant.

And suddenly there was a noise like "puffy".

As he leaps back, there is, of course, the future Maitreya Buddha in a beautiful vision - rainbow lights, gold, bejeweled plasma bodies, exquisite mystical visions - he sees.

And he says, "Ah." he bows

But being human, he quickly thinks of his next complaint.

So he got up from his first bow and said, "Lord, I am very happy to see you, but where have you been for twelve years?"

What is this? "

And Maitreya says, "I was with you. Who do you think was making needles for you, nests, dripping rocks, Mr. Dence?"

(laughter) “I am looking for Buddha in person,” he said.

And he said, 'You had no real compassion until this moment.

And you cannot recognize love unless you have real compassion. ”

"Maitreya" is a Sanskrit word meaning love or "beloved".

So he looked very suspicious, Asanga did.

And he said, "If you don't believe me, take me."

So he took the Bodhisattva Maitreya, shrunk into a sphere, a sphere, and carried it over his shoulder.

And he ran into the town market and said, "Rejoice! Rejoice!"

The future Buddha came ahead of all predictions. here he is ”

And soon they began throwing stones and stones at him--it wasn't Chautauqua, but some other town--because they saw some sort of hippie, a mad, skinny yogi man with blood on his feet and a rotten dog on his shoulder, shouting that the future Buddha had come.

So, naturally, they kicked him out of town.

But on the outskirts of town, an elderly woman, a charnel shaman, saw a jeweled paw on a jeweled lotus flower on her shoulder, then a dog, but she saw Maitreya's jeweled paw and offered a flower.

So he was encouraged and went with Maitreya.

Maitreya then took him to a certain heaven. This is the typical way Buddhist mythology unfolds.

And Maitreya kept him in heaven for five years and had him dictate five intricate books of methodologies on how to cultivate compassion.

And I wanted to share what that method is or one of them.

A famous one is called “The 7 Causal Laws of Compassion”.

And it begins by meditating and visualizing that all beings are together. Everyone has a human form, even animals.

Animals are part of human life. Humans are humans.

And in doing so, we remember our friends and loved ones, the circle of the table.

And you think of your enemies and you think of neutrals.

And you try to say, "Well, my dear ones that I love.

But after all, they are kind to me.

I quarreled with them. Sometimes they were surly.

I got angry. brothers can fight Parents and children can fight.

So, in a way, I like them very much because they are kind to me.

I don't know what is neutral. They may all be fine.

And it's an enemy I don't like because it's mean to me.

But they are nice to someone. I could be them too. ”

And of course Buddhists think that we all have infinite previous lives, so we were actually related to each other.

So, from a Buddhist point of view, she was my mother in a previous life, although neither you nor I remember. We apologize for the inconvenience.

And, in fact, I was also your mother.

I am a woman and I was your mother in a previous life. Buddhists reflect this.

That's why mothers in this world are so great. But you are all part of the Eternal Mother in some way.

You gave me that look “Forever mom,” you said. It is amazing.

So that's the Buddhist way.

A theist Christian can consider all beings, even my enemies, to be children of God.

In that sense, we are related.

So they first create this foundation of equality.

So it is only in meditation that we become a little less clingy to our loved ones and open up to those we do not know.

And the feeling of animosity and "I don't want to feel sorry for them" towards people we think are bad people, people we don't like, people we don't like will definitely decrease.

Therefore, we do not hate anyone. So equalize. That's very important.

And the next thing we do is what we call 'mother recognition'.

In other words, we think of all beings as familiar beings, like family.

We will continue to expand. We take the feeling of remembering mom and release it to all beings in this meditation.

And we see mothers in all beings.

We see genuine compassion, genuine otherness and complete identification in the look on the face of a mother as she looks at this child, a miracle that she has created from her mammalian body.

Other people's lives are often more important to her than her own.

That is why it is the most powerful form of altruism.

In spiritual tradition, the mother is the model for all human altruism.

And we ponder until we see some kind of maternal expression in all beings.

people laugh at me Because when I was mad at all of Cheney's misdeeds in Iraq, I used to meditate on Mama Cheney as my own mother.

I used to meditate on George Bush. She is a very cute mother who looks like a woman.

He has little ears, smiles and rocks you in his arms.

And you think he's nursing you.

Then there's the issue of Saddam Hussein's serious mustache, but you think of him as his mother.

And here's how you do it. Take all the beings that seem strange to you and see how they become familiar to you.

And repeat it for a while until you really feel it.

You can feel closeness to all beings.

No one looks alien. They are not "others".

You lessen your sense of otherness to existence.

Then it reminded me of the kindness of mothers in general. See if you can remember the kindness of your own mother, the kindness of your spouse, or if you are a mother yourself, how you treated your children.

And you start getting very sentimental. You grow your emotions intensely.

Perhaps even tears of gratitude and kindness.

And I combine that with my sense that everyone has motherhood potential.

All beings, even the most mean-looking ones, are capable of motherhood.

And third, from there we proceed to the so-called “gratitude”.

You want to repay the kindness that all beings have shown you.

Then, as a fourth step, we move on to what we call "nice love."

You can do each of these over weeks, months, days, or you can do this meditation all at once, depending on how you do it.

And when they are happy, contented, you think about how adorable that being is.

And all beings look beautiful when they are happy within.

Their faces don't look like this. All creatures look ugly when angry, but beautiful when happy.

And you see a being in potential happiness.

And you feel love for them and want them to be happy even if they are enemies.

We find it unrealistic when Jesus says, "Love your enemies."

He certainly says so, but we think he's making a statement that's unrealistic and kind of spiritual and lofty. "I'm glad he said that, but I can't do that."

But in reality it is realistic.

Loving your enemy means wishing for his happiness.

If your enemies are really happy, why would they bother to be your enemies?

How boring it is to run around chasing you.

They are somewhere relaxing and having a good time.

So it makes sense to want your enemies to be happy. Because it's troublesome and the enemy will stop.

Anyway, it's "nice love". And the fifth and final step is compassion, "universal compassion."

And that's where you see the reality of everything you can think of.

And if you look at them, you can see what state they are in.

And most of the time you can see how unhappy they really are.

You can see people wrinkling their eyebrows.

And they find they have no compassion even for themselves.

They are driven by this duty and duty.

"I have to get it. I need more. I'm not worth it. And something has to be done."

And they are stressed and running around.

And they think of it as somehow macho and a strict discipline to themselves.

But in reality they are cruel to themselves.

And of course they are cruel and ruthless towards others.

And they never get positive feedback.

And the more successful you are, the more power you have, the more unhappy you become.

And this is where I feel real compassion for them.

And I feel that I must act.

And I hope that choice of action is, of course, more realistic than poor Asanga fixing a maggot-infested dog.

But of course that's not realistic. He should have established the ASPCA in town to get scientific support for dogs and maggots.

And I'm sure he did it later. (Laughter) But that's just a state of mind.

And the next step, the sixth step beyond “universal compassion,” is for you to truly connect with the needs of others and have compassion for yourself, not just sentimental ones. You may be afraid of something.

A bad person makes himself more and more unhappy by being more and more mean to others, and will be punished in many ways for this in the future.

And Buddhism captures it in the afterlife.

Of course, in theistic religions, they are punished by God or something.

And materialists think they can get out of it by ceasing to exist, by dying, but this is not the case.

And they can be reborn into anything.

I don't care. I won't go into that.

But the next step is called "Universal Responsibility".

And it is very important. The Compassion Charter must guide us to grow through true compassion, the so-called 'universal responsibility'.

In one of the great teachings that His Holiness the Dalai Lama always teaches everywhere, he mentions that it is the common religion of mankind: kindness.

But "kindness" means "universal responsibility."

And that means that whatever happens to other beings is also happening to us. We are responsible for it, we should accept it and do whatever we can on a small level.

Absolutely must. There is no way not to do it.

Ultimately, it leads to a new direction in life: living on equal terms for oneself and others, being joyful and happy.

What we shouldn't think about is that compassion makes people miserable.

Compassion makes you happy.

Even if you haven't done anything for others yet, you'll be the first to be happy when you get great compassion.

However, your change of heart has already done something for others. They can feel this new nature within you and it already helps them and gives them an example.

And that merciless clock showed me that it was all over.

So practice compassion, read the charter, spread it, nurture it within yourself.

Don't think that you are trapped by just thinking "I am compassionate" or "I am not compassionate".

You can develop this. You can mitigate the ruthlessness, cruelty, ruthlessness and neglect of others and take universal responsibility for them.

Then not only will God smile and Eternal Mom will smile, but so will Karen Armstrong.

thank you very much. (applause)

I want to talk about mercy and the Golden Rule from a secular point of view and even from a sort of scientific point of view.

I would like to explain a little bit about the natural history and golden rules of compassion.

Therefore, I will use clinical language from time to time, so that it does not sound as warm and vague as general compassion talk.

I would like to warn you about that.

So first let me say that I think compassion is a wonderful thing.

The golden rule sounds great. I am a big supporter of both.

And I think it's wonderful that religious leaders around the world affirm compassion and the Golden Rule as essential fundamental principles of their faith.

At the same time, I don't think religion deserves all the credit.

I think nature gave them a helping hand here.

Tonight I would argue that compassion and the Golden Rule are, in a way, built into human nature.

But I would also like to argue that when we understand the implications they are embedded in human nature, we find that affirming compassion and affirming the golden rule is not really enough.

There is a lot to do after that.

So, a little natural history, first about compassion.

In the beginning, there was compassion, not just when humanity first appeared, but actually before that.

Perhaps, in the human evolutionary lineage, emotions like compassion, love and sympathy were embedded in the gene pool even before Homo sapiens existed. And biologists have a pretty clear idea of ​​how this happened in the first place.

It happened through a principle known as kin selection.

And the basic idea of ​​kin selection is that if an animal feels sympathy for a relative, and this sympathy leads the animal to help its kin, ultimately that sympathy actually helps the genes underlying the sympathy itself.

So, from a biologist's point of view, compassion is really how genes help themselves. OK.

I warned you it wouldn't come out too warm and fluffy.

I'll get there -- hopefully a little more vague.

This doesn't really bother me, but the underlying rationale for Darwin's mercy is kind of selfish at the genetic level.

In fact, I think the bad news about kinship selection only means that this kind of compassion only unfolds naturally within families.

That's bad news. The good news is that compassion is natural.

The bad news is that this family-chosen sympathy is naturally confined to the family.

Well, the second half of evolution brought even more good news. It is the second kind of evolutionary logic.

Biologists call this "reciprocal altruism." OK.

And the basic idea is that if you are kind, you will do good things for people, and they will return the favor.

Again, I know this doesn't inspire the notion of compassion we've heard before, but from a biologist's perspective, this kind of reciprocal altruism is also ultimately selfish.

People don't think that when they feel compassion.

It's not consciously selfish, but that's the logic for biologists.

As such, it is the easiest way to show compassion to your friends and allies.

I think a lot of people would be very upset if something really bad happened to a close friend.

But if you read in the newspaper that something truly terrifying happened to someone you've never heard of, you probably can accept it.

That is just human nature.

Well, this is another story of good news and bad news.

It's good that this kind of evolutionary logic has extended compassion beyond the family.

The bad news is that this alone doesn't bring us universal compassion.

So there is still work to be done.

Now, there is another consequence of this dynamic called reciprocal altruism. I think this is kind of good news. That is, the way this has played out in mankind has given people an intuitive appreciation of the Golden Rule.

It's not that the golden rule itself is written in our genes, but if you go to a hunter-gatherer society that's never touched on the great religious traditions or ethical philosophies, and spend some time with them, you'll find that they basically believe that good should go to the next good, and that bad behavior should be punished.

And evolutionary psychologists believe that these intuitions have a genetic basis.

So they understand that if they want to be treated well, they need to treat others well.

And caring for others is good.

It's more like an instinct.

So that's good news. Now, if you're paying attention, you're probably expecting some bad news here. We have not yet reached universal love. that's the truth. Because it is natural to understand the Golden Rule, but it is also natural to make exceptions to it.

For example, perhaps none of us want to go to jail, but we all think that some people should. right?

Therefore, we think we should treat them differently than we would like to be treated.

There are reasons for this.

We argue that they did something so bad that they should go to jail.

None of us extend the Golden Rule truly diffusely and universally.

We have the ability to cut exceptions and put people into special categories.

And the problem is that while we have an impartial judiciary to decide who is exempt from the Golden Rule when it comes to sending people to prison, in everyday life we ​​use a much more crude and straightforward formula in deciding who is exempt from the Golden Rule.

Basically, if you're my enemy, if you're my rival, if you're not my friend, if you're not my family, I'm not really going to apply the golden rule to you.

We all do it and we see it all over the world.

We see it in the Middle East. These are the people who are launching missiles from Gaza into Israel.

They wouldn't want the missiles fired at them, but "well, but the Israelis, or some Israelis, did things that put them in a special category," they say.

The Israelis would not want to impose a blockade on themselves, but they would impose a blockade on Gaza and say, "Well, the Palestinians, or some of them, brought this on themselves."

So many of the world's problems lie in exclusion from the Golden Rule.

And it is natural to do so.

Therefore, the mere fact that the Golden Rule is in some sense hardwired into us does not bring us universal love.

It doesn't save the world.

Well, I have one piece of good news that might save the world. have understood.

Are you sitting on the edge of your seat here?

Good, because before I tell you about the good news, I need to take a little excursion into the academic field.

So, I hope you've caught everyone's attention with this promise of good news that might save the world.

That's the non-zero-sum problem we heard a little about earlier.

A simple introduction to game theory.

This doesn't hurt. have understood.

It's about zero-sum and non-zero-sum games.

When people ask what situations are good for being friends and allies, the technical answer is non-zero-sum situations.

So, what kind of situation encourages people to be defined as the enemy? It's a zero-sum situation.

So what do these terms mean?

Basically, zero-sum games are the familiar kind in sports, where there are winners and losers.

Therefore, their fortunes add up to zero.

So in tennis every point is either good for you and bad for your opponent, or good for your opponent and bad for you.

Either way, your wealth will add up to zero. It's a zero-sum game.

Now, if you are playing doubles, the person on your side of the net has a non-zero-sum relationship with you. Because every point is either good for both of you i.e. plus, win-win or bad for both of you i.e. lose-lose.

It's a non-zero-sum game.

And the reality is that there are many games that are not zero-sum.

In the field of economics, for example, if you buy something, it means that you would rather have the goods than the money, but the merchant would rather have the money than the goods.

I feel we both won.

In war, two allies are playing a non-zero-sum game.

It will either be a win or a loss for them.

Therefore, there are many non-zero-sum games in the real world.

And you can basically reformulate what I just said about how compassion unfolds and the golden rule unfolds. One need only say, “Compassion flows naturally along non-zero-sum channels that people perceive as potentially win-win situations with some of their friends and allies.”

The evolution of the golden rule occurs most naturally along these non-zero-sum channels.

So in a kind of non-zero-sum net, compassion and the golden rule can work their magic.

A zero-sum channel would expect something different.

have understood. Now you're ready to accept the good news that I said might save the world.

And now that we've had your attention for three minutes of technical talk, we can admit that it may not be.

But maybe. And the good news is that history has naturally expanded these non-zero-sum webs, webs that can be channels of compassion.

It can be traced back to the Stone Age. Technological advances such as roads, wheels, letters, and many modes of transportation and communication technology have inexorably enabled more people to form non-zero-sum relationships with more people over ever greater distances.

It's a story of civilization.

That is why social organizations have grown from hunter-gatherer villages to ancient nations, empires, and now we are in a globalized world.

And the story of globalization is largely a non-zero-sum story.

You've probably heard the term "interdependent" applied to the modern world. Well, that's another term for non-zero sum.

If your destiny is interdependent with someone, you are living in a non-zero-sum relationship with that person.

And we see this all the time in the modern world.

The recent economic crash has shown that. Bad things happen in the economy, bad for everyone, and bad for much of the world.

Good things happen and it's good for most of the world.

And, fortunately, I think there is real evidence that this non-zero-sum connection can expand the moral compass.

I mean, if you look at the attitude of Americans towards the Japanese people during WWII, how subhuman the portrayal of the Japanese in the American media was, and the fact that they really thought nothing of dropping the atomic bombs, when you compare that to the current attitude, I think part of it is due to some kind of economic interdependence.

Any form of interdependence or non-zero-sum relationship requires recognition of people's humanity.

So, I think that's fine.

And the world is full of non-zero-sum dynamics.

Environmental issues, in many ways, put us all in the same position.

And there are also non-zero-sum relationships that people probably aren't aware of.

For example, perhaps many American Christians don't think they have a non-zero-sum relationship with Muslims halfway around the world, but they do. Because when Muslims become more and more happy with their place in the world and feel they have a place, that's good for Americans. Because there will be fewer terrorists to threaten America's security.

It's bad for Americans when their happiness goes down.

That is, there are many non-zero-sum properties.

So the question is, if there are so many non-zero-sums, why is the world still not filled with love, peace and understanding?

The answer is complicated. It's an opportunity to tell a completely different story.

Certainly there are a few things, first of all, that there are a lot of zero-sum situations in the world.

Also, people may not be aware of the non-zero-sum dynamics out there.

I think politicians can play a role in both areas.

This is not just about religion.

I think politicians can contribute to promoting non-zero-sum relationships. Economic engagement generally outperforms lockdowns in this regard.

And politicians can and should recognize that people all over the world are looking at themselves, looking at their own country, and getting clues as to whether they are in a zero-sum or non-zero-sum relationship with a nation, say the United States or another nation. The human mind is designed to use cues such as: "Do we feel respected?"

Because historically, if you aren't respected, you probably can't have non-zero-sum, mutually beneficial relationships with people.

So you need to be aware of what kind of signals you are sending.

And part of it is, again, in the realm of political activism.

If there's one thing I can encourage politicians, religious leaders, and all of us, it's what I call "broadening the moral imagination": the ability to put yourself in the shoes of people in very different situations.

This is different from compassion, but it leads to compassion. It opens the way for compassion.

And unfortunately, I think I have another piece of good news and bad news. Moral imagination is part of human nature.

That's a good thing, but again we tend to introduce it selectively.

Defining someone as an enemy, of course, makes it harder to put yourself in their shoes.

So let's take a particularly difficult case of an American. There are people in Iran who are burning the American flag. and watch them on TV.

Well, the average American would resist the moral practice of putting himself in that person's head, and would resist the idea that he and that person have much in common.

And when you say to them, "Well, they hate America because America disrespects them and even wants to control them.

Have you ever had someone who despised you so much that you temporarily hated them? ”

You know, they resist that comparison, but it's natural, it's human.

And so are Iranians. If you try to humanize Americans who say Islam is evil, they will get in trouble.

It is therefore very difficult to get people to extend their moral imagination beyond their natural reach.

Again, I think it's worth the trouble as it only helps you understand.

If you want to reduce the number of people burning flags, it helps to understand why they do it.

And I think it's good moral training.

I think this is where religious leaders come into play. This is because religious leaders are good at reframing people's problems and using the emotional centers of the brain to change people's consciousness and reframe their way of thinking.

So religious leaders are in a kind of inspiration business.

Their great mission now is to enable people all over the world to recognize that they are in many ways on the same page, and to further expand their moral imagination.

I would like to summarize what things look like at least from this worldly perspective as far as Mercy and the Golden Rule are concerned, and say that the good news is that Mercy and the Golden Rule are in some way built into human nature.

Unfortunately, they tend to be selectively deployed.

And it takes a lot of effort to change that.

But no one said that doing God's work is easy. thank you.

(applause)

It takes maybe 18 minutes to convince you that history has a direction, an arrow. In some basic sense, it's a good thing. An arrow pointing to something positive.

Well, the people at TED first approached me to give this bright talk -- (laughter) -- before the caricatures of Muhammad sparked global riots.

This was before bird flu reached Europe.

That was before Hamas won the Palestinian elections and drew various countermeasures by Israel.

And let's be honest, when I was asked to tell this bright story, and I knew that the apocalypse was going to unfold while I was doing the bright talk -- (Laughter) -- I might have said, "Can we talk about something else?"

But I didn't. So here we are. I will do what I can. I will do what I can.

I must warn you, my sense of luminosity has always been subtle and sometimes elusive.

(Laughter) The sense that I can be uplifted and inspired -- I mean, there's always been some sort of tough side to the way I've tried to uplift, so if tough inspiration -- (laughter) -- tough inspiration is not a contradiction in terminology, which is, unfortunately, as much as you can expect. OK, as long as we succeed today, that's fine.

Let's see what we can do. OK?

Now, in some ways, the claim that history has a direction is less controversial.

If we're just talking about social structure, then obviously it's gotten a little bit more complex over the last 10,000 years, reaching higher and higher levels.

And in fact, it is actually continuing a long-standing pre-human trend that biological evolution has done for us.

Because what happened first was that this substance itself was trapped inside the cells, and then the cells began to act together in society.

Eventually they come very close together and form multicellular organisms, after which complex multicellular organisms are obtained. they form a society.

But at some point, one of these multicellular organisms does something quite amazing with this substance. It is to initiate an entirely second kind of evolution: cultural evolution.

And surprisingly, it maintains the trajectory that biological evolution has established toward greater complexity.

Evolution of culture means evolution of ideas.

You've probably heard the word "meme" before. I am very interested in the evolution of technology. So one of the first things I got was a small hatchet.

Generations passed and someone said, Hey, why don't you put it on a stick?

(Laughter) Little kids will absolutely love it.

Second best to video games.

This may not seem impressive, but the evolution of technology is progressive, and another 10,000 years of weapon technology will get you here.

(Laughs) That's impressive. And the rate of technological evolution is accelerating, and we will see this in just a quarter of a century from now.

(laughs) And this.

(laughter) Sorry, it was a cheesy laugh, but I wanted to find a way to get back to the idea of ​​this apocalypse unfolding, and I thought maybe I could do it.

(Applause.) So the threat posed by this unfolding apocalypse is the collapse of the global social fabric.

Now, first of all, let me remind you how much effort it took to get to where we are today and to stand on the brink of a truly global social organization.

Originally, there were the most complex societies of the hunter-gatherer villages.

Stonehenge is a remnant of chieftainship, which resulted from the invention of agriculture, multi-village politics with centralized governance.

The invention of letters begins to give cities. This is blurry. I like this one because it looks like a single-celled organism and reminds me of how many levels organic tissue has already gone through to get to this point. And you can have an empire.

What I want to emphasize is that social organization can transcend political boundaries.

This is the Silk Road connecting the Chinese Empire and the Roman Empire.

So even if no politics did the same, there were social complexities across the continent. Today we have a nation-state.

The point is that there is clearly cross-border collaboration and organization going on.

This is actually a picture of Earth at night, I just posted it because I thought it was beautiful.

It somehow conveys the feeling that this is an integrated system.

Now, I explained this increased complexity with reference to something called "non-zero-sum".

Assuming some people didn't read their assigned readings, the key idea is to distinguish between zero-sum games (always winners and losers) where the correlations are inverse.

Non-zero-sum games with positive correlation are fine.

So, like tennis, it's usually win-lose. It will always be zero zero sum. But if you're playing doubles, you're playing a non-zero-sum game with the people on your side of the net because they're in the same position as you.

Various forms of non-zero-sum behavior in areas such as economics in everyday life often lead to cooperation.

My argument is basically that non-zero-sum games have always been a part of life.

Hunter-gatherer societies have them, but then, through the evolution of technology, new forms of technology emerge that facilitate or incentivize the play of non-zero-sum games involving more people in larger territories.

As social structures adapt to this potential and adapt to exploit this productive potential, we get cities and all the unthinkable non-zero-sum games being played around the world.

For example, when you buy a car, have you ever wondered how many people on what continents contributed to building that car?

I mean, there are certainly a lot of them around.

Now, in some ways, this sounds like an inherently bright worldview. I think that's a good thing because when you think about non-zero, you think it's a win-win. Well, there are actually several reasons why it's not inherently upbeat.

First of all, it can accommodate. I do not deny the existence of unequal exploitative warfare.

But there are more fundamental reasons for not being inherently optimistic. Because in a non-zero-sum game, we only know for sure that good and bad luck are correlated.

It does not necessarily predict win-win results.

So, in a way, the question is, what is the basis for my optimism about history? The answer, first and foremost, is that people have played the game with the goal of winning rather than losing. Overall, I think history is a net positive in the non-zero-sum games sector.

And the evidence of this is what surprises me most, impresses me most, and inspires me most. That is, history has a moral dimension. I have the arrow of morality. We have seen moral progress over time.

2,500 years ago, members of one Greek city-state considered members of another Greek city-state subhuman and treated them as such. Then came this moral revolution and decided that the Greeks were actually human.

Persians are not quite human and just don't deserve to be treated very kindly.

But this was progress. You know, give them credit. And today we have seen further progress. I think most people here think that regardless of race or religion, they are all human beings everywhere, and as long as they don't do terrible things, they deserve to be treated decently.

And to understand what a revolution it was, you need to read ancient history. This was not a popular view thousands of years ago, but I believe it is due to this non-zero-sum dynamic.

I think that is why we are so tolerant of nationality, ethnicity and religion as we are today. Well, if you ask me why I don't approve of bombing Japan, I'm half-joking to say they built my car.

We have this non-zero-sum relationship that I think leads to a kind of tolerance as long as we recognize that the happiness of others is positively correlated with our own happiness. That means you're more likely to break them off.

I think this is kind of business class morality.

Unfortunately, I haven't flown much transatlantic business class, and I don't really know about other types of business class, but I don't think you hear much expression of prejudice against racial or ethnic groups in business class. Because people flying transatlantic business class are doing business with all these people. They make money from all these people. And I really think that, at least in that sense, capitalism is a constructive force, and more fundamentally, it is a non-zero-sum constructive force that expands the realm of people's moral consciousness. I think non-zero-sum dynamics have brought us to the brink of a moral truth that is not just an economic one by any means, but the basic equality of all people. It's done.

It has spread globally, moved us toward world-class social organization, and has driven us to moral truth.

Now, back to the story of the unfolding apocalypse.

And you might think, "Okay, that's good, it's a great moral direction in history," but what about this so-called clash of civilizations? Well, first of all I would like to emphasize that this fits into the non-zero-sum paradigm. Looking at the relationship between the so-called Islamic world and the Western world, I don't like these two terms, but they are inevitable. In such a short period of time, it's all very efficient. it is non-zero sum. In short, if the people of the Muslim world become more and more hateful, resentful, and less happy with their place in the world, it will be bad for the West. The happier they are, the better the West will be.

That is, it is a non-zero-sum dynamic.

And while the non-zero-sum dynamics will only get stronger over time due to technology trends, I'd say it's going to get even stronger in some negative ways.

A downward correlation of their fortunes would become increasingly possible.

One of the reasons is what I call "hate's growing lethality."

Grassroots hatred abroad is increasingly likely to manifest itself in the form of organized violence on the American mainland.

This is fairly new, and I think this capability will probably be exacerbated by trends in technology that can be used for military purposes, such as information technology, biotechnology and nanotechnology.

You may hear more about it today.

And there is one thing that worries me in particular. I suspect that this dynamic leads to a kind of feedback cycle that puts us on a slippery slope.

What I have in mind is that terrorism is happening here. We overreact to it.

As you know, our retaliation not being clever enough will lead to more hatred abroad, more terrorism.

We overreact because, as humans, we want to retaliate, and things just get worse.

You could call this positive feedback in a negative mood, but I don't think the word positive should be used at all, even in the technical sense, in a situation as eerie as this.

So let's call it the negative death spiral.

(Laughter.) If that happens, I assure you that in the end both the West and the Muslim world will suffer.

What should I do? First of all, we can do more when it comes to arms control, the international regulation of dangerous technologies.

I will leave the sermon on global governance for now. I think this is essential, but still not enough.

I think we need a big change in the moral progress of the world.

I think we need to reduce hatred and prejudice between groups, racial groups, religious groups, everything.

I have to say it's stupid to say that.

It's kind of like Polyan. I feel like Rodney King is saying, "Why can't we all just get along?"

But well, given the circumstances, I see no alternatives.

There must be moral progress.

Given how dangerous the world has become, there will need to be less hate in the world.

In my defense, this may sound naive, but I think it's ultimately based on irony.

So -- (laughter) -- thank you, thank you. In other words, remember. My whole view of morality is that it comes down to self-interest.

That's when people's fortunes are correlated.

When your happiness leads to mine, I decide, "Oh, I'm all for your happiness." That is what has caused the growth of moral progress so far, and what I am saying is that once again we have a correlation of destinies, and if people react wisely to it, we will see the development of tolerance and so on, the norms we need.

This kind of business class morality will evolve further.

So if these two things get people's attention and make them perceive a positive correlation and encourage people to do what's in their own interest, which in turn furthers moral evolution, it can actually have a constructive effect.

That's why I'm summarizing the growing lethal hatred and negative death spiral under the general standard of Why You Should Be Hilarious.

(laughs) I'll do my best, okay.

(Laughter) I never called myself "Mr. Uplift."

I'm just doing what I can here.

(Laughter) Now, it must be difficult to make a moral revolution, right?

I mean, what do you do?

And I think the answer is that different people will have to do different things.

We all start where we are. I speak as an American with children who are concerned about their safety 10, 20, 30 years from now. What I personally want to start with is understanding why so many people in the world hate us.

I myself consider it a worthy research project.

Also, I like it because it is essentially a moral redemption exercise.

Because really understanding why someone does something in an entirely different culture, why someone you think is different, who does something you think is weird in a culture you think is weird, is a morally saving achievement. Because I have to relate their experience to my own.

To really understand it, you have to say, "Oh, I get it."

So when they're resentful, it's similar to how I get resentful when something like this happens, and for the same, similar reasons. ”This is the real understanding.

And when it does, I think it expands your moral compass.

It's especially hard when people hate you. Because people don't want to fully understand why they are hated in a way.

I want to hear the reason, but you don't want to sympathize with it.

You don't want to make sense, do you? (Laughter) You don't want to say, "Well, I kind of understand how people in that situation hate their country." It's not fun, but I think it's something we need to get used to and work on. Now, what I want to emphasize is understanding. There are people who don't like this whole job of understanding the grassroots, the root cause of things. They don't want to know why people hate us. I want to understand it.

We're trying to understand why they hate us so that they can stop hating us. The idea that through this moral exercise, you will truly understand and better understand the other person's humanity is part of your efforts to make them understand your humanity in the long run.

I think it's the first step towards that. That's the long-term goal.

Some people worry about this, and in fact I myself was apparently criticized on national television a few nights ago for an op-ed I wrote.

It was just along this line, the claim was that I had a "love for terrorists."

Well, the good news is that the person who said it was Ann Coulter.

(Laughter.) (Applause.) I mean, if you need an enemy, make it Ann Coulter.

(Laughter) But it's not a strange worry. Because understanding behavior creates a kind of empathy that can make tough love a little harder to deliver.

But I think we are much closer to the mistake of not understanding the situation clearly enough than not being able to see the situation clearly enough to send the military out to kill the terrorists.

So I'm not too worried. So -- (laughter) -- I mean, we're going to have to work on many fronts, but if we succeed -- if we succeed -- once again, the recognition of non-zero-sum nature and non-zero-sum dynamics will bring us to a higher moral level.

And it's like saving a higher moral level, literally saving the world.

If you look at the word “salvation” in the Bible—the Christian usage we are familiar with—saving souls, people going to heaven—it is actually an afterthought.

The original meaning of the word "salvation" in the Bible is to save the social system.

"Yahweh is our Savior" means "He saved the nation of Israel", which at that time was a fairly advanced social organization.

Today, social organization has reached the world level. And if I have any good news to share with you, it is that the salvation of the world requires only the intelligent pursuit of self-interest in a disciplined and measured manner.

It must be hard. I say go for it anyway because you've come too far to screw it up.

thank you.

(applause)

I believe there is a real new hidden tension going on between people and organizations – schools, hospitals, workplaces, factories, offices – the ones that people live in every day.

And the phenomenon I'm seeing is what I like to call a kind of "democratization of intimacy."

What does that mean?

What I'm saying is that what people are actually doing is sort of using communication channels to break the forced sense of isolation that these institutions impose.

how are they doing this? They do it in very simple ways, like calling their mom from work, IMing a friend from the office, or texting them under their desk.

The pictures behind me are the people I have visited in the last few months.

And I asked them to come with the person they communicate with the most.

And someone brought a boyfriend, someone a father.

A young woman brought her grandfather.

For 20 years, I've been observing how people use channels like email, mobile phones, and text messages.

What we actually see is basically that people regularly communicate with their 5, 6, or 7 of their most intimate areas.

Now let's get some data. Facebook.

We even have a sociologist from Facebook these days -- Facebook is the channel that is expected to grow the most out of all channels.

According to Facebook's Cameron Marlowe, the average user has about 120 friends.

However, he actually talks and interacts with 4-6 people on a regular basis, depending on gender.

Academic studies on instant messaging also have 100 people on their friend list, but basically people chat with 2, 3, 4, whatever less than 5 people.

My own research on mobile and voice calls shows that 80% of calls are actually made to 4 people. 80 percent.

And when you go to Skype, no more than two people.

Indeed, many sociologists are rather disappointed.

So when I saw this data and all this unfolding for just 5 people, I was sometimes a little disappointed.

And some sociologists really feel that this is closed, a cocoon, that we are cut off from the masses.

And really, when you really look at who's doing it and where they're doing it from, I want to show you that there's actually an incredible social transformation going on.

I have three stories that I think are very good examples.

First gentleman, he is a baker.

So he starts working at 4am every morning.

And around eight o'clock he sneaks out of the oven, wipes his hands from the flour and calls his wife.

He just wants to wish her a good day because that's how her day started.

And I have heard this story many times.

A young factory worker working the night shift sneaks out of a factory site where surveillance cameras are installed and finds a place where he can call his girlfriend at 11pm and say good night.

Or the mother who suddenly finds herself in the corner of the bathroom at 4 o'clock to make sure her children are home safely.

Then there is another Brazilian couple.

They have lived in Italy for many years.

They Skype with their family several times a week.

But once every two weeks, they actually put their computer on the dining table, take out their webcam, and actually have family dinner in São Paulo. And they have a big event about it.

And I first heard this story a few years ago from a very humble family of Kosovar immigrants in Switzerland.

They set up a big screen in the living room and had breakfast with their grandmother every morning.

But Danny Miller, a very good anthropologist who has worked with Filipino immigrant women who left their children in the Philippines, told me how much parenting is being done via Skype and how mothers are engaging with their children via Skype.

And then comes the third couple. they are two friends.

They chat with each other every day, actually several times a day.

And finally, finally, I've managed to bring instant messaging to my work computer.

And now, apparently, they're opening it up.

They chat with each other whenever they have time.

And this is exactly what we've seen teenagers and kids doing under the table at school or texting their friends under the table.

So none of these cases are unique.

So you can talk hundreds of things.

But what really excels is its setting.

So let's consider the three settings we've talked about so far: factory, migration, and office.

However, it may be a school, a government agency, or a hospital.

Going back 15 years, looking back 15 years, it's three settings, when you walk in, when you walk into the office, when you walk into the factory, all the while there was no contact, no contact with the private realm.

If I was lucky, there was a pay phone hanging in the hallway or somewhere.

If you're a business owner, it's a different story.

There may have been direct contact.

If not, you may have to go through an operator.

But basically, when you enter these buildings, private areas are left behind.

And this has become the norm, norm and expectation of our professional life.

And it had nothing to do with technical prowess.

The phone was there. But once I moved there, I was expected to put all my effort into the task at hand and to put all my effort into the people around me.

I had to focus there.

And this has become such a cultural norm that we actually educate our kids to have this cleavage.

If you think the first few years of preschool, kindergarten, and school are just dedicated to getting kids in and getting them used to spending long periods of time away from their families.

And the school runs flawlessly.

It perfectly mimics all the rituals found in the office. It's an entry ceremony, an exit ceremony, a schedule, a uniform for this country, something that identifies you, a team building activity that basically allows you to be with a random group of kids or a group of people who need to be together for hours in a random group.

And of course, the important thing is to learn to pay attention, to focus, to focus your attention.

This started just about 150 years ago.

It only started with the birth of modern bureaucracy and the industrial revolution.

When people basically had to go and work somewhere else.

And the modern bureaucracy had a very rational approach, with a clear distinction between the private and public spheres.

In other words, until then, people basically made their living by working.

They lived on the land on which they worked.

They lived above the workshop.

And come to think of it, it pervades our entire culture and even our cities.

When you think of medieval cities, all medieval cities and districts are named after the guilds and professions that lived in them.

Today, suburban residential areas are prevalent, clearly separated from production and commercial areas.

And indeed, in the last 150 years, a very definite class system has also emerged.

Therefore, the lower the status of a job or a person engaged in it, the further away he is from the personal realm.

People have taken advantage of this amazing possibility of being in touch practically throughout the day or in any kind of situation.

And they are doing it at scale.

For example, according to the Pew Research Center, which regularly produces excellent data on the United States, this number may seem conservative, but 50 percent of people who have access to email at work actually use their personal email from the office.

I really think this number is an understatement.

My own research has shown that the peak for private email is actually at 11am, regardless of country.

75% of people admit to having private conversations on their mobile phones while at work.

100% use text.

Importantly, this personal space reuse is not so successful in all organizations.

It always amazes me that sociologists in the US Army, for example, discuss the impact of Iraqi soldiers' daily contact with their families.

However, there are many institutions that actually block this access.

And every day, every day, we read sickening news about kids in Texas being fined $15 for using their phones every time they take them out at school.

Bus drivers in New York were fired immediately if they were seen holding cell phones.

Companies that block access to IM or Facebook.

The issue of safety and security has always been a debate of social control, but what is really happening is that these agencies are actually trying to decide who has the right to decide what their attention should be and whether they should be isolated.

And they are, in a way, actually trying to block this move that could lead to more intimate relationships.

A few years ago, my eyes were opened to the dark side of the construction industry.

In 2006, young Qatari students took me on a tour of a migrant worker camp.

Since then, I have followed the unfolding issue of workers' rights.

Over the past six months, more than 300 skyscrapers have been canceled or canceled in the UAE.

Behind the headlines behind these buildings lies the fate of the often indentured construction workers.

1.1 million of them.

These workers, mostly Indians, Pakistanis, Sri Lankans and Nepalis, risk all risks to earn money for their families back home.

They pay brokers thousands of dollars to get them there.

And when they arrive, they find themselves in a labor camp with no water, no air conditioning, and their passports taken away.

It's easy to blame local officials and higher authorities, but 99% of these people are employed in the private sector, so we have an equal or even greater responsibility.

Groups like Buildsafe UAE are popping up, but the numbers are overwhelming.

In August 2008, UAE officials noted that 40% of the country's 1,098 forced labor camps violated minimum health and fire safety regulations.

And last summer, more than 10,000 workers protested over unpaid wages, poor food quality and lack of housing.

And then there was the financial meltdown.

The difference is that if the contractor goes bankrupt using excessive leverage like any other contractor, everything is lost: documents, passports, workers' return tickets.

Thousands of workers are now abandoned.

There is no way home.

And there is no way, no proof of arrival.

These are refugees in good times and bad.

The question is, as an architectural professional, as an architect, as an engineer, as a developer, if you know that this is happening as we go to tourist destinations every week, are you complicit in or complicit in human rights violations?

So forget about environmental impact.

Think about your ethical footprint.

If the workforce that produces this architectural gem is unethical at best, what's the point of building a zero-carbon, energy-efficient complex?

Well, recently I've been told that I'm walking the royal road.

But frankly, there is no other way around this issue.

So let's not forget who is really paying the price for this financial catastrophe.

And when we worry about the next job in the office, the next design we can get to keep our employees.

Let's not forget those who really work hard.

thank you.

(applause)

Today I want to talk about the scale of scientific effort that goes into making headlines.

Headlines about climate change look like this: This is the case when it concerns air quality and smog.

These are two areas of the same field of atmospheric science.

When the Intergovernmental Panel on Climate Change (IPCC) recently released its State of Atmospheric System Understanding report, the headlines read:

The report was written by 620 scientists from 40 countries.

They have written about 1,000 pages on the subject, all of which have been peer-reviewed by more than 400 scientists and reviewers from 113 countries.

It's a big community. In fact, our annual meeting is the world's largest scientific conference, a very large community.

More than 15,000 scientists go to San Francisco every year for that.

All of these scientists belong to research groups, and each research group works on a variety of subjects.

For us in Cambridge, it runs the gamut from El Niño oscillations affecting weather and climate, to satellite data assimilation, to emissions from the biofuel-producing crops I'm studying.

And in each of these areas of research, and there are many more, there are PhD students like me who study incredibly narrow subjects—as narrow as some processes and some molecules.

One of the molecules I'm working on is called isoprene right here.

It's a small organic molecule.

The weight of a paperclip is approximately equal to 900 zeta billion isoprene molecules, or 10 to 21 times smaller molecules.

However, despite its very small weight, it is released into the atmosphere each year in amounts equivalent to the weight of all humans on Earth.

That's a huge amount. It is equal to the weight of methane.

And because it is so many substances, it is very important for the atmospheric system.

We make every effort to study this because it is important for the atmospheric system.

Let's blow it up and see the debris.

This is the EUPHORE smog chamber in Spain.

An atmospheric explosion, or complete combustion, takes about 15,000 times longer than an explosion in a car.

Still, we see fragments.

We run huge models on supercomputers. This is what I happen to be doing.

Our model has hundreds of thousands of grid boxes, each computing hundreds of variables on a minute timescale.

Integration runs take weeks and dozens of integrations to understand what's going on.

We also fly around the world looking for this.

I recently participated in an outdoor campaign in Malaysia. We have others, too.

We found a global atmospheric watchtower in the middle of the rainforest, and hung hundreds of thousands of dollars worth of scientific equipment on this tower to look for isoprene and more.

Here's a top view of the tower in the middle of the rainforest and a bottom view of the tower.

As part of that field operation, we also brought aircraft.

And this plane, model BAe-146, which was operated by FAAM, normally carries 120 to 130 people, so you probably took a similar plane to get here today.

But it didn't just fly.

We were flying 100 meters above the canopy to measure this molecule, which is incredibly dangerous.

Measurements require flying at a special slope. We hire military pilots and test pilots for our operations. A special flight permit is required.

Approaching the shores of these valleys, the force can reach up to two G's. Scientists must be fully utilized to make measurements on board.

As you can imagine, the cabin doesn't feel like you're going on vacation.

We do all this to understand the chemistry of a single molecule.

And if students like me have some predisposition or understanding about the molecule, they write a scientific paper on the subject.

And that field campaign will probably yield dozens of papers on dozens of processes or molecules.

As the body of knowledge accumulates, it forms one sub-section of IPCC-like assessments, or one sub-sub-section (among others).

Each of the 11 IPCC chapters has 6 to 10 subsections.

So you can imagine the scale of the effort.

All evaluations we produce are tagged with a summary, which is written for a non-scientific audience.

And to make headlines like this, we pass that summary on to journalists and policy makers.

thank you very much.

I started traveling 30 years ago.

and worked in the mines. Then I realized that this is an invisible world.

And I wanted to create a series of works, through color cameras, large format cameras, and very large prints, that in some way symbolize how we use landscapes and how we use land.

And for me, this, through the medium of photography that allows me to contemplate these landscapes, was a key factor that somehow made me think photography was perfectly suited to do this kind of work.

And after 17 years of photographing large-scale industrial landscapes, I realized that oil was the driving force behind the scale and speed.

Because what has changed is the rate at which we consume all our resources.

So I decided to develop a whole series on oil landscapes.

And what I want to do is draw an arc where there is extraction, extraction and refinement from the ground. And that's one chapter.

Another chapter I wanted to look at is how we use it: cities, cars, motor culture, places where people gather around cars as a celebration.

And the third is the idea of ​​the end of oil, the end of entropy. Where are all the parts of the car, the tires, the oil filters, the helicopters, the planes, the landscape they all end up in?

And, again, photography for me was a way that I could explore the world, investigate it, find those places.

And another idea that I had was suggested by an ecologist. He basically took a liter of gasoline and calculated how much carbon would be needed and how much organic matter would be needed.

1 liter was 23 tons.

So whenever I put gas in, I think about that liter and the amount of carbon dioxide.

And I know oil comes from the oceans and phytoplankton, but he calculated for our planet and what the planet has to do to produce that amount of energy.

From photosynthetic growth, it would take 500 years of that growth to produce what we use, which is 30 billion barrels per year.

And I also realized the fact that this poses a great risk to our society.

At $30 billion a year, let's look at our two largest suppliers, Saudi Arabia, and Canada, which supplies dirty oil.

And combined they only have about 15 years of supply.

Global reserves are estimated at 1.2 trillion, but only about 45 years remain.

So it's not a question of "if", it's a question of when peak oil will come.

So for me, using photography, I feel like I need to really start taking on the challenge of using my talents and my mindset to start working on what I think we all are probably one of the most difficult problems of our time right now: how to deal with the energy crisis.

And on the other side of that, 30, 40 years from now, I think I can look at my kids and say, "We have done everything we can as humans to start easing this situation. I feel this is one of the most important and significant moments of our time. Thank you."

(applause)

I would like to ask, what do these three people have in common?

Well, the first person probably looks familiar.

I'm sure you are all avid "American Idol" watchers.

But some may not know Aida Al-Jahani, a contestant in the Million Poets contest broadcast from Abu Dhabi and watched across the Arab world, and indeed a finalist.

For this competition, you must write and recite an original poem in the traditional Bedouin format, the Nabatti form of poetry.

And Rima Sahar became a finalist in the Afghanistan Star Singing Contest.

Now, before I go any further, yes I know it all started with 'Britain's Got Talent'.

However, my purpose in discussing this is to hopefully show how these merit-based competitions, with winners chosen by SMS votes and with equal access for everyone, are transforming tribal societies.

And I will focus on the Arab world, including Afghanistan and the United Arab Emirates, and how they are transforming tribal societies not by introducing Western ideas, but by being integrated into their regional languages.

It all starts with having fun.

Video: I'm late to see "Afghan Star".

I'm going to watch "Afghan Star". we are late

I'm late.

You must go see "Afghan Star".

Cynthia Schneider: These programs are incredibly ingrained in society.

In Afghanistan, people are making an extraordinary effort to watch this show.

Also, you don't necessarily have to have your own TV.

People all over the country are also watching in public places.

But it's also part of a campaign, so it's not just about monitoring.

People have become so enthusiastic that they have volunteers fanning out in the countryside and campaigning for candidates, much like political volunteers anyway.

Contestants also came forward.

Of course, there is some ethnic loyalty, but not completely.

Because each year the winners come from different tribal groups.

This opened doors, especially for women.

And last season we had two women among the finalists.

One of them, Rima Sahar, is a Pashtun from Kandahar, a very conservative part of the country.

And in the documentary Afghan Star, she tells how her friends told her not to do that and leave them for democracy.

But she also confided that she knew members of the Taliban were actually sending her votes via SMS.

Aida Al-Janani also took a risk and risked herself to enter the contest of the million poets.

I have to say that her husband was supportive of her from the beginning.

However, her tribe and family strongly opposed it, urging her not to compete.

But when she started winning, they cornered her again.

It turns out that competition and victory are universal human values.

and there she is.

Her poetry is about women and their lives in society.

So just by expressing yourself and competing with men, this shows the voting results for the show, which is a very important role model for the young women of Abu Dhabi. This is a young lady among the viewers of the show. Not just Abu Dhabi, but people in the audience watching as well.

Now, you would think that "American Idol" would introduce a measure of Americanization.

But in reality, the exact opposite is happening.

Utilizing this attractive and popular format for traditional local culture, the Gulf region is actually experiencing a resurgence of interest in Nabati poetry, as well as traditional costumes, dance and music.

And traditional music is being reintroduced in Afghanistan, where the Taliban have long banned music.

They don't sing pop songs, they sing Afghan music.

They also learned how to lose gracefully without taking revenge on the winner.

(Laughter) It's not a small thing.

And the final, kind of formulation of this “American Idol” format that has just appeared in Afghanistan is a new show called “The Candidate.”

And in this program, people put forward a policy statement, which is decided by a vote.

Many of them are too young to run for president, but they influence presidential elections by bringing issues to light.

So for me, the essence of the unseen is how reality shows make reality work.

thank you.

(applause)

We grew up interacting with the physical objects around us.

There are a huge number of things that we use every day.

Unlike most computing devices, these objects are much more fun to use.

When we talk about an object, another automatically accompanies that object. it's a gesture. How we manipulate and use these objects in our daily lives.

We use gestures not only to interact with these objects, but also with each other.

The "Namaste!" gesture may be to show someone respect, and you may not need to teach your child that in India this means "four runs" in cricket.

It happens as part of our daily learning.

Therefore, from the outset, I am very interested in how our knowledge of everyday objects and gestures, and how we use those objects, can be leveraged to interact with the digital world.

Why can't we use a computer the same way we interact in the physical world instead of using a keyboard and mouse?

So I started this quest about eight years ago. It literally started with a mouse on your desk.

I actually opened it rather than using it on my computer.

As many of you know, the mouse back then had a ball inside, and there were actually two rollers that the computer guided where the ball moved and where the mouse moved accordingly.

So I was intrigued by these two rollers and actually wanted more so I borrowed another mouse from a friend and he never gave it back. And now I have 4 rollers.

Interestingly, what I did with these rollers was basically taking them off the mouse and lining them up.

There were strings, pulleys and some springs.

What I got is basically a gesture interface device that works as a real motion sensing device made for $2.

So here, every movement I make in the physical world is actually replicated within the digital world, just using this little device I built about eight years ago in 2000.

I was interested in merging these two worlds, so I came up with Sticky Notes.

I thought, "Why can't we connect the usual interface of physical sticky notes to the digital world?"

Sometimes I get text messages to my mom written on paper on sticky notes, and sometimes meeting reminders automatically sync with my digital calendar (which automatically syncs with my to-do list).

But you can also search in the digital world, and you might be able to construct the query "What is Dr. Smith's address?"

This little system actually prints it. So it actually works like a paper input/output system made out of paper.

Another exploration led me to create a pen that can draw in three dimensions.

So we implemented this more intuitive pen to help designers and architects actually draw, not just think in 3D.

So I thought, "Why don't we make Google Maps in the physical world?"

Instead of typing keywords to find something, put an object on it.

After inserting your boarding pass, the location of the flight gate will be displayed.

The coffee cup will show you where you can find more coffee or trash the cup.

These were some of the early explorations I did as the goal was to seamlessly connect these two worlds.

All these experiments had one thing in common. It was trying to bring part of the physical world into the digital world.

The goal was to make computing interfaces more intuitive, so I was taking some of the objects, or some of the intuition of real life, and bringing them into the digital world.

But I realized that we humans are not really interested in computing.

We are interested in information.

We want to know things.

We want to know about dynamic events happening around us.

So, around last year, around the beginning of last year, I started thinking, "Why can't we take the opposite approach?"

Perhaps, "What if I take my digital world and paint the physical world with that digital information?"

Because pixels are now really trapped inside rectangular devices that fit in your pocket.

Why can't we remove this limitation and incorporate it into everyday objects and everyday life so that we don't have to learn a new language for manipulating pixels?

So, in order to make this dream come true, I decided to actually put a large projector on my head.

I think this is why they are called head-mounted projectors.

I took it literally and took the bike helmet and cut a little notch in it so the projector would actually fit nicely.

Now, what I can do is augment the world around me with this digital information.

But later I realized that I actually wanted to manipulate these digital pixels as well.

So I put a little camera there to act as a digital eye.

We then moved on to a much better consumer pendant version of it, now known to many as the SixthSense device.

But the most interesting thing about this particular technology is that you can take your digital world with you wherever you go.

You can start using any surface or wall around you as an interface.

The camera is actually tracking all your gestures.

Whatever you do with your hands, it's about understanding the gestures.

And indeed, as you can see, there are some color markers that I used in the first version.

You can start painting on any wall.

You stop at a wall and start painting on it.

But we're not just tracking one finger here.

With both hands free, you can actually use both hands to zoom in or out on the map by simply pinching anything present.

The camera actually just takes every image and runs edge recognition, color recognition and many other little algorithms under the hood.

So technically it's a bit more complicated, but in some ways it gives a more intuitive output.

But I'm more excited to actually take it outside.

Instead of pulling the camera out of your pocket, just make a photo gesture and it will take a picture for you.

(Applause.) Thank you.

Then I find a wall wherever I am and start browsing through those photos, or maybe I think, "Okay, I want to fix this picture up a bit and email it to a friend."

Therefore, we are aiming for an era when computing actually merges with the physical world.

Of course, even if you don't have a surface, you can still use your palm to start simple manipulations.

Here you are dialing a phone number using only your hands.

In fact, the camera not only understands your hand movements, but interestingly, it can also understand the objects you hold in your hand.

For example, in this case, a book cover matches thousands or even millions of books online to see which book it is.

Once that information is retrieved, it will search for more reviews on that information. Alternatively, the New York Times may have an audio synopsis on it, so you can actually hear the review as audio on the physical book.

(Video) Famous Lecture at Harvard -- This was President Obama's visit to MIT last week.

(Video) And I would especially like to thank two excellent MITs -- Pranav Mistry: So I was watching a live [video] of his talk outside, just in the newspaper.

Newspapers show live weather information, not the latest weather information.

You have to check your computer for that, right?

(Applause.) When you go home, all you have to do is use your boarding pass to see how long your flight is delayed. Because at that point I'm not in the mood to open up my iPhone and see a particular icon.

And I don't think this technology will just change the way we do -- (Laughter) Yes.

It will change not only the physical world, but also how we interact with people.

The fun part is going to the Boston subway and playing a pong game on the ground inside the train.

(Laughter) And when this kind of technology merges with real life, I think the only limit is your imagination.

But in fact, many would argue that our work is not all about physical objects.

In fact, we do a lot of work such as accounting and dissertation editing. what about that?

And many of you are excited about the next generation of tablet computers coming to market.

So instead of waiting for it, I actually made it myself using paper.

So what I did here is remove the camera. All webcam cameras have a built-in microphone inside the camera.

I took the mic out of it, picked it up, and stuck it to a piece of paper, paper out there, just like I made a clip out of a mic.

So now, when I'm touching the paper, I'm worried about the touch sound.

But the camera actually tracks my finger movements.

Of course you can also watch movies.

(Video) Hello. My name is Russell and I'm a Wilderness Explorer from Tribe 54. ”

PM: Of course you can also play games.

(car engine) Here the camera actually understands that you are holding a piece of paper and playing a car racing game.

(Applause.) Many of you must have already thought, "Okay, I can browse."

yes. Of course, you can browse any website or do any kind of computing on paper wherever you want.

So, even more interestingly, I'm interested in how it can be achieved in a more dynamic way.

When you're back at your desk, just pinch that information back to your desktop and you're ready to use your full-size computer.

(Applause) Why only computers? You can just play with paper.

The paper world is interesting to play with.

What we're doing here is taking a piece of the document, putting the second piece here from the second place, and changing the information that's actually there.

yes. And I said, "Okay, this looks good, let's print it out."

So now I have a printout of it.

So instead of switching between the two worlds today, the workflow is probably more intuitive, similar to how we used to do it 20 years ago.

Finally, I believe that integrating information into everyday objects not only helps bridge the digital divide, the gap between the two worlds, but also somehow helps us remain human and more connected to the physical world.

And it actually helps prevent us from becoming machines sitting in front of other machines.

that's all. thank you.

(Applause.) Thank you.

(Applause) Chris Anderson: So Pranav, first of all, you're a genius.

This is really unbelievable.

what are you doing with this? Do any companies have plans?

Or will this research go on forever?

Pranav Mistry: So a lot of companies, Media Lab sponsors, are interested in taking this further in some way.

Companies like mobile operators want to look at this in a different way than Indian NGOs, thinking, 'Why can we only have a 'sixth sense'?

We need a "fifth sense" for those who have lost their senses who cannot speak.

This technology can be used to speak in other ways, such as speaker systems. ”

CA: What are your own plans? Are you staying at MIT or are you going to do something with this?

PM: The hardware isn't really that hard to manufacture, it's even harder to build your own, so we're trying to make this more accessible to people so that anyone can develop their own SixthSense devices.

We will be giving them all open source software, probably starting next month.

CA: Is it open source? Oh.

(Applause) CA: Are you planning to come back to India with this one day?

Afternoon: Yes. Yes, yes, of course.

CA: What are the plans? Massachusetts Institute of Technology? India?

How do you plan to allocate your time in the future?

PM: There is a lot of energy here. lots of learning.

All this work you have seen is about what I learned in India.

And, as you can see, the issue is cost-effectiveness. This system costs $300, compared to $20,000 surface tables, for example.

Or was it $5,000 for a $2 mouse gesture system back then?

I showed it to then-President Abdul Kalam at a meeting and he said, 'Okay, this should be used in some way at the Baba Nuclear Research Center.'

So I'm excited about how we can bring that technology to the general public instead of just keeping it in a lab setting.

(Applause.) CA: From what I've met at TED, I think you're one of the two or three great inventors in the world right now.

It's a pleasure to meet you at TED.

Thank you very much.

That's wonderful.

(applause)

speak spanish? Parlev Francais? If you answered "sí", "oui" or "kai" and are watching this in English, chances are you are part of the majority of bilingual and multilingual people in the world.

Not only does it make it easier to travel and watch movies without subtitles, knowing two or more languages ​​can actually make your brain look and work differently than your monolingual friends.

So what does knowing a language actually mean?

Language proficiency is usually measured in two active parts, speaking and writing, and two passive parts, listening and reading.

Balanced bilinguals have roughly equal overall proficiency in the two languages, but most bilinguals around the world know and use their own language in varying proportions.

And depending on their situation and how they learned their respective languages, they can be broadly classified into three types.

For example, consider the case of Gabriela, whose family immigrated to the United States from Peru when she was two years old.

A compound bilingual, Gabriela uses a single concept to develop two language codes simultaneously, learning both English and Spanish as she begins to process the world around her.

Her teenage brother, on the other hand, might be a collaborative bilingual who grapples with two concepts and continues to speak Spanish at home and with friends while learning English at school.

Finally, Gabriella's parents are likely dependent bilinguals who filter their primary language and learn their second language.

People who are bilingual of all kinds can master the language perfectly, regardless of accent or pronunciation, so the average observer may not be able to tell the difference.

However, recent advances in brain imaging technology have given neurolinguists a glimpse into how certain aspects of language learning affect the bilingual brain.

It is well known that the left hemisphere of the brain is more dominant and analytical in logical processes, whereas the right hemisphere is more active in emotional and social processes, but this is a matter of degree, not absolute division.

The fact that language contains both types of function and that lateralization develops gradually with age led to the critical period hypothesis.

According to this theory, children learn languages ​​more easily because the plasticity of the developing brain allows them to use both hemispheres for language acquisition, but in most adults language is biased towards one hemisphere, usually the left.

If this is true, learning a language at an early age may give us a more comprehensive picture of the social and emotional context of that language.

Conversely, recent research has shown that people who learned a second language as adults show less emotional bias and a more rational approach to facing problems in their second language than in their native language.

But regardless of when you learn an additional language, being multilingual has some significant benefits for your brain.

Some are visible, such as increased density of gray matter, which contains most of the neurons and synapses in the brain, and increased activity in certain areas when speaking a second language.

The increased training that bilingual brains receive throughout their lives can also help delay the onset of diseases such as Alzheimer's and dementia by up to five years.

The idea that bilingualism has great cognitive benefits may seem intuitive now, but previous experts would have been surprised.

Prior to the 1960s, bilingualism was thought to be a disorder that retarded child development due to the large amount of energy that must be expended on language distinctions, but this view is based largely on flawed research.

And while a more recent study showed increased reaction times and errors in different language testing in some bilingual students, we also showed that the effort and attention required to switch between languages ​​can trigger and potentially enhance activity in the dorsolateral prefrontal cortex.

This is the part of the brain that plays a major role in executive function, problem solving, switching between tasks, and staying focused while filtering out irrelevant information.

So bilingualism won't necessarily make you smarter, but it will certainly make your brain healthier, more complex, and more active. Even if you weren't lucky enough to learn a second language as a child, it's never too late to make the language leap from "Hello" to "Hola" to "Bonjour" to "你好" through your own efforts. Because when it comes to our brains, a little exercise goes a long way.

To understand the work of mythology and what a Chief Belief Officer should do, one must listen to the narrator's scribe, the elephant-headed god Ganesha, and his brother Kartikeya, the athletic general of the gods.

One day, two brothers decided to participate in a round-the-world race.

Kartikeya jumped on a peacock and flew over continents, mountains and seas.

He circled, circled twice, circled three.

But the younger brother Ganesha only walked around his parents once, twice, thrice and said, "I won."

"Why?" said Kartikeya.

And Ganesha said, "You have circled the 'world'." I circled "my world". ” What could be more important than that?

If you understand the difference between "the world" and "my world", you will also understand the difference between logos and mythology.

"World" is objective, logical, universal, factual and scientific.

"My world" is subjective.

Emotional, isn't it? it's personal.

They are perceptions, thoughts, feelings and dreams.

It's a belief system that we carry.

It's a myth we live by.

"World" tells us how the world works, how the sun rises, how we are born.

"My World" tells us why the sun rises and why we were born.

All cultures are trying to understand "why do we exist?"

And each culture produces its own understanding of life, its own customized mythology.

Culture is a response to nature, and this understanding of our ancestors is passed down from generation to generation in the form of stories, symbols and rituals, always indifferent to rationality.

So when we study it, we find that different people in the world have different understandings of the world.

Different people see things differently and have different points of view.

There is my world, there is your world, and my world is always better than yours. Because my world is rational and yours is superstitious.

Faith is yours.

Your thinking is illogical.

This is the root of the clash of civilizations.

Once it happened in 326 BC.

On the banks of a river called the Indus, now in Pakistan.

This river is worthy of its Indian name.

indian indian

A young Macedonian, Alexander, met there a man he called "the gymnast", which means "naked sage".

I don't know who he is.

Perhaps he was a Jain monk like Gomateshwara Baahubali who has an image of Baahubali here, not far from Mysore.

Or maybe he was just a yogi sitting on a rock looking at the sky, the sun and the moon.

Alexander asked, "What are you doing?"

The gymnast replied, "I am experiencing nothingness."

Then the gymnast asked, "What are you doing?"

And Alexander said, "I will conquer the world."

and they both laughed.

We each thought the other was an idiot.

A gymnastics philosopher said, "Why would he conquer the world?

it's pointless. ”

And Alexander thought, "Why is he sitting around doing nothing?"

What a waste of life! ”

To understand this difference in perspective, we need to understand Alexander's subjective truth—his myth, and the myth that constructed it.

Alexander's mother, parents, and teacher Aristotle told him the story of Homer's Iliad.

They told him about a great hero called Achilles. Victory was guaranteed when he entered the battle, but defeat was inevitable when he withdrew from it.

“Achilles was a man who could shape history, a man of destiny. Alexander, you should be.”

That's what he heard.

"What should not happen?

Don't be Sisyphus who rolls a rock all day and climbs a mountain, but at night finds the rock rolling down.

Don't lead a monotonous, mundane, meaningless life.

Be spectacular! --like Greek heroes like Jason who crossed the sea with the Argonauts to retrieve the Golden Fleece.

Enter the labyrinth and be as spectacular as Theseus when he killed the bull-headed Minotaur.

If you play in races, win! -- Because the euphoria of victory when you win comes closest to Ambrosia of the Gods. ”

Because the Greeks believed that a person lives only once and that when he dies he must cross the river Styx.

And those who have lived extraordinary lives will be welcomed into Elysium, or what the French call the Champs-Élysées – (laughs) – a haven of heroes.

But these are not the stories gymnastics philosophers have heard.

He heard a completely different story.

He heard of a man named Bharat. India is called Bharat after Bharat.

Bharat also conquered the world.

And he went to the top of the greatest mountain in the center of the world called Meru.

And I wanted to raise a flag to say "I was here first."

However, when he reaches the summit, he finds in front of him countless flags of world conquerors covering the summit, each one "claiming 'I was here first'."

I thought so until I came here. ”

And suddenly, in this infinite canvas, Bharat felt insignificant.

This was a gymnastics sophist myth.

As you know, he had Rams, heroes like Raghupathi Ram and Krishna and Govinda Hari.

But they weren't two people on two different adventures.

They were two lifetimes of the same hero.

When the Ramayana ends, the Mahabharata begins.

Krishna is born when Ram dies.

When Krishna dies, he eventually returns as Ram.

As you know, the Indians also had a river that separated the land of the living from the land of the dead.

But it never crosses.

You go back and forth endlessly.

It was called Vaitarani.

You go again and again and again.

Because nothing lasts forever in India, not even death.

Then there is a grand ceremony where a great statue of the Mother Goddess is erected and worshiped for 10 days...

And what do you do when the 10 days are over?

You sank it in the river.

Because it has to end.

And next year she will be back.

Things that turn will always turn. This law applies not only to humans, but also to gods.

As you know, the gods have to come back again and again as Ram, as Krishna.

Not only do they live an infinite number of lives, but the same lives will continue to live infinitely until they get to the heart of everything.

"Marmot Day."

(Laughter) Two different myths.

which one is correct?

Two different myths, two different ways of looking at the world.

One is linear and the other is circular.

A person believes that this is the only life.

Another believes that this is one of many lives.

And the denominator of Alexander's life was one.

In other words, the value of his life was the sum of his achievements.

The denominator of the gymnastics philosopher's life was infinity.

In other words, it was always zero no matter what I did.

And I believe it was this mythological paradigm that inspired Indian mathematicians to discover the number zero.

who knows?

And that brings us to business myths.

If Alexander's beliefs influenced his actions, if the gymnastics philosophers' beliefs influenced his actions, it should influence the business they were engaged in.

You know, what is business other than the result of market movements and organizational movements?

And if you look at cultures around the world, just understanding their myths tells you how they behave and how they do business.

please look.

In once-and-for-life cultures around the world, you will see an obsession with binary logic, absolute truth, standardization, absoluteness, and linear patterns of design.

But when you look at a culture that is based on cyclical, infinite life, you see fuzzy logic, opinions, situational thinking, everything is relative [laughs] mostly.

(Laughter) You see art. Look at the ballerina, her performance is really linear.

And see the curves of Indian classical dancers, Kuchipudi and Bharatanatyam dancers.

(Laughter.) And turn to business.

Standard business model: vision, mission, values, process.

Much like a journey through the wilderness to the promised land, with the commandments of a leader.

And if you obey, you can go to Heaven.

But there is no "promised land" in India.

There are many promised lands, depending on your position in society and stage of life.

As you know, businesses don't run as organizations, they run as individual idiosyncrasies.

It's always a taste.

It's always been a matter of my taste.

For example, Indian music has no concept of harmony.

There is no orchestra conductor.

There is one performer standing there, all following him.

And that performance can never be replicated twice.

It's not about documents and contracts.

It's about conversation and faith.

It's not a compliance issue. It's about bending and breaking the rules to get the job done and get it done. If you look at the Indians here, you can see them smiling. they know what it is.

(Laughter) And if you look at people who have done business in India, you can see the resentment on their faces.

(Laughter) (Applause) Look, this is what India looks like today. Earthly reality is based on a cyclical worldview.

That is, it is rapidly changing, highly diverse, chaotic, ambiguous, and unpredictable.

And people just accept it.

And globalization is progressing.

The demands of modern institutional thinking are coming in.

It is rooted in the One Life culture.

And there will be clashes like on the banks of the Indus.

It will happen.

I have experienced it personally. I am trained as a doctor.

I didn't want to study surgery. Please don't ask me why.

I love mythology too much.

I wanted to study mythology. However, there is no place to study.

So I had to teach myself that.

And so far myths do not help.

(Laughter) So I had to work. And I worked in the pharmaceutical industry.

And I worked in the medical industry.

And I worked as a marketer, a sales person, a knowledge person, a content person, a training person.

I was also a business consultant doing strategy and tactics.

And I have seen rage among American and European colleagues when dealing with India.

Example: What is the process for billing hospitals?

Step A. Step B. Step C. Almost.

(Laughter) How can we parameterize "most"?

How can we put it into a nice little piece of software?

I tell people my point of view.

But until I met Kishore Biyani from The Future Group, no one was interested in hearing it.

As you know, he founded the largest retail chain called Big Bazaar.

It also has over 200 formats in 50 cities and towns in India.

And he was dealing with a diverse and dynamic market.

And he knew intuitively that the best practices developed in Japan, China, Europe and the US would not work in India.

He knew that institutional thinking would not work in India. That's my personal way of thinking.

He had an intuitive understanding of Indian mythological structures.

So he asked me to be Chief Belief Officer and said, "All I want to do is align beliefs."

Sounds very simple.

But belief is not measurable.

cannot be measured. can't manage it.

So how do you build belief?

How can we increase people's sensitivity to Indianness?

Even if you are Indian it is not very clear and not very obvious.

So I tried to develop a standard model of culture: stories, symbols, rituals.

And I would like to share with you one of the rituals.

It can be seen that it is based on Hindu darshan rituals.

Hinduism has no concept of commandments.

Therefore, there is no right or wrong thing to do in life.

I mean, you don't really know how you stand before God.

Therefore, when you go to the temple, all you ask for is an audience with God.

you want to see God

And you want God to see you. So the gods have very big eyes, big unblinking eyes, sometimes made of silver, so they look at you.

Because you don't know if you're right or wrong, and all you're looking for is God's sympathy.

"Know where I came from and why I did jugaad."

(laughs) "Why did you set it up, why don't you care about the process? Please understand."

And on this basis created a ritual for leaders.

When a leader finishes his training and wants to take over the store, we blindfold him and surround him with stakeholders, customers, family, team and bosses.

You read out his KRA and KPIs, give him the keys, then remove the blindfold.

And there will surely be tears, because the pennies have fallen.

He understands that he doesn't have to be "professional" to be successful, he doesn't have to block out his emotions, he needs to include all these people in his world in order to be successful, to make them happy, to make their boss happy, and to make everyone happy.

The customer is God, so the customer is happy.

That feeling is what we need. Once this belief is in, action happens, business happens.

And it happened.

Now back to Alexander and the gymnastics philosopher.

And everyone asks me, "Which is better, this way or that way?"

And it's a very dangerous question because it leads us down the road to fundamentalism and violence.

Therefore, I will not answer your question.

I give you the Indian answer, Indians shaking their heads.

(Laughter) (Applause) Choose your paradigm, depending on the situation and the outcome.

Because, as you know, both paradigms are human-constructed.

They are cultural creations, not natural phenomena.

So the next time you meet someone, a stranger, I'll ask you one thing. Realize that you live in a subjective truth, and so does he.

Understand it.

And when you understand it, you will discover wonderful things.

You will find that in the infinite myths there are eternal truths.

who sees everything?

Varna only has a thousand eyes.

Indra, 100 years old.

You and I, just the two of us.

thank you. Namaste.

(applause)

One day, a one-eyed monkey came to the forest.

She saw a woman meditating intently under a tree.

The one-eyed monkey recognized a woman named Sekri.

She was also the wife of a famous Brahmin.

To get a closer look at her, the one-eyed monkey climbed a tree.

At that moment, the sky opened with a loud noise. (Applause.) And then Indra flew into the clearing.

Indra saw a woman who was Sekri.

Oh haha.

Women did not listen to him.

So Indra got attracted, threw her on the floor and started raping her.

After that, Indra disappeared. (Applause! Applause!) Then the woman's husband, a Brahmin, appeared.

He immediately understood what had happened.

So he petitioned the higher gods to grant justice.

Then Vishnu came.

"Are there any witnesses?"

"Just a one-eyed monkey," said the Brahmin.

Now, the one-eyed monkey wanted the woman, Sekri, to receive justice, so he retold exactly what had happened.

Lord Vishnu passed judgment.

"Indra sinned in that he sinned against the Brahmins.

May he be called to wash away sins. ”

So Indra arrived and offered a horse as a sacrifice.

And so it happened that the horse was killed, the god was set free from sin, the Brahmin's ego was appeased, the woman was … ruined, and the one-eyed monkey was left behind.

We humans are very confused about what we call justice.

In India there is a rape every 3 minutes.

In India, only 25% of rape cases are referred to police stations, and of the 25% that are referred to police stations, only 4% result in a conviction.

There are many women who do not receive justice.

And it's not just about women.

Look around and see your own country.

There are certain patterns in who is accused.

Being in Australia, it is mostly indigenous people who are in prison.

If you are in India it is either a Muslim or an Adivasis who are Naxalites of our tribe.

In America, most of them are black.

There is a trend here.

And Brahmins and gods always tell their truth as 'Truth', like my story.

So, have we all become one-eyed, double-eyed monkeys instead of one-eyed?

Have we stopped seeing injustice?

good morning.

(Applause.) You know, I've told this story nearly 550 times, to audiences in 40 countries, to schoolchildren, to black-tie dinners at the Smithsonian Institution, and so on, and each time something comes to mind.

Now, if I go into the same crowd and say, "I would like to lecture on justice and injustice," they will say, "Thank you. I have other things to do."

And that is the amazing power of art.

Art can pass where nothing else can.

You can't put up barriers. For it destroys your prejudices and everything that you have as a mask, 'I am this, I am that, I am that'.

No, it breaks them.

And it reaches where nothing else can.

And in a world where it's so hard to change attitudes, you need words that get across.

Hitler knew it. He used Wagner to make him feel that all the Nazis were great and Aryan.

And Mr. Berlusconi knows it because he sits at the top of a huge empire of media, television and more.

And the wonderful creative minds who belong to every advertising agency and help companies sell us things we don't really need know the power of art.

For me it happened very quickly.

When I was young, my mother, who was a choreographer, encountered a phenomenon that worried her.

In rural Gujarat, a young bride commits suicide after being forced to bring more and more money for her in-laws.

She then created a dance piece that was seen by then-Prime Minister Nehru.

He came to talk to her and said, "What is this?"

She told him so, and he began his first investigation into what we today call dowry dancing.

Imagine a dance piece as the first inquiry into what still kills thousands of women today.

I had a similar experience many years later when I worked with director Peter Brook in Mahabharata, playing this exuberant feminist called Draupadi.

Big fat black moms in the Bronx used to come over and say, "Hey baby girl, this is it!"

And the young hipsters of the Sorbonne University say, "Mrs. Draupadi, the most feminist woman are you there? Ça!"

Then the indigenous African women came and said, "This is it!"

And I thought, "This is what a language needs."

Public Health officials were also present. And Devdat also mentioned public health.

Well, millions of people around the world die each year from water-borne diseases.

That's because people don't know that there is no clean drinking water and that in countries like India, you need to wash your hands with soap before defecation.

So what do they do?

They drink dirty water, contract cholera, have diarrhea, become jaundiced and die.

And the government is failing to provide clean water.

they try to build it. They try to build pipelines. it doesn't happen.

And multinationals give them machines they can't buy.

So what do you do? let them die?

Well, someone came up with a great idea.

And it was a simple idea. It was an idea that would benefit no one, but would benefit all areas of health.

Most homes in Asia and India have cotton clothing.

And it has been found that folding a clean cotton garment eight times can reduce bacteria from sieved water by up to 80 percent, which is endorsed by the WHO.

So why doesn't the government hype this up on TV?

Why isn't it on every third world poster?

Because there is no profit there.

Because no one can get a rebate.

But we still need to reach people.

And this is one way to tell people about it.

[Video] Woman: Then buy me a fancy water filter.

M: Do you know how expensive it is?

I have a solution that requires no machinery, no wood, no cooking gas.

Woman: What's the solution?

Man: Listen, go get the cotton sari you have.

Boy: Grandpa, please tell me the solution.

Man: I'll let you all know. wait a minute.

Woman: This is Dad. (Man: Are you pretty?) Woman: Yes, of course.

Man: Then do as I say. Fold the sari into eight.

Woman: Okay, Dad.

Man: So you think she's doing the right thing. (Boy: Okay, Grandpa.) Man: Fold one, two, three, four.

All bacteria are harvested from the water we consume.

Chorus: Fold one, two, three, four.

All bacteria are harvested from the water we consume.

Fold 5, 6, 7, 8.

We make our safe drinking water.

Fold 5, 6, 7, 8.

We make our safe drinking water.

Woman: Here, Dad, an eight-fold cotton saree.

Man: This is a cotton saree.

And this is how we get clean water.

(Applause.) I think it's fair to say that all of us here are deeply concerned about the escalating violence in our daily lives.

While universities are devising conflict solutions and governments are trying to stop border skirmishes, we are surrounded by violence, be it street riots or domestic violence, teachers beating students to death for not doing their homework, violence is everywhere.

So why don't we do something to actually address the problem every day?

What are we doing to help children and young people understand that violence is something we indulge in, that we can stop it, that there are ways to experience it, to accept our anger, and to deal with our frustrations in other ways that do not harm others?

Well, here is one such method.

(Video) (Laughter) You are peaceful people.

Your parents were peaceful people.

Your grandparents were peaceful people.

Was there so much peace in one place?

How could it be otherwise?

(music) But if...

yes. what if ...

Did a little gene in you try to get over it?

From its beginnings in Africa, generation after generation, your creations may be passed on to you. It's a secret impulse hidden deep within you.

And if it's in you, it's in me too. oh dear.

That's why you hit your baby brother, step on a cockroach, and scratch your mother.

It's the feeling that comes up from the bottom of my heart when my husband comes home drunk and wants to tan his skin.

I want to kill people on their bikes on the way to work, and I want to tie up your cousin because she's such an asshole. oh dear.

And as for outsiders, whether white, black, or brown, they tar and feather them out of town.

It's that little gene. It's small and mean.

too small to detect. This is a built-in protection.

Adrenaline, kill it. It gives you will.

Yes, you can't replace it, so you'd better face it.

You are V-I-O-L-E-N-T.

Because you're either a victim like me, or you're on top.

Goodbye, Abraham Lincoln.

Farewell, Mahatma Gandhi.

Goodbye, Martin Luther King.

Hello, this neighborhood gang is killing that neighborhood gang.

Hello, rich country governments who sell arms to poor country governments who can't afford to feed them.

Hello civilization. Hello 21st century.

please look...

look what they did

(Applause.) Film, as a mainstream art, has been used around the world to talk about social issues.

A few years ago, there was a movie called "Rang De Basanti" that suddenly spawned thousands of young people who wanted to volunteer for social change.

In Venezuela, one of the most popular melodramas features the heroine Krystal.

And when Krystal got breast cancer on screen, another 75,000 young women went for mammograms.

And of course, "The Vagina Monologues" as we know them.

And there are stand-up cartoonists who talk about racial and ethnic issues.

So if we all think we need a better world and we all agree that we need a fairer world, why not use the only language that has consistently shown that we can break down barriers and reach out to people?

To planners, governments and strategists around the world: "You have treated art like an afterthought.

It should be yeast. ”

Because, whatever the future plans, if we want to get there in 2048, unless art works with scientists, economists, and everyone preparing for the future, we won't get there at all.

And it won't happen unless this is actually internalized.

So what do we need? What do we need?

We need to shatter our vision of what a planner is and what the right path is.

And all along, we've tried to make the world a better place, and we've failed.

More and more people are being raped. There are more wars.

More and more people are dying from simple things.

Therefore, something must be given. And that's what I want.

May I have the final audio track?

Once upon a time there was a princess who played a beautiful whistle.

(whistling) Her father, the king, said, "Don't whistle."

Her mother, the Queen, said, "Hi, don't whistle."

But the princess kept whistling.

(whistling) Years passed, and the princess grew into a beautiful young woman and whistled even more beautifully.

(Whistling) Her father the King said, "Who will marry a whistling princess?"

Her mother, the Queen, said, "Who will marry a whistling princess?"

But the king had an idea.

He announced Swayanvara.

He invited all the princes to whistle and beat his daughter.

"Whoever defeats my daughter will get half of my kingdom and her right to marry!"

Soon the palace was filled with whistling princes.

(whistling) Some were whistling a lot.

Some people were good at whistling.

But no one could beat the princess.

"Now what shall we do?" said the King.

"Now what shall we do?" said the Queen.

But the princess said, "Father, mother, don't worry.

I have an idea. I am going to go see each one of these young men and ask if they have been rightly defeated.

And if someone answers, that's my wish. ”

So she went to each and said, "Do you admit that I beat you?"

And they said, "Me? Did I lose to the woman?

No way! No no no no no! it is not possible. "

At last a prince said, "Princess, I admit that you beat me."

“Hmm…” she said.

"Father, mother, this person will be my wife."

(Whistling) Thank you.

(applause)

As an Indian, and now as a politician and government minister, I have become quite concerned about the hype we hear about our country, that India will become a world leader or even the next superpower.

In fact, the American publisher of my book Elephants, Tigers and Mobile Phones added the gratuitous subtitle "India: The Next 21st Century Powerhouse".

And I don't think that's what India is all about, nor should it be.

In fact, what worries me is that the whole concept of world leadership seems awfully old-fashioned to me.

It reminds me of James Bond movies and Kipling ballads.

After all, what is a world leader?

When it comes to population, we're going to top the charts.

It will overtake China by 2034.

military power? Well, we have the fourth largest military in the world.

Is it nuclear capability? we know we have it

The Americans also acknowledged it in the agreement.

economy? Well, we are now the fifth largest economy in the world by purchasing power parity.

And we continue to grow. We grew 6.7% last year when the rest of the world struggled.

But somehow, I think all of them can aspire to make India truly serve the world in this part of the 21st century.

So I wondered if it is the combination of these and others, the power of example, the charm of Indian culture, or what people like to call 'soft power', that will guide India's future.

Soft power is a concept invented by a Harvard academic and a friend of mine, Joseph Nye.

And very simply, I'm keeping it really short here because of time constraints, but essentially it's a country's ability to attract other countries with its culture, its political values, its foreign policy.

And as you know, many countries are doing this. He originally wrote about America, but we know that Alliance Française is all about French soft power, the British Council.

The Beijing Olympics were an exercise in China's soft power.

The American has a Voice of America and a Fulbright Scholarship.

But the fact is that perhaps Hollywood and MTV and McDonald's have done more for America's soft power around the world than any concrete government action.

So soft power is something that really shows up, partly because of governments, partly in spite of governments.

And in the information age we all live in today, the so-called TED age, it can be said that countries are becoming more and more valued by the world's masses, who have been fed endlessly with internet news, television footage, cell phone videos, and email gossip.

In other words, communication devices of all kinds tell us their country's story, whether or not the country concerned wants its people to hear it.

Now, even in this day and age, countries with access to multiple communication channels and information have particular advantages.

And of course they sometimes have more influence over how they are seen.

India has more TV channels dedicated to news than any other country in the world, in fact more than most countries in the region combined.

But that's not all.

To get soft power, you have to be connected.

Some might argue that India has become an amazingly connected nation.

You've probably heard the numbers before.

We sell 15 million mobile phones every month.

Currently, 509 million mobile phones are in Indian hands in India.

As a result, the phone market is larger than the United States.

In fact, 15 million mobile phones is the largest number of connections any country, including the United States and China, has established in the history of telecommunications.

But what some of you probably don't realize is how far we've come to get there.

When I was growing up in India, phones were a rarity.

In fact, they are so rare that elected members of parliament had the right to allocate 15 telephone lines as a favor to those they deemed worthy.

If you are lucky enough to be a wealthy businessman, an influential journalist, or a doctor, you may have a phone.

But sometimes it just sits there.

I went to high school in Calcutta.

And we looked at this instrument on our front door.

But when we pick up the phone with anticipation, half the time we don't hear a dial tone.

If you get a dial tone and dial a number, there is a 2 in 3 chance that you will not be able to connect to the intended number.

In fact, the words "I have a different number" were more popular than the words "Hello".

(Laughter) Then if you want to connect to another city, say you want to call Delhi from Calcutta, you have to book what is called a trunk call and then sit by the phone all day waiting for it to ring.

Alternatively, you can pay 8 times the normal rate for something called Lightning Call.

But in those days, thunder struck rather slowly in our country, so it took about half an hour before we heard the thunder.

In fact, our telephone service was so bad that in 1984 a member of parliament stood up and complained about it.

Then the Minister of Communications at the time politely replied that in developing countries, telecommunications is a luxury, not a right, that the government is not obliged to provide better services, and that if honorary members are not satisfied with their phones, they can return them, because in India people have been waiting for calls for eight years.

Now, fast forward to today and here's what we see. There are 15 million mobile phones per month.

But the most surprising thing is who carries those cell phones around.

Visit a friend's house on the outskirts of Delhi and you'll meet him on a side street in a cart that looks like it was designed in the 16th century, brandishing a coal-burning steam iron thought to have been invented in the 18th century.

He is called Isri Walla. But he has a 21st century instrument.

He carries a mobile phone because most calls are free, so he gets orders from neighbors to tell him where to collect clothes to iron.

The other day I was at a friend's rural farm in my home state of Kerala. It is about 20 kilometers away from what is considered a city.

It was a hot day, so he said, "Would you like some fresh coconut water?"

And I said sure because it's the most nutritious and refreshing drink, perfect to drink on a hot day in the tropics.

Then he took out his cell phone, dialed the number, and heard a voice say, "Here I am."

And just above the nearest coconut tree, a local Toddy Tupper with a machete in one hand and a cell phone in the other, began dropping coconuts for us to drink.

Fishermen are out at sea with mobile phones.

When they catch a fish, they call every market town along the coast to find out where they can get the best price.

Farmers today had to spend half a day of painstaking labor to find out if the market town was open, if the market was open, if the products they harvested could be sold, and at what price.

They would often send an 8-year-old boy on the tracker to a market town for information, then come back and load the wagon.

A two-minute phone call now saves half a day of labor.

So this underclass empowerment is a real result of India being connected.

And that transformation is part of the direction India is heading today.

But of course, it's not the only one that's prevalent in India.

You have Bollywood. My attitude towards Bollywood is best summed up in the story of two goats nibbling on discarded celluloid cans from a Bollywood studio in a Bollywood dump. Mr. Shekhar Kapoor, please forgive me.

And the first goat chews it up and says, "Look, this movie isn't bad."

The second goat then says, "No, the book was better."

(Laughter) I usually tend to think this book is better, but the fact is that Bollywood is now presenting certain aspects of Indianness and Indian culture around the world, not only to the American and British Indian diaspora, but also to Arabs, Africans, Senegalese and Syrian screens.

In New York, I met a young man whose illiterate mother from a village in Senegal took a bus to Dakar, the capital, once a month just to watch a Bollywood movie.

She doesn't understand the conversation.

She is illiterate and cannot read French subtitles.

But these movies are made to be understandable despite such a handicap, and she has a great time singing and dancing and in action.

As a result, she left India with a twinkle in her eye.

And this is happening more and more.

Afghanistan, we know how serious a security problem Afghanistan is for many people in the world.

India has no military mission.

Do you know what was India's biggest asset in Afghanistan in the last 7 years?

There is one simple fact. You cannot call an Afghan at 8:30 at night.

why? It was the moment when the Indian TV soap opera "Kyunki Saas Bi Kabi Bahu Thi" (dubbed in Dari) was aired on Toro TV.

And it was the most popular TV show in Afghan history.

Every family in Afghanistan wanted to see it.

They had to call off the event at 8:30.

The wedding was reportedly interrupted for guests to gather around the television and then return their attention to the bride and groom.

Crime increased at 8:30. I have read Reuters, which is not Indian propaganda or British news agency, but that robbers in the town of Mussari Sharif\* stripped the car of its wipers, hubcaps, side mirrors and all moving parts at 08:30. Because the lifeguards were busy watching TV without worrying about the store.

He then scribbled "Long live Tulsi" on the windshield after the show's heroine, Tulsi Zindabad.

(laughs) That's soft power. And that's what India is developing through the "E" part of TED, its own entertainment industry.

Of course the same applies. I don't have time to give more examples, but it applies to our music, dance, art, yoga, Ayurveda and even Indian cuisine.

So, Indian restaurants have exploded since the mid-70s when I first went abroad as a student. And what I see today is that you can't find an Indian restaurant in any medium-sized town in Europe or North America. It may not be very good.

But in England today, for example, Indian restaurants employ more people than coal mining, shipbuilding and steel industries combined.

Then the empire will be able to fight back.

(Applause.) But with yoga, Ayurveda, and stories like Afghanistan, the growing awareness of India has created essentials for the information age. In today's world there is a sense that it is not the side with the bigger military that wins, but the nation that tells the better story.

In my view, India is, and should continue to be, the land of better stories.

Stereotypes are changing. In other words, I went to America again.

As a student in the mid-70s, I knew what the image of India was like back then, if there was one.

Today, people in Silicon Valley and elsewhere speak of IIT, the Indian Institute of Technology, with the same reverence they once had for MIT.

This can have unintended consequences. OK.

A friend of mine, who is also a history major, was approached at Amsterdam Airport Schiphol by a worried, sweaty European who said, "Indian, Indian! Can you help me fix my laptop?"

(Laughter) We have gone from an image of India as a land of fakir lying on a bed of nails, a land of snake charmers using Indian rope tricks, to an image of India as a land of math geniuses, computer wizards and software gurus.

But it is also changing the story of India around the world.

But there is more to it.

This story rests on the basic foundations of political pluralism.

First of all, it's about civilization.

Because India has been an open society for thousands of years.

India is said to have given refuge to the Jews who escaped the destruction of the first temple by the Babylonians, which was then destroyed by the Romans.

In fact, legend has it that around 52 AD, when the Apostle St. Thomas, who doubted Thomas, landed on the shores of my home state of Kerala, he was welcomed on the beach by a Jewish girl playing a flute.

And to this day, it remains the only Jewish diaspora in Jewish history that has never encountered an incident of anti-Semitism.

(Applause) That's the story of India.

Islam spread peacefully to the South and had a slightly different and more complicated history in the North.

However, all these religions have found a place in India and are welcomed.

As you know, this year we celebrated the greatest democratic franchise movement in human history: the General Election.

And as our voting population continues to grow by 20 million people a year, the next election will be even bigger.

However, in reality, the last election five years ago saw the victory of Sonia Gandhi, an Italian-born Roman Catholic female political leader, who then gave way to Mohan Singh, a Sikh, to become Prime Minister of a country of 81% Hindus, in which Muslim President Abdul Kalam became prime minister.

(Applause.) Of course, it's even more shocking, because this is India, and the more than 220 years of free and fair elections that last year took to elect a president and vice president who were not white, male, or Christian, and four years later we all applauded the United States, the oldest democracy in the modern world.

I mean, maybe -- I'm sorry, he's a Christian, excuse me -- and he's male, but he's not white.

All others were all three.

(Laughter) All his predecessors were all three. That's what I meant.

(Laughter.) But the problem is, when I talk about that example, it's not just about India, it's not propaganda.

Because, after all, that election result has nothing to do with the rest of the world.

It was essentially India itself.

And in the end, it always seems to work better than propaganda.

Governments are not very good at telling stories.

But people see society as it is, and it seems to me that that's what will ultimately make a difference in today's information age, today's TED age.

So India is no longer ethnic, linguistic and religious nationalism. Because India has every ethnic group known to mankind and virtually every religion known to mankind except Shinto. However, there is an element of Hinduism in it somewhere.

There are 23 official languages ​​recognized by our constitution.

And those who have redeemed their money here may be surprised to see how many denominations are printed on rupee banknotes.

we have it all

We can't even unite us by geography because the subcontinent's natural topography, surrounded by mountains and seas, was destroyed by the partition with Pakistan in 1947.

In fact, the name "India" comes from the Indus River that flows through Pakistan, so the country's name cannot be taken for granted.

But the point is that India is ideological nationalism.

It is the idea of ​​an eternal land born of ancient civilizations, united by a shared history, and above all maintained by a pluralistic democracy.

It's a 21st century story, but it's also an old story.

And it is essentially the nationalism of the idea that differences of caste, creed, color, culture, cuisine, customs and dress, consonants, etc. can be tolerated and still rally on consensus.

And the consensus is based on a very simple principle: in a diverse pluralist democracy like India, you don't always have to agree on everything as long as you agree on basic rules about how to disagree.

India's great success story in the 50's and 60's, a country that so many learned scholars and journalists predicted would collapse, was its ability to maintain consensus on how to survive without it.

That is India, which is now emerging towards the 21st century.

And I would like to emphasize that if there is one thing about India that is worth admiring, it is not its military or economic strength.

All that is necessary, but there are still many challenges to overcome.

Someone said we are super poor, but we are also super powers.

We really can't be both.

We must overcome poverty. We have to deal with the hardware of development, the ports, the roads, the airports, all the infrastructure that we need to do, and the software of development, the human capital, the need for the average Indian to eat a decent meal two or three times a day, to send their children to decent schools, and to aspire to a job that gives them a life opportunity to transform themselves.

But it's all happening, this great adventure overcoming those challenges, real challenges that none of us can pretend to exist.

But it's all happening in an open society, a rich and diverse pluralistic civilization, a society determined to unleash and fill the creative energies of its people.

That's why India belongs to TED, that's why TED belongs to India.

thank you very much.

(applause)

As you know, one of the intense pleasures of travel, and one of the pleasures of ethnography, is the opportunity to live among people who remember the old ways, who still feel the past in the wind, touch rain-polished stones, and taste it in the bitter leaves of plants.

To know that jaguar shamans still travel beyond the Milky Way, that the myths of the Inuit elders still resonate with meaning, and that Buddhists in the Himalayas still seek the breath of dharma is a true reminder of a central revelation in anthropology. It is the idea that the world we live in does not exist in some absolute sense, but is merely a model of reality, the result of a series of successful adaptive choices made by our lineage. generations ago.

And of course, we all share the same adaptive mandate.

We are all born. We all bring our own children into this world.

We go through an initiation ceremony.

We have to deal with the unforgiving goodbye of death, so it's no surprise that we all have singing, dancing, and art together.

But what is interesting is the unique rhythms of songs and dances in every culture.

And whether it's Penan in the forests of Borneo, voodoo cultists in Haiti, warriors in the Kaist desert of northern Kenya, Curandero in the Andes, or a caravanserai in the middle of the Sahara, by the way, this is the fellow I traveled with in the desert a month ago, or indeed the yak herders on the slopes of Everest, Qomolangma, mother of the world.

All of these people teach us that there are other ways to live, think differently, and look in other directions on Earth.

And this is an idea that can only be filled with hope when you think about it.

Today, the myriad cultures of the world come together to form a web of spiritual and cultural life that envelops the planet and is as important to the well-being of the planet as the biological web of life known as the biosphere.

One might then think of this web of cultural life as an ethnosphere, defining it as the sum total of all the thoughts, dreams, myths, ideas, inspirations and intuitions that have been brought to bear by the human imagination since the dawn of consciousness.

Ethnic spheres are the great heritage of mankind.

It is a symbol of all that we are and all that we can be as an amazingly curious race.

And just as the biosphere is being severely eroded, so is the ethnosphere, and if anything, at a much faster rate.

No biologist, for example, would dare to suggest that more than 50% of all species are already extinct or threatened with extinction. Because it simply isn't true. But this scenario, the most apocalyptic scenario in the realm of biological diversity, falls short of what we know to be the most optimistic in the realm of cultural diversity.

And the big indicator of that is, of course, language loss.

When you in this room were born, there were 6,000 languages ​​spoken on Earth.

Now, language is not just a collection of vocabularies or a set of grammatical rules.

Language is the brilliance of the human spirit.

It is the means by which the soul of each particular culture enters the material world.

Every language is a forest, a watershed, an idea, an ecosystem of spiritual possibilities for the mind.

And as we sit here in Monterey today, a full half of those 6,000 languages ​​are no longer whispered in children's ears.

They are no longer taught to babies. So, effectively, they are already dead unless something changes.

What could be sadder than to be silenced, to be the last nation to speak their language, to have no way of passing on the wisdom of their ancestors, or expecting the promises of their children?

But that dreadful fate certainly hits someone's plight somewhere on Earth almost every two weeks. For every two weeks an elder dies and brings back to the grave the last syllable of an ancient language.

And I think some of you will say, "Wouldn't it be better, wouldn't the world be a better place if we all spoke one language?" And I say, "Great, let's make that language Yoruba. Let's make it Cantonese."

Let's go Kogi. ”

And suddenly you will know what it is like not to speak your own language.

So what I want to do with you today is take you on a journey through the ethnosphere, a short trip through the ethnosphere, and try to get a sense of what is really being lost.

Now, many of us forget that when I say "various ways," I really mean different ways.

For example, consider the child of Balasana in the northwestern Amazon. The Anaconda people mythically believe that they migrated up the Milk River from the east in the belly of a sacred snake.

Now, this is a people who perceptually do not distinguish between the colors blue and green, because the canopy of heaven is equated with the canopy of the forest upon which people depend.

They have a strange language and marriage rule called "Linguistic Intermarriage" where they must marry someone who speaks a different language.

And while this is all rooted in a mythical past, oddly enough, in this long house, six or seven languages ​​are spoken due to mixed marriages, yet I have never heard of anyone practicing a language.

They just listen and then start talking.

Or one of the most fascinating tribes I have ever lived with, the Huaorani of northeastern Ecuador, an amazing people I first made peaceful contact with in 1958.

In 1957, five missionaries attempted contact and made a grave mistake.

They forgot that the people of the rainforest had never seen anything two-dimensional in their lives, and in what could be described as a friendly gesture, dropped an 8x10 glossy photo of themselves from the air.

They picked these pictures off the forest floor and tried to look behind faces for shapes and figures, but found nothing. and concluded that these were business cards from the devil, and speared five missionaries to death.

But the Huorani didn't just attack outsiders with spears.

They pointed spears at each other.

54 percent of their deaths were due to them spearing each other.

We traced the family tree back eight generations and found two cases of natural death, so we put a little pressure on the people about it and they admitted that one of them was too old and died of old age, so they speared him anyway. (Laughter.) But at the same time, they had a keen knowledge of the amazing forest.

Their hunters could smell an animal's urine 40 paces away and tell me which species left it.

In the early 1980s, when a Harvard professor asked me if I was interested in going to Haiti to infiltrate the secret society that was the foundation of Duvalier and Tonton Macuto's strength and secure the poison to create zombies, I was given a truly astonishing task.

Of course, in order to make sense of it, I had to understand something about this amazing faith of Vodun. And voodoo is not a black magic cult.

On the contrary, it is a complex metaphysical worldview.

That's interesting.

Christianity, Islam, Buddhism, Judaism, whatever.

Given that sub-Saharan Africa had no religious beliefs, one continent is always left behind. Of course they did, and voodoo is just a distillation of these very profound religious ideas that were transmitted during the tragic diaspora of the slavery era.

But what makes voodoo so interesting is that it is a living relationship between the living and the dead.

In other words, the living give birth to spirits.

Spirits are summoned from beneath the great waters and can react to the rhythm of the dance to temporarily replace the souls of the living, making the acolytes gods for a brief glowing moment.

That's why voodoos say, "You white people go to church and talk about God.

We dance in the temple and become gods. ”

And because you are possessed, you are possessed by spirits - how can you be hurt?

So you see these amazing demonstrations: a voodoo devotee in a trance dealing with burning embers with impunity. This is a rather amazing demonstration of the ability of the mind to influence the body to withstand it when catalyzed by extreme excitement.

Now, of all the peoples I've spent time with, the most special is the Kogi of the Sierra Nevada de Santa Marta in northern Colombia.

Descendants of the ancient Tayrona civilization that once carpeted the Caribbean Plains of Colombia, these peoples retreated to the isolated volcanic massifs that tower over the Caribbean Plains after their conquest.

These were the only peoples on a bloody continent that were never conquered by the Spaniards.

To this day they continue to be ruled by the ceremonial priesthood, but their training for the priesthood is quite extraordinary.

The young acolytes are separated from their families at the ages of 3 and 4 and sequestered for 18 years in a world of darkness and shadow in stone huts at the foot of the glacier. The two nine years were deliberately chosen to mimic the nine months of gestation in a natural mother's womb. Now they are figuratively in the womb of the Great Mother.

And all this time they have been instilled with the values ​​of society, values ​​that maintain the proposition of maintaining cosmic balance, or ecological balance, through their prayers and their prayers alone.

And at the end of this wondrous initiation, one day they are suddenly brought out to see the sunrise for the first time in their lives at the age of eighteen. And in that crystalline moment when the sun begins to shine on the slopes of a stunningly beautiful landscape, and in that crystalline moment of awareness of the first light, suddenly all that they have learned in the abstract is confirmed in astonishing glory. And the priest stepped back and said, "You see? It's exactly what I told you.

That's so beautiful. that's what you protect. ”

They call themselves "older brothers" and claim that it is us, the younger brothers, who will destroy the world.

Now this level of intuition becomes very important.

When we think of indigenous peoples and landscapes, we either cite Rousseau or the old Canard, the racist notion of “noble savages” simply, or Thoreau, arguing that these peoples are closer to the earth than we are.

Well, indigenous people aren't sentimental, nor are they vulnerable to nostalgia.

Neither the malaria swamps of Asmat nor the cold winds of Tibet have much room for them, yet they have, through time and ritual, crafted the traditional mysteries of the Earth. The mystery is based not on the idea of ​​consciously approaching the Earth, but on a far more subtle intuition. The idea is that the Earth itself can only exist because it is imbued with human consciousness.

Now what does that mean?

It means that a young child in the Andes who is raised to believe that the mountain is the Apu spirit that guides his destiny will be a very different person, and will have a different relationship to the resource and the place, than a child in Montana who is raised to believe that the mountain is a pile of rocks ready to be mined.

It doesn't matter if it's a spirit abode or an ore pile.

Of interest are the metaphors that define the relationship between the individual and the natural world.

I grew up in the forests of British Columbia and believed that forests existed to be cut down.

That made me a different person than my Quagiurus friends who believe these forests are the dwelling place of the Huxfuk, the Crooked Beak of Heaven, and the spirits that must commune during the initiation of Hamazza, the cannibal spirit of the far north of the world.

Now, when we begin to pay attention to the idea that these cultures can create different realities, we can begin to understand some of the surprising discoveries. Please bring this plant here.

This photo was taken in the northwestern part of the Amazon last April.

This is the ayahuasca that many have heard of and is the most powerful psychoactive agent in the shaman's repertoire.

What makes ayahuasca so appealing is not the pure pharmacological potential of this formulation, but its sophistication. It's actually made from two different sources. On the other hand, the vines of this tree contain a series of beta-carbolines, harmine and harmaline, which have mild hallucinogenic effects. When vines are ingested on their own, a rather blue haze of smoke wafts through consciousness. However, it is mixed with the leaves of a coffee shrub called Psychotoria viridis.

This plant contained a very potent tryptamine, very close to brain serotonin, dimethyltryptamine and 5-methoxydimethyltryptamine.

If you've ever seen a Yanomami sniffle, you know that the substance they make from another species also contains methoxydimethyltryptamine.

Having gunpowder blown up your nose is more like being shot out of the barrel of a rifle lined with baroque paintings and landing in a sea of ​​electricity. (Laughter) It doesn't create a distortion of reality. It creates a dissolution of reality.

In fact, I used to argue with my professor, Richard Evan Schultz (who started the psychedelic era when he discovered magic mushrooms in Mexico in the 1930s), and I used to argue that tryptamines can't be classified as hallucinogens, because by the time you're affected, there's no one in your house to hallucinate anymore. (Laughter) But the thing about tryptamine is that it cannot be taken orally because it is denatured by an enzyme that is naturally present in the human gut called monoamine oxidase.

May be taken orally only when combined with other chemicals that denature MAO.

Now, what's interesting is that beta-carboline, found in the liana, is the exact type of MAO inhibitor needed to boost tryptamine. So you ask yourself.

How did these people find these two morphologically unrelated plants that, in a flora of 80,000 species of vascular plants, thus combined create a kind of biochemical version of the whole that is greater than the sum of its parts?

Now, we use the great euphemism "trial and error", but it turns out to be meaningless.

But ask the Indians, and they'll say, "Plants speak to us."

Now what does that mean?

This tribe, the Cofans, has 17 different species of ayahuasca, all of which are found far away in the forest and are all recognized by our eyes as one species.

And when I ask them how they establish their taxonomy, they say, "I thought you knew something about plants.

I mean, you don't know anything? and I said no.

Ingesting each of the 17 varieties on a full moon night was found to sing in a different key.

Well, then you can't get a PhD. At Harvard, it's much more interesting than counting stamens. (Laughter) Now -- (applause) -- the problem is -- the problem is that even those of us who sympathize with the plight of indigenous peoples see them as quaint and colorful, but somehow get relegated to the margins of history as the real world, our world, moves on.

Well, the truth is, 300 years from now, the 20th century will be remembered not as warfare or technological innovation, but as a time of standing by, actively supporting or passively accepting the massive destruction of both the biological and cultural diversity of the planet. Well, the problem hasn't changed.

All ages and cultures have always engaged in dance with new possibilities for life.

And the problem is not the technology itself.

Just as Americans gave up their wagons and ceased to be Americans, the Sioux Indians gave up their bows and arrows to remain Sioux.

It is not change or technology that threatens the integrity of the ethnosphere. It is power, the crude side of domination.

No matter where you look in the world, you can see that these cultures are not destined to disappear. These are dynamic living peoples whose existence is being driven out by identifiable forces beyond their capacity to adapt. Whether it's the terrible deforestation in the homeland of the Penan or the nomads of Southeast Asia and Sarawak, who a generation ago lived free in the forest, now all have fallen into slavery and prostitution on the banks of the river, and we find the river itself polluted with silt that supposedly carries half of Borneo. Heading to the South China Sea, where Japanese cargo ships light up the horizon, preparing to fill their holds with raw logs cut from the forest—or, in the case of the Yanomami, a diseased entity that has invaded in the wake of the gold discovery.

Or, if you go into the mountains of Tibet, where I've been doing a lot of research lately, you'll see the cruder side of political dominance there.

As you know, genocide, the physical extermination of people, is widely condemned, while ethnogenocide, the destruction of people's way of life, is not only not condemned, but is widely and widely celebrated as part of development strategies.

And the pain in Tibet cannot be understood without actually experiencing it.

I once traveled 6,000 miles overland with a young colleague from Chengdu in western China through southeastern Tibet to Lhasa, and it was not until I got to Lhasa that I understood the face behind the statistics you were hearing. That is, 6,000 sacred monuments torn to dust and ash, and 1.2 million people murdered by cadres during the Cultural Revolution.

The young man's father was believed to be the Panchen Lama.

That means he died instantly during the Chinese invasion.

His uncle fled with the pope during the dispersion that took the people to Nepal.

His mother was imprisoned for being wealthy.

He was smuggled into prison at the age of two to hide under the hem of her skirt because she couldn't live without him.

The sister who performed that courageous act was placed in an education camp.

One day, she accidentally stepped on Mao Zedong's armband and was sentenced to seven years of hard labor for the crime.

The pain in Tibet may be excruciating, but the people's spirit of redemption is remarkable.

Ultimately, it comes down to whether we want to live in a monotonous, monochromatic world or embrace a diverse, multicolored world.

The great anthropologist Margaret Mead, before she died, said that her greatest fear was that as we drifted toward this bland, amorphous and general worldview, not only would we see the full spectrum of human imagination reduced to narrower modes of thought, but that we would one day wake up from our dreams forgetting even other possibilities.

And it is humbling to remember that our species has probably been around for [150,000] years.

The Neolithic Revolution -- it brought us agriculture, but then we succumbed to seed worship. Shermanic poetry gave way to priesthood prose. We created a surplus of hierarchical specializations only 10,000 years ago.

The modern industrial world as we know it is only 300 years old.

Now, that shallow history does not suggest that we have all the answers to all the challenges we will face in the next few thousand years.

When countless cultures around the world are asked what it means to be human, they answer with 10,000 different voices.

And in that song we all rediscover our potential to be who we are. A species that is fully conscious and fully aware to find a way to ensure that all people and all gardens thrive. And there are also great moments of optimism.

This photo was taken on a narwhal hunt on the northern tip of Baffin Island with Inuit people. A man named Olayuk told me a wonderful story about his grandfather.

The Canadian government has not always been kind to the Inuit people, forcing them to settle in the 1950s to establish sovereignty.

This old man's grandfather refused to go.

Fearing for his life, his family confiscated all his weapons and tools.

Now, we must understand that the Inuit were not afraid of the cold. they took advantage of it.

Sled runners were originally made of fish wrapped in caribou skin.

In other words, this man's grandfather was not frightened by the Arctic night or by the snowstorm that was blowing.

He just went outside, pulled down his seal pants and pooped on his hand. And as the feces began to freeze, he molded it into the shape of a blade.

He sprayed the edge of the fucking knife with saliva, and when it finally hardened, he slaughtered the dog with it.

He skinned the dog to make a makeshift harness, took the dog's ribcage to make a makeshift sled, put the harness on to the next dog, and disappeared onto the ice floe with a knife around his belt.

Talk about living with nothing. (Laughter) And this is in many ways -- (applause) -- a symbol of resilience for the Inuit people and for all indigenous peoples around the world.

In April 1999, the Canadian government returned to full Inuit control over an area larger than California and Texas combined.

It's our new home. It's called Nunavut.

It's an independent territory. They control all mineral resources.

It is a striking example of how a nation-state can seek reparations with its people.

And finally, I think it should be clear, at least for all of us who have traveled to the farthest reaches of the planet, that they are far from the frontiers.

They are someone's hometown.

They represent branches of the human imagination that go back to time immemorial. And for all of us, these children's dreams, like our own children's dreams, become part of the geography of naked hope.

So what we're trying to do at National Geographic is, ultimately, we believe that politicians never achieve anything.

We believe controversy is unconvincing, but we believe storytelling can change the world. Therefore, we consider ourselves perhaps the best storytelling agency in the world. Our website receives 35 million hits every month.

Our TV channels are broadcast in 156 countries.

Our magazine is read by millions.

And what we're doing is a series of trips into the ethnosphere, taking viewers to places of cultural wonder and having to walk away blinded by what they see. So, hopefully, we will gradually accept the central revelation of anthropology that this world deserves to exist in many ways, that we can find ways to live in a truly multicultural and pluralistic world where all of the wisdom of all peoples can contribute to our collective well-being.

thank you very much.

(applause)

One morning in 1957, neurosurgeon Wilder Penfield saw himself as a strange freak with big hands, a big mouth, and a small butt.

This creature is actually the result of Penfield's research.

He named it Homunculus.

Basically, a homunculus is a visualization of a human being, with body parts proportional to the surface of the brain.

So, of course, homunculus are by no means weirdos.

That is you. that's me

It is our invisible reality.

This visualization might explain, for example, why newborns and smokers instinctively put their fingers in their mouths.

Unfortunately, I cannot explain why so many designers remain primarily interested in chair design.

Anyway, I don't fully understand science, but design basically references science.

I am fascinated by its ability to delve into humans, how they work and how they feel.

And it really helps us understand how we see, how we hear, how we breathe, how our brain informs us or misleads us.

This is a great tool for understanding our real needs.

Marketers couldn't do that.

Marketing reduces things. Marketing is simplified.

Marketing creates user groups.

And scientists are in the midst of complexity, variation and uniqueness.

What are our real needs?

Maybe silence.

We are constantly annoyed by aggressive sounds in our daily life.

And such sounds put us into a kind of stressful state and prevent us from quietly concentrating.

So I wanted to create a kind of sound filter that could protect me from noise pollution.

But I didn't want to isolate people by not using earmuffs or anything like that.

Alternatively, they may not use complex technology.

I just wanted to take advantage of the complexity and technology of the human brain.

So I worked with white noise.

dB is basically -- dB is the name of the product, basically a white noise diffuser.

This is white noise.

White noise is the sum of all frequencies audible to humans with equal intensity.

And this sound is like "shush".

And this noise is the most neutral.

It's the perfect sound for our ears and brain.

Therefore, listening to this sound feels like a kind of shelter from noise pollution.

Listen to white noise and your brain will immediately focus on it.

Don't be fooled by other aggressive sounds anymore.

It's like magic.

But it's just a physiological phenomenon. it's only in your brain.

And I hope so too.

So, to make this white noise a little more active and reactive, I created a ball, a spinning ball, that can analyze and find where aggressive sounds come from, roll towards an aggressive noise at home or work, and emit white noise to neutralize it.

(Laughter) It works.

Feel the effect of white noise?

It's in silence too.

If you make a little noise, you can feel the effect.

Therefore, even if this object contains some technology in this product, including speakers, microphones, electronic devices, this object is not a very smart object.

And I don't want to create very smart objects.

I don't want to make a perfect object like a perfect robot.

I want to create objects like you and me.

So it's never perfect.

For example, imagine you are at home.

A loving dispute with a girlfriend or boyfriend.

you scream You say, ``blah blah, blah blah, who is this guy?''

And dB will probably roll towards you.

And when I turn around, it feels like "Shhh".

(Laughter) It's certainly not perfect. So it's probably closed at this point.

(laughs) Anyway, I designed K with a similar approach.

K is the daylight receiver transmitter.

Therefore, this object is intended to be displayed on the desk or piano where you spend most of your time.

And this object can know exactly how much light it receives during the day and can give it the amount of light it needs.

This object is completely covered with optical fibers.

And the idea of ​​these optical fibers, certainly to give information to the object, creates the idea of ​​the eye's perception of the object.

I instinctively want the feel of this design to make this object look very responsive, very reactive when you look at it.

And this object knows better than you, and perhaps sooner than you, what you really need.

You should know that lack of sunlight can cause energy problems and libido problems.

So we had a big problem.

(Laughter) Most of the projects I work on live in collaboration with scientists.

I'm just a designer. That's why I need them.

So there could be biologists, psychiatrists, mathematicians, etc.

And I submit my intuitions, hypotheses, and initial ideas.

and they react. They told me what was possible and what was not possible.

And together we will improve the original concept.

and build the project to completion.

And this kind of relationship between designer and scientist started when I was a student.

In fact, when I was in school, I was a guinea pig in the pharmaceutical industry.

And ironically for me, of course, I didn't do it for the sake of scientific progress.

I'm just doing it to make money.

Anyway, this project, or this experience, made me start a new project on medical design.

Today, you need to know that roughly one or two pills are not taken correctly.

Thus, patient behavior becomes increasingly erratic, even as pharmaceutical active ingredients continue to advance in terms of their chemistry, which is the goal of stability.

So we took too many of them.

I took irregular clothes.

We do not follow instructions. and so on.

So I wanted to create a new kind of drug to create a new kind of relationship between patient and treatment.

So I changed the conventional pills to this one.

Here are some examples.

This is an antibiotic.

The goal is to help patients progress through treatment.

And the concept is to create a kind of onion, a kind of layered structure.

So start with the darkest.

You can also visualize treatment duration.

And it helps to visualize the reduction of infection.

Day one, this is the big day.

And you have to peel and eat one piece a day.

And the antibiotic becomes smaller and more transparent.

And you're waiting for recovery like you've been waiting for Christmas Day.

And continue such treatment until the end of treatment.

And you can get white cores here.

That means you are on your way to recovery.

(Applause.) Thank you.

This is the "third lung", a pharmaceutical device for the long-term treatment of asthma.

Designed for children to receive treatment.

So the idea of ​​this idea is to create a dependency relationship between the patients receiving treatment.

But in this case it is not the drug that the patient depends on.

That is, children will feel that the subject needs him.

The idea is that the elastic skin of the third lung slowly expands overnight to ensure it contains air and molecules.

And when the children wake up, they find that the object needs him. Then take him to your mouth and breathe in the air contained in it.

In this way, the child will take care of this creature in order to take care of himself.

And he no longer feels dependent on asthma treatment because asthma treatment needs him.

(Applause.) In the guise of this approach to living objects, I like the idea of ​​some sort of invisible design, as if the functionality of the object resides in a sort of invisible field around the object itself.

We could talk about some kind of soul, a ghost that accompanies them.

And it's almost a kind of poltergeist effect.

So when a passive object like this looks alive, it's because it's -- ugh -- moving.

And I remember the exhibition design I made for John Maeda and the Fondation Cartier in Paris.

And John Maeda was planning to show some graphic animations at this exhibition.

And my idea for this exhibit design was to create a real pong game like this one.

Then I had the idea to create some autonomous benches in the main exhibition room.

So the living bench becomes exactly like a ball.

And John was very excited about this idea. He said to me, "Okay, let's go."

I remember the day it opened.

I'm a little late.

When I brought a living room and 10 automatically moving benches into the exhibition room, John was right next to me, and I was like, "Hmm, hmm."

And he said to me after a long silence, "Mathieu, people would be more fascinated by your bench than my video."

(Laughter) If he hadn't made the decision to take everyone off two hours before the doors opened, that would be a huge honor and a big compliment to me.

So, a disaster.

It wouldn't surprise me to say that Pinocchio was one of the big influences on me.

Pinocchio is probably one of my best designed products and my favorite.

For it is a kind of object with a conscience, which can be modified by its surroundings and which can be modified.

Another big influence is the mining canary.

In a coal mine, this canary would have been near the miners.

and sang all day long. And if it stops, it means it just died.

So this canary was a living alarm and a very effective alarm.

It's a natural technique for saying to a miner, "The air is bad. We have to go. It's an emergency."

So for me it's a great product.

And I tried to design something like a canary.

Andrea is one of them.

Andrea is a living air filter that absorbs airborne toxic gases and polluted indoor air.

So, to do this job, we use several plants that are chosen based on their gas filtration capacity.

You should know, or probably already know, that indoor air pollution is more toxic than outdoor air pollution.

While I'm talking to you, the seat you're sitting in is emitting an invisible, odorless, toxic gas. Sorry for that. (laughter) So you're breathing formaldehyde right now.

Carpet is the same for me.

And this is exactly the same at home.

This is because every product we get constantly emits the volatile constituents that make up that product.

Now let's take a look at your house.

In other words, sofas, plastic chairs, and children's toys give each of them an invisible reality. And this is very toxic.

This is why I worked with Harvard scientist David Edwards to use that type of plant to create objects that can absorb toxic elements.

But the idea is to force air into the active part of the plant.

This is because the roots of the plant are not very effective.

NASA's Bill Wolverton deftly analyzed it in the 1970s.

So the idea is to create an object that can force air into it and touch all valid parts of the plant at the right speed and in the right place.

This is the final object.

It will be released in September next year.

(Applause.) This is a similar approach. Because products like Andrea contain several botanicals.

And here, plants are used to filter water.

And some fish are also included.

However, unlike Andrea, here we are supposed to eat.

Indeed, this object is a home farm of fish and greenery.

So the idea of ​​this object is to make local food available at home.

Locavore once foraged in a 160-mile radius.

Local River serves food directly in the living room.

So the principle of this object is to create an ecosystem called aquaponics.

And aquaponics is where the dirty water from the fish is fed to the plants above with a water pump.

And the plant filters the dirty water of the fish with its roots.

Then return to the aquarium again.

Then you have two options.

Or sit in front of it, just like you would in front of a TV.

Great channel.

Or start fishing.

Then use the fish and the above aromatic plants to make sushi.

Because you can grow potatoes.

No, not potatoes, but tomatoes, aromatic plants, etc.

Now we can breathe safely.

Now we can eat local food.

Now we can treat with smart medicine.

Now we can balance our biorhythms with sunlight.

But it was important to me to create the perfect place, so I tried to do that in order to work and create.

So I designed a highly stimulating and brain-stimulating office for an American scientist based in Paris.

I wanted to create the perfect place for work and play, where the body and brain work together.

In other words, in this office, you no longer work at your desk like politicians do.

Seat, sleep and play on a large geodesic island made of leather.

See, do you like this?

In this office, instead of working, writing and drawing on paper, you will be painting directly into a giant whiteboard cave like a prehistoric scientist.

You too can play sports while you work.

In this office, you don't have to go out to get in touch with nature.

Bring nature into your office floor.

You can see it there.

This is the inspiration image for leading this project in the office.

It really helped me design.

I never show it to my clients. He would be so scared

(Laughter) Just for my workshop.

It may be revenge on me who was a guinea pig.

But maybe that's what we believe when we're monkeys and homunculus.

We all need to be considered according to our true nature.

thank you very much.

(applause)

I will talk about what I have discovered around the world through my work.

These are not planets or new technology or scientific discoveries.

It is a discovery of people and ways of being, and new leadership.

Benki.

Venki is the leader of the Ashanin nation.

His people live in Brazil and Peru.

Benki hails from a remote Amazonian village that requires a plane to land on the water or a canoe trip of several days to get there.

I met Benki three years ago in São Paulo when I brought him and the indigenous leaders to meet with me and leaders around the world. Because we wanted to learn from each other.

We wanted to share each other's stories.

The Asháninka are known throughout South America for their dignity, spirit and resistance, which continued to use rubber stoppers from the time of the Incas to the 19th century.

The biggest threat to the Ashaninka people and the Benki today is illegal logging. People who come to beautiful forests to cut down ancient mahogany trees and carry them down rivers to markets around the world.

Benki knew that.

He was taken in by his grandfather when he was only two years old and began learning about forests and the way people lived, so he could see what was happening to the forest and the environment.

His grandfather died when he was just ten years old.

At the young age of 10, Benki became a representative of the community.

Today, in the tradition and culture of the Ashyaninka, Paje is the most important figure in the community.

This man is the one who has within himself all the knowledge of the centuries of life, all the wisdom, and he has knowledge not only of his people, but of trees, birds, water, soil, forests, and everything else on which their survival depends.

So when he became Paje at just 10 years old, he started leading people.

He began telling them about the forests they should protect and how they should live.

He explained to them that it was not a matter of survival of the fittest. It was a matter of understanding what they needed to survive and protect it.

Eight years later, 18-year-old Benki leaves the forest for the first time.

He traveled 3,000 miles from Rio to the Earth Summit to tell the world what was happening in his tiny little corner.

And he went, hoping the world would listen.

Some, but not all, did.

But imagine this young man in a headdress and flowing robes, learning a new language, Portuguese, not to mention English, going to Rio and building bridges to reach out to people he's never met before. This is a rather hostile world.

But he was not discouraged.

Venki returns to the village full of ideas, including new technology, new research, and new ways to understand what is happening.

Since then, he has continued to work not only with the Ashaninka people, but with all peoples of the Amazon and beyond.

He built a school to teach children to care for the forest.

Together, he has led the reforestation of more than 25 percent of land destroyed by loggers.

He founded a cooperative to help people diversify their livelihoods.

And he brought internet and satellite technology to the woods. Not only to enable people to monitor deforestation themselves, but also to enable forests to speak to the rest of the world.

If I met Benki and asked him this question, he would say, "Why did you do this?"

Why risk yourself?

Why do you leave yourself vulnerable to an often hostile world? ”

As he told me, ``I asked myself,'' ``What did my grandparents and great-grandparents do to protect the forest for me?''

So what am I doing? ”

Thinking about it, how would our grandchildren and great-grandchildren ask themselves that question?

For me, when I think about it deep inside, the world is moving towards a future I don't really want.

The details of the future are unknown, but it is a future with signs, just as Benki saw signs of his surroundings.

We know we are short of what we need.

Fresh water is in short supply.

Fossil fuels are running out.

Land is running out.

We know that climate change affects us all.

I don't know how that happens, but I know it will.

And we know there will be more people than ever before—five times as many in 40 years as there were 60 years ago.

We are running out of what we need.

And we also know that the world has changed in other ways, that since 1960, a third of the number of new nations have existed as independent entities on the planet.

The ego, the government system, when you understand that, big changes happen.

In addition, we know that five other very large countries will have a say in the future. China, India, Russia, South Africa, and Benki's home country of Brazil, where he won civil rights only in the 1988 constitution.

But you know it all.

You know a lot more than Benki knew when he left the forest and traveled 3,000 miles.

You also know that you can't just keep doing the same things because you'll get the same results.

And this reminds me of what Lord Salisbury said to Queen Victoria over 100 years ago, when she was pressed to change it.

He said, "Change?

Why change?

Things are bad enough. ”

we have to change.

Looking at the world, I think we need to change ourselves.

We need new models of what it means to be a leader.

We need new models as world leaders and as human beings.

I started my life as a banker.

Now I don't admit it to anyone but very close friends.

But for the past eight years, I've been doing something completely different.

My work has taken me around the world. I was so honored to meet people like Benki and so many other people who are making a difference in their communities, people who see the world differently, ask different questions, have different answers, and understand the filters they put on when they go out into the world.

This is Sangamitra.

Sanghamitra is from Bangalore.

I met Sanghamitra eight years ago when I was organizing a workshop in Bangalore with leaders of various NGOs working on some of the most difficult aspects of society.

Sangamitra did not start his life as an NGO leader, but started his career teaching English literature as a university professor.

But she found herself too disconnected from the world in doing so.

She loved it, but it was too detached.

So, long ago in 1993, she decided to start a new organization, Samraksha, focused on one of India's most difficult areas, HIV/AIDS, at the time one of the most difficult problems anywhere in the world.

Since then, Samraksha has gone from strength to strength and is now one of India's leading health NGOs.

But given the world situation and knowledge about HIV/AIDS in 1993, no one could understand why HIV/AIDS was booming in India at that time, and indeed everyone was very afraid.

Currently, there are still 3 million people living with HIV in India.

It is the second largest population in the world.

When I asked Sangamitra, "How did you arrive at HIV/AIDS from English literature?"

In no obvious way, she said to me, "Everything is connected.

Literature makes people sensitive, sensitive to people's dreams and ideas. ”

Since then, Samraksha has been a pioneer in all areas related to HIV/AIDS under her leadership.

They have respite homes, the first care centers and the first counseling services, not only in urban Bangalore of seven million people, but also in some of Karnataka's most inaccessible villages.

Even that wasn't enough.

She wanted to change policy at the government level.

Ten of the programs she pioneered are now government policies and are funded by the government.

They currently care for over 20,000 people in over 1,000 villages around Karnataka.

She works with people like Murali Krishna.

Murari Krishna is from those villages.

He lost his wife to AIDS a few years ago and is HIV positive.

But seeing the work, care and compassion that Sanghamitra and her team brought to the village made me want to be a part of it.

He's a Leader's Quest Fellow, which helps him in his work.

They have pioneered a different approach to villages.

As is often the case, instead of handing out information in brochures, they bring in theater companies, songs, music and dance.

Then they sit and talk about their dreams.

Sanghamitra told me just last week. She has just returned from two weeks in the village and has really made great progress.

They sat in a circle and talked about their village dreams.

Then the young women of the village raised their voices and said, "We have changed our dreams.

Our dream is for partners and husbands not to be given because of their horoscope, but because they were tested for HIV. ”

How did you achieve so much if you were lucky enough to meet Sanghamitra and ask him why and how?

She looked at you and said very quietly, very gently,

It is the inner spirit. ”

This is Dr. Fan Jiangchuan.

Jianchuan is from Sichuan province in southwestern China.

He was born in 1957. You can imagine what his childhood was like and what it felt like, and what the tumultuous life of the last 50 years has been like.

He was also a soldier, teacher, politician, deputy mayor, and businessman.

But if you sit down and ask him, "Who are you really and what are you doing?"

He used to say, "I'm a collector and I run a museum."

I was lucky; I had heard of him for years and finally got to see him at his museum in Chengdu earlier this year.

He's been a collector since the early 1960s, when he was four or five years old.

Now think of China in the early 1960s.

Throughout his life, he continued to collect, through the Cultural Revolution and everything that followed, and his museum now houses more than eight million works documenting modern Chinese history.

These are works that cannot be found anywhere else in the world, partly because they document a part of history that the Chinese are trying to forget.

For example, he owns more than a million works documenting the Sino-Japanese War, a war that is rarely talked about in China and its heroes are not celebrated.

why did he do this?

He believed that the nation should never repeat the mistakes of the past.

So, by commissioning the creation of slightly larger-than-life-size bronze statues of heroes of the Sino-Japanese War, including the Chinese who subsequently fought each other and left mainland China to go to Taiwan, and even asking all of the surviving obscure and ordinary soldiers to collect their handprints in memory of him, he ensures that history is not forgotten - one man is certain.

But it's not just Chinese heroes that interest him.

The building houses the world's largest collection of documents and artefacts commemorating the United States' role in the long war on China's side: the Flying Tigers.

He owns nine other buildings, which are already open to the public, but whose rafters are packed with relics that chronicle modern Chinese history.

Two of the most sensitive buildings actually contain lifelong collections about the Cultural Revolution that most Chinese would like to forget.

But he never wants the public to forget.

These people inspire me, and they show us what is possible when we change the way we see the world, our place in it.

They looked outside and changed inside.

They didn't go to business school.

They hadn't read the "How to Be a Great Leader in 10 Easy Steps" manual.

However, they do have some undisputed qualities.

They have drive, passion and commitment.

They are stepping away from what they were doing before and working on something they didn't know they had.

They have attempted to connect worlds they never knew existed.

They built a bridge and walked across.

They have a sense of a large arc of time and their own little place within it.

They know that people will come before them and follow them.

And they know they are part of a whole and dependent on others.

It's not their problem, they know it, but it has to start with them.

And they have humility.

it just happens.

But you know it just doesn't happen, right?

We know it will take a lot of time, and we know where the world is headed.

Therefore, I think we need a succession plan on a global scale.

We can't wait for the next generation of new participants to come in and learn how to become the great leaders we need.

I think it has to start with us.

And we know how hard it is, just like they knew.

But the good news is that you don't have to figure it out as you go along. There are models and examples such as Benki, Sangamitra, Jianchuan.

If we look, we can see what they did.

We can learn from what they learned.

We can change the way we see ourselves in the world.

And with any luck, I'll be able to change my great-grandchildren's answers to Benki's questions as well.

thank you.

(applause)

As technology advances, many of us believe that these advances will make us more intelligent, smarter, and more connected to the world.

And what I would like to argue is that this is not necessarily the case. Progress is simply a term for change, and through change we gain something, but at the same time lose something.

To really illustrate this point, what I want to do is show how technology addresses a very simple, very common, everyday question.

And the question is this.

What time is it? What time is it?

You can easily tell the time by looking at your iPhone.

But I want to ask, how can I know the time if I don't have an iPhone?

How can we know the time, say 600 years ago?

how do you do that?

Well, the way to do that is with a device called an astrolabe.

Astrolabes are therefore relatively unknown in today's world.

But back in the 13th century, it was the tool of the time.

It was the world's first widespread computer.

And it was a device that was actually a model of the sky.

Therefore, different parts of this particular type of astrolabe correspond to star positions.

A plate corresponds to a coordinate system.

And the master has some scales to tie it all together.

If you're an educated kid, you know not only how to use an astrolabe, but also how to make one.

And we know this because the first paper on the astrolabe, the first technical manual in English, was written by Geoffrey Chaucer.

Yes, that's what Geoffrey Chaucer wrote to his eleven-year-old son, little Lewis, in 1391.

And in this book, even little Louis will know the big ideas.

And the central idea that makes this computer work is something called stereographic projection.

The basic concept is how to render a 3D image of the night sky that surrounds us on a flat, portable 2D surface.

The idea is actually relatively simple.

Imagine that the Earth is at the center of the universe, with a spherically projected sky around it.

Each point on the surface of the sphere is mapped onto the flat surface via the bottom pole and recorded there.

The North Star therefore corresponds to the center of the device.

The ecliptic, the path of the sun, moon, and planets, corresponds to the offset circle.

The bright star corresponds to Lethe's small dagger.

And the altitude corresponds to the plate system.

Now, projection isn't the only true genius of the astrolabe.

The real genius is to combine the two coordinate systems and make them fit perfectly.

Movable Lete shows the positions of the sun, moon and planets.

And the backplate shows the position in the sky as seen from a specific latitude. have understood?

So how do you use this device?

Well, let me do a little backup first.

This is an astrolabe. Pretty impressive, isn't it?

So this astrolabe is on loan from the Oxford University History Museum.

And you can check the various components.

This is the mother, the scales on the back.

This is the lete. have understood. can you see that

It's an empty moving part.

And you can see the spider web pattern in the background.

And that spider web pattern corresponds to an empty local coordinate.

This is a rule device. And on the back there are other devices for doing calculations, measuring tools and scales. have understood?

You know, I've wanted this for a long time.

For my thesis, I actually made one of these out of paper.

And this is a replica of a 15th century device.

And it's probably worth about three MacBook Pros.

But the real ones, thrown in my house and the house next door, and really, every house on the block, on both sides of the street, maybe in schools, and some, you know, cost as much as a church.

They are incredibly expensive.

Let me explain how to use this device.

Now let's move on to step 1.

If you want to know the time at night, first select the stars in the night sky.

So, if the weather is clear tonight, you will be able to see the Summer Triangle.

And there is a bright star called Deneb. Let's choose Deneb.

Then measure Deneb's altitude?

So, in step 2, pick up your device and check the altitude and you'll see it clearly.

and measure altitude.

So the temperature is around 26 degrees. I can't see it from over there.

Step 3 is to check the star on the front of the device.

Deneb is there. I can say

In step 4, move the lethe and move the sky so that the star's altitude matches the scale on the back.

Well, when that happens, everything will be in place.

Here is the sky model corresponding to the real sky. have understood?

So, in a sense, we are holding a model of the universe in our hands.

And finally, get the rule, move that rule to the dateline, and you'll know the time here.

right. So this device is used as such.

(Laughter) So I know what you're thinking. "That's hard work, isn't it? Isn't it hard work to know the time?"

Just glance at your iPod to see the time.

But there is a difference between the two. Because with the iPod, you can know the exact time exactly. With an iPhone, you can know the exact time.

Little Lewis' way of telling the time was by pictures of the sky.

He knew where things fit in the sky.

Not only did he know what time it was, but he also knew where the sun rose from and how it moved through the sky.

He knew what time the sun rose and set.

And he would know that about essentially every celestial body in heaven.

In computer graphics and computer user interface design there is a term called affordance.

Affordances, therefore, are the properties of an object that allow an action to be performed on it.

The role of the astrolabe is to allow and give us the ability to connect with the night sky, to look up at the night sky, and more, to see the visible and the invisible together.

So it's just usage. Incredibly, you can probably use it 350, 400 times.

In fact, there is a text documenting over 1,000 uses of this first computer.

The back has a scale and measurements for ground navigation.

You can use it to investigate. Baghdad city was surveyed by it.

It can be used to calculate all kinds of mathematical equations.

And it would take an entire college course to explain it.

Astrolabes have an amazing history.

They have been around for over 2,000 years.

The concept of stereographic projection was born in 330 BC.

And astrolabes come in many different sizes, shapes, and shapes.

Some are portable. There are also large exhibits.

And I think what all astrolabes have in common is that they are beautiful works of art.

Just amazing, amazing quality of craftsmanship and precision there.

Like any technology, the astrolabe evolves over time.

For example, early Lethe was very simple and primitive.

And the progressive Lethe became a cultural icon.

This is from Oxford.

And I think this is really extraordinary because the pattern is perfectly symmetrical and accurately maps a completely asymmetrical or random sky.

How cool is that? This is really cool.

So will little Lewis have an astrolabe?

It's probably not brass. He had something made of wood or paper. And most of these first computers were portable devices that could fit in the back of your pocket.

So what is the astrolabe inspired by?

First of all, I think it's a reminder of how resourceful our ancestors were years ago.

It's just an incredible device.

All technology advances.

Every technology is transformed and driven by other technologies.

And what the new technology offers is, of course, precision and accuracy.

But I think what we lose is an exact empty felt sense, a sense of context.

Knowing the sky and knowing your relationship with it is central to the true answer to knowing time.

So I think the astrolabe is just a remarkable device.

So what can we learn from these devices?

Well, mainly that there is a subtle knowledge that we can connect with the world.

And the astrolabe gives us back this nuanced sense of how things fit together and how we connect with the world.

Thank you very much.

(applause)

Once upon a time, at the age of 24, I was a student at St. John's Medical College, Bangalore.

I participated as a guest student for a month in a public health course.

And it changed my way of thinking forever.

The course was good, but the course content itself didn't change my mind.

On my first morning, I realized that the Indian students were better than me.

(laughs) You see, I was a study nerd.

I have loved statistics since I was little.

And I studied a lot in Sweden.

I used to be in the top quartile of all the courses I took.

But at St. John's, I was in the lower echelons.

And as a matter of fact, Indian students studied harder than we did in Sweden.

They read the textbook twice, three times, four times.

In Sweden I read a book once and then went to a party.

(Laughter.) And for me, that personal experience, for the first time in my life, changed the way I was raised.

And I realized that perhaps the Western world will not continue to rule the world forever.

And I'm sure many of you have similar personal experiences.

It's your perception of someone you've met that really changed your thinking about the world.

I tried to be funny, but this is not a statistic.

And I'm now here on stage trying to predict when that will happen. Asia will regain its dominant position as the world's leading power for thousands of years, as it once was.

And I will do that by trying to predict exactly in what year the average per capita income of India and China will reach that of the West.

I'm not talking about the economy as a whole. Growing India's economy to the size of the UK is a no-brainer as it has a billion people.

But what I want to know is when the average wages in India and China, i.e. monthly per capita, will reach the level of UK and US.

But I'll start with the historical background.

You can see it if I upload my map here. Look?

Starting from 1858.

1858 was the year of great technological progress in the West.

This year was the first time Queen Victoria was able to communicate with President Buchanan over the transatlantic cable.

And they were the first to use Twitter across the Atlantic.

(Laughter.) (Applause.) And I was able to find the text of the telegram sent back to Queen Victoria by President Buchanan through this wonderful Google and the Internet.

And it ends like this: "This telegraph is a wonderful vehicle for spreading religion, civilization, liberty and law throughout the world."

Nice words. But I was a little curious as to what he meant by freedom, and to whom?

And we will think about it when we look at the wider view of the world in 1858.

Because 1858 was also a turning point in Asian history.

1858 was the year in which a courageous uprising against foreign occupation of India was defeated by British forces.

And India remained under foreign rule for up to 89 years.

In 1858, the British won the Opium War in China.

And that meant foreigners could trade freely in China, as stated in the treaty.

That meant paying for Chinese goods in opium.

And Japan's 1858 was the year Japan had to sign the Treaty of Harris and accept trade on terms favorable to the United States.

And they were threatened by the black ships that were in Tokyo harbor last year.

However, Japan maintained national sovereignty in contrast to India and China.

And let's see how much difference it makes.

And it does that by putting these bubbles back into the Gapminder graph. Here you can see that each bubble is one country.

The size of the bubble here is population.

On this axis, I used to have a per capita income in comparable dollars.

And on that axis are life expectancy and people's health.

And I bring innovation here too.

Here in lush India, I have transformed a laser beam into an eco-friendly, recyclable version.

(Applause) You see.

Look, in 1858, India was here, China was here, Japan was there, and the United States and Britain were richer there.

And I start the world like this.

India was not always at this level.

In fact, historical records go back hundreds of years to a time when per capita incomes in India and China even exceeded those in Europe.

But by 1850, after years of foreign domination, India was deindustrializing.

And you can see that the countries that were growing the economy were the United States and the United Kingdom.

And by the end of the century they were healthy too, and Japan began to catch up.

India was struggling here.

Do you know how to start from there?

But really, really, natural sovereignty was good for Japan.

And Japan is trying to get there.

And now it's the new millennium. Health is improving, UK, USA.

But be careful now. World War I is approaching.

World War I causes many deaths and economic problems.

Britain is in decline.

And now the Spanish flu is coming.

And after World War I they continued to rise.

Still under foreign domination, non-sovereign India and China are on the brink.

Not much happening.

They have increased their population, but not more.

Now in the 1930s, Japan has entered an era of war, and we can see that the average life expectancy is declining.

World War II was a real disaster for Japan, economically as well.

But after that they recovered fairly quickly.

And we are moving into a new world.

In 1947 India finally achieved independence.

And while it can fly the Indian flag and become a sovereign state, it will come with great difficulty.

(Applause.) In 1949, we witnessed the emergence of modern China astonishing the world.

and what happened?

What will happen after independence?

You can see that your health is starting to improve.

Children started going to school.

Health services were provided.

This is the Great Leap Forward policy that China collapsed.

That was the central plan by Mao Zedong.

China has recovered. Then they said, "No more stupid central planning."

But they had come this far and were going to chase India too.

And they were certainly catching up.

And while both countries had better health, their economies were still very weak.

And then came 1978, Mao Zedong died, and a new man emerged from the Left.

And here came Deng Xiaoping.

And he said, "It doesn't matter if the cat is white or black as long as it catches mice."

Because catching mice was what the two cats wanted to do.

And you can see two cats from China and India trying to catch the mouse over there.

And they decided to start economic growth, not just health and education.

And the market reformers succeeded there.

In 1992, India also implemented market reforms.

And they work very closely together, and you can see that in many ways the similarities between India and China outweigh the differences.

And here they march. And will they catch up?

This is the big question of the day.

I am there today.

Now -- (applause) the average there -- what does it mean that this is the Chinese average?

If I split China, look, Shanghai has already caught up.

Shanghai is already there.

And healthier than America.

But on the other hand, it is also home to Guizhou, one of the poorest provinces in inland China.

And if Guizhou is divided into urban and rural areas, Guizhou Province's rural areas fall into that category.

In China, in the midst of rapid economic growth, we see this huge inequality.

If you look at India, there is actually another kind of inequality in India.

Geographical and macrogeographical differences are not very large.

Uttar Pradesh, the largest of these states, is poorer and in worse health than the rest of India.

Kerala comes out on top there, rivaling the United States in terms of health, but not in terms of economy.

And here Maharashtra continues to move forward with Mumbai.

At present, large inequalities exist within India rather than between states.

And that's not a bad thing per se.

Large inequalities can make it more difficult to address macrogeographic inequalities in the long run than if they were in the same region with growth centers relatively close to where the poor live.

No, there is another inequality. Look, America.

(laughter) Oh, they broke my frame.

Washington D.C. is out of here.

My friends at Gapminder wanted me to show this because we have a new leader in Washington who really cares about the health care system.

And I can understand him because it's Washington, D.C.

They are very wealthy there, but they are not as healthy as Kerala.

It's pretty interesting.

(Applause.) I see a business opportunity for Kerala in helping to fix the health care system in the United States.

(Laughter) (Applause) Well, here's the whole world. There is a legend.

And when we see two giant cats thrusting forward here, we see that between them and in front of them is the whole of the world's emerging economies, which Thomas Friedman rightly called the "flat world."

We can see that a large portion of the world's population is committed to health and education, but there are still people in Africa and elsewhere, such as rural Guizhou province in China, who have poor health and very low economic power.

There is a big difference in the world.

But most of the world's countries in between are moving forward very quickly.

Now back to my predictions.

When will we catch up? We have to go back to very traditional graphs.

Instead, we show income per capita on this axis. Poor here, rich there.

And here, from 1858, I begin the world.

And let's see what happens to these countries.

China under foreign control has actually reduced its income to the level of India here.

Meanwhile, England and America are getting richer and richer.

And after World War II, America is richer than Britain.

But independence is here.

Growth begins, economic reforms begin.

Growth is accelerating further, and using IMF projections, we can see how much it is expected to be in 2014.

Now the question is, when will the catch-up take place?

Look, look at the United States.

can you see the bubbles?

A bubble, not my bubble, but a financial bubble.

That's the dotcom bubble. This is the gateway to Lehman Brothers.

I know you fell there.

And this is like another rock falling there.

So the country doesn't seem to be going in this direction.

They appear to be on a more humble path of growth.

And those interested in growth are looking to Asia.

Japan can be compared. This is Japan.

You see, Japan did that too.

Add Japan to it.

And there is no doubt that a rapid catch-up is likely.

Do you know what Japan did here?

Japan will do this until it catches up completely, after which other high-income countries will follow.

But I'd like those real predictions to be:

It could be worse, it could be better.

It is always difficult to predict, especially about the future.

Now, one historian says the past is even harder to predict.

(Laughter) I think I'm in a difficult position here.

Inequality in China and India is what I see as a really big obstacle. Because leading the entire population to growth and prosperity will create a domestic market, avoid social instability, and harness the full potential of the population.

So what India and China really need is social investment in health care, education, infrastructure and power.

you know the climate A leading international expert in India says the climate is changing and action must be taken otherwise China and India will become the countries most affected by climate change.

And I see India and China as the world's best partners in good global climate policy.

But they're not going to pay for things that are mostly created by others who have more money, and I agree with that.

But what I really worry about is war.

Will the once wealthy nations really accept a completely changed global economy and the transfer of power to Asia from places they have been for the last 50, 100, 150 years?

And will Asia live up to its new position as the most powerful and governor of the world?

So always avoid war. Because war always sets humanity back.

If we can avoid these inequalities, climate and wars now, prepare for a just world. Because this seems to be happening now.

And the vision I got when I was a young student in 1972 that Indians could be so much better than Swedes is about to come true.

And that will happen exactly in the second half of the summer of 2048, in July, or more precisely on July 27th.

(Applause.) July 27, 2048 is my 100th birthday.

(Laughter) And I'll be speaking at the first session of the 39th TED India.

Please make a reservation in time. thank you very much.

(applause)

As a culture, we tell ourselves many stories about the future and where we are going.

Some of those stories are that someone will solve everything for us.

Other stories say that everything is unraveling.

But today I would like to tell a different story here.

Like all stories, stories have a beginning.

My work has long been involved in education, teaching people practical skills for sustainability, teaching them how to responsibly grow their own food, build buildings using local materials, and generate their own energy.

I live in Ireland and built Ireland's first straw bale house, several cob buildings, and more.

But all my work over the years has focused on the idea that sustainability basically means looking at a globalized economic growth model, regulating incoming on one end and producing on the other.

And then I came across a way of looking at things that really changed that.

To introduce it, here is something to reveal. It is one of the great wonders of modern times.

And it's so amazing, so amazing, that I think it might be appropriate, perhaps, to give a proper gasp of surprise as we remove this cloth.

It would be great if you could help me with that.

(Laughter) This is a liter of oil.

Distilled over 100 million years in ancient sunlight over geological time, this bottle of oil contains the equivalent of about five weeks of grueling physical labor by a human being, or about 35 strong people working the rounds.

We can transform it into an amazing variety of materials, medicines, modern clothing, laptops, and more.

You get a historically unimaginable energy return.

Some would argue that we have based the design of settlements, business models, transport plans and even the concept of economic growth on the assumption that this will continue in perpetuity.

But if you take a step back and look over the stretch of history called the oil interval, the brief period in history in which we discovered this wonder substance and based an entire way of life around it.

But at this stage in which we are straddling the top of this energy mountain, we are moving from an era in which our economic success, personal performance and well-being are directly related to the amount of energy we consume, to an era in which our dependence on oil actually becomes a measure of our vulnerability.

And it is becoming increasingly clear that we cannot rely on the fact that we will have this at our disposal forever.

For every 4 barrels of oil we consume, only 1 barrel is found.

And the gap continues to widen.

There is also the fact that the amount of energy that can be recovered from discovered oil is declining.

In the 1930s, 100 units of energy returned for every energy put into extraction.

This is completely unprecedented in history.

It's already down to 11.

That's why new breakthroughs, new frontiers in oil extraction are now flying in Alberta and on the bottom of the ocean.

There are 98 oil-producing countries in the world.

But 65 of them are already past their peak.

The moment the world averages over this peak, people wonder when that will happen.

And a new case is emerging that it may have happened last July when oil prices were very high.

But should we think that the same brilliance, creativity, and adaptability that got us to the top of that energy mountain in the first place somehow mysteriously evaporates when we have to engineer creative ways to get back on the other side?

no. But the thinking we have to come up with must be based on a realistic assessment of what situation we are in.

Another factor underpinning this transition approach is also the issue of climate change.

But when I talk to climate scientists, I notice an increasingly horrified look in their eyes at the data coming in that goes far ahead of what the IPCC is talking about.

The IPCC said that in the worst-case scenario, the Arctic ice could collapse significantly by 2100.

In fact, if current trends continue, it could all be gone in five or ten years.

If only 3 percent of the carbon trapped in Arctic permafrost is released as the world warms, it would offset all the carbon savings we need over the next 40 years to avoid runaway climate change.

We have no choice but to decarbonize radically and urgently.

But I've always been very interested in thinking about what stories future generations will tell about us.

“A generation that lived on top of mountains, partied hard, and abused their legacy.”

And one of the ways I like to do that is to look back at the stories before cheap oil, before fossil fuels, when people relied on their own muscles or animal muscles for energy, or a little wind or a little water energy.

There were stories like "Seven League Boots". Once put on, this booted giant could travel 7 leagues, or 21 miles, with each step, a journey utterly unimaginable to those without energy at their disposal.

In stories like "Magic Porridge Pot", if you know the magic words, you can make as much food as you like in this pot without doing anything if you know another magic word that will stop you from making porridge.

Otherwise, the whole town will be flooded with hot porridge.

There is a story called "The Elf and the Shoemaker".

The people who make the shoes go to bed and wake up in the morning to find that every shoe is magically made for them.

It was unimaginable for the people of the time.

Now there are Seven League boots in the form of Ryanair and EasyJet.

There are magic porridge pots from Walmart and Tesco.

And there are also Chinese-shaped elves.

But we don't realize how amazing it is.

And what is the story we tell ourselves now as we look forward to where it will take us?

And I claim there are four. Business as usual, the idea that the future will be as good or better than it is today.

But as we've seen over the last year, I think this idea is being questioned more and more.

And when it comes to climate change, it's practically unattainable.

There is an idea that hitting a wall is actually somehow so fragile that everything can unravel and collapse.

This is a famous story in some areas.

The third story is the idea that technology can solve everything, that technology can somehow solve this problem completely.

And that's an idea that I think is very prevalent in these TED Talks. The idea that we can invent a way out of the deep economic and energy crises, the idea that by moving to a knowledge economy we can somehow circumvent the energy constraint, the idea that we can wipe out all concerns about energy security by discovering wonderful new sources of energy, the idea that we can step right into a fully renewable world.

But the world is not Second Life.

You can't create new lands or new energy systems with a click of the mouse.

And even as we sit and exchange free ideas with each other, there are still people mining coal to power our servers and extracting the minerals to make it all.

The breakfast you eat in the morning while you sit and check your email is still being transported long distances, usually at the expense of the more resilient local food system that would have supplied it in the past, which has been effectively devalued and dismantled.

We can be amazingly original and creative.

But we also live in a world with practical constraints and demands.

Energy and technology are not the same thing.

What I am concerned with is the migration response.

And this is about facing the challenges of peak oil and climate change and responding with the creativity, adaptability and imagination we really need.

It spread incredibly fast.

And it has some characteristics.

it's a virus. It seems to be spreading very quickly without being noticed.

It's open source. It is something that everyone involved in it develops and communicates while being involved in it.

It is self-organizing. There is no big central organization driving this. People come up with ideas, execute them, and implement them on the fly.

Solution focused. To address this, we are very focused on what people can do where they are.

Sensitive to location and scale.

Transitions are completely different.

The Chilean migration group, the US migration group, the migration group here, what they're doing looks very different depending on where they go.

You learn a lot from your mistakes.

and feel the history. I'm trying to create a sense that this is a historic opportunity to do something truly extraordinary.

And it's a really fun process.

People enjoy this immensely and reconnect with others while doing it.

One of the things that underpins it is this idea of ​​resilience.

And in many ways, I think the concept of resilience is a more useful concept than the concept of sustainability.

The concept of resilience arose from ecological research.

And what matters is how systems and settlements withstand external shocks.

They don't just unravel and fall apart when they encounter an external shock.

And like I said, I think this is a more useful concept than sustainability.

Sustainability tends to focus on the energy efficiency of freezers and the packaging that wraps lettuce when supermarkets only carry food for two to three days at a time.

When we look through the lens of resilience, we really question how we let ourselves be so vulnerable.

Resilience goes even deeper, building modularity into what we do, building surge breakers into the way we organize the basic things that support us.

Here is an 1897 photo of the Bristol and District Market Horticultural Society.

This was at a time when the city of Bristol, very near from here, was surrounded by commercial market gardens, providing a significant amount of the food consumed in the town and also creating many jobs for its people.

I would say that I had some resilience back then, but now I can only look back with envy.

So how does this migration idea work?

So basically, there's a group of people who are excited about the idea.

They will feature some of the tools we have developed.

They start running an awareness program to look at how this would actually work in town.

Show movies and give lectures.

It's a rewarding process with playfulness and creativity.

They then begin to form working groups to consider different aspects of this. And out of that come so many projects that the migration project itself supports and starts to materialize.

So it started with some work I was involved in while teaching in Ireland and has spread since then.

There are currently over 200 formal migration projects.

And there are thousands of others in what we call the review stage.

They are considering whether to take it further.

And in fact many of them do a huge amount.

But what are they actually doing? It's kind of a great idea, but what are they actually doing on the ground?

Well, I think it's really important that you understand that this isn't going to do it all by itself, actually.

We need international law from Copenhagen and others.

We need a national response. Government action is required.

But all of this will be much easier in the next 5-10 years if we have a community that is vibrant, that can come up with ideas, can lead and lead, and can electively implement policies that cannot be elected.

Outcomes include community food projects such as community-supported agricultural planning, urban food production, and the creation of community food directories.

Many places are now starting to set up their own energy companies or community-owned energy companies, with communities investing money to build the kind of renewable energy infrastructure we need.

Many places work with local schools.

Newcomers in Dean's Woods: The big polytunnel they built for the school. Children are learning how to grow food.

We will promote recycling, such as "Garden Share" that matches people who want to grow food without owning a garden and people who have a garden that they no longer use.

Plant productive trees throughout urban spaces.

And we're starting to experiment with alternative currency ideas.

This is Lewis of Sussex. Recently, as a way to circulate money within the local economy, we launched a local currency, the Lewis Pound.

It's worth nothing if you take it elsewhere.

In reality, however, these economic cycles begin to be created more effectively within the city.

Another thing they are doing is the so-called energy descent program. This is basically developing Plan B for the town.

When most local governments plan their communities five, ten, fifteen, twenty years into the future, they start by assuming that there will be more energy, more cars, more housing, more jobs, more growth, and so on.

What if it's not? And how can we accept that and actually come up with something that's likely to actually keep everyone?

my friend says: “Life is a series of unprepared things.”

And that's certainly my transition experience.

Three years ago, as a mere idea, it spread rapidly around the world.

We are getting a lot of interest from the government. The country's Minister of Energy, Ed Miliband, was invited as a keynote speaker to our recent conference.

He did -- (laughter) (applause) -- and has been a great proponent of this whole idea ever since.

There are currently two municipalities in the country that have declared transitional municipalities, Leicestershire and Somerset. And in Stroud, the transition group there has effectively created a local government food plan.

And the head of the council said, "Without Transition Stroud, we would have had to invent all the community infrastructure for the first time."

As its popularity grows, we see national hubs emerging.

In Scotland, the Scottish Government's Climate Change Fund finances Transition Scotland as a national organization to support deployment.

And now we're seeing it all over the place.

But the key to the transition is not that everything has to change now, but that things are already inevitably changing, and all we have to do is ask the right questions and approach it creatively.

Finally, I would like to return to the concept of storytelling.

Because I think the story is important here.

And really, there's a huge lack of stories that we tell ourselves, stories about how to creatively move forward from here.

And one of the important things migration does is pull those stories out of people's activities.

A story about a community that issued its own £21 note, a school that turned a parking lot into a food garden, a community that set up its own energy company, for example.

And to me, one of the great stories of late is that the Obamas dug up the lawn south of the White House to create a vegetable garden. Because the last time Eleanor Roosevelt did it, it led to the creation of 20 million vegetable gardens across the United States.

So the question I want to leave you with is, really, how do we build resilience while drastically reducing our carbon footprint in all aspects of what it takes for our communities to thrive?

Personally, I am very grateful to have lived in an era when oil was cheap.

I was amazingly lucky, we were amazingly lucky too.

But let's respect what it has done for us and move on from here.

Because if we cling to it and continue to assume that it can underpin our choices, the future it presents to us becomes truly unmanageable.

And by loving all that oil has done for us and leaving all that the oil age has done for us, we can begin to create a more resilient, more nourished world, in which we find ourselves healthier, more skilled and more connected to each other.

thank you very much.

(applause)

It's a little funny to be at a conference dedicated to the invisible and to announce my proposal to build a 6,000-kilometer-long wall across the African continent.

As big as the Great Wall of China, this would be no invisible structure.

But it is made up of parts invisible or barely visible to the naked eye: bacteria and grains of sand.

Now, as architects, we are trained to solve problems.

But I don't believe too much in architectural issues. I believe only in chance.

That's why we introduce threats and architectural responses.

The threat is desertification.

My answer is sandstone walls in the desert, made up of bacteria and sand congealed.

Well, sand is a magical material with beautiful contradictions.

Simple and complex.

It is peaceful and violent.

It's always the same, never the same, and infinitely fascinating.

There are 1 billion grains of sand in the world every second.

It's a cyclical process.

When rocks and mountains die, grains of sand are born.

Some of these particles can spontaneously compact into sandstone.

And as the sandstone weathers, new grains appear.

Some of these particles can accumulate in dunes on a large scale.

In a way, a stationary pile of stones becomes a moving pile of sand.

But moving mountains is dangerous. Let me explain why.

Drylands cover more than one-third of the earth's surface.

Some are already desert. Some are severely degraded by sand.

The Sahel lies just south of the Sahara Desert.

The name means "the edge of the desert".

And this is the region most closely associated with desertification.

Here, in the late 60's and early 70's, massive drought left 3 million people dependent on emergency food aid and killed up to about 250,000.

This is a catastrophe waiting to happen again.

And it's something that gets little attention.

In our accelerating media culture, desertification is too late to make headlines.

It's not like a tsunami or Katrina. Too few crying children and destroyed homes.

However, desertification is a major threat on all continents, affecting about 110 countries and about 70% of the world's agricultural drylands.

It seriously threatens the livelihoods of millions of people, especially in Africa and China.

And it's largely a problem we've created for ourselves through the unsustainable use of scarce resources.

So we experience climate change.

Droughts, increasing desertification, collapse of food systems, water shortages, hunger, forced displacement, political instability, wars and crises.

That's a possible scenario if we don't take this seriously.

But how far?

I went to Sokoto in northern Nigeria to find out how far it is.

The dunes here migrate south at a pace of about 600 meters per year.

It's the Sahara Desert eating up almost [two meters] of arable land a day, physically pushing people out of their homes.

Here I am -- I'm second from the left -- (laughter) with the elders of Guidan Kala, a small village outside Sokoto.

They had to move the village in 1987 because huge sand dunes threatened to swallow it.

So they moved the whole village hut by hut.

This is where the village used to be.

It took about 10 minutes to climb to the top of the dune. This shows why they had to move to a safer place.

That is the forced migration that desertification can cause.

If you happen to live near the desert border, you can pretty much work out how long it will be before you have to take your kids, leave your home, and abandon the life you know.

Currently, sand dunes occupy only about one-fifth of the desert.

Still, if you want sand to stop moving, these extreme environments are a pretty good place.

Four years ago, 23 African nations united to build the Green Wall in the Sahara Desert.

Great project. The original plan was to plant a protective strip of trees across the African continent, from Mauritania in the west to Djibouti in the east.

If you want to stop a dune from moving, all you have to do is stop the avalanche of sand grains on top of the dune.

A good, most efficient way to do that is with some sort of sand catcher.

Trees and cacti are suitable for this.

But one of the problems with planting trees is that the people in these areas are very poor, so they cut down trees for firewood.

Now we have the option to simply plant trees and hope they don't get cut down.

This sandstone wall I'm proposing basically does three things.

It adds roughness to the dune surface, enhances the texture of the dune surface, and binds particles together.

It provides a physical support structure for the trees and creates a physical space within the dunes, a habitable space.

When people live inside green barriers, they support trees and protect them from human and natural forces.

There is shade among the dunes.

Condensation can be collected and greening can begin from within the desert.

Dune is in some ways more like a ready-made building.

The construction is completed just by hardening the necessary parts and digging the sand.

You can dig it by hand, or you can have it dug by the wind.

This means that the wind will carry the sand onto the site and the excess sand away from the building.

But now you're probably wondering how are you going to harden the dunes?

How do you glue those grains of sand together?

And perhaps the answer is that it uses Bacillus pasturii, a microbe readily available in swamps and marshes. And do just that.

Harvest a pile of loose sand and make sandstone out of it.

These images from the American Society for Microbiology show that process.

What happens is that when you pour pasteuri into a mound of sand, it begins to fill in the voids between the particles.

A chemical process produces calcite, a type of natural cement that binds particles together.

The entire cementation process takes about 24 hours.

I learned this from a professor at the University of California. Davis called Jason DeJong.

He did it in just 1,400 minutes.

Here I'm playing the part of a mad scientist, working on bugs at UCL in London, trying to harden bugs.

So how much does this cost?

I'm not an economist, nor am I an economist, but I literally did the math behind the scenes (laughs). It looks like you have to pay around $90 for 1 cubic meter of concrete.

And there is an initial cost of $60 to buy bacteria, but you don't have to pay after that. A cubic meter of bacterial sand costs about $11.

How would I go about building something like this?

I'll show you two options right away.

The first is to create a kind of balloon structure, fill it with bacteria, then sand flushes the balloon, so to speak, pops the balloon and spreads the bacteria into the sand to solidify.

And a few years later, using perpetual culture strategies, we greened that part of the desert.

A second alternative is to use injection piles.

So we pushed stakes into the dunes to create the first bacterial surface.

You then pull the stakes through the dunes and the sand acts as a mold as it rises, allowing you to create just about any imaginable shape in the sand.

So we have a way to turn sand into sandstone and create habitable spaces within the desert dunes.

But what should they look like?

Well, my architectural form was inspired by tafoni. which is a bit like this. This is its model representation.

These are hollow rock structures found in the Sokoto ruins.

Then we realized that if we scaled them up, they would provide excellent spatial qualities such as ventilation and thermal comfort.

Now, it is clear that some of the formal control over this structure is naturally lost as bacteria become active.

And I think this actually creates a kind of infinite beauty.

I think there is something really great about that articulation.

We see the result, the imprint, of the pasturi bacilli used to sculpt the desert into these habitable environments.

Some believe this will spread uncontrollably, killing anything the germs get in their way.

That's not true at all.

it's a natural process. It continues in nature today, and as soon as we stop feeding them, they die.

It is an anti-desertification building made from the desert itself.

A sand stopper made of sand.

The world is likely to lose a third of its arable land by the end of the century.

In a time of unprecedented population growth and increasing food demand, this can have disastrous consequences.

And, frankly, we're in over our heads.

If you don't mind, I would like to start a discussion about this scheme.

But if I have any kind of TED wish, it is to actually start building, this habitable wall, this very long but very narrow desert city, built into the dunes themselves.

It not only supports trees, but also connects people and countries.

Finally, I would like to show you an animation of the structure and leave a sentence from Jorge Luis Borges.

Borges said, "Nothing is built on stone, everything is built on sand, but we must build as if the sand were stone."

Now, the plan leaves many details - political, practical, ethical, financial - to consider.

My designs will take you down the rabbit hole, but in the real world there are many challenges and difficulties.

But it's a beginning, a vision.

As Borges says, it's sand.

And I think now is the time to turn it into stone. thank you.

(applause)

(music: "Sound of Silence", Simon & Garfunkel) Hi Voicemail, my old friend.

(Laughter) I called technical support again.

I ignored my boss's warning.

It's evening now, and the dinner was cold first, then moldy.

still pending.

I don't think you understand.

I pressed every touchtone they said and it was still pending for 18 hours.

Your software just wasn't enough, my Mac crashed and hung or bombed all the time. My ROM has been erased.

Now the Mac makes a sound of silence.

In a dream I dream of taking revenge on you.

Suppose a motorcycle has an accident.

Blood is gushing from your wound.

You summon your failing strength to call 9-1-1 and pray for a trained doctor.

(Laughter) And you listen to the sounds of silence.

(music) (applause) Thank you.

Good evening. Welcome to "Find the TED presenters who were your Broadway accompanists."

(Laughter) Six years ago, when I got the offer for the Times column, the deal was like this. The coolest, hottest, most sophisticated new gadgets were sent.

Delivered to your door every week.

Until the novelty runs out, you can try it, play with it, rate it, and get paid for it before you send it back.

So I have always been interested in technology and love technology.

However, this job had one small drawback. That meant I was going to publish my email address at the end of every column.

And the first thing I've noticed is that I get an incredible amount of emails.

If you're feeling lonely, read the New York Times column. I get hundreds of emails.

And a lot of the emails I get today are about frustration.

People seem to be feeling something -- okay, I just got an alarm on the screen.

People feel overwhelmed.

It may be technically good, but I feel that the support system is not sufficient.

Not enough help.

Not enough thought has been put into the design to make it easy to use and enjoyable.

Once, when I wrote a column about my efforts to contact Dell technical support, within 12 hours I received 700 messages from readers on the Times website's feedback board. "Neither do I. This is my tragic story."

And let me tell you, whoever found a way to make money using this frustration, oh how did you get there? just kidding.

(Laughter) So why is the problem accelerating?

And part of the problem, ironically, is that the industry has put a lot of thought into making things easier to use.

I will explain what I mean.

This is the computer interface that was once used in DOS.

Over the years it has become easier to use.

This is the original Mac operating system.

Reagan was president. Madonna was still a brunette.

And the whole operating system -- and that's the good news -- the whole operating system fits in 211k.

I couldn't put the Mac OS X logo on the 211k.

(Laughter) Ironically, as these devices became easier to use, they were exposed to a broader, less technical audience for the first time.

I once had the special privilege of sitting in an Apple call center for a day.

The guy had a duplicate headset for me to listen to.

And did you know that the phone says "Your call may be recorded for quality assurance purposes"?

Hmm.

Your phone calls may be recorded in order to collect the funniest and dumbest user stories and put them on CD for distribution.

(Laughter) That's what they do.

(Laughter) And I have a copy.

(Laughter) It's in your gift bag. no no

I'm also posting everyone's voices!

So some stories are very classic, but still very understandable.

A woman called Apple and complained that her mouse was squeaky.

The technician then said, "Ma'am, what does it mean that the mouse is squeaky?"

"All I can say is that the faster you move it on the screen, the louder the squeak," she said.

(Laughter) And the technician said, "Ma'am, are you holding the mouse to the screen?"

She said, "Well, the message said, 'Click here to continue.'" (Laughter) Well, if you like -- how much time do you have?

One more thing, one man said this is absolutely true. I told the tech that my computer crashed and that I could not restart it, no matter how many times I typed 11.

The technician said, "Huh? Why are you typing 11?"

He said, "The message says 'error type 11'." (Laughter) So I have to admit that part of the blame is directly at the user's feet.

But why is the technology overload crisis, the complexity crisis accelerating now?

Because in the hardware world, we consumers want everything to be smaller, smaller, smaller.

So, while devices are getting smaller and smaller, our fingers basically stay the same size.

So it becomes more and more challenging.

Software is subject to another fundamental force of releasing more versions.

When you buy software, it's not like you buy a vase or candy bar to own it.

It's more like joining a club, where you pay a yearly membership fee and each year they say, "We've added a feature, and we're selling it for $99."

I know a guy who spent $4,000 over the years on Photoshop alone.

And software companies earn 35% of their revenue from these software upgrades alone.

I call it the "software upgrade paradox". In other words, if you improve the software over and over again, it will eventually fail.

So Microsoft Word was just a word processor during the Eisenhower administration.

(Laughter.) But what can we do instead?

They said, "Well, wait a minute.

Everyone complains that we add too many features.

Let's create a word processor, simple and pure, just a word processor. does not create web pages, nor is it a database. ”

And then it came along and it was called Microsoft Write.

And none of you are nodding your head in recognition of it, because it is dead.

It tanked. no one ever bought it.

I call this the Sport Utility Principle.

People like to be surrounded by unnecessary forces, don't they?

They don't need a database or a website, but they're like, "Well, I'll upgrade, because I might need it someday."

The question is where do they go when you add features?

where do you put it? Design tools are limited.

You can run buttons, sliders, popup menus, and submenus.

But if you don't choose carefully, you'll end up with something like this.

(Laughter) Here's an unedited -- this is no joke -- an unedited photo of Microsoft Word you have with all the toolbars open.

You obviously haven't opened all the toolbars, but all you need to enter is this tiny little window right here.

(Laughter) And we've reached the age of the interface matrix. It has so many features and options that it should perform in two dimensions: vertical and horizontal.

You're complaining that Microsoft Word always bullets lists and automatically underlines links.

The off switch is somewhere.

Let me tell you, it's there.

One of the tricks to designing a simple and good interface is knowing when to use which of these features.

Here is the Windows 2000 logoff dialog box.

Why is it in a popup menu when there are only 4 options?

The rest of the screen isn't so full of other components that the choices need to be collapsed.

They could have had them all in sight.

Below is Apple's take on the exact same dialog box.

(Applause) Thank you -- yes, I designed the dialog box. no no

Already, we can see that Apple and Microsoft have vastly different approaches to software design.

Microsoft's approach to simplicity tends to be "take it apart". Let's take it a step further.

Such "wizards" are everywhere.

And as you know, there's a new version of Windows coming this fall.

If I continue at this pace, I have no idea where I'll end up.

[Welcome to Word's Input Wizard] (Laughter) (Applause) "Welcome to Word's Input Wizard."

(Laughter) (Applause) From the drop-down menu, select the first letter you want to type. OK.

(Laughter.) I mean, there's a limit that you don't want to cross.

So what is the answer?

I believe in consistency and when possible I label my real world equivalents, trash folders, most things if possible.

But I'm begging the designers here, if you're going to break the number one rule of intelligence, break all those rules.

Here are some examples where intelligence makes you inconsistent, but better.

When you buy something on the web, you have to enter your address and select your country of origin.

There are 200 countries in the world.

sorry; not one yet.

Mainly America, Europe and Japan.

So why is "United States" in the "U"?

(Laughter) You'll have to scroll about seven screens to get there.

Putting "United States" first here is contradictory, but sensible.

We've touched on this before, but why on earth would you click the "Start" button to shut down your Windows PC?

(Laughter) This is my other favorite. you have a printer

In most cases, you need to print one copy of your document in page order on that printer.

So why does this happen every time I print?

It looks like a 747 shuttle cockpit.

(Laughter) And you'll notice that one of the buttons at the bottom isn't "Print."

(Laughter) (Applause) Now, I'm not saying that Apple is the only company that embraces the worship of simplicity.

Palm was also great at this, especially in the old days.

I actually got to talk to Palm when it was booming in the 90's and met with one of the employees after the talk.

"That's a good story," he says. And I said, "Thank you. What are you doing here?"

He said, "I'm a tap counter." It's like, "Who are you?"

he said: "CEO Jeff Hawkins said, 'If you have a task where you tap the stylus more than three times on your Palm Pilot, it's too long and needs to be redesigned.'" So I'm a tap counter. ”

Therefore, I will introduce an example of a company that has not installed a tap counter.

(Laughter) This is Microsoft Word.

This can happen if you want to create a new blank document in Word.

(Laughter) Go to the File menu and select New.

But what happens when you select "New"?

you do not.

On the other side of the monitor you will see the taskbar and somewhere in the link there is a button to create a new document, not at the top by the way.

I see, so it's a company that doesn't count the number of taps.

As you know, I'm not here to make fun of Microsoft...

Yes, it is.

(Laughter) (Applause) Bill Gates song!

(piano music) I've been a nerd and wrote the first DOS.

I combined software and IBM. I made a profit and they made a loss.

(Laughter) I write code that runs the whole world.

I get royalties from everyone.

It can be garbage, but there is snow on the press.

you buy a box sell the code

Every software company does Microsoft research and development.

You can't write down good ideas these days.

Even Windows is a hack.

It's big, so it's slow. There is nowhere to go.

Write code for today's world.

Great mediocrity in all respects.

Enter planetary domination mode.

You have no choice. you will buy my code

I'm Bill Gates. write the code.

(Applause.) But really, I think there are two Microsofts.

There is an old one responsible for Windows and Office.

They want to drop everything and start fresh, but they can't.

So many add-ons and third-party stuff are locked into the old 1982 chassis that they are locked in.

But there's also the new Microsoft, which has done a very nice and simple interface design.

I love my Media Center PC.

I love Microsoft SPOT Watch.

The Wireless Watch flopped in the market not because it wasn't simple and beautifully designed.

But let's put it this way. Do you pay $10 a month to get a watch that, like your cell phone, has to charge every night and stops working when you leave the area code?

(Laughter) So the signs could point to an even worse complexity crisis.

So is there any hope?

Screens are getting smaller, people are lighting up, manuals are being packed in boxes, and things are being released at a faster pace.

Interestingly enough, when Steve Jobs returned to Apple in 1997 after a 12-year hiatus, it was at the MacWorld Expo. He showed up on stage in a black turtleneck and jeans and did sort of.

The crowd went wild, but I had just seen it—where did you see this? I had such feeling.

I had just watched the movie "Evita" starring Madonna (laughs), but what is it?

(music) It won't be easy. you think i'm weird

(laughter) When you try to explain why you're back after telling reporters that Apple's future is bleak.

You won't believe it.

All you see is a teenage kid who started out in a garage with only a friend named Woz.

(Laughs) Try to rhyme with Garage!

(laughter) Please don't cry for me, Cupertino.

(laughter) To tell you the truth, I never left you.

Now I know the tricks and the tricks.

I made a lot of money with Pixar.

(laughter) Please don't cry for me, Cupertino.

I still wear sandals in any weather.

However, recently it is Gucci leather.

(Laughter) (Applause) Thank you.

So Steve Jobs always believed in simplicity, elegance and beauty.

And to tell you the truth, I was a little depressed for years. Because Americans clearly didn't appreciate it. Because Mac had 3 percent market share and Windows had 95 percent market share. People didn't think it was worth the price.

So I was a little depressed.

And listening to Al Gore made me realize I didn't know what depression meant.

(Laughter) But I was wrong after all, right?

Because the iPod came out and broke all conventions.

Other products are cheaper. Others had more features such as voice recorders and FM transmitters.

Other products were supported by Microsoft and were open standards rather than Apple's own.

But the iPod won. This is what they wanted.

The lesson is that simplicity sells.

And there are signs that the industry is getting that message.

This is a small company that does simplicity and elegance very well.

Sonos is trending.

Here are just a few examples.

Physically, there's been a really cool and elegant way of thinking going around these days.

If you have a digital camera, how do you get your photos onto your computer?

You either carry a USB cable or buy a card reader and carry it with you.

Either way, you lose.

Remove the memory card and fold it in half to expose the USB contacts.

Just plug it into your computer, offload your photos, and instantly pop it back into your camera.

Here's another example.

Chris, you are the source of all power. Will you be my power plug?

Chris Anderson: Oh yeah. DP: Hold it and don't let go.

As you may have seen, this is Apple's new laptop.

This is the power cord. I get caught like this.

And I think all of you, at some point in your life, or one of your children, has done this.

You walk in - and I'm trying to pull this to the floor.

I do not care. It's borrowed.

(Applause) For my last example, I use speech recognition software to do a lot of my work.

The software is tense, so please be a little quieter.

Speech recognition software is very good at processing emails very quickly. period.

For example, we receive hundreds of messages per day. period.

And it doesn't just write down what I dictate. period.

I also use this feature called Voice Macros. period.

Correct "deterred".

This is not an ideal situation as it contains echoes from halls etc.

The point is that you can respond quickly to people by saying short words and writing longer ones.

So if someone sends me a fan letter, I'm going to say 'thank you'.

[Thank you so much for taking the time to write...] (Laughter) (Applause) Conversely, when someone sends me hate mail -- it happens every day -- I say, "I'm pissed off."

(Laughter) [I admire your candor...] (Laughter) (Applause) That's my little secret. don't tell anyone

(Laughter) The point is, this is a really interesting story.

This is version 8 of this software, do you know what was included in version 8?

No new features. Never before in software.

The company did not add new features.

They just said, "We will make sure this software works properly." right?

Because for years people bought this software, tried it and got 95% accuracy. That means 1 out of 20 words is wrong. And it was in a drawer.

The company got sick of it and said, "We're not going to do anything with this version, but make sure it's accurate anyway."

And that's what they did.

This cult of doing things right is starting to spread.

So, my final piece of advice to you, the consumer of this technology. Remember, if it doesn't work, it doesn't necessarily mean you have a problem.

It may be due to the design of what you are using.

Be aware of good and bad design in your life.

And if you're among the people creating this stuff, easy is hard.

I will explain the details in advance for the viewers.

Remember, the hard part isn't deciding which features to add, it's deciding what to omit.

And above all, your motivation is that “simplicity sells”.

CA: Bravo. DP: Thank you.

CA: Listen, listen!

This is a three minute presentation I gave to high school students in two hours.

And it all started seven years ago on a plane on the way to TED.

And in the seat next to me was a high school, teenage girl, and she came from a really poor family.

And she wanted to change something in her life and asked me a simple little question.

She said, "What will lead to success?"

And I felt so bad because I couldn't give her a good answer.

So I get off the plane and come to TED.

And I think, wow, I'm in the middle of a room of successful people!

So why not ask your children what contributed to their success and pass it on to them?

So, seven years later, 500 interviews later, here's what really makes it successful and what makes TEDster come to life.

And first and foremost is passion.

Freeman Thomas says, "I am driven by my passion."

TEDsters do it for love. They're not doing it for the money.

Carol Colletta says, "I would pay someone to do what I do."

And what's interesting is that if you're doing it for love, the money will come anyway.

work! Rupert Murdoch said to me, "It's all hard work.

Nothing is easy. But it's a lot of fun. ”

Did he say it was fun? Rupert? yes!

(laughs) TEDsters are really enjoying their work. And they work hard.

I thought they weren't workaholics. they are workafolics.

(laughs) Good!

(Applause.) Alex Garden says, “To be successful is to take something seriously and make it work.”

And it's concentration.

Norman Jewison said to me, "I think it's all about focusing on one thing."

And push!

You have to push, push, push, physically and mentally. ”

You have to get over your shame and self-doubt.

Goldie Hawn says, "I was always insecure.

I wasn't good enough. I wasn't smart enough.

I didn't think I would succeed. ”

Now it's not always easy to push yourself, and that's why they invented mothers.

(Laughter) (Applause) Frank Gehry said to me, "My mother pushed me."

(laughs) Please serve!

There are many kids who want to be millionaires.

The first thing I say is, "Well, you can't serve yourself. You must serve something of value to others."

Because that's how people get really rich. ”

idea!

TEDster Bill Gates said, "I had the idea of ​​starting the first microcomputer software company."

I think it was a pretty good idea.

And there's no magic trick to being creative in coming up with ideas. Just do something very simple.

And I will show you many proofs.

Please continue!

“Perseverance is the biggest reason for our success,” says Joe Krause.

Even if you fail, you must persevere. You have to persevere even in trivial things!

Of course this means "criticism, rejection, asshole, pressure".

(Laughter) So the answer to this question is simple. Pay $4,000 to come to TED.

(Laughter) Or, if you can't do that, do these eight things. Believe please. These are the 8 big things that lead to success.

Thank you to all the TEDsters for agreeing to be interviewed!

Chris Anderson: Prime Minister, thank you very much. It was a very interesting story and a very moving one.

So you want a global ethic?

Would you describe it as world citizenship?

Is that an idea you believe in? How would you define it?

Gordon Brown: It's about recognizing global citizenship and responsibility to others.

It is clear to many of us that much remains to be done in the coming years to build a better world.

And there's a lot of common ground about what we should do, and it's important that we all come together.

But we don't always have the means to do so.

Therefore, there are also challenges to be addressed.

I believe the concept of global citizenship evolves from people talking to each other across continents.

But the challenge, of course, is to create the institutions that make that global society work.

But I don't think we should underestimate the extent to which massive changes in technology are enabling people around the world to connect.

CA: But people get excited about this idea of ​​global citizenship, but when they start thinking about patriotism and how the two fit together, they get a little confused again.

So you were elected Prime Minister with the mandate to represent Britain.

How do you reconcile these two things?

GB: Well, of course national identity is still important.

But that doesn't come at the cost of people accepting global responsibility.

And I think one of the problems with the recession is that people are becoming more protectionist, looking at themselves and maybe trying to protect themselves at the expense of others.

Looking at the actual engine of the world economy, the economy cannot progress without trade between countries.

And those countries that become protectionist in the years to come will be deprived of the opportunity to benefit from global economic growth.

Therefore, it is necessary to have a healthy patriotism. It absolutely matters.

But the world has changed fundamentally, and we need to recognize that the problems we face cannot be solved by one nation alone.

CA: Well, sure.

But what do you do when the two are at odds and you are forced to decide between the interests of Britain and the interests of Britons and the rest of the world?

GB: Well, I think we can convince people that what is necessary for the long-term interests of the United Kingdom, what is necessary for the long-term interests of the United States, is to engage properly with the rest of the world and take the necessary actions.

There is another great story about Richard Nixon.

Ghana became independent in 1958, so it was exactly 50 years ago.

Richard Nixon represents the US government at Ghana's independence celebrations.

And this is one of his first visits to an African country as Vice President.

Not knowing what to do, he started walking through the crowd and talking to people. And in this rather unique way he said to people, "How does it feel to be free?"

And he asks around, "How does it feel to be free?"

"What does it feel like to be free?"

Then someone said, "How can I tell? I'm from Alabama."

(Laughter.) And that was in the 1950s.

Now, it should be noted that in the United States, civil rights were achieved in the 1960s.

Equally remarkable, however, is that socio-economic rights in Africa have not advanced so rapidly since the days of colonialism.

Still, America and Africa have common interests.

And we must recognize that the danger of Al-Qaeda and its affiliates advancing in Africa is enormous if we do not align with those who have voices of common sense and voices of democracy in Africa and work together for a common cause.

So I would say that what appears to be altruism in relation to Africa and developing countries is more than that.

It is enlightened self-interest that we cooperate with other countries.

And in the long run, I think our national interests are aligned with our global interests in tackling poverty and climate change.

And whatever the short-term price for taking action on climate change or security, or providing education for people, these are prices worth paying and can build a stronger global society where people feel comfortable with each other and can actually communicate with each other in ways that can build stronger ties between different nations.

CA: I still want to draw on this issue.

Well, you were vacationing at a nice beach, and you got word that a massive earthquake had struck and a tsunami was hitting the beach.

A Nigerian family of five lives in a house at the end of the beach.

And there is an Englishman on the other side of the beach.

You have time -- (laughter) you have time to warn a house.

What is your occupation?

(laughter) GB: Modern communication.

(Applause.) Warn both.

(Applause.) I agree that my responsibility is to keep our people safe first.

And I don't want my remarks today to suggest that I'm downplaying the responsibility each leader has to his country.

But what I'm trying to say is that there are big opportunities open to us that haven't been open before.

But the power to communicate across borders allows us to organize the world differently.

Look at the tsunami, I think this is a classic example.

Where was the early warning system?

Where was the world acting to deal with problems arising from possible earthquakes and possible climate change?

And as the world begins to work together with better early warning systems, some of these issues will be better dealt with.

But at the moment, I think we don't see the great opportunities opened up for us by people's ability to work together in a world where before there was either isolationism or limited alliances based on convenience that didn't really have to deal with some of the major problems.

CA: But I think that's probably the frustration that a lot of people in the audience here have who love the kind of language you're talking about.

It's inspiring.

Many of us believe it must be the future of the world.

And yet, suddenly, when the situation changes, we hear politicians talking, say, as if the life of one US soldier is worth the lives of thousands of Iraqi civilians.

Idealism can go far away when the pedal hits the metal.

What I'm wondering is if we see that change over time, that attitudes are changing in the UK, and if people actually find themselves more supportive of the kind of global ethic you're talking about.

GB: Any religion, any faith, I'm not just speaking here to people of any faith or religion. At the heart of that creed is this global ethic.

And the same global ethic lies at the heart of each of these religions, be it Judaism, Islam, Hinduism or Sikhism.

So I think you're dealing with what people instinctively perceive as part of morality.

So you're building on something that's not pure self-interest.

You are building on people's ideas and values. Perhaps they are like candles that burn very dimly in certain situations.

However, I believe that it is a value that cannot be erased.

The question, then, is how to make that change happen.

How do you convince people that building strong nations is in their interest -- After World War II, we established institutions like the United Nations, the IMF, the World Bank, the World Trade Organization, the Marshall Plan.

There was a time when people talked about the act of creation because these institutions were so new.

But they are outdated. they don't address the issue.

Existing systems alone cannot deal with environmental problems.

Inability to address security issues in the required manner.

Economic and financial problems cannot be addressed.

Therefore, we must rebuild our global institutions and build them in a way that is suitable for this challenge.

And I believe the greatest challenge we face is giving people the confidence that these rules-based institutions can build a truly global society.

So let's go back to the first point.

Sometimes things seem impossible.

No one would have said 50 years ago that apartheid would have ended in 1990, the Berlin Wall would have fallen at the turn of the 80s and 90s, that polio would have been eradicated, and perhaps 60 years ago no one would have said humans could go to the moon.

All these things happened.

By tackling the impossible, we make the impossible possible.

CA: And then there was a speaker who said just that and swallowed the sword right after that, and it was very dramatic.

(laughs) GB: Followed my sword and my swallow.

CA: But certainly a true global ethic is when someone says, ``I believe that all human life on earth deserves equal consideration, regardless of nationality or religion.''

And you have elected politicians.

In a way, no.

Even if you believe that as a human being, you can't say that.

You were chosen for Britain's interests.

GB: We have a responsibility to protect.

So the Treaty of Versailles of 1918, and all the treaties that came before it, the Treaty of Westphalia and everything else, was to protect the sovereign right of nations to do what they wanted.

Since then, the world has moved forward, partly as a result of what happened in the Holocaust, partly as a result of what we saw in Rwanda, partly as a result of people's concern for the rights of individuals within areas in need of protection.

The idea of ​​a responsibility to protect all individuals in situations of humanitarian danger is now becoming established as the governing principle of the world.

So, while we cannot say that the UK will immediately come to the aid of the people of any country at risk, we are in a position to work with other countries to ensure that the whole world accepts this idea that we have a responsibility to protect people who are victims of genocide and humanitarian attacks.

After all, it can only be achieved if international institutions are well-functioning.

And it goes back to the future role of the United Nations and what it can actually do.

However, the responsibility to protect is, in a sense, a new way of thinking that inherits the idea of ​​self-determination, which is a principle of the international community.

CA: In our lifetime, can you imagine a politician working with a full global ethic, a platform like global citizenship?

Basically, he said, "I believe that all people on the planet are equally cared for, and that's what I would do if I were in power.

And we believe that the people of this country are now citizens of the world and uphold that ethic. ”

GB: Isn't that what we do in our discussion of climate change?

We are saying that climate change cannot be solved by one country alone. All countries should be involved.

You are saying you have a need and an obligation to help countries that cannot afford to deal with climate change on their own.

You want to make a deal with all the countries of the world where we all come together to reduce carbon emissions in a way that benefits the world as a whole.

Never before because Kyoto didn't work.

If an agreement could be reached in Copenhagen, people would agree that A. there is a long-term target to reduce carbon emissions and B. there is a short-term target to be achieved, so this is not just an abstraction. Now it's the people who actually make the decisions that make the difference. And if the poorest countries, which have suffered for years and decades of failure to address climate change, can be given special assistance to transition to more energy-efficient technologies, and if we can find a financing mechanism that means we are in a position to financially afford the long-term investments associated with reducing carbon emissions, then we are treating the world equally by taking into account all parts of the planet and their needs.

It doesn't mean that everyone does the exact same thing, because they actually have to do more financially to help the poorest countries, but it does mean that on a single planet the needs of the people are equally considered.

CA: Yes.

And, of course, the theory still persists that those negotiations were torn apart by countries fighting over their own interests.

GB: Yes, but I think Europe is gaining ground. So 27 countries are already united.

So the biggest drawback in Europe is that when you're in a conference and you have 27 people speaking, it takes a very long time.

But we have reached agreement on climate change.

The US has taken its first action on this with a bill that should celebrate President Obama's passage through Congress.

announced by Japan.

China and India agreed on scientific evidence.

And now we need to get them to embrace long-term goals and then short-term goals.

But I think we've seen more progress in the last few weeks than we've seen in years.

And I believe that if we work together, we have a good chance of reaching an agreement in Copenhagen.

I have certainly put forward proposals that the poorest regions of the world will feel have taken their specific needs into account.

And we help them adapt.

And we will help them transition to a low-carbon economy.

To this end, I believe that reform of international organizations is essential.

When the IMF was created in the 1940s, it was established with an investment of around 5% of the world's GDP.

Currently, IMF resources are limited to 1%.

You can't make the difference that it should be in times of crisis.

Therefore, we need to rebuild the world's institutions.

And this is a big job. Convince all the countries with different voting shares in these institutions to do so.

There is an anecdote that three world leaders of the time took the opportunity to seek advice from God.

And the story goes that Bill Clinton went to God and asked when climate change and the low-carbon economy would succeed.

And God shook his head and said, "Not this year, not this ten years, maybe not in [your] lifetime."

And Bill Clinton walked away crying because he didn't get what he wanted.

And the story goes that European Commission President Barroso went to God and asked, "When will the world return to growth?"

Then God said, "Not this year, not this ten years, maybe not in your lifetime."

So Barroso went away crying.

And the Secretary General of the United Nations came to speak to God and said, "When will our international institutions work?"

And God cried out.

(Laughter) It is very important to recognize that this institutional reform is the next step after agreeing that there is a clear ethic that we can build.

CA: Prime Minister, I am sure there are many in the audience who really appreciate the efforts you have made regarding the economic turmoil that we have been in.

And I'm sure you'll have a large audience to support you in advancing this global ethic.

Thank you for coming to TED.

GB: Well, thank you.

(applause)

How do we observe the invisible?

This is a fundamental question for anyone interested in finding and studying black holes.

A black hole cannot be seen directly because it is an object whose gravity is so strong that not even light can escape from it.

Well, my talk about black holes today is about one particular black hole.

I am interested in finding out if there is a truly gigantic, so-called "supermassive" black hole at the center of the galaxy.

The reason this is interesting is that it gives us the opportunity to prove whether these exotic objects really exist.

And second, it gives us the opportunity to understand how these supermassive black holes interact with their environment and how they affect the formation and evolution of the galaxies in which they reside.

Therefore, to understand the black hole proof, we must first understand what a black hole is.

So what is a black hole?

Well, black holes are in many ways incredibly simple objects. This is because there are only three properties that can be explained: mass, spin and charge.

And I will speak only about the masses.

In that sense, it's a very simple object.

But in another sense, it is a very complex object, requiring relatively exotic physics to explain, and in some ways represents the collapse of our physical understanding of the universe.

But today, what I want you to understand about black holes is to think of them as bodies confined to a zero-mass volume for the proof of black holes.

So, we're going to talk about supermassive bodies, and I'll get to what that really means in a moment, but they don't have a finite size.

So this is a little harder.

Fortunately, however, there is a visible finite size, known as the Schwarzschild radius.

And it's named after the man who recognized why it's such an important radius.

This is a virtual radius, not real. A black hole has no size.

So why is it so important?

This is important because it tells us that any object can become a black hole.

So if you can find a way to compress it down to the size of the Schwarzschild radius, you, your neighbors, your cell phone, your auditorium could become a black hole.

What will happen then?

Gravity wins at that point.

Gravity trumps all other known forces.

And the object is forced to continue collapsing into infinitely small objects.

And it's a black hole.

In other words, if you compress the Earth to the size of a sugar cube, the size of the sugar cube will be the Schwarzschild radius, so the Earth will become a black hole.

The key here is to figure out what the Schwarzschild radius is.

And it turns out that it's actually pretty easy to figure out.

It depends only on the mass of the object.

As the object grows, so does the Schwarzschild radius.

The smaller the object, the smaller the Schwarzschild radius.

In other words, compressing the Sun to the size of Oxford University would make it a black hole.

Now you know what the Schwarzschild radius is.

And this is actually a very useful concept. Because we not only know when black holes form, but we also get important ingredients for black hole proofs.

Only two things are required.

I need to figure out what the mass of the object I claim to be a black hole is and what its Schwarzschild radius is.

And since the mass determines the Schwarzschild radius, there really is only one thing you really need to know.

So my job to convince you that black holes exist is to show that there is some body confined within the Schwarzschild radius.

And your job today is to be skeptical.

Okay, so let's talk about no ordinary black hole. Let's talk about supermassive black holes.

So I wanted to say a little bit about what a normal black hole is, as if there could be such a thing as a normal black hole.

A normal black hole is thought to be the final state of the life of a very massive star.

So if a star began its life with a mass much greater than the mass of the Sun, it would end its life exploding and leaving behind the beautiful supernova remnant seen here.

And inside the supernova remnant, there will be a small black hole with about three times the mass of the Sun.

On an astronomical scale, it is a very small black hole.

Now, I want to talk about supermassive black holes.

A supermassive black hole is thought to exist at the center of the galaxy.

Taken by the Hubble Space Telescope, this beautiful photo shows that galaxies come in all shapes and sizes.

Some are big. There are also smaller ones.

Almost all the objects in that picture are galaxies.

And in the upper left there is a very nice spiral.

And to give you a sense of its scale, that galaxy has 100 billion stars.

And all the light you see from a typical galaxy like the one you see here comes from light from stars.

In other words, we can see galaxies thanks to the light of the stars.

Well, there are some galaxies that are relatively exotic.

I like to call them the Primadonnas of the Galactic World. Because they are kind of showing off.

And they are called active galactic nuclei.

And we call them so because their nuclei, or centers, are very active.

So that's the center there, and that's where most of the starlight actually comes out.

But what we actually see is light that cannot be explained by starlight.

much more energetic.

In fact, some examples are similar to what we're seeing here.

There is also a jet that erupts from the center.

Again, just thinking that galaxies are made up of stars makes it very difficult to explain the source of energy.

Therefore, people have thought that perhaps there is a supermassive black hole where matter falls.

This means that the black hole itself cannot be seen, but we can convert the gravitational energy of the black hole into the light we see.

Therefore, there is an idea that there may be a supermassive black hole at the center of the galaxy.

But that's kind of an indirect argument.

Nevertheless, the idea has arisen that perhaps these prima donnas are not the only ones with these supermassive black holes, but rather all galaxies harbor these supermassive black holes at their centers.

And if that's the case, this is an example of a regular galaxy. What we see is starlight.

And if there is a supermassive black hole, all we have to assume is that it is a dieting black hole.

Because that is the way to suppress the energy phenomena seen in active galactic nuclei.

If you're looking for these stealthy black holes at the center of the galaxy, the best place to look is our galaxy, the Milky Way.

And here is a wide field of view photograph of the center of the Milky Way.

And what we see is a string of stars.

That's because our galaxy has a flat disk-like structure.

And we live in the middle of it. So if you look to the center you see this plane that defines the plane of the galaxy, or the line that defines the plane of the galaxy.

Now, the advantage of studying our own galaxy is that the next closest galaxy is 100 times further away, so it's the closest example of a galactic center we'll ever have.

Therefore, we can see much more detail in our galaxy than elsewhere.

As you will soon see, your ability to see details is key to this experiment.

So how do astronomers prove that there is a lot of mass in a small volume?

That's the work I have to show you today.

And the tool we use is to observe how stars orbit around black holes.

Stars orbit around black holes in the same way planets orbit around the sun.

Gravity is what makes these objects orbit.

If the giant objects weren't there, they would fly away, or at least move much slower. Because it's only how much mass is in their orbit that determines how they orbit.

Remember, my job is to show that there is a lot of mass in a small volume.

So if you know how fast it is orbiting, you know its mass.

And if you know the orbital scale, you know the radius.

That's why I want to see stars as close to the center of the galaxy as possible.

This is because we want to show that there is a mass in as small an area as possible.

This means that you want to see a lot of detail.

That's why we used the world's largest telescope for this experiment.

This is Keck Observatory. There are two telescopes with mirrors 10 meters in diameter, roughly the diameter of a tennis court.

This is great. Because the campaign promise of large telescopes is that the bigger the telescope, the smaller the detail you see.

But those telescopes, or any telescopes on the ground, have proven to be having a bit of trouble delivering on this election promise.

And it's because of the atmosphere.

The atmosphere is great for us. Thanks to that, we can live on earth.

However, this is relatively difficult for astronomers who want to study astronomical sources from the atmosphere.

If you imagine what this looks like, it's actually like looking at pebbles at the bottom of a river.

If you look at the pebbles on the riverbed, it is very difficult to see the pebbles on the riverbed because the current is constantly flowing and turbulent.

Likewise, the constantly passing atmosphere makes it very difficult to see astronomical sources.

So I've spent much of my career working on ways to fix the atmosphere and give it a cleaner look.

This gives a profit of about 20 times.

And I think you'll all agree that if I could find a way to make my life 20x better, my lifestyle would probably be a lot better. For example, salary or children.

This animation shows an example of a technique we use called adaptive optics.

Here's an example of what you'd see if you didn't use this technique (i.e. just an image showing a star) and an animation centering the box at the center of the galaxy where the black hole is supposed to be.

In other words, without this technology, we cannot see the stars.

With this technology, suddenly you can see it.

The technology works by introducing a continuously changing mirror into the telescope's optics to counteract the effects of the atmosphere on you.

So it's like very high-end spectacles for a telescope.

Now, for the next few slides, we'll focus on that little square there.

So we've looked at all the stars, but we're only going to look at the stars within this little square.

So I'd like to see how these worked.

And over the course of this experiment, these stars have moved a tremendous amount.

We've been doing this experiment for 15 years, and we've seen the stars go around in circles.

Now, most astronomers have a favorite star, and my star today is the star labeled there, SO-2.

He really is my favorite star in the world.

Because it goes full circle in just 15 years.

And to give you an idea of ​​how short it is, it takes the Sun 200 million years to circle the center of the galaxy.

A star as we knew it before, a star as close as possible to the center of the galaxy, would take 500 years.

And this, this goes through the life of a human being.

In a way, it's very deep.

But that's the key to this experiment. An orbital tells you how much mass is within a very small radius.

Now let's take a look at a picture showing the size at which the galactic center mass could be confined prior to this experiment.

What we have long known is that within that circle is four million times the mass of the Sun.

As you can see, there were many other things in that circle.

I can see many stars.

So the idea of ​​a supermassive black hole at the center of a galaxy actually had many alternatives. Because you can put a lot of things in there.

However, in this experiment, the same mass could be confined to a much smaller volume, 10,000 times smaller.

Thanks to that, we were able to show that a supermassive black hole exists there.

To give you an idea of ​​how small that size is, that's the size of our solar system.

In other words, it packs four million times the mass of the Sun into its small volume.

Well, the truth about advertising. right?

I said my job is to bring it down to the Schwarzschild radius.

And the truth is, I'm not quite there yet.

But really, today there is no other way to explain this concentration of mass.

And indeed, this is the best evidence we have ever known not only of the existence of a supermassive black hole at the center of our galaxy, but of anything in our universe.

So what's next? In fact, I think this is about the same as what we can do with today's technology, so let's get down to the matter.

So what I want to tell you, very briefly, are some examples of the excitement of what we can do today at the center of the galaxy now that we know, or at least believe there is, a supermassive black hole out there.

And what's interesting about this experiment is that while we've been testing some of the ideas we've had about the effects of supermassive black holes at the center of galaxies, nearly all of them don't line up with what we're actually seeing.

That's what makes it fun.

So let me give you two examples.

You can ask, "What do you expect from an old star, a star that has been around the center of a galaxy for a long time and has had enough time to interact with a black hole?"

The expectation, then, is that old stars should be very densely packed around the black hole.

You should be able to see many old stars next to that black hole.

Likewise, for young stars, or vice versa, they shouldn't be there.

Black holes do not make friendly neighbors in stellar nurseries.

For stars to form, large balls of gas and dust must collapse.

And it is a very fragile entity.

And what do large black holes do?

Strip away that gas cloud.

One side pulls much harder than the other, tearing the cloud apart.

In fact, we expected that star formation should not proceed in that environment.

So young stars shouldn't watch.

So what do you see?

Using observations other than the one I showed you today, you can really figure out which ones are older and which ones are younger.

Old ones are red.

Young people are blue. And I still don't understand the yellow one.

So you can already see the surprise.

Running out of old stars.

There are plenty of young stars, so it's the exact opposite of what you might expect.

Now comes the fun part.

And indeed, today, this is the mystery we are trying to unravel, how we get it, how we resolve this contradiction.

So, in fact, my graduate students are making observations at this moment today with a telescope in Hawaii that hopefully will take us to the next level. There we can address this question of why there are so many young stars and so few old stars.

To make further progress, we need to actually see the orbits of stars that are far away.

That will likely require much more sophisticated technology than we have today.

Because, in fact, when we said we were correcting for the Earth's atmosphere, we actually only corrected for half the error that was introduced.

This is done by firing a laser into the atmosphere. What we can do is shed a little more light and fix the rest.

This is what we hope to achieve in the next few years.

And on longer timescales, what we want is to build even larger telescopes. Remember, in astronomy bigger is better.

Therefore, I would like to make a 30-meter telescope.

And with this telescope, we should be able to see stars even closer to the center of the galaxy.

And we hope to be able to test some of Einstein's theory of general relativity and some cosmological ideas about how galaxies form.

So I think the future of this experiment will be very interesting.

In conclusion, I'll show you an animation that basically shows how these trajectories are moving in 3D.

And I hope that at least convinces you that supermassive black holes do indeed exist at the center of galaxies.

This means that these objects do exist in our universe, and we have to deal with this and explain how we can obtain these objects in our physical world.

Second, we were able to observe how supermassive black holes interact, perhaps understanding the role black holes play in shaping what galaxies are and how they function.

And last but not least, none of this would have happened without the incredible advances in technology.

And we think this is an area that is moving incredibly fast and has a lot to do in the future.

Thank you very much.

(applause)

Emotions should not immediately move us to the desert.

So, first, a little housekeeping notice. Turn off the proper English check programs installed in your brain.

(Applause) So, welcome to the desert of India, the golden desert.

It has the lowest rainfall in the country and the lowest rainfall.

16 [centimeters] if you are familiar with inches, 9 inches and centimeters.

The groundwater depth is 300 feet, 100 meters.

And most of it is salt water, not suitable for drinking.

As a result, most villages have no electricity, but they cannot install hand pumps or dig wells.

But suppose we use a green technology, a solar pump. They are useless in this area.

Welcome to the Golden Desert.

Clouds rarely visit this area.

But here we see that this dialect uses 40 different names for clouds.

There are many techniques for collecting rain.

This is a new work, a new program.

But for desert societies, this is no program. This is their life.

And they collect rain in different ways.

So this is the first device they use to collect rain.

It is called Kund. Somewhere it's called [unintelligible].

And you'll find they're creating a kind of false catchment.

There are deserts, dunes, and small fields.

And this is all on a heavily swelled platform.

You can see that this catchment area has a small hole through which water falls and has a slope.

Our engineers and architects sometimes don't mind the slope of the bathroom, but here it is properly taken into account.

And the water goes where it should go.

and its depth is 40 feet.

The waterproofing work is done more perfectly than the contractors in the city because not a single drop is wasted.

Collect 100,000 liters in one season.

And this is pure drinking water.

Hard water exists below the surface.

But now you can eat this all year round.

It's two houses.

We often use the word convention.

Because we are accustomed to receiving what is written.

But here it is not spelled out by law.

And people built houses and made water tanks.

It is a platform that is as exciting as this stage.

In fact, they go up to 15 feet deep and collect rainwater from roofs, small pipes, and courtyards.

During the good monsoon season, we can harvest as many as 25,000.

Another big one, this of course is outside the hardcore desert area.

It is near Jaipur. It is called Jaigarh Fort.

And it can collect 6 million gallons of rainwater in one season.

The tree is 400 years old.

That means we've been supplying nearly 6 million gallons of water each season since 400 years.

You can calculate the price of that water.

It draws water from 15 kilometers of canals.

You can see modern roads that are less than 50 years old.

It can break sometimes.

But this 400-year-old canal that draws water has been maintained for generations.

Of course, if you want to go inside, the two doors are locked.

However, you can publish it for TED folks.

(Laughter) And we ask them.

I see someone bringing two canisters of water.

And water level, this is not an empty canister. The water level is just so far.

The color, taste and purity of this water are the envy of many municipalities.

This is called Zero B type water because it is pure distilled water that comes out of the clouds.

We stop for a short commercial break, then return to the traditional system.

The government believed that the area was very backward and that a multi-million dollar project should be put in place to bring water from the Himalayas.

That's why I said this was a commercial break.

(Laughter) But we're going back to the traditional one again.

So, when water comes from a distance of 300 or 400 kilometers, this happens immediately.

In many parts, water hyacinths covered this great canal like something.

Of course, there are places where water is reaching, but it's not that it's not reaching at all.

But at the tail end of the Jaisalmer region, in Bikaner you'll find: Where water hyacinths did not grow, sand flows into canals.

A bonus is that you can spot wildlife around it.

(Laughter) About 30 years ago, 25 years ago, when this canal was built, there was a full-page advertisement.

They said these new cement tanks would supply tap water, ditching the old system.

It's a dream And it became a dream.

Because soon the water could not reach these areas.

And people started renovating their buildings.

These are all traditional water structures, which cannot be explained in a short time.

But you can see that there is no woman standing on it.

(Laughter.) And they're braiding their hair.

(Applause) Jaisalmer. This is the center of the desert.

This town was founded 800 years ago.

I don't know if Bombay was there by then, Delhi was there, Chennai was there, or Bangalore was there.

In other words, it was the end of the Silk Road.

800 years ago, they were well connected throughout Europe.

None of us could go to Europe, but Jaisalmer had deep ties with Europe.

And here is the area of ​​16 centimeters.

Due to the limited amount of rainfall, the most colorful life flourished in these areas.

There is no water on this slide.

But it is invisible.

Somewhere a creek or creek runs through here.

Or, if you want to paint it, you could paint the whole thing blue because all the roofs in this photo collect rainwater and accumulate in the room.

But apart from this system, they have designed 52 beautiful bodies of water around this town.

Real estate can also be added in what we call a private-public partnership.

That is why real estate, public and private entrepreneurs are working together to build this beautiful body of water.

And it is a kind of water body for all seasons.

you will admire it. See its beauty all year round.

Whether the water level rises or falls, the beauty is always there.

Of course, another body of water dries up during the summer months, but you can see how traditional societies combine engineering with aesthetics and heart.

These statues, great statues, give you an idea about the water table.

When this rain starts to fill this tank, it will submerge this beautiful statue that we call today in English "mass communication".

This was for the press.

Everyone in town will know that the elephant has drowned, so the water will be there for 7 months, or 9 months, or 12 months.

And they come and worship this pond and offer their respect and gratitude.

Another small body of water is called "Obscure".

It's hard to translate in English, especially my English.

But the closest thing would be 'glory', or reputation.

This small body of water has a desert reputation that never runs dry.

No one has ever seen this body of water dry up during periods of severe drought.

And perhaps they also knew the future.

It was designed about 150 years ago.

But perhaps they knew there was a TED Green and Blue session on November 6, 2009, so they drew it this way.

(Laughter) (Applause) Dry water. Children are standing on a device that is very difficult to explain.

This is called Kund. In English, we have surface water and groundwater.

But this is not groundwater.

Groundwater can be drawn from any well.

But this is no ordinary well.

Squeeze out the moisture hidden in the sand.

And they named this water the third called "Opaque".

And under it runs a gypsum belt.

And it was deposited by the great Mother Earth about 3 million years ago.

And with this gypsum strip, they can harvest this water.

This is the same dry water body.

Well, Kund is not found. They are all submerged.

However, if the water is less, it will be possible to draw water from those structures throughout the year.

This year, I was able to harvest only 6 centimeters.

If the rainfall is 6 centimeters, if you find water problem in your city of Delhi, Bombay, Bangalore, Mysore, please come to our area within 6 centimeters range and we will call you to provide water.

(Laughter.) How do they keep them?

There are three parts: concept, planning, actual production, and maintenance.

It is a structure to be maintained for centuries, for generations, without the need for any departments or funds. So the secret is "[unintelligible]", respect.

Yours, my property, not mine, every time.

These stone pillars are thus a reminder that you are entering a body of water.

Do not spit or do anything bad to collect clean water.

Another pillar, the stone pillar on the right.

If you climb these 3 steps and 6 steps, you will find something very nice.

This was done in the 11th century.

And we have to go further down.

A picture is worth a thousand words, but we can say a thousand words right now, and a thousand more.

As the water table falls, new stairs will appear.

Some people will be submerged when they come up.

All year round, this beautiful system will bring you joy.

There are stairs on three sides and a four-story building ready for a TED conference on four sides.

(Applause) Excuse me, who built these structures?

they are right in front of you.

We had the best civil engineers, the best planners, the best architects.

It can be said that thanks to them, thanks to their ancestors, India was able to establish its first technical college in 1847.

There were no English middle schools then, not even Hindi schools, there were no [obscure] schools.

But such people were forced to go to the East India Company, who came here for a very dirty kind of business...

(Laughter) But not to create an engineering university.

But thanks to them, the first technical colleges were established not in towns, but in small villages.

The last point is that we all know in grade school that camels are ships in the desert.

So you can find it through jeeps, camels and carts.

This tire came from an airplane.

There, see the beauty of a desert society where rainwater can be collected, jet tires can be used to craft something, and even camel carts can be used.

The last picture is a tattoo, a tattoo from 2000 years ago.

they used it on their bodies.

Once blacklisted and scammed, tattoos are now commonplace.

(Laughter) (Applause) This tattoo can be copied. I have several of these posters.

(Laughter) The center of life is water.

Beautiful waves.

These are the beautiful stairs we saw earlier in one of the slides.

These are trees.

And these are the flowers that add fragrance to our lives.

So this is the message of the desert.

thank you very much.

(Applause) Chris Anderson: So first of all, I really wish you had your eloquence in any language.

(Applause.) These crafts and designs are inspiring.

Do you think these can be leveraged elsewhere, and do you think the world can learn from them?

Or is this just right for this place?

Anupam Mishra: No, the basic idea is to use the water that falls on our area.

So ponds, or open bodies, are everywhere, from Sri Lanka to Kashmir and elsewhere.

And there are two types of this UNKNOWN that holds water.

One charge, one save.

So it depends on the terrain.

However, the gypsum-belt Kund would have to go back in time to 3 million years ago.

Once you have it, you are ready to go.

Otherwise it can't be done.

(Laughter) (Applause) CA: Thank you very much.

(applause)

I'm talking to you about the worst form of human rights violations, the third largest organized crime, a $10 billion industry.

I'm talking about modern slavery.

I would like to tell the story of three children named Pranitha, Shaheen and Anjali.

Planita's mother was a prostitute and a prostitute.

She contracted HIV and, near the end of her life, when she was in the final stages of AIDS, unable to prostitute herself, she sold 4-year-old Planita to a broker.

By the time we got the information and arrived there, Ms. Planita had already been raped by three men.

I don't even know Shaheen's background.

We found her raped by a bunch of guys on the railroad tracks, I didn't know much.

However, the signs that appeared on her body were that the intestines were outside the body.

And when we took her to the hospital, she needed 32 stitches to put her intestines back into her body.

We still don't know who her parents are or who she is.

All we know is that hundreds of men used her cruelly.

Anjali's father was a heavy drinker and sold his children for pornography.

What you see here are images of 3-, 4-, and 5-year-olds who have been trafficked for commercial sexual exploitation.

Hundreds of thousands of children between the ages of 3 and 4 are sold into sex slavery in this country and around the world.

However, that is not the only purpose for which humans are sold.

It is sold under the name of adoption.

sold under the guise of organ trafficking.

They are sold under the guise of forced labour, camel riding, and whatever else.

I work on commercial sexual exploitation issues.

And I'll tell you the story from there.

My own journey of working with these children began when I was a teenager.

When I was 15, I was gang-raped by eight men.

I don't remember the rape part as much as the anger part.

Yes, there were eight men who defiled and raped me, but it was not in my consciousness.

I never felt that I was a victim then or now.

But what remains from that time to the present day – and I am now 40 – is this monstrous exorbitant anger.

For two years I was ostracized, stigmatized and isolated because I was a victim.

That's what we do with all traffic accident victims.

We as a society have a PhD on victim abuse.

From the time I was 15, when I started looking around, I began to see hundreds and thousands of women and children left in practices like sex slavery, never given any rest because we didn't allow them to enter.

Where will their journey begin?

Most of them come from families that are not only poor, but have very little choice.

Even the middle class can be trafficked.

I had this I.S. An officer's daughter, 14 years old, studying at the 9th standard, was raped while chatting with a person, ran away from home to become a heroine, and was trafficked.

I have hundreds and thousands of stories of very wealthy families and children of wealthy families who are being trafficked.

These people are deceived and coerced.

99.9 percent of them resist being recruited into prostitution.

Some pay the price.

they are killed. we don't even hear about them.

They are voiceless, [unintelligible], nameless people.

But the rest of those who succumb to it are subjected to daily torture.

Because the men who come to them are not the ones who want you as their girlfriend or have a family.

These are the guys who buy you, use you, and throw you in an hour, a day.

The girls I have rescued - I have rescued more than 3,200 girls - each tell me a common story...

(Applause.) At least there's a man putting chili powder in her vagina, a man smoking a cigarette and setting her on fire, and a man whipping her.

We live among those people. They are our brothers, our fathers, our uncles, our cousins, all around us.

And we are silent about them.

We believe it will be easy money.

I think it's a shortcut.

We think that person likes doing what he or she is doing.

But the added bonuses she gets are various infections, sexually transmitted diseases, HIV, AIDS, syphilis, gonorrhea, whatever, substance abuse, drugs, anything under the sun.

And one day she will give up on you and me. Because we have no choice for her.

She therefore begins to normalize this exploitation.

She believes, "Yes, this is my destiny."

Being raped by 100 men a day is normal.

And living in a shelter is abnormal.

Rebirth is abnormal.

It is in that context that I work.

That's how I save my children.

I've rescued three-year-olds, and I've rescued 40-year-old women.

One of the biggest challenges I had when rescuing them was where to start.

Because there were many people who were already infected with HIV.

A third of the people I rescue are HIV positive.

My challenge, therefore, was to understand how I could derive strength from this pain.

And for me, I had the best experience.

Understanding myself, understanding my own pain, understanding my own loneliness have been my greatest teachers.

Because what we have done for them is to understand their potential.

Here is a girl who is training as a welder.

She works in a workshop that makes furniture for a very large company in Hyderabad.

Her income is around 12,000 rupees.

She is an illiterate girl who is trained and skilled as a welder.

Why not welding, why not computers?

We felt that one of the things they possessed was tremendous courage.

They didn't have paruda or hijab in their bodies. They crossed the wall.

So they could very easily fight in a male-dominated world and not be too shy about it.

We have trained girls as carpenters, masons, security guards and taxi drivers.

And each of them excels in his chosen field, gains confidence, restores dignity, and builds hope for his life.

They also work full-time as masons for major construction companies like Ramki Construction.

what was my challenge?

The challenge for me is not the traffickers who beat me up.

I have been beaten over 14 times in my life.

I am deaf in my right ear.

A staff member was killed during a rescue.

My biggest challenge is society.

it's you and me

My greatest challenge is to prevent you from accepting these victims as our own.

A very supportive friend of mine, out of my goodwill, gave me 2,000 rupees for vegetables every month.

When her mother fell ill, she said, 'Suneetha, you have a lot of connections.

Can someone come and work at my house so that I can take care of my mother? ”

And there are long rest periods.

And she said, "Our girls don't have one."

It is very fashionable to talk about human trafficking in this wonderful air-conditioned hall.

It is very suitable for discussion, discourse, filmmaking and all kinds of uses.

But it's not good to bring them into the house.

Giving them employment in our factories and companies is not a good thing.

Studying with children is not good for them either.

It ends there.

That is my biggest challenge.

I am here today not only as Sunisa Krishnan.

I am here as an advocate for victims and survivors of human trafficking.

they need your attention.

they need your empathy.

They need your acceptance more than anything else.

When I talk to people, one thing I keep saying over and over again is don't say a hundred ways how you can't deal with this issue.

Can you think of one way to deal with this problem?

And that's why I'm here, asking for your support, asking for your support, asking for your support.

Can we break the culture of silence?

Can you tell at least two people about this story?

Tell them this story. Convince two other people to tell this story.

I am not asking you to become Mahatma Gandhi, Martin Luther Kings, Medha Patkal, or anything like that.

I ask you, in your limited world, can you open your heart? Can you open your mind?

Could you include these people as well?

Because they are part of us too.

They are part of this world too.

I ask you, for the sake of these children you see, they are gone.

They died of AIDS last year.

I ask you to help them and accept them as human beings - not as charity or philanthropy, but as human beings who deserve all our support.

I am asking you these questions because no child or human deserves what these children have gone through.

thank you.

(applause)

For the last 20 years I have been designing puzzles.

And I'm here today to show you a little bit about what I'm doing, starting with the first puzzle I designed.

I designed puzzles for books and printed materials.

I'm a puzzle columnist for Discover Magazine.

I've been doing that for about 10 years.

There is a monthly puzzle calendar.

I also do toys. Most of my work is computer games.

I did a puzzle of "Bejeweled".

(Applause.) I didn't invent "bejeweled." You cannot take credit for it.

So in the first puzzle in 6th grade, the teacher said, "Oh, look, he likes to build things.

Have students cut out letters from construction paper for the board. ”

I thought this was a great assignment.

So this is what I came up with. Start messing around with it.

I came up with this letter. This is the alphabet folded only once.

The question is, what character will it be when unfolded?

I have one tip. Not "L".

(Laughs) Of course it might be "L".

So what else can you think of?

Yes, many have figured it out.

oh yeah. So be smart.

Well that was my first puzzle. I'm obsessed.

I made something new. I've done crossword puzzles before so I was super excited, but it's like filling in someone else's matrix.

This was really original. I'm obsessed.

I read Martin Gardner's column in Scientific American.

I went on and eventually decided to devote myself to it full time.

Now let's stop for a moment and think about what we mean by puzzles.

A puzzle is a problem that is fun to solve and has a correct answer.

It's "fun to solve" as opposed to mundane problems that frankly aren't very well designed puzzles.

they may have a solution.

It may take a long time. No one had written down the rules clearly.

Who designed this?

Life isn't a very well written story, so it's like having to hire a writer to make a movie.

Well, I take everyday problems and make puzzles out of them.

And the "correct answer", of course there may be more than one correct answer. Many puzzles have multiple puzzles.

But in contrast to some other plays, toys and games. A toy is anything that is played with without a specific purpose.

You can make it out of Lego.

You can do whatever you like.

Or in a competitive game like chess, you're not trying to solve it...you can make a chess puzzle, but the real goal is to beat other players.

I consider puzzles to be a form of art.

they are very old. As far back as history is written.

It's a very small form, a very compact form, like a joke, a poem, a magic trick, or a song.

At worst, it's disposable, recreational.

But at best, they can reach for more and create a memorable impression.

As you can see, my career progress has sought to create puzzles that have a memorable impact.

So one of the things I realized early on when I started playing computer games is that you can create puzzles that change the user's perception.

Here's how. Here are some famous ones.

That is, two profiles in black, or a white vase in the middle.

This is called the figure-ground illusion.

Artist M.C. Escher utilized it in some fine prints.

This time it's "day and night".

Here's what I did with the figure and the ground.

So here we have a black "figure".

Here is a white "figure".

And it's all part of the same design.

One background has another background.

Originally, I was trying to use the words "figure" and "ground".

But I realized that I can't do that. Changed the problem.

It's all "figure".

(Laughter) There are a few others. here is my name

That would be the title of my first book, "Inversions."

This kind of design is now called by the word "ambigram".

Here are some more. Here we actually have the numbers 1 to 10 and the numbers 0 to 9.

Each letter here is one of these numbers.

Not exactly an ambigram in the traditional sense.

I like to explore what ambigrams mean.

Here is the word "mirror". No, it's not upside down.

The same is true here.

And then there's John Maeda, a great fellow who's just been appointed head of RISD from the Media Lab.

So i did this for him. It's a kind of visual norm.

(Laughter) And recently, I made an ambigram of a magician's name in Magic Magazine.

Here, Pen and Teller are drawn upside down.

This will show up in my puzzle calendar.

Now let's go back to the slides.

thank you very much.

Well, those are fun to watch.

So how do we do it interactively?

For a while I was an interface designer.

So I think a lot about interactions.

Now, let's start by simplifying the vase illusion and make the one on the right.

Now, if you could pick up a black vase, it would look like the picture above.

If you pick up the white part, it will look like the picture below.

Well, you can't do that physically, but you can do it on your computer. Let's switch to PC.

And this is Figure Ground.

The goal here is to take the piece on the left so that it looks like the shape on the right.

This follows the rules I mentioned earlier. All black areas surrounded by white are selectable.

But that also applies to the white part.

Here you can pick up the white part in the middle.

Take it one step further.

So here are some works. Move them together and this becomes the active piece.

You can step into someone's perception and let them experience something.

It's like the old adage, "You can tell or show someone something, but if you do it, you'll actually learn it."

There is one more thing you can do.

There is a game called Rush Hour.

This is one of the true masterpieces of puzzle design next to the Rubik's Cube.

Therefore, the parking lot here is crowded with cars here and there.

The goal is to get the red car out. It's a sliding block puzzle.

It's made by a company called Think Fun.

Very well made. i love this puzzle.

Now let's play one. here. So here is a very easy puzzle.

Too simple, let's add one more.

Okay, so how do we solve this?

Now, move the blue one out of the way.

Now let's make it a little harder. It's still pretty easy.

Now let's make it a little more difficult.

Now this is a little tricky.

Look? what are you doing here

What will be the first move?

Move the blue one up to move the lavender one to the right.

And you can make puzzles that are completely unsolvable like this one.

These four are trapped inside a windmill. they cannot be separated.

I wanted to make a sequel.

I didn't come up with the original idea. But this is another way my job as an inventor is to create sequels.

I came up with this. This is railroad rush hour.

The basic game is the same, but we have introduced a new piece, a square piece that can be moved both horizontally and vertically.

In other games, cars can only move forwards and backwards.

I created a ton of levels for that.

We are currently distributing them to schools.

And it includes exercises that show not only how to solve these puzzles, but how to extract principles for solving math puzzles, science, and other problems.

So I'm very interested in learning how to make your own puzzles, not just me making them.

Garry Trudeau calls himself an investigative cartoonist.

He does a lot of research before writing a manga.

At Discover Magazine, I'm an investigative puzzle creator.

I am interested in gene sequences.

So I said, "How on earth can you come up with the sequence of base pairs in DNA?"

Cut the DNA, sequence the individual pieces, and look for overlaps. They basically match at their ends. And I said, "This is like a jigsaw puzzle, except the pieces overlap."

So here's what I created for Discover Magazine.

And it has to be resolved within the magazine.

As you know, pieces cannot be cut and moved.

So, here are 9 works. And I need to put them in this grid.

And you need to select the part that overlaps the edge.

There is only one solution. It's not that difficult.

But it takes some patience.

When completed, it will be a design where you can see the word "spiral" when you squint.

So it's a form of puzzle that emerges from the content rather than the other way around.

Here are a few more. This is a physics-based puzzle.

Which one will these fall into?

One of these weighs 50 lbs, 30 lbs and 10 lbs.

And it will fall in different directions, depending on how heavy either one weighs.

And this is a puzzle based on mixing colors.

If you break this image down into the basic colors of printing, cyan, magenta, yellow, and black, and mix them together, you get this weird picture.

What separations were mixed to create these photos?

Makes me think about color.

Finally, what I am doing now. So I went to a website called ShuffleBrain.com and joined my wife, Amy-Jo Kim.

She can easily come here and talk about her work.

That's why we make smart games for social media.

I'll explain what that means. We see three trends.

This is what is happening in the gaming industry right now.

First of all, for a long time, computer games meant very violent, very fast games for teenage boys, like shootouts like Doom. right? It's someone who plays computer games.

Well, what do you think? That is changing.

"Bejeweled" was a big hit. It was a game that opened up the world of so-called casual games.

And the main players are women over the age of 35.

And recently, "Rock Band" is a big hit.

And it's a game you play with others.

It's very physical. It's no different than traditional games.

This is what is becoming mainstream in electronic games.

Well, there are some interesting things going on in it.

There is also a trend towards games that are good for the body.

why? Now, us older baby boomers, we eat healthy food and exercise. what happens to our hearts?

Oh, our parents are getting Alzheimer's disease. You should do something

It turns out that doing crossword puzzles can reverse some of the effects of Alzheimer's disease.

So games like "Brain Age" came out for the Nintendo DS and were huge hits.

Many people play sudoku. Some doctors actually prescribe it.

And then there's social media, what's going on on the internet.

Everyone now thinks of themselves as creators, not just viewers.

And what does this mean?

Here is what we are seeing.

The perfect game for a healthy lifestyle.

they are part of your life. They are not necessarily separate.

And they are both good and fun for you.

I'm a puzzle person. My wife is a social media expert.

And we decided to combine our skills.

The first game is "Photo Grab". The game takes approximately 1 minute and 20 seconds.

This is my first time playing the game. have understood.

Let's see how well we can do it. There are 3 images.

Each time is 24 seconds.

where is that?

Play as soon as possible.

But when you see it, shout out the answer.

Get More -- Down, okay, yes, where is it?

oh yeah. Yes, I understand. J-O and -- I think that's the part. got a bow That bow will come in handy.

it's his hair There are many map issues.

Yes it is easy. have understood. So, oh! Next.

Now that's the lens.

who?

It looks like a black shape. So where is it?

That's the whole corner.

Yes, I've played with this image before, but you can put your own image here, even if you create your own puzzles.

And now people around the world are doing it.

there you are If you want to try it yourself, visit ShuffleBrain.com. thank you.

(applause)

Chris was very kind.

I don't know how you keep it up, Chris, I really don't know.

Very nice, all week long. He's the kind of guy who can say, "Chris, I'm so sorry I hit your car."

To make matters worse, they crashed into your house.

Your house caught fire.

Moreover, your wife has just eloped with your best friend. ”

And Chris will say "thank you".

(Laughter) "Thanks for sharing, very interesting."

(laughs) "Thank you for taking me to places I didn't know existed. Thank you."

(Laughter) One of them -- (Applause) Thank you for inviting me.

One of the peculiarities of appearing later in the TED week is that as the days go by, all the other speakers gradually cover most of what you were trying to say.

(Laughter) We talked about fusion for about 10 minutes.

Spectroscopy, that was another matter.

Parallel world.

So this morning I thought, "Yeah, let's do a card trick."

(Laughter) It's gone too.

And today is Emmanuel's Day, I think we've already agreed on that, right?

Emmanuel? absolutely. (Applause.) We were going to end with a dance, but...

(Laughter) So this is going to be pretty shabby.

So what I thought I would do is, in honor of Emmanuel, all I can do is start the first TED Global Auction today.

Let me start by saying that this is an Enigma decoder.

(Laughter) Who would start with $1,000? Who?

thank you. Bruno's face changed just then, he said, "No, don't go through this. Don't, don't."

don't go through this. don't do that. ”

(laughs) I'm worried. When I first received the invitation, they said somewhere in the content, "15 minutes to change the world, your moment is on stage." The world can change in 15 minutes.

I don't know about you, but it takes 15 minutes to change the plugs.

(Laughter) So the idea of ​​changing the world is really extraordinary.

Of course, I found that I didn't need to change the plugs. I've seen great demonstrations of wireless electricity, so that's great. You know, it inspires us.

300 years ago he would have been burned at the stake for that crime.

(Laughter) And now it's an idea.

(Laughs) That's amazing. amazing.

But you meet some wonderful people, people who see the world in a completely different way.

Yesterday David Deutsch covered most of what I was trying to say.

(Laughter) But when you think of the world that way, don't you think going to Starbucks is a whole new experience?

I mean, when he walks in, they'll say, "Would you like a macchiato, a latte, an Americano, or a cappuccino?"

And he will say, "You offer me infinite variety."

(Laughter) "How can your coffee be real?"

(Laughter) And they'll say, "May I serve the next customer?"

(laughter) And Elaine Morgan yesterday, was she great?

wonderful. very good.

Her story is about aquatic apes and, of course, about Darwinism and its relevance to the fact that we are all naked under it, that we are hairless and can swim quite well.

And she said she was 90 years old and she didn't have time.

And she's desperate to find more evidence of that connection.

And I think, 'I'm sitting next to Lewis Pugh.

(Laughter) This guy has swum around the North Pole, do you need more proof?

(laughter) And there he is.

(Applause.) That's how TED builds connections.

I wasn't here on Tuesday. I didn't actually see Gordon Brown's job application -- well, sorry.

(laughs) I'm sorry. (Applause.) I'm so sorry. no no (Applause.) No, no, oh... (Applause.) (As Brown): "Global problems need Scottish solutions."

(Laughter) The problem I have is that when Gordon Brown comes on stage, he searches the world like a man who just ripped the head out of a bear suit.

(as Brown): "Hello, can I tell you what happened in the woods over there?

No, no." (Laughter) "I'm sorry. I only have 18 minutes to talk about saving the world, saving the planet, and global institutions.

Our work on climate change, I only have 18 minutes, but unfortunately I cannot talk about all the great things we are doing to advance the UK's climate change agenda, such as our planned third runway at Heathrow..."

(Laughter) "Exciting news that the massive coal power plant we are building in Kings North and of course the UK's only wind turbine manufacturer for today, only this week, has been forced to close.

Unfortunately I don't have time to mention them. ”

(Applause) "British jobs for Scots...

no. (Laughter) "Christian principles, Christian values.

Do not kill, do not steal, do not covet your neighbor's wife. ”

(Laughter) "Honestly, when I was at number 11, it never mattered."

(Laughter) (Tony Blair): "Yeah, okay, come on.

All right, Gordon, come on.

First, can I tell you a few things about cherries? Because she is a wonderful woman, my wife, and has a wonderful smile.

By the way, I have to mail the letter. ”

(Laughter) "I think what people forget is that Gordon and I always got along perfectly.

Well, it wasn't exactly 'Brokeback Mountain' by any means." (Laughter) "You know, I wrote him a letter right before I left and said, 'Can I ask for your support again next month?' and he wrote back. He said, "No, you can't do that." This surprised me because I had never seen "cannot" spelled like that before. ”

(Laughter) Another thing Gordon was able to mention in his speech at Mansion House in 2002 was about the building. People weren't listening.

But when people talk about the financial industry, they say, "What the City of London has done for financial services, we as a government want to do for the economy as a whole."

(Laughter) When you look at what happened to financial services and what happened to the economy, you think, 'There are guys who keep their promises.

(Laughter) But we are in a new world now. We are in a whole new world.

For the first time in my memory, even though I received a letter from the bank manager about the loan, I didn't know if I owe the money to the manager or if the manager owed me the money.

am i right?

These amazing, Icelandic internet accounts.

Anyone here with an Icelandic internet account?

why would you do that? Why would you do that -- by replying to an email from Nigeria, it's kind of a step forward, isn't it?

(Laughter) I'm asking for bank account details.

And Iceland, it never succeeded.

There was no such collateral.

what is that? It has fish in it, that's all.

That is why the Prime Minister appeared on TV. "This left us all with a very big haddock," he said.

(Laughter) A lot of what I do is trying to understand things before saying nonsense.

And a financial crisis is very difficult to understand.

Luckily, someone like George Bush really helped.

He summarized it at dinner.

Speaking at a dinner, he said, "Wall Street is drunk."

(Laughter) "And now I have a hangover."

That's, you know, it's something -- (Applause) It's something we can relate to.

It's certainly something he can relate to.

(Laughter) And the other, of course, is Donald Rumsfeld, who said, 'The known things, the things we know.

And then we got the known unknown, that is, what we know, what we don't know.

And the unknown unknown, that's what we don't know, what we don't know. ”

Being British, when I first heard it, I was like, 'Wow, that's amazing.

And you are now, well, as a matter of fact, what is this all about.

What President Ben Bernanke said, the chaotic unwinding of the global financial system, this whole thing, they don't know, they didn't know what they were doing.

In 2006, the president of the American Mortgage Bankers Association said, "As we can see, there has not been an earthquake big enough to overwhelm the U.S. economy."

Now there is a man who is at the top of his job.

(Laughter) And when the crisis hit, the head of quantitative equities at Lehman Brothers said, "What the model predicted would happen once every 10,000 years happened every day for three days."

So it's an anomaly. It's a new world that is very difficult to understand.

But we have new hope. we have a new man

America has now elected its first openly black president.

(Laughter) Great news.

Not only that, he is left-handed. Did you notice this?

How many left-handed people are there here?

You see, a lot of the people I admire the most are great artists, great designers, great thinkers, and they're left-handed.

Last night someone said to me, I'm left-handed, so I have to be able to write without smudging the ink.

And on Monday someone was talking about metaphors.

And I thought, what a wonderful metaphor this is. The President of the United States who must write without smudging the ink.

do you like that? In contrast, we see George Bush, but what is the metaphor there?

I think it belongs to aquatic apes.

"Well, you know I'm sorry about that.

I'm right handed and it looks like I smudged that ink too. ”

(Laughter.) But, as you know, he's gone. Now he is gone.

That's eight years of American history, eight minutes of what I did, just gone.

"As you know, this is the end of the error [sic].

I happen to believe that was a big mistake.

I know people have told me they believe this is one of the biggest mistakes in American history.

But we proved them wrong in Iraq.

They said there was no link between Iraq and al Qaeda.

I still have ”

(Laughter) "But I have a message for the suicide bombers, the suicide bombers."

(Laughter) "We'll find you."

(Laughter) "I'll try not to do it again."

(Laughter.) But he's gone now, and it's great to see Mr. Obama, who was probably one of the worst speakers in American history and has now been replaced by one of the greatest speakers.

Perhaps you were there on the night of his victory.

And he said to the Chicago crowd, "If anyone still doubts that America is the place where all things are possible..."

You can't do everything because it takes too long, in fact it does.

(laughs) But you get the idea. And now to the inauguration ceremony.

And he and the Chief Justice end up tripping over each other, misusing words, and screwing things up.

And George Bush is sitting there saying, "Heh heh heh heh..."

(laughs) "It's not that easy, is it? Fufufu."

(Laughter.) But what's interesting is that Gordon Brown was talking about Cicero. Cicero is said to have said that people would hear the speech, "It's a wonderful speech."

Then he listened to Demosthenes and said, "Let's march."

And we all want to believe in President Obama.

It's more like that line from the movie "As Good As It Gets."

Remember that movie with Helen Hunt and Jack Nicholson? Helen Hunt said to Jack Nicholson: "What do you see in me?"

And Jack Nicholson just says, "You make me want to be a better man."

And you want leaders who inspire you, challenge you, and make you want to be a better citizen. right?

But for now, it's about Cicero.

We like what Barack Obama says, but we don't do anything about it.

So he came to this country and said, "We need a massive fiscal stimulus."

And everyone says, "Great!" When he's out of the country, the French and Germans say, "No, forget about it, it's never going to happen." nothing happens. he goes to Strasburg.

"Afghanistan needs more boots," he says.

And everyone says, "Great idea."

When he left, people were like, 'No, no, no, I'm not going to do that.

Up to 5,000, no rockets. No, no, I won't do that. ”

He went to Prague and said, "We believe in a world without nuclear weapons."

And while it's great to have a US president who can say the word "nuclear," let me point that out first.

do you remember that George Bush, "New Collar".

I'm sorry, what is it? "I'm a nukaler."

(Laughs) Can you say "safe"? "Avanclear"

(laughs) Thank you very much.

But he says, "We want a nuclear-free world."

And that day, North Korea, that very day, North Korea is just trying to see if it can fly over Japan -- (laughter) -- and see if it can land before that...

So where to look for inspiration? Still Bill Clinton.

"I travel the world." (Laughter) "I believe, it was President Dwight D. Eisenhower who said..."

(Laughter) "Don't lie, it was Diana Ross..."

(laughter) "...who said reach out and touch..."

(laughter) "...somebody grabbed a hand."

(Laughter) "If you can, make this world a better place.

I just think it's important. It's true.

And I expected Hillary to arrive at the White House, because she should have been away from us for four years.

And me too." (Laughter) "So when that didn't work out, I had to make some arrangements, but let me tell you."

(Laughter) So there he is. Britain has Prince Charles: 'And the environment is so important that it's all we can do.

My wife is sick of me constantly trying to push emissions reductions on her agenda. ”

(Laughter) Or, South Africans, we have Mandela to inspire you.

Mandela, great Mandela.

He has now been awarded a bronze statue.

His highest honor so far in the UK was a visit from the team of the horticulture program Groundforce.

"So, Nelson, how about a nice plumbing?"

"Oh, listen, Mr Titchmarsh."

(Laughter) "I was in prison on an island in the middle of the ocean for nearly 30 years.

Why do we need the bloody water feature? ”

(Laughter) Very soon: I wasn't sure how to end this story, but yesterday he came up with a great quote from "Essay on Japanese Laziness." It was a good thing to have something unfinished, because it implied that there was still room for growth.

thank you very much.

(applause)

The National Portrait Gallery is a place dedicated to showcasing the lives of great Americans and great people.

That's what it is.

We use portraiture as a vehicle to tell those lives, but that's about it.

So today we are not going to talk about painted portraits.

I'll tell you about the program I started there. From my point of view, it's the thing I'm most proud of doing.

I started to worry about the fact that many people were no longer getting their portraits painted. They are wonderful people and we want to pass them on to future generations.

So how do we do that?

So I came up with the idea for the Living Self Portrait series.

And the living self-portrait series was basically the idea of ​​being a brush in the hands of the wonderful people I come and interview.

So what I'm trying to do, rather than introduce you to the blockbuster songs of the show, is to give you a general idea of ​​how you come across people in that situation, what you try to find out about them, when people succeed, when they fail, and why.

Well, there were two prerequisites.

One is that they are American.

This is because the National Portrait Gallery, by its very nature, is designed to look at the lives of Americans.

It was an easy, but perhaps dogmatic, decision that the participants had to be people of a certain age. At the time of writing this program, he looked very old.

60's, 70's, 80's, 90's.

It doesn't look that old to me anymore, for obvious reasons.

And why did I do that?

First of all, we are a youth-obsessed culture.

And I thought what we really needed was a program for seniors to sit at the feet of great people and listen to them.

But the second half, the older I get, the more convinced I am that it's true.

It's amazing what people say when they find out how the story turned out.

That's the only advantage older people have.

Well, they have a few other advantages, but they also have some disadvantages. But the only thing they or we have is that we've reached a point in our lives where we know what happened to the story.

So with an interviewer who understands that, we can go back to our lives and start reflecting on how we got there.

All these mishaps ended up creating the life story we inherited.

Now, what do we need to do to make this work?

There are many types of interviews. we know them

There is an interview with a journalist, and this is the expected interrogation.

This goes somewhat against the reluctance and stubbornness of the interviewee.

Then there are celebrity interviews, where it's more important who is asking the question than who is answering.

It's like Barbara Walters and others and we like it.

That is Frost-Nixon, and Frost seems to be as important as Nixon in the process.

fair enough.

But I wanted to do a different interview.

In hindsight, I wanted to be an empathetic person. I mean, I wanted to get a sense of what they were saying and be their agent for self-disclosure.

By the way, this was always done in public.

This was not an oral history program.

All this caused about 300 people to sit at this person's feet and let me be the brush of their self-portrait.

Now I know I was pretty good at it.

I didn't know you were coming in there.

And the only reason I really know it is because of an interview I did with Senator William Fulbright, and it was six months after he had his stroke.

Since then, he has never appeared in public.

This was not a fatal stroke, but it did affect his speech, etc.

And I thought I had a chance and he had a chance. So we went on stage and talked about his life for an hour. Then a woman ran up to me, she did, and she said, "Where did you get your training as a doctor?"

And I said, "I'm not trained as a doctor. I never claimed that."

"Something very strange was happening," she said.

Especially in the first part of the interview when he started a sentence and paused, you gave him a word, a bridge to get to the end of the sentence, and by that end he was speaking the complete sentence himself. ”

I had no idea what was going on, but I was part of the process of uncovering it.

So I thought, okay, okay, I have empathy, empathy is the key thing in this kind of interview.

But then I started thinking otherwise.

Who would give a good interview in this context?

It had nothing to do with their intelligence or the quality of their intelligence.

Some of them were very bright, some were ordinary people who never claimed to be intellectuals, but they were by no means the only ones.

It was about their energy.

That energy creates extraordinary interviews and extraordinary lives.

I am sure of it.

And it had nothing to do with youthful energy.

These were people up to their 90s.

In fact, the first person I interviewed was 97-year-old George Abbott. Abbott was full of life, I think, was full of life.

So he filled the room and we had a great conversation.

He was famously quiet and never said anything but a word or two, so it was supposed to be the toughest interview ever.

And actually he was able to open up. By the way, his energy is also proven on other fronts.

He then remarried at the age of 102. So he had a lot of life force in him.

However, after the interview, I received a phone call from a woman with a very grumpy voice.

I didn't know who she was, but she said, "Have you had George Abbott speak to you?"

And I said, "Oh, it seems so."

Then she said, "I'm Maureen Stapleton, his old girlfriend, and I could never do that."

And she took the tape to me to prove that George Abbott could actually speak.

So you want energy and life force, but you also want them to think you have a story worth sharing.

The worst interviews are with humble people.

Never go on stage with someone who is humble. Because all these people are gathered to listen to them and sit there and say, "Oh shit, that was an accident."

Nothing happens that justifies people spending a good time of the day with them.

Worst interview I've ever had: William L. Shirer.

Journalist in charge of The Rise and Fall of the Third Reich.

This man had met Hitler and Gandhi within six months, and every time I asked him about it he said, "Oh, I just happened to be there."

It didn't matter" anything.

terrible.

I would never agree to interview a humble person.

They must think they did something and want to share it with you.

But in the end it comes down to how we get past all the barriers we have.

We are all public and private, and if all we get from the interviewee is their public self, it makes no sense.

Pre-programmed. It's an infomercial, and we all have infomercials about our lives.

We know great lines, great moments, we can't share. And the point of this was not to embarrass anyone.

It wasn't harsh or offensive or anything, as some of you may remember an old interview with Mike Wallace. they have their place.

I was trying to get them to say what they probably meant to say, to get them out of their own cocoons of public selves, but the more public they became, the more entrenched the person, the person outside of it.

And let me tell you all at once the worst and the best moments that happened in this interview series.

It all has to do with that shell that most of us have, especially certain people.

There is an extraordinary woman named Claire Booth Ruth.

Whether or not her name means a lot to you will determine your generation.

She did a lot. she was a playwright.

She performed a wonderful play called "The Women".

She was an MP when there weren't many MPs yet.

She was the editor of Vanity Fair magazine and one of the great wonder women of her time.

Incidentally, I call her the "right-wing Eleanor Roosevelt."

She was as revered on the right as Eleanor Roosevelt was on the left.

And in fact, when we did the interview, I took a living self-portrait with her, three former CIA directors basically sitting at her feet, just enjoying her presence.

And I always have 10 or 15 minutes of preliminary discussions with these people, so I figured this would be easy.

I will not speak before that. Because if you speak in front of you, you won't be able to convey it on stage.

So she and I had a pleasant conversation.

We were on stage and it was amazing.

It was all part of the Claire Booth-Ruth look.

She wore a wonderful evening dress.

She's 80 and almost the day of the interview, she was there and I was there and I just kept asking questions.

And she interrupted me. It was incredible.

No matter what I asked she would turn around and dismiss and I was basically there. Anyone who's been in the world of mid-to-full-scale entertainment knows what it's like to die on stage.

And I was dying. She gave me nothing.

So I started wondering what was going on, you think as you speak, and basically, I thought I got it.

I was her audience when we were alone.

Now I am her rival to the audience.

That's the problem here and she's fighting me over it. So I asked her - I didn't know how to get out of this problem - I asked her about her time as a playwright. And also characteristically, instead of saying, "Yeah, I used to be a playwright, and this is so-so," she said, "Oh, playwright. Everyone knows I used to be a playwright.

Most people think I'm an actress. I was never an actress. ”

But I hadn't heard that, so she said with tears in her eyes.

When I was in Congress, it was for charity in Connecticut, and I stood there," she continued, "and I went on stage."

Then she turned to me and said, "So do you know what those young actors did?"

They put me on stage,' and she said, 'Do you know what that is?

Her contempt just makes me cringe.

And I said, "I am studying."

(Laughter.) And she looked at me, like an arm wrestling match. She then gave an amazing account of what her life was really like.

I have to finish it. This is my tribute to Claire Booth Ruth.

Again, a notable figure.

I am not drawn to her politically, but through her life force.

And the way she died - she had a brain tumor towards the end.

It was as terrible a death as you could possibly imagine, and few of us were invited to dinner.

And she was in great pain.

we all knew that.

she stayed in her room.

everyone came. The butler went around the canapés.

Always.

And one moment the door opened and she came out perfectly dressed and completely calm.

Her public self, beauty, intelligence, and she walked around and talked to everyone there, then went back to her room and never showed up again.

She wanted to be in control of her final moments, and she did just that.

Now, there are other ways to get someone to open up, but this is just a quick reference.

It wasn't the arm wrestling this time, but it was a little surprising as a person involved.

I interviewed Steve Martin. It wasn't that long ago.

And we were sitting there, and by the time the interview was about to begin, I said to him, 'Steve,' or 'Mr. Martin, they say all comedians have had unhappy childhoods.

were you unhappy? ”

And he looked at me and said, as if to say, "Is this what you're going to start this thing with?"

He then turned to me, not being silly, and said, "What was your childhood like?"

And I said -- it's all arm wrestling, but it's affectionate -- and I said, 'My father was loving and supportive, so I'm not funny.'

(Laughter.) And he looked at me, and we heard a big sad story.

His father was SOB, in fact he was a comedian who had an unhappy childhood too, but then we started working.

So the question is, what is the key to getting this going?

Now, these are kind of arm-wrestling questions, but what I want to talk about are more empathy-related questions, and in fact very often questions people have been waiting their whole lives to be asked.

Due to time constraints, only two examples are presented.

One was an interview with one of America's great biographers.

Again, some of you may know Dumas Malone, but most of you probably don't.

He wrote a five-volume biography of Thomas Jefferson and spent virtually his entire life with him. By the way, at one point I asked him, "Did you want to meet him?"

And he said, "Of course, but as a matter of fact I know him better than anyone I've ever met, because I could read all his letters."

So he was very happy with the relationship they had for over 50 years.

And I asked him one question.

I said, "Has Jefferson ever let you down?"

And here is this man who dedicated his life to discovering and connecting with Jefferson. he said: "Yeah..."—with a heavy Southern accent.

Dumas Malone was originally from Mississippi.

But he said yes.

He said, "You know, I've read it all, and sometimes Mr. Jefferson will smooth the truth out a little."

And he was basically telling me that this man lied more than he could have hoped, just because he saw the letter.

He said, "But I understand that." He said, "I understand."

"There was a time when we didn't want confrontation because we Southerners like smooth surfaces," he said.

And he said, "John Adams was too honest."

And he started talking about it, and then he invited me over to his house to meet his wife, who was from Massachusetts, and he and she were just like Thomas Jefferson and John Adams.

She was New Englander and rough, but he was polite.

But really this is the most important question I've ever asked and when I talk about it most of the time people just gasp at my audacity or cruelty but I promise it was the right question.

It was addressed to Agnès de Mille.

Agnès de Mille is one of the greatest choreographers in our history.

She basically created the "Oklahoma" dance and transformed American theater.

A wonderful woman.

I would have proposed to her at the time I proposed to her. she was extraordinary. But I suggested to her, "Come here."

"Come to my apartment," she said.

She lived in New York.

"Come to my apartment, we'll talk for 15 minutes, and then we'll decide if we want to move on."

So I showed up in this dark, rambling New York apartment and she called out to me and she was in bed.

I knew she had a stroke, but that was about ten years ago.

So she spent almost all her life in bed, but--I'm talking about vitality--her hair was slanted.

She had no intention of making up for this opportunity.

And she sat there surrounded by books, and the most interesting possession she felt at that moment was her own will which she had by her side.

She was not unhappy about this. she resigned.

"I keep this will by my bed as a memento mori and I change it whenever I want to," she said.

And she loved the prospect of death as much as she loved life.

I thought he was the one person I absolutely had to get in this series.

she agreed.

she came Of course she was in a wheelchair.

Half of her body was bruised, but the other half was not.

Of course, she was prepared for this event, but this woman was in great physical pain.

And we had a conversation, and I asked her this unthinkable question.

I said, "Has it been a problem in your life that you're not beautiful?"

And the audience just, you know, they've always been on the side of being interviewed and this felt kind of offensive, but this was the question she wanted someone to ask her all her life.

And then she started talking about her childhood when she was beautiful, and she literally turned around - here she was in this broken body - and turned to the audience and described herself as a beautiful girl with red hair and nimble steps and all, and then she said, "And then puberty began."

Then she started talking about what had happened to her body and face and how she could no longer count on her beauty, and her family treated her like the ugly sister of a beautiful sister who had all her ballet lessons.

And she had to accompany her just to spend time with her sister, and she made some decisions along the way.

First of all, was that dance her life, even if it wasn't offered to her?

And secondly, she'd been dancing for a while, but she'd rather be a choreographer. Because in that case, her appearance doesn't matter.

But she was thrilled to discover that it was a real fact in her life.

It was a great privilege to be able to do this series.

There were other similar moments, but few moments of silence.

The key point was empathy. Because everyone in life is really waiting for people to ask them questions so they can be honest about who they are and how they got to be who they are. I applaud you for that, even if you haven't been interviewed.

Do this with your friends, especially the older members of your family.

thank you very much.

good morning.

I am here to share with you my experiments on how to remove one form of human suffering.

That is exactly the story of Dr. Venkataswamy.

His mission and message are about the Aravind Eye Care System.

First, I think it's important to recognize what it means to be blind.

(music) Woman: Everywhere I went looking for a job, I was told no. What is the use of blind women?

I couldn't thread a needle or see lice in my hair.

Even if ants land on the rice, you won't see it.

Thulasiraj Ravilla: I think going blind is a big part of it, but it also takes away a person's livelihood, dignity, independence, and position within the family.

So she's just one of millions of blind people.

And ironically, you don't have to.

Simple and proven surgery can restore the sight of millions, and even simpler glasses can restore the sight of millions more.

Add to this the increased productivity of many of us here now with glasses, and almost one in five Indians, or a staggering 200 million people, need eye care.

We're not even 10% of that right now.

That's how Aravind was born nearly 30 years ago as a post-retirement project for Dr. V.

He started this with no money.

He had to mortgage all his life savings to get a bank loan.

Over time, it grew into a network of five hospitals, mainly in Tamil Nadu and Pondicherry, and added a few hospitals called Vision Centers as a hub-and-spoke model.

And more recently, it has begun managing hospitals in other parts of the country and has established hospitals in other parts of the world.

In the last 30 years we have performed about 3.5 million surgeries, most of them for the poor.

Today, we perform approximately 300,000 surgeries each year.

A typical day at Aravind would involve performing about 1,000 operations, possibly seeing about 6,000 patients, sending teams for testing into villages, bringing patients back, conducting a number of telemedicine consultations, plus a lot of training for both doctors and technicians who will be Aravind's future staff.

And it takes a lot of inspiration and a lot of effort to do this day in and day out and do it well.

And I believe this has been made possible thanks to the foundations, value systems, efficient delivery processes and fostering of a culture of innovation built by Dr. V.

(music) Dr. V: I'm from a village, so I used to sit with a normal village guy, and suddenly you turn around and it's like you're touching his inner being, you're one with him.

There is a naive confident soul here.

Teacher, I will accept whatever you say.

An unspoken faith in you, and you respond to it.

I have a grandmother here who trusts me very much. I have to do my best for her.

As we grow in spiritual consciousness, there is no exploitation as we identify ourselves with everything in the world.

We are helping ourselves.

We are healing ourselves.

(Applause.) This has allowed us to build a very ethical, very patient-centric organization and the systems that support it.

But on a practical level, we also need to deliver our services efficiently. Strange as it may seem, the inspiration comes from McDonald's.

Dr. V: Look, the concept of McDonald's is simple.

They feel that they can train people all over the world to produce products the same way and deliver them to hundreds of places the same way, regardless of differences in religion, culture, etc.

Larry Brilliant: He kept talking about McDonald's and hamburgers, but none of that made sense to us.

He wanted to create a franchise, a system that would provide eye care with the efficiency of McDonald's.

Dr. V: What if we could create eye care, techniques, and methods all the same way, and make them available to all corners of the world?

No more blindness problems.

TR: If you think about it, I think Americans and Africans have the same problems and the same treatments.

Why, then, is there such a wide variation in quality and service? That was the basic principle we followed when designing our delivery system.

And the challenge, of course, was that this was a big problem. We have millions of people talking, few resources to deal with it, plus lots of logistical and affordability issues.

Therefore, we had to constantly innovate.

And one of the early innovations that continues today is establishing ownership of issues within communities and engaging them as partners. Here is one such event.

This is a community camp hosted by the community itself. The community finds a place, organizes volunteers, and we do our part. Your eyesight will be tested, your doctor will identify any problems, and determine what further tests should be done. These tests are then done by a technician who tests for eyeglasses and glaucoma.

With all these results, the doctor makes a final diagnosis and prescribes a course of treatment. If you need glasses, they are available right there at the campsite, usually under a tree.

But they get glasses in the frame of their choice. I believe that glasses not only help people's eyesight, but they are also a fashion statement, so it is very important and they are willing to pay for it.

Therefore, the treatment is completed in about 20 minutes, counseling is given to patients who need surgery, and then the bus to the base hospital is waiting.

And without this kind of logistical support and support, many people like this probably never would have been served, and certainly would not have been served when they needed it most.

They undergo surgery the next day, then stay for a day or two, then are put on a bus and taken to where they came from, where their families are waiting for them to return home.

(Applause.) And this happens thousands of times each year.

Seeing lots of patients and having a very efficient process sounds impressive, but does it solve the problem?

We conducted a survey, a scientifically designed process, and unfortunately found that we were only reaching 7 percent of those in need, failing to adequately address more and bigger issues.

So we had to do something different, so we set up a so-called primary eye care center, the Vision Center.

It is truly a paperless office that completely digitizes medical records.

They undergo a comprehensive eye exam.

It's like turning a simple digital camera into a fundus camera, and every patient sees a doctor remotely.

This effect actually resulted in a 40% penetration of the market it serves (over 50,000 people) within the first year.

And in the second year it rose to 75%.

So I think we have a process that allows us to really penetrate the market and get it to everyone who needs it. This process of using technology will save most people from having to come to a hub hospital.

And how much will they pay for this?

We pay about 20 rupees as we have priced it considering the savings on bus fare when coming to the city. This is good for 3 consultations.

(Applause.) Another challenge was how to deliver high-tech or more advanced treatments and care.

We designed a van with VSAT. VSAT sends the patient's images to the hub hospital, where they are diagnosed. The report is then returned to the patient while they are waiting, printed, and the patient receives it and is consulted on what to do next. That means either see a doctor or come back in 6 months. This is then done as a way of bridging technical capabilities.

So all these impacts are inherently on the growth of the market. This is because we have focused on non-customers, and then reaching unreached tiers can grow the market significantly.

Another aspect is how to efficiently deal with this when there are very few ophthalmologists.

The video shows a surgeon performing an operation, and on the other side, another patient is being prepared.

So, after the surgery, I waved the microscope and arranged the tables so they were just the right distance apart. And we have to do this. Because doing this type of process can increase a surgeon's productivity by more than four times.

And supporting the surgeons requires a constant workforce.

And then we focused on the village girls we adopted. And they are the very backbone of the organization.

They do almost all of their skill-based day-to-day tasks.

They do one thing at a time. they do it very well.

The result is very high productivity and very high quality at a very low cost.

Putting all this together, what really happened was that our staff were significantly more productive than anyone else.

(Applause) A very busy table, but what this really says is that when it comes to quality, we have a very good quality assurance system in place.

As a result, our complications are significantly lower than those reported in the UK, and such figures are uncommon.

(Applause.) The final piece of the puzzle is how do you do all of this financially, especially when people can't afford it?

So what we did was give away most of it for free, and then the people who paid, I mean, they paid the local market price and nothing more and often less.

Market inefficiencies also helped.

I still think it was a big help.

And of course, we also need the mindset of wanting to donate what we have in surplus.

As a result, spending has grown with volume over the years.

Revenue increases at higher levels, giving you a healthy profit while treating large numbers of people for free.

In absolute numbers, I think last year we made about $20 million, spent about $13 million, and had EBITA over 40 percent.

(Applause.) But if we really want to solve this blindness problem, we really need to go beyond what we are doing or have been doing.

And what we did did some very counterintuitive things.

We created our own competition and made eye care affordable by creating low cost consumables.

We have actively and systematically promoted these practices to many hospitals in India, hospitals in our backyards, and other parts of the world.

As a result of this, these hospitals doubled their production in the second year after our consultation, and their finances recovered afterwards.

Another was how to deal with this increasing technology cost.

There was a period of unsuccessful negotiations to bring the price (of intraocular lenses) to an affordable level, so we set up a manufacturing department.

And over time, we were able to bring our costs down significantly to about 2% of what we started with.

Currently, we hold about 7% of the global market and are believed to be used in over 120 countries.

In conclusion, does what we are doing have broader relevance or just India and the developing world?

So, to address this, we studied Britain vs. Aravind.

This suggests that the UK is about 60 per cent of the volume of surgeries it performs, or close to 500,000 surgeries across the country.

And we do about 300,000 cases.

And we train about 50 ophthalmologists against the 70 ophthalmologists they trained, maintaining the same quality in both training and patient care.

So you're really comparing apples to apples.

I checked the cost.

(Laughter) (Applause) So I think it's easy to say that it makes a difference just because the UK isn't India.

I think there are many more.

So I think we need to look at other aspects as well.

Maybe there is -- the cost solution may lie in productivity, perhaps efficiency, clinical processes, or how much you pay for lenses and consumables, or regulatory and defensive measures.

So I think deciphering this will probably give most developed nations, including the United States, an answer, and possibly raise Obama's ratings again.

(Laughter) Another insight, I want to leave you guys again, is that in a situation where the problem is so big, it spans all economic strata, and there are good solutions, I think the process I described, you know, productivity, quality, patient-centered care, can give the answer. And there are many that fit this paradigm.

See dentistry, hearing aids, obstetrics, etc.

There are many areas where this paradigm can be leveraged, but perhaps one of the most difficult is on the soft side.

So how do we create compassion?

So how do you get people to own the problem and want to do something about it?

There are some more difficult problems.

And I'm sure people in this crowd can probably find a solution to these.

I would like to conclude my talk by leaving you with this thought and challenge.

Dr. V: As you grow in spiritual consciousness, we identify with everything that exists in the world, so we cannot be exploited.

We are helping ourselves.

We are healing ourselves.

TR: Thank you.

(applause)

People often ask me, "What surprised you about this book?"

And I said, "I had to write it."

I couldn't have imagined that.

I never dreamed of it. I didn't even consider myself a writer.

And people often ask me, "Why do you think so many people read this?"

It still sells about a million copies a month. ”

I think it's because mental emptiness is a universal disease.

I think at some point we put our head on the pillow and think, 'There must be more to life than this.

Wake up in the morning, go to work, go home and watch TV, sleep, wake up in the morning, go to work, come home, watch TV, sleep, go to a party on the weekends.

Many people say, "I am alive." No, you are not alive, you just exist.

I think there is a real desire for that.

I believe what Chris said. I believe you are no coincidence.

Your parents may not have planned you, but I believe God did.

I think there are also accidental parents. There is no doubt about it.

I don't think there are any children by chance.

And I think you are important.

I think you are important to God. I think you are important to history. I think you are important to this universe.

And I think the difference between what I call "survival level of living", "success level of living", and "level of importance of living" is whether you understand "what the hell am I here for?"

I meet a lot of very smart people who say, "But why can't I understand my problem?"

And I meet a lot of people who are very successful and they say, 'Why can't I feel more fulfilled?

why do i feel like a fake

Why do I feel like I have to pretend to be more than I really am? ”

I think it comes down to questions of meaning, significance, and purpose.

I think it boils down to, "Why am I here? What am I here for? Where am I going?"

These are not religious issues.

They are human problems.

Before Michael speaks, I wanted to let him know that I really appreciate his work. Because he made my job so much easier.

As a pastor, I see a lot of weirdos.

And I learned that there are weirdos in every area of ​​life.

Religion doesn't have a monopoly on it, but there are plenty of religious weirdos out there.

Some are worldly weirdos. There are smart weirdos and there are stupid weirdos.

There are people -- a woman came to me the other day. She had a blank piece of paper -- you'll like this one, Michael -- and she said, "What do you see in it?"

Then she said, "I see Jesus," and started crying and left.

I'm going to say "Okay". "are you OK."

(Laughs) It was good.

When this book became the world's bestseller in the last three years, I had a bit of a crisis.

And it was, "What's the purpose of this?"

Because it brought in a huge amount of money.

Writing the best-selling books in the world costs a lot of money.

And it got a lot of attention, but I didn't want either.

I was 25 when I started Saddleback Church.

I started it in 1980 with another family.

And I decided I would never be on TV because I didn't want to be famous.

I didn't want to be an "evangelist, televangelist," but that wasn't my taste.

And suddenly it brought a lot of money and a lot of attention.

I don't think so -- well, this is the worldview. And let me tell you, everyone has a worldview.

Everyone bets their life on something.

You're betting your life on something, so you'd better know why you're betting on it.

In other words, everyone bets their life on something.

And when I made a bet, I happened to believe that Jesus was who he said he was.

And I believe in a pluralistic society where everyone is betting on something.

And when I started the church, you know, I had no plans to do what the church does now.

And when I wrote this book, suddenly it took off and I started saying, "What is the purpose of this?"

Because, as I started saying, I don't think you'll ever be given money or fame for your ego.

I just can't believe it.

And if you write a book where the first sentence of the book is "This isn't about you" and it suddenly becomes a best-seller in history, you have to think, oh, this isn't about me.

It's a simple matter.

So what is it for?

And I started thinking about what I call 'managing abundance' and 'managing influence'.

Therefore, I believe that leadership is essentially a managerial responsibility.

Whether you're a leader in business, politics, sports, the arts, academia, or anything else, that doesn't belong to you.

you are its administrator.

For example, that's why I believe in protecting the environment.

This is not my planet.

It wasn't mine before I was born, it won't be mine after I die, I'm just here for 80 years and that's it.

The other day, during a discussion on a talk show, the man challenged me and said, "What are pastors doing for the environment?"

So I asked this guy, "Well, do you think humans have a responsibility to make the world a little better place for the next generation?"

Do you think there is a management responsibility here to take the environment seriously?”

And he said "no".

I said, "Oh, isn't it?"

I said, "Let me be clear again, as a human being, this is not a religious thing, but do you believe it is your responsibility as a human being to take care of this planet and make it a little better for the next generation?"

And he said, "No, it's not the same as other species."

When he mentioned the word "seed," he was making his worldview clear.

And he said, "Like the ducks, I have no responsibility to care for this environment."

Okay, I know we often act like ducks, but you're not a duck.

you are not a duck

And you are responsible. That's my worldview.

Therefore, you need to understand what your worldview is.

The problem is that most people don't really think about it.

they never really...

Codify it, qualify it, quantify it, and say, "This is what I believe. This is why I believe what I believe."

I personally don't have enough faith to be an atheist.

But maybe so, maybe so.

But your worldview determines everything else in your life. Because it determines your decisions. It determines your relationships. It determines your confidence level.

Really, it determines everything in your life.

Obviously, what we believe, you know, determines our actions, and our actions determine what we become in life.

So all this money started pouring in, all this fame started pouring in.

So go ahead, how do we do this?

My wife and I first made five decisions about what to do with that money.

We said, "First, we're not going to use it on ourselves."

I didn't go out and buy a big house.

I don't own a guest house.

I still drive the same 4 year old Ford as before.

We said we weren't going to use it on us.

Second, I stopped receiving a salary from the church where I was a pastor.

Third, I have returned all the money the church has paid me in the last 25 years.

And I gave the money back because I didn't want anyone to think I was doing it for the money. i haven't.

In fact, I personally have never met a priest or pastor or pastor who does it for money.

I know it's a stereotype. I have never met one of them.

Believe me, there are many easier ways to make money.

A pastor is like a doctor on the phone 24 hours a day.

I left late today, but I wish I could have been here yesterday, because my father-in-law is probably dying of cancer in the next 48 hours.

And I live my life and watch a man who is now in his mid-eighties die peacefully.

As you know, it's not how you act at good times that tests your worldview.

Where your worldview is put to the test is how you act at a funeral.

And having been through literally hundreds, if not thousands, of funerals makes a difference.

What you believe makes a difference.

So we returned all of our money and put money into three foundations that tackle some of the world's major problems: illiteracy, poverty, pandemic disease, especially HIV/AIDS.

What we ended up doing was what I call "reverse funding."

That's when my wife and I got married 30 years ago, we started paying tithing.

Now, this is a biblical principle: donate 10 percent of the money you receive to charity and help others.

So we started doing that and ended up raising the tithe every year.

In other words, 11% in the first year of marriage, 12% in the second year, 13% in the third year, and so on.

why did i do that

Because every time I give, the reign of materialism in my life is broken.

Materialism is having everything. Get it, get it, get it, get what you can, get it all, sit on the can and ruin the rest.

The point is to have more and more.

And we think the good life is actually looking good. That's what matters most. It's about looking good, feeling good, and having things.

But it's not a good life.

I meet people who have them all the time and they are not always happy.

If money actually makes you happy, the richest people in the world will be the happiest.

And I personally know that's not true.

that's not true.

So the good life isn't about looking good, feeling good, or having things, it's about doing good things and doing good things.

to give up one's life.

The meaning of life does not come from status. Because you will always find someone who has something better than you.

It doesn't come from sex.

It doesn't come from a paycheck.

It comes from service.

We find meaning and meaning in giving our lives.

I believe we are designed that way by God.

Then we started donating. And now, 30 years later, my wife and I are giving back 10 percent, giving 90 percent and living on 10 percent.

Actually that was the easy part.

The hard part is knowing what to do with all this attention.

Because all sorts of invitations began to arrive.

I've just completed an almost month-long speaking tour of three continents, so I won't go into that, but it was amazing.

And what to do with all this notoriety this book has brought?

Then, as a pastor, I started reading the Bible.

There is a chapter in the Bible called Psalm 72, which is Solomon's prayer for more influence.

It sounds incredibly selfish and self centered when you read this prayer.

He says, "God, make me famous."

That's what he prays for.

“I want you to make me famous,” he said.

I want the fame of my name to spread in all lands, I want you to give me strength.

They want me to be famous, they want me to be influential. ”

And if you're going to pray, that sounds like the most selfish request you can make.

Until you read the whole psalm, the whole chapter.

And he says, ``The king...''--he was the king of Israel at the height of power at that time--``...that the king might care for the widows and orphans, help the oppressed, protect the defenseless, take care of the sick, help the poor, and be a spokesman for the foreigners and the imprisoned."

Basically, he's talking about all marginalized people in society.

As I was reading it, I saw it and thought, what is this saying, the purpose of influence is to speak up for those who don't have influence.

The purpose of influence is not to build your ego.

Or your net worth.

By the way, your net worth is not the same thing as your self-worth.

Your value is not based on your valuables.

It's based on something completely different.

So the purpose of influence is to speak up for those without influence.

And I had to admit. I can't remember the last time I thought about widows and orphans.

They're not on my radar.

I pastor a church in one of the wealthiest neighborhoods in America, a cluster of gated communities.

My church has a lot of CEOs and scientists.

And you may not meet a homeless person even once in five years.

They're just not in my way.

Now they are 21 miles up the road in Santa Ana.

So I had to say, "Okay, whatever wealth I have, whatever influence I have, I'm going to use it to help people who have neither."

There is a story about Moses in the Bible, but it doesn't matter if it's true or not. Not a problem for me at all.

But Moses, if you've seen the movie The Ten Commandments, you know that when Moses goes out, there's a burning bush, and God speaks to Moses, and God says, "Moses, what do you have in your hand?"

I think this is one of the most important questions you will ever be asked. "What do you have in your hand?"

Moses said, "This is a staff, a shepherd's staff."

And God says, "Throw it away."

If you've seen the movie, you know that he turns into a snake when he throws it.

And God says, "Pick it up."

And he picks it up again and it becomes a wand again.

I'm reading this now, what the heck is this all about?

OK. What does that mean? Well, I know a few things.

First, God never works miracles for show.

It's not just "Wow, isn't that cool?"

By the way, my god doesn't have to show up on cheese bread.

If God appeared, he wouldn't appear on cheese bread.

(laughter) Do you understand? But this is why I love what Michael is doing. Because if he's debunking it, it's like I don't have to.

But God does not appear in sprinkler images.

He has some more powerful ways to do whatever he wants.

But he doesn't do miracles just to show off.

Second, if God asks you a question, He already knows the answer.

Clearly, if he is God, that means the question is for your benefit, not his.

Then he asks, "What do you have in your hand?"

Now what was in Moses' hands?

Yes, it was the shepherd's staff. Come on, follow me on this one.

This staff represents three things about Moses' life.

First, it represented his identity. he was a shepherd

It is a symbol of his own profession: I am a shepherd.

It is a symbol of his identity, his career, his work.

Second, it is not only a symbol of his identity, but also of his income, as all his assets are sheep-bound.

At that time, no one had a bank account, an American Express card, or a hedge fund.

Your assets are tied to your flock.

So it is a symbol of his identity and also a symbol of his income.

And third, it is a symbol of his influence.

What do you do with a shepherd's staff?

Well, move the sheep from point A to point B using hooks and crooks.

It pulls and pokes. either.

So he says, "You are going to give up your identity.

what do you have in your hand

You have an identity, you have an income, you have influence.

what do you have in your hand ”

And he says, "If you leave me alone, I will bring you back to life."

I'll do some things you can't even imagine. ”

If you have seen the movie "The Ten Commandments", you will understand that all the great miracles that occur in Egypt are performed through this staff.

Last year I was invited to speak at the NBA All-Star Game.

That's why I'm talking to the players. Because most NBA teams, NFL teams, and all other teams achieve their 40-day goals based on this book.

So I asked them, "What do you have in your hand?"

So what do you have in hand? ' I said, 'It's basketball.

And that basketball represents your identity, who you are. you are an NBA player.

It represents your income. You are making a lot of money out of that little ball.

And it represents your influence.

And even if you're only in the NBA for a few years, you'll be an NBA player for the rest of your life.

And it gives you a lot of influence.

So what are you going to do with what you've been given? ”

I think that's the main reason I'm here today, to ask the very smart people at TED, "What's in your hand?"

what have you been given

Talent, Background, Education, Freedom, Network, Opportunity, Wealth, Ideas, Creativity.

What are you doing with what you've been given?

For me, that is the first question about life.

To me, that's what being purpose-driven is all about.

In this book, I talk about how you are wired to do certain things and how you are "shaped." It's a bit abstract, but it's a spiritual gift, mind, ability, personality, experience, and so on.

These things shape you.

And if you want to know what to do with your life, you have to observe your body type. "What am I made to do?"

Why did God telegram you to do something and not let you do it?

If you want to be an anthropologist, you will be an anthropologist.

If you decide to be an underwater explorer, you will be an underwater explorer too.

If it is wired to trade, it will trade.

If you're used to drawing, let's draw.

Did you know that God smiles when you are you?

When my children were little they are all grown up now and I have grandchildren. I used to sit next to their bed and watch the children sleep.

And I just watched their little bodies go up and down, up and down.

And I looked at them and said, "This is no coincidence."

up or down.

And it made me happy just to see them sleeping.

Some people have the mistaken notion that God only gets excited when he goes to church or helps the poor, or confesses or something like that.

The bottom line is that God is pleased to see you be yourself.

why? he made you

And when you do what you're told, he says, "That's my boy, that's my girl!"

You are using the talents and abilities that I have given you. ”

So my advice to you is, look at what you have—your identity, your influence, your income—and say, "That's not me."

It's about making the world a better place. ”

thank you.

Hi guys. It's my first time at TED, so I decided to bring an old friend over to help ease my nerves a bit.

yes. That is correct. This is barbie.

she is 50 years old. And she looks as young as ever.

(Laughs) But I would like to introduce some faces that may not be well known.

It's Furla. Furla is the Arab world's answer to Barbie.

Now, according to Clash of Civilizations proponents, Barbie and Fulla occupy these completely separate realms.

they have different interests. they have different values.

And if they come into contact...

Well, let me tell you, it's never pretty.

However, my experience in the Islamic world is very different.

In the Arab region where I work, people are busy taking Western innovations and turning them into something that is neither traditionally Western nor traditionally Islamic.

I would like to give two examples.

The first is 4Shbab.

It's a new Arab TV channel, meaning "for young people".

(Video): Video clips from around the world.

united states of america.

♫I am not afraid to stand alone♫ ♫I am not afraid to stand alone if Allah is with me ♫ ♫I am not afraid to stand alone ♫All is well ♫ ♫I am not afraid to stand alone ♫ Arab world.

(music) ♫ She was protected by her religious humility ♫ ♫ She was adorned by the light of the Koran ♫ Sherin El-Fekhi: 4Shbab is called Islamic MTV.

Its creator is Ahmed Abu Haiba, an Egyptian television producer who wants young people to find inspiration in Islam for a better life.

He believes the best way to get that message across is through the hugely popular medium of music videos.

4Shbab was established as an alternative to existing Arab music channels.

And they look like this:

(music) It's Haifa Webe, by the way. She is a Lebanese pop star and pan-Arab pin-up girl.

In the world of 4Shbab, bumps and grinds don't matter.

But it's not about fire and brimstone either.

The video aims to show the kinder, gentler side of Islam to help young people cope with life's challenges.

Now, my second example is aimed at a slightly younger demographic.

Its name is "The 99".

Well, they are the world's first Islamic superheroes.

They were created by a Kuwaiti psychologist named Naif Al-Mutawa.

And his wish is to rescue Islam from its image of intolerance, all in a child-friendly format.

"99". Characters are meant to embody the 99 attributes of Allah, including justice, wisdom, and mercy.

For example, there is a character named Noora.

She should have the power to look inside people and see the good and the bad in everyone.

Another character named Jami has the ability to create amazing inventions.

Well, "The 99" is more than just a cartoon.

It's now a theme park.

An anime series is also in the works.

And by this time next year, people like Superman and Wonder Woman will be joining forces with The 99 to defeat injustice everywhere.

"The 99" and 4Shbab are just two of many examples of this kind of Islamic cross-cultural hybridization.

We are not talking about a clash of civilizations here.

Nor is it like an indistinguishable mash.

I like to think of it as a web of civilizations intertwined with the threads of different cultures.

Well, 4Shbab and "The 99" may look new and shiny, but they actually have a very long tradition.

Throughout its history, Islam has borrowed and adapted from other ancient and modern civilizations.

After all, the Quran encourages us to do this. "We have made you nations and tribes so that you may learn from each other."

And in my opinion, whatever your beliefs, these are very wise words. thank you.

(applause)

Here's how terrorism really affects our daily lives.

15 years ago, I got a call from a friend.

At the time, he was caring for the rights of political prisoners in Italian prisons.

He asked me if I wanted to interview the Red Brigades.

Now, as many of you may remember, the Red Brigades was a Marxist terrorist organization that was very active in Italy from the 1960s to the mid-1980s.

As part of their strategy, the Red Brigades did not speak to anyone, not even lawyers.

They sat in silence on the road, occasionally waving to family and friends.

In 1993 they declared an end to the armed struggle.

And they made a list of people they would talk to or tell their stories about.

And I was one of them.

When I asked a friend why the Red Brigades wanted to speak to me, she said that a female member of the organization actually endorsed my name.

One person in particular suggested it.

She was my childhood friend.

She joined the Red Brigades and became the organization's leader.

Naturally, I didn't know about it until she was arrested.

I actually read it in the newspaper.

When the call came, I had just had a baby and had successfully completed a management takeover of the company I worked for, so the last thing I wanted to do was go home and tour a high security prison.

But this is exactly what I did. I wanted to know why my best friend became a terrorist and why she didn't try to recruit me.

(Laughter) (Applause) So this is exactly what I did.

Well, I found the answer in no time.

In fact, I had failed psychological profiling of terrorists.

The Central Committee of the Red Brigades decided that I was too single-minded and too opinionated to be a good terrorist.

My friend, on the other hand, was a good terrorist because he was so good at following orders.

She also embraced violence.

She believed that armed struggle was the only way to unblock Italy, then known as a blocked democracy, a country run by the same party for 35 years.

At the same time, while reporting on the Red Brigades, I also learned that their lives were not governed by politics or ideology, but actually by the economy.

They were always short of cash.

They were always looking for cash.

Now, contrary to what many believe, terrorism is actually a very expensive business.

I will teach you ideas.

In the 1970s, Red Brigade's annual sales were $7 million.

Currently, this is roughly between 100 and 150 million.

Now, living underground, it's very difficult to generate this much money.

But this also explains why when I was interviewing other arms groups, including members of the Red Brigades and then the Al-Zarqawi group in the Middle East, everyone was very reluctant to talk about ideology or politics.

because they knew nothing.

A terrorist organization's political vision is determined by its leaders, who typically have no more than 5-7 leaders.

Others are just looking for money day in and day out.

For example, once I had an interview with this part-timer from the Red Brigades.

It was a psychiatrist. He loved sailing.

He was a really avid sailor. And he had this beautiful boat.

And he told me that the best time of his life was when he was in the Red Brigades. Every summer, it sailed to and from Lebanon, where it received Soviet weapons from the PLO and carried them to Sardinia, where other European weapons organizations went to pick up their share of the weapons.

For their services, the Red Brigades were actually paid a commission, which was used to fund their organization.

So, being an economist by training and thinking in terms of economics, I suddenly thought there might be something here.

Perhaps there are commercial ties between one organization and another.

But it wasn't until I interviewed Mario Moretti, the leader of the Red Brigades who kidnapped and murdered former Italian Prime Minister Aldo Moro, that I finally realized that terrorism is actually a business.

I was having lunch with him in a high security prison in Italy.

And as I ate, I had a distinct feeling that I was back on the streets of London having lunch with fellow bankers and economists.

This person was thinking the same as me.

So I decided that I wanted to study the economics of terrorism.

Naturally, no one wanted to fund my research.

In fact, I think a lot of people thought I was a little crazy.

You know, the woman who visits foundations and asks for money, thinking about the economics of terrorism.

So finally I made a decision that in hindsight changed my life.

I sold the company and funded the research myself.

And what I have discovered is this parallel reality, another international economic system running parallel to ours, which has been created by military organizations since the end of World War II.

And what's even more shocking is that this system has step by step followed the evolution of our own system: Western capitalism.

And there are three main stages.

The first is a state sponsor of terrorism.

The second is the privatization of terrorism.

And the third, of course, is the globalization of terrorism.

Namely, the state sponsor of terrorism, the hallmark of the Cold War.

This was at a time when two superpowers were waging proxy wars along the fringes of their spheres of influence, fully funded by arms organizations.

A mixture of legal and illegal activity is used.

The link between crime and terrorism is therefore established very early on.

And here is the best example of that. The Nicaraguan Contras were created by the CIA, legally funded by the US Congress, and illegally funded by the Reagan administration through covert operations such as the Iran-Contras scandal.

Then, in the late 1970s and early 80s, several groups successfully privatized terrorism.

So they split off from their sponsors and started raising their own money.

Now again there is a mix of legal and illegal activity.

As such, President Arafat obtained some of the hashish smuggled from the Beqaa Valley, the valley between Lebanon and Syria.

And the IRA, which manages Northern Ireland's civil transport system, did exactly the same.

So every time someone took a taxi in Belfast without knowing it, they were actually funding the IRA.

But the big changes, of course, have come with globalization and deregulation.

At this time, the weapons organizations were also able to cooperate with each other economically.

But above all, they started getting serious with the criminal world.

And together they laundered money in dirty business through the same channels.

At this time, the transnational arms organization Al Qaeda was born.

This is an organization that can raise funds across borders.

But it can also carry out attacks in multiple countries.

Well, deregulation has also revived the illicit economy.

So what is fraudulent economics?

Corrupt economics is a force that has always lurked in the background of history.

It's back in a time of great change, and globalization is one of those changes.

This is when politics really loses control of the economy and the economy becomes a villain against us.

It has happened before in history.

It happened with the fall of the Roman Empire.

It happened with the industrial revolution.

And with the fall of the Berlin Wall, it actually happened again.

Now, I have calculated how big this international economic system of crime, terrorism, and the illicit economy was before 9/11.

And that amount is a whopping $1.5 trillion.

It's trillions, not billions.

This is about double the UK's GDP, but will soon be more given the direction the country is headed.

(Laughter) Well, most of this money flowed into the US economy until 9/11. Because most of the money was denominated in US dollars and the money was being laundered in the US.

Of course, the entry points for most of this funding were offshore facilities.

So this was a significant injection of money into the US economy.

Now, we've looked at the U.S. money supply numbers, which are the amount of dollars the Federal Reserve prints each year to meet increasing demand for dollars, which naturally reflects economic growth.

So when I went to look at these numbers, I noticed that more and more of these dollars have actually left the United States since the late 1960s, never to come back.

These are money taken out in suitcases and containers, of course cash.

These were money taken out by criminals and money launderers.

These were funds that were withdrawn to fund the growth of the terrorist economy, the illicit economy and the criminal economy.

So, do you see, what is the relationship?

In fact, the United States is the country that is the reserve currency of the world.

what do you mean? In other words, it has privileges that other countries do not have.

You can borrow according to the total amount of dollars in circulation around the world.

This privilege is called seigniorage.

No other country can do that.

All other countries, such as the UK, can only borrow against the amount of currency in circulation within their borders.

Here's what the world of crime, terrorism, and the illicit economy has to do with our economy.

In the 1990s, the United States was indebted to a growing terrorist, illicit, and criminal economy.

We are so intimately connected with this world.

Now, this situation has of course changed since 9/11 as George Bush launched the War on Terror.

The introduction of the Patriot Act was part of the War on Terror.

Now, many know that the Patriot Act is a law that severely limits American freedoms to protect them from terrorism.

However, there are provisions in the Patriot Act that specifically address finance.

And in fact, this is an anti-money laundering law.

What the Patriot Act did was prohibit US banks and US-registered foreign banks from conducting business in offshore facilities.

This closed the door between dollar money laundering and the US economy.

It also gave U.S. monetary authorities the right to monitor dollar transactions taking place anywhere in the world.

Now you can imagine the reaction of international finance and banking.

The bankers all told their customers, "Get your dollars out and invest somewhere else."

Well, the euro was a newly born currency that offered great opportunities for business and, of course, for investment.

And this is what people did.

No one wants U.S. financial authorities to check their relationships or monitor their relationships with their customers.

Of course, the same thing happened in the world of crime and terrorism.

People have simply shifted the base of their money laundering activities from the US to Europe.

Why did this happen? It happened because the Patriot Act was a one-sided law.

It was introduced only in the US.

And it was introduced only for US dollars.

No similar legislation has been introduced in Europe.

Thus, within six months, Europe had become the center of global money laundering activity.

Thus, how amazing is the relationship between the world of crime and the world of terrorism and our own lives.

So why am I telling you this story?

I tell you this story because you need to understand that there is a world far beyond the headlines, such as your personal relationships with friends and family.

You have to question everything said, including what I said today.

(Laughter) This is the only way you can step into the dark side and see it.

And believe me, it's going to be terrifying.

It will be terrifying, but it will enlighten you.

And best of all, you won't get bored.

(laughter) (applause)

My name is Ryan Lobo. Over the last ten years, he has been in the documentary filmmaking business around the world.

In the process of making these films, I found myself taking pictures, but I often got in trouble with the videographers.

I found taking this photo almost compulsory.

And at the end of the shoot, sometimes I felt like I had a picture that told a better story than a sensational documentary.

When I took the photos, I felt that I was holding on to something true, regardless of the agenda or politics.

In 2007, I visited three conflict zones.

I have traveled to Iraq, Afghanistan and Liberia.

There I experienced the suffering of others up close and personal, immersed myself in some pretty intense and emotional stories, and at times experienced a great deal of terror for my own life.

As usual, I returned to Bangalore and often had lively discussions at my friend's house. There we discussed various issues while complaining about the new pub time. Drinks were often more expensive there than I paid for a 14-year-old maid.

I feel so isolated while having discussions like this.

But at the same time, I questioned myself and my own integrity and purpose in storytelling.

And I, like my friends in that discussion, decided that I compromised by telling the story in an excused context rather than taking responsibility.

I won't go into the details of how I came to my decision, but let me just say that alcohol, tobacco, other drugs, and women were involved.

(Laughter) I basically decided that the only vehicle for storytelling that was really worth adjusting was myself, not the camera or the network, anything outside of me.

In my life they have avoided me in trying to achieve things like success and recognition.

Paradoxically, when we let go of these goals and approach them with compassion and purpose, seeking excellence instead of results, everything, including fulfillment, comes naturally.

Photography crossed cultures, including my own.

And for me, it's a language that expresses the intangible and gives voice to the intangible, people and stories.

Let me introduce you to my three recent stories. These are about this view, and I believe exemplify the tenets of what I call compassion in storytelling.

In 2007 I went to Liberia where with a group of friends I made a self-produced independent film about a very legendary and brutal general named General Bat Naked, which is still in production.

His real name is Joshua and he's pictured here inside a cell where he used to torture and kill people, including children.

Joshua claims to have personally killed over 10,000 people during the Liberian Civil War.

His name comes from the fact that he fights naked.

And he is probably the most prolific mass murderer alive on earth today.

This woman witnessed the general murder her brother.

Joshua ordered his child soldiers to commit unspeakable crimes and carried out those orders with extreme brutality.

Today, many of these children are addicted to drugs such as heroin, and like the youth in this image, they are impoverished.

How do you live with yourself when you know you have committed a horrific crime?

Now the general is a baptized Christian evangelist.

And he has a mission.

We have accompanied Joshua to walk the earth and visit the villages where he once killed and raped.

He asked for forgiveness and claimed he was working to improve the lives of child soldiers.

During this expedition I fully expected him to be killed, and so were we.

But what I saw opened my eyes to the concept of forgiveness that I never thought possible.

In the midst of incredible poverty and loss, those who have nothing have pardoned the man who took everything from them.

He asks for forgiveness and gets it from the same woman who murdered his brother.

A young Senegalese man sitting here in a wheelchair was once under the command of a general as a child soldier who had his legs shot off by the general for disobeying orders.

He forgives the general for this image.

Risking his life, he approached those who murdered his family.

In this photo, a hostile crowd in the slums surrounds him.

And while they vent their anger against him, Joshua remains silent.

For me, this image is like a Shakespearean drama about a man who, surrounded by influences, struggles to hold on to what is true in the midst of great suffering of his own making.

During all this, I was violently moved.

But the question is, will forgiveness and redemption be replaced by justice?

In his own words, Joshua says he doesn't mind being tried for his crimes, and from soapboxes all over Monrovia, he addresses crimes to audiences that include victims.

The spokesperson for the idea of ​​separation of church and state is an unthinkable figure.

The second story I'm about to tell you is about a very special group of combat women with some pretty unique peacekeeping skills.

Liberia has been ravaged by one of Africa's bloodiest civil wars, leaving more than 200,000 dead and thousands of women horribly maimed by rape and crime.

Liberia is now home to the all-female UN contingent of Indian peacekeepers.

These women, many from small towns in India, help keep the peace far from home and family.

They often use negotiation and tolerance rather than armed response.

The commander told me that women are better able to judge situations with potential for violence than men.

And they could definitely spread it non-aggressively.

This guy was very drunk and very interested in my camera, but I noticed the smiling ladies serving him and of course the AK-47 at the ready.

(Laughter) The mission seems to have been very lucky, not a single casualty in Liberia, even though dozens of peacekeepers have been killed.

And yes, those killed were all men.

Many of the women are married and have children, but the hardest part of being dispatched was being kept away from their children.

I have accompanied these women on patrol and watched them walk past men, many of whom made very mean comments incessantly.

And when asked about the shock and awe of one of the women, she said, "Don't worry, it's the same at home.

We know how to deal with them,” and ignored them.

In a country ravaged by violence against women, Indian peacekeepers have inspired many local women to join the police force.

When the war is over and the entire film crew is gone, sometimes the most moving stories are the ones that float right under the radar.

I came back to India and no one wanted to buy the story.

And one editor told me she wasn't interested in what she called "the tale of manual labor."

In 2007 and 2009, I wrote articles about the Delhi Fire Department DFS, probably the most active fire department in the world during the summer.

Answered over 5,000 calls in just two months.

And all of this comes with incredible logistical challenges, such as heat and traffic.

Something amazing happened during this shoot.

Traffic jams delayed our arrival at a large slum where a fire had started.

As we approached, an angry crowd attacked and stoned our truck with hundreds of people here and there.

They were terrified when the mob attacked our car.

However, despite the hostility, the firefighters got out of the vehicle and successfully extinguished the fire.

Some ran through hostile crowds in gauntlets and wore motorcycle helmets to prevent injury.

Some locals forcibly took hoses from firefighters to put out fires in their homes.

Hundreds of houses have now been destroyed.

But the question that has stuck with me is why do people destroy fire trucks on their way to their homes?

Where does such anger come from?

And how do we take responsibility for this?

Forty-five percent of Delhi's 14 million people live in chronically overcrowded, unlicensed slums.

Even the most basic facilities are lacking.

And this is common in all big cities.

Return to DFS. A huge chemical depot caught fire and thousands of drums filled with petrochemicals caught fire and exploded around them.

The heat was so intense that firefighters were working in close proximity to the fire, without protective clothing, and hoses were used for cooling.

In India we often complain to government agencies.

But this is the head of DFS, Mr. R.C. Sherman, A.K. Sherman led the firefight with his men.

In a country where manual labor is often neglected, it's great.

(Applause.) Over the years, my belief in the power of storytelling has been tested.

And I have had very serious doubts about its validity and my own faith in humanity.

But the movies we shot still air on the National Geographic Channel.

When it aired, all the men who were with her called and she received hundreds of congratulatory calls.

Some of the firefighters said that they were more happy to receive words of appreciation than the brick bats, and that this motivated them to work harder.

The story seems to have helped change perceptions about DFS, at least in the minds of viewers who watch TV, read magazines, and don't have shacks on fire.

Focusing on the heroic, beautiful, and dignified, regardless of the circumstances, can help magnify these invisibles in three ways: the hero of the story, the audience, and the narrator.

And that is the power of story.

Focus on what is dignified, brave, and beautiful, and it will grow. thank you.

(applause)

There are many Web 2.0 consultants who make a lot of money.

In fact, they make a living out of this.

Hold on as I'll walk you through the next three minutes to save you time and money.

I started the website Reddit.com in 2005 with a few friends.

This is a so-called social news website. It's basically a democratic front page for the best things on the web.

Find interesting content (eg, a TED talk) and post it on Reddit, and your fellow community will upvote it if they like it, or downvote it if they don't.

It creates the front page.

It's always going up and down. 500,000 people visit every day.

But this isn't about Reddit.

Over the past four years, we've seen all sorts of memes and all sorts of trends come to life on the homepage.

This isn't about Reddit per se, it's actually about humpback whales.

Technically, this is about Greenpeace, the environmental group that tried to stop the Japanese government from whaling.

The whale was being killed. They wanted it to end.

One way they wanted to do that was by implanting a tracking chip in one of the whales.

So, in true web fashion, they conducted a survey. There were many very learned, very thoughtful and cultural names there.

I believe this means "immortal" in Persian.

I think it means "sacred power of the sea" in Polynesian.

And then there was this: "Mr. Splash Pants".

(Laughter) And this was a special name.

Mr. Pants ("flashy" to his friends) was very popular on the Internet.

In fact, someone on Reddit thought, "Great, we should all vote for this."

And the Redditor reacted to this and all agreed.

Then the voting started.

We supported it ourselves. To support this cause, we changed our logo of the day from Alien to Splash.

And it didn't take long before other sites like Fark, Boing Boing, and the rest of the Internet started saying, "We love Splashy Pants!"

So it went from about 5 percent when the meme started to 70 percent when the poll ended.

Pretty impressive, right? we won! Mr. Splashpants was chosen.

Just kidding, Greenpeace wasn't really that enthusiastic. Because they wanted one of the more thoughtful names to win.

They said, "No, just kidding. We're going to vote for another week."

Well, it kind of pissed me off, so I changed it to Fightin' Splashy.

(Laughter) And the Reddit community, actually the rest of the internet, is helping with this.

A Facebook group has been created.

The idea was, "Vote in your conscience and vote for Mr. Splash Pants."

People were putting up signs about this whale in the real world.

(Laughter) This was the final vote. Turnout was 78%.

After describing the landslide situation, the next three names came up.

There were clear lessons. It's just that the internet loves Mr. Splash Pants.

It's clear. Great name.

Everyone wants to hear the newscaster say "Mr. Splash Pants."

(Laughter) I think that helped drive this forward.

What was great was the response.

Greenpeace has created an entire marketing campaign around it. Mr. Splash Pants shirts and pins, and an electronic card that lets you send a dancing Splash to a friend.

But more importantly, they accomplished their mission.

The Japanese government canceled the whaling expedition.

Mission accomplished: Greenpeace rejoiced, whales happy – that's the saying.

(Laughter) And indeed, the Internet community's Redditors were happy to participate, but they weren't whale lovers.

A few, sure, but we're talking about a lot of people who are really into and obsessed with this meme.

Greenpeace returned to the site and thanked Reddit for their participation.

But this was not real altruism. Just interested in doing something cool.

This is how the Internet works. This is the big secret.

The Internet provides a level playing field.

Your link is as good as yours and yours is as good as mine.

Anyone with a browser can access any website, regardless of budget.

Another important thing is that it costs nothing to get content online.

There are so many publishing tools available that it only takes a few minutes to create something.

The iteration cost is so cheap that you might as well.

If so, be sincere. Be honest and frank.

One of the great lessons Greenpeace has learned is that it's okay to lose control, even if it's to a very serious cause, but it's okay to take yourself a little less seriously given that you may still be able to achieve your goals in the end.

This is the last message I want to convey. It means that you can do well online.

But messages no longer just come from the top down.

If you want to be successful, you have to be okay with losing control.

thank you.

(applause)

I'm actually from the UK, but I've been living in the Maldives for 26 years.

I mean, it's really home.

The Maldives, as you may know, are islands off the southwest coast of India here.

The capital Male where I live.

In fact, sitting here in Mysore today, it's closer to Male than it is to Delhi, for example.

If you're in the IT industry, India is clearly the place to be at the moment.

But if you are a marine biologist, the Maldives is not such a bad place.

And it's been my home for the last few years.

For anyone who has been there, great reefs, great diving and great snorkeling.

I spend as much time as possible researching marine life.

I study not only fish, but also larger ones, whales and dolphins.

This is a blue whale. There are blue whales in the waters around here, off the Maldives and near India. It can also be seen off the coast of Kerala.

And indeed we are very lucky in this area.

This area is one of the best places in the world to see blue whales.

In Sri Lanka, blue whales are very easy to see if you go to the south coast of Sri Lanka during the northeast monsoon season.

This is probably the best place in the world to see them.

Now, when I talk about the northeast monsoon season, I think a lot of people here know exactly what I'm talking about, but maybe some people aren't so sure.

I need to say a few words about monsoons.

Well, about monsoon, the etymology of the word "monsoon" comes from the word "season".

So, it's just the season. And most of South Asia has two seasons.

And in the summer India gets hot, very hot.

Hot air rises and air is drawn in from the ocean to replace it.

And how it works, it comes from the Southwest.

Here it emerges from the sea and is hauled up towards India.

So it came from the southwest. Southwest monsoon.

Absorbs moisture when crossing oceans.

That's what brings monsoon rains.

And in winter things cool down.

High pressure rises over India.

And the whole system is reversed.

So the wind is now blowing from the northeast of India across the Indian Ocean towards Africa.

Keep that in mind.

Now I'm a marine biologist, but I think I'm actually a bit of an archaic naturalist.

I'm interested in all sorts of things, almost anything that moves, including dragonflies. And this afternoon, I'm actually going to talk about dragonflies.

This is a very beautiful species, called oriental scarlet.

And one of the most important things to know about dragonflies is that they lay their eggs in fresh water.

Breeding requires fresh water.

They lay their eggs in freshwater.

Small larvae hatch in freshwater.

They eat other small things. They eat mosquito larvae.

So they are very important.

They control mosquito larvae among other things.

And they grow step by step. And they crawl out of the water and pop out like the adults we see.

And although there's usually a lot of variation, for example dragonflies, which have a very common life cycle of one year, freshwater larvae live for 10 to 11 months.

Subsequent adults live for 1-2 months.

That is, they are essentially freshwater animals.

I really need fresh water.

Now, the particular species of dragonfly I want to talk about is this dragonfly. That's because most dragonflies, like the one you just saw, don't travel very far during their short lifespan of a month or two on the spot as adults. You can't go very far.

A few kilometers is probably very common.

They fly very well, but they don't go very far.

But this man is an exception.

And this is called a glove skimmer, or wandering glider.

And, as the name suggests, it's found almost all over the world.

They live in the tropics, the Americas, Africa, Asia, Australia and the Pacific Ocean.

And it wanders far. we know a lot about it.

However, it has not been studied much in practice.

It looks like an ordinary dragonfly.

If you're going to study dragonflies, you'll want to study really bright and beautiful dragonflies like that red dragonfly. Or something really rare, a unique endangered species.

This seems a little boring.

It's a dull color. And it's pretty common.

And it happens everywhere - you know, why bother?

But with that kind of attitude, you're actually missing out on something special.

Because this dragonfly has an amazing story.

And I am very honored to have come across this work by chance while living in the Maldives.

When I first went to the Maldives, I fell in love with diving and spent as much time as possible in and out of the water.

I didn't notice the dragonfly. Maybe it was there, maybe it wasn't.

did not notice.

But a few months later, one day, when I was out, I suddenly noticed hundreds of dragonflies.

Something like this, these are all this kind of globe skimmers.

I didn't know it then, but now I know, they are hundreds of globe skimmers.

And they were there for a while. And they are gone.

And then the next year it happened again, and I thought nothing more of it until the year after, and the year after that.

And I was a little late, so I didn't really care.

However, after asking my Maldivian friends and colleagues, yes they come every year.

And when I asked people about them, they certainly knew, but they had no idea where they came from.

And again, I didn't think much of it.

But gradually I began to realize that something special was happening.

Because dragonflies need fresh water to breed.

And the Maldives, which some of you have been there before, is home.

Well, Maldives, it's a beautiful place.

(Laughter) It's made entirely of coral reefs.

And above the coral reef there is a sandbar.

Average height, so high above sea level.

In other words, global warming, sea level rise, this is a really serious problem.

But I'm not going to talk about it.

Another important aspect of this sandbar is that when it rains, rainwater seeps into the soil. So it's gone.

Therefore, it stays under the soil.

Trees can take root there.

Humans can dig holes to make wells.

But dragonflies are a little more difficult.

There is no fresh water on the surface.

Ponds, streams, rivers, lakes, nothing like that.

So why do millions of dragonflies appear each year?

I got a little interested. As a matter of fact, I will stop here. Because I want to hear In India, of course, there are many people who spent their childhoods and grew up here.

If you're Indian or spent your childhood here, let me raise your hand. Not yet.

too enthusiastic too enthusiastic No, wait a minute. Wait a minute.

wait for departure I say go

If you grew up in India, do you remember the dragonflies you saw as a kid, the flocks of dragonflies?

Maybe pulling out bits? I'm not asking about it.

All I have to say is do you remember seeing so many dragonflies?

do you have hands? do you have hands? yes. thank you. thank you.

This is a phenomenon that spreads throughout South Asia, including the Maldives.

And then I got a little curious.

Dragonflies, of course, because water is plentiful in the Maldives, and now in India. why not?

However, there is no fresh water in the Maldives. So what the heck is going on?

And the first thing I did was start recording when they showed up in the Maldives.

And the answer is October 21st.

This is the average date, not every year.

So I've been writing it for 15 years.

You would think they were from India. It's the closest place.

But remember, in October, we are still in the southwest monsoon and the Maldives are still in the southwest monsoon.

But the wind always, always blows from the west.

We are heading to India, not from India.

So how did these things get here?

Will they come against the wind from India?

It seemed a little unlikely.

So the next thing I did was make a phone call.

Maldives is a long archipelago.

About 500 miles long, this is India of course.

I called and emailed friends and colleagues.

When do dragonflies appear?

And soon, images began to emerge.

In Bangalore, my colleagues sent me information for three years, on average September 24th, or late September.

Arrive in Trivandrum later.

Far north of the Maldives, a little later.

Then Male and further south.

And the southernmost Maldives.

Pretty obvious, they're from India.

But they have come 400 miles across the sea against the wind.

How the hell do they do that?

I did not know.

The next thing I did was count the dragonflies.

I wanted to know about seasonality, when does it first come around in the year and how long is it there? Does that give any clues?

So I started a very rigorous scientific process.

I was doing a rigorous scientific analysis.

I rode my bicycle around the island of Male.

Walk about 5 km around, counting the number of dragonflies while watching between the trees so as not to bump into people.

And they are here for a very short period of time - October, November, December. that's it.

And they are trailing. There are some, but that's all.

October, November, December. It's not the northeast monsoon season.

It's not the southwest season.

That is the intermonsoon period, the time when the monsoon changes.

Now what I said is that the southwest monsoon goes in one direction and then changes and the northeast monsoon goes the other way.

This gives the impression that one air mass is rising and falling, rising and falling. That doesn't work.

What actually happens is that there are two air masses.

And between them there is a front, which moves.

In other words, if we have India here, we enter the southwest monsoon when the front is over India.

The front then plunges into the northeast monsoon.

And the front in the middle is not vertical, but slanted.

So when it comes towards Male, I'm standing in Male below the front line.

We may be in the southwest monsoon.

However, the upper winds are from the northeast monsoon.

So dragonflies actually come from India during the northeast monsoon, but they are 1,000 to 2,000 meters above the ground. can't believe it.

These little insects, like the ones we see here [India], two inches long and five centimeters long, fly 400 miles across the ocean and 2,000 meters in the millions. Totally unbelievable.

So I was pretty happy with myself. I thought, wow, I've tracked this down and figured out how they got here. Then I scratched my head a little, okay, I know how they get here, but why do they come here?

What are millions of dragonflies doing as they fly across the ocean to their doom each year?

It makes no sense. Maldives has nothing for them.

What are they doing?

Well, to put it simply, they actually fly across the ocean.

They have reached as far as East Africa.

I know it because a friend of mine who works on a fisheries research vessel sends me a report from a vessel at sea.

I know there are also reports from the Seychelles and that applies here as well.

And I know it because these particular insects, globe skimmers, thrive in temporary rainwater pools if you look at rainfall.

Yes, they lay their eggs where there are seasonal, monsoonal rains.

Larvae must grow very quickly.

It takes just 6 weeks. It will be 6 weeks instead of 11 months.

They're up and they're leaving.

Now, in case you can't read the back, at the top is the rainfall for India.

And it will start in June. So this is monsoon rain.

It gets dry in September and October.

This dragonfly has nothing. No more seasonal rains.

They have to go hunting for seasonal rains.

And they fly south. As the monsoon recedes south, it descends through Karnataka into Kerala.

And we will run out of land.

But they are incredibly good aviators. This species can fly thousands of kilometers.

And it just goes on. And the wind, the northeast wind, blows it away and carries it across the sea to raining Africa.

And they breed in the rains of Africa.

Well, here we are in southeastern Africa. Apparently there are two breeding seasons here. It's a little more complicated than that.

What is happening is that they are breeding here in the monsoon rains.

And the dragonflies you see here today, outside of campus, are the young of this generation.

They hatched in India.

They are looking for places to breed. If it rains here, they will breed.

But most of them are going to continue. And your next destination is East Africa, maybe just four or five days away.

The wind will push them here.

If they go through the Maldives they might go look but there is nothing there and they will continue.

Here, here in Kenya, East Africa, they're really just coming out of a long drought.

It rained just last week. The short rain stopped and now it's raining.

And the dragonflies are there too. We have received reports from various contacts.

The dragonfly is here now. they breed there.

They will lay eggs now.

The eggs are expected to hatch within 6 weeks. Seasonal rains continue to fall at that time. It's not there, it's down here.

they will fly here And the clever thing is that the wind always concentrates where it's raining.

It rains, this is summer rain.

This is the summer monsoon.

There the sun is overhead. Summer rains fall in southern Africa.

The sun is overhead, maximum heating, maximum evaporation, maximum clouds, maximum precipitation, and maximum breeding opportunities.

Not only that, but because of this convection, hot air rises and air is sucked in.

There is convergence. Therefore, wherever it is raining, air is attracted to it to replace the rising air.

So the little ones hatched here will be lifted into the air and automatically transported to where it is raining.

It lays eggs, the next generation is born, and they are automatically transported to where it is raining.

I'm back there now. They're out, it's time to come back.

So 4 generations, 1, 2, 3, 4, and back.

round the Indian Ocean.

It is a circuit course of about 16,000km.

A 2-inch-long insect walks 16,000 kilometers and 4 generations. It's really unbelievable.

If you're from North America, you probably know the monarch butterfly.

This is the longest insect migration known to date.

It's only half this length.

And this ocean crossing is the only truly regular crossing of the ocean for insects.

A pretty incredible feat.

And I stumbled upon this because I had lived in Male, Maldives for so long that something special was going on in my mind.

But dragonflies aren't the only creatures that traverse.

There is more to this story.

I am also interested in birds. And I know this person very well. This is a rather special bird.

It's a falcon. It's apparently called the Eastern Red-footed Peregrine Falcon.

But it is also called the Amur falcon.

It is called the Amur Peregrine Falcon because it breeds in the Amur Land.

Here is the area along the Amur River.

It's a border, much of it here in the Far East, between China and Russia.

So Siberia, Manchuria.

and breed there.

A very good place in summer if falcons.

But in winter it's a pretty miserable place.

Well, you can imagine that.

So he moves south, as any wise bird does. they move south. The entire population moves south.

But then it stopped being wise.

That is why they do not stop here now, but also here.

No, they turn around here.

They have a small gas station in northeastern India.

They come from latitudes around Mumbai or Goa.

Then they crossed the ocean to Kenya.

And they winter here [southern Africa].

can't believe it. This is the most unusual migration among birds of prey. Quite an incredible immigration.

And they aren't the only ones to cross.

They make the most amazing journeys, some crossing from India to Africa. This also includes hobbies.

This man is a very nice bird, this is a flying cuckoo.

If you are from North India, you will know it well.

It comes with the monsoons.

During this time they return to Africa.

And this guy, the Roller, is a pretty beautiful bird.

Known as the Eurasian Roller. In India it is known as the Kashmiri Roller as it occurs in the northwestern part of the country.

And these birds, what I've done is I've compiled all the records about these birds, all the records that are available, put them together, and found that they migrate at exactly the same time as the dragonflies.

It uses exactly the same wind.

They move and cross at exactly the same time in the same wind. I know they are traveling at the same altitude.

About the Amur falcon is famous. This man unfortunately met one of those unfortunate ends.

He flew off Goa 21 years ago, in October 1988.

An Indian Navy jet was flying over Goa, bang! in the middle of the night. Fortunately, a two-engine jet returned to base and picked up the wreckage of one of these rollers.

Night flight over the Indian Ocean 2,424 meters.

It's the same height that dragonflies go.

In other words, they use the same wind.

And the other is an important factor for all these birds, all medium-sized companions. It also includes the following slides: It's a bee-eater.

Bee eaters eat bees. This one has nice blue cheeks.

It's a green bee-eater.

And all these birds, from India to East Africa, feed on insects, large insects, insects as large as dragonflies. thank you very much.

(applause)

Metaphors live secret lives around us.

We speak about 6 metaphors a minute.

Metaphorical thinking is integral to how we understand ourselves and others, how we communicate, learn, discover and invent.

But metaphor is a way of thinking before it is a way of speaking.

Now, to help explain this, I have enlisted the help of one of our greatest philosophers, the reigning king of figurative scholars. He has contributed so much to this field that he has become a metaphor for himself.

Of course, I am referring to none other than Elvis Presley.

(Laughter) Now, "All Shook Up" is a great love song.

This is also a good example of how we inevitably resort to metaphor whenever we deal with abstract things: ideas, feelings, sensations, concepts, thoughts, etc.

In "All Shook Up," a touch isn't a touch, it's a chill.

Lips are volcanoes, not lips.

She's a buttercup, not her.

And love is not love, it's all about being shaken.

Elvis at this point follows the classical definition of Aristotle's metaphor as the process of naming the thing belonging to something else.

This is metaphorical mathematics.

And fortunately, it's that easy.

X equals Y.

(Laughter) This formula works wherever metaphors exist.

Elvis uses this word, but Shakespeare also uses it in a famous line from "Romeo and Juliet." "Juliet is the sun."

Well, here Shakespeare gives Juliet a name that belongs to something else - the sun.

But whenever you give it a name that belongs to something else, you give it a whole network of analogies.

We mix what we know about the source of the metaphor, in this case the Sun, with what we know about its target, Juliet.

And metaphors help us understand Juliet much more vividly than Shakespeare's literal description of her appearance.

So how do we make and understand metaphors?

This may look familiar.

The first step is pattern recognition.

Look at this image. what do you see?

3 selfish Pac-Man and 3 pointy brackets are real.

But what we see are two overlapping triangles.

Metaphor is more than just pattern detection. It's pattern creation.

The second stage, conceptual synaesthesia.

Now, synaesthesia is when a stimulus from one sensory organ is similarly experienced by another sensory organ, such as colored hearing.

People with colored hearing can actually see colors when they hear the sounds of words and letters.

We all have the ability of synesthesia.

This is a bouba/kiki test.

All you have to do is identify which of these forms is called bouba and which is called kiki.

(Laughter) If you're like 98 percent of the rest of us, you'd recognize a round, amoeba-like object as Bouba and a sharp object as Kiki.

Can I just raise my hand?

Does it correspond?

Well, I think 99.9 has you covered.

Why would you do that?

This is because we instinctively find or create patterns between the round shape and round sound of Bouba, and the sharp shape and sharp sound of Kiki.

And many of the metaphors we use on a daily basis are synesthesia.

Silence is sweet.

Loud neckties.

A sexually attractive person is attractive.

Sexually unattractive people make us cold.

Metaphors create a kind of conceptual synesthesia, in which we understand one concept in the context of another.

The third step is cognitive dissonance.

This is the Stroop test.

What you need to do now is identify as quickly as possible the color of ink in which these words are printed.

You can take the test now.

If you're like most people, you'll experience instant cognitive dissonance when color names are printed in different colors of ink.

This test shows that the literal meaning of a word cannot be ignored, even when the literal meaning gives the wrong answer.

The Stroop test is also done metaphorically.

Participants were required to identify literally false statements as quickly as possible.

They took longer to reject metaphors as false than they did to reject sentences that were literally false.

why? Because the metaphorical meaning of the word cannot be ignored either.

One of the sentences was, "Some jobs are prisons."

Now, unless you're a prison guard, the statement "some jobs are in prison" is literally false.

Sadly, it's metaphorically true.

And figurative truth hinders our ability to identify it as literal falsehood.

Metaphors are important because they are all around us every day.

Metaphors are important because they create expectations.

Be very careful the next time you read financial news.

Agent metaphors describe price fluctuations as the deliberate behavior of the creature, such as "the Nasdaq has risen."

Object metaphors describe price movements as abiotic, such as 'the Dow fell like a brick'.

The researchers asked a group of people to read a book of market commentary and predict price trends for the next day.

People exposed to the agent metaphor raised expectations that the price trend would continue.

And they had such expectations because the agent trope alludes to the deliberate actions of creatures in pursuit of their goals.

For example, if house prices are routinely described as rising more and more, people may rightly think that the rise is unstoppable.

For example, you may be confident in taking out a mortgage that you can't actually pay.

Of course this is a hypothetical example.

But this is how the metaphor is misleading.

Metaphors are important because they influence decision-making by activating analogies.

A group of students were informed that a small democratic country had been invaded and asked the United States for help.

And they had to make a decision.

what should they do?

Intervene, appeal to the UN, or do nothing?

They were then each given one of three explanations for this hypothetical crisis.

Each was designed to trigger different historical parallels. World War II, Vietnam, and the third were historically neutral.

Those exposed to World War II scenarios made more interventionist recommendations than others.

Just as we cannot ignore the literal meaning of words, we cannot ignore the similarities induced by metaphors.

Metaphors are important because they open the door to discovery.

When solving problems or making discoveries, we compare what we know with what we don't know.

And the only way to know about the latter is to investigate possible ways to be similar to the former.

Einstein described his scientific method as combinatorial play.

He famously used thought experiments, which are essentially elaborate analogies, to come up with some of his greatest discoveries.

Figurative thinking sparks discovery by bringing together what we know and what we don't know through analogy.

Now metaphors are everywhere, but hidden.

But if you look at the words around you, you'll find them quickly.

Ralph Waldo Emerson described language as "fossil poetry".

But before it became fossil poetry, language was a fossil metaphor.

And these fossils are still breathing.

Consider three of the most famous phrases in Western philosophy: "cogito ergo sum."

This is usually translated as "I think, therefore I exist".

But there are better translations.

The Latin word "cogito" is derived from the prefix "co" meaning "together" and the verb "agitare" meaning "to swing".

In other words, the original meaning of "cogito" is "to tremble together."

And the proper translation for "cogito ergo sum" is "I shake things, therefore I exist".

(Laughter) Metaphor shakes things up and gives us everything from Shakespeare to scientific discoveries along the way.

The mind is a plastic snow globe, which, in Elvis' words, is most beautiful, most interesting, most itself when everything is rocked.

And the metaphor continues to make the heart quiver and rattle long after Elvis exits the building.

thank you very much.

(applause)

My anger over corruption prompted me to make a major career change last year, becoming a full-time attorney.

My experience as a lawyer over the past 18 months has sown new entrepreneurial ideas in me. I believe it is certainly worth spreading.

So I will share it with all of you here today. However, the idea itself is taking shape and we are still working on the business plan.

Of course, as the number of failed ideas grows, it helps the public's fear of failure fade.

Since 1993, I have been a big fan of companies and entrepreneurship.

I have explored, experienced and experimented with corporations and capitalism to my heart's content.

Together with my two brothers, I founded a leading real estate company in my home state of Kerala, then worked professionally with two of India's biggest businessmen, their start-ups.

In 2003, when I stepped out of the purely capitalist sector to tackle the so-called social sphere, I had no grand strategy or plan to pursue and find commercial solutions to address pressing public problems.

When a series of deaths and near-death experiences happened in my close circle of life, it highlighted the need for emergency medical response services in India, similar to 911 in the United States.

To address this, along with four friends, I founded Ambulance Access for All to promote life support ambulance services in India.

For people in developing countries, this idea is nothing new.

But as we envisioned it, we had three key goals. It is to provide a world-class life-saving ambulance service that is fully self-sustaining with its own revenue stream and universally accessible to anyone in a medical emergency, regardless of ability to pay.

An evolved service, Ambulance Dial 1298, began in 2004 with one ambulance and now has over 100 ambulances in three states and has transported over 100,000 patients and victims since its inception.

The service -- (applause) does not use any public funds and is completely self-sustaining from its own income, and indeed has a cross-subsidization model at work, with the rich paying higher rates, the poor paying lower rates, and accident victims receiving the service for free.

The service also responded effectively and efficiently during the unfortunate Mumbai terrorist attacks on 26/11.

And as you can see from the footage, the service responded and rescued victims from the crime scene even before police cordoned off the scene and officially confirmed it as a terrorist attack.

We ended up being the first medical response team at every incident, transporting 125 victims and saving lives.

(Applause.) In tribute and remembrance of the 26/11 attacks over the past year, we have indeed helped Aman Foundation, a Pakistani NGO, establish a self-sustaining life-support ambulance service in Karachi, with support from the Acumen Foundation.

(Applause.) This is our small message to the enemies of humanity, Islam, South Asia, India and Pakistan. Humanity will continue to grow regardless of these dastardly attacks.

Since then, I have also co-founded two other social enterprises.

One is 'educational access for all', setting up schools in small towns in India.

and Moksha Yug Access, which integrates rural supply chains based on self-help group-based microfinance.

It seems to me that we are doing at least some things right.

Enthusiastic investors and venture funds pledged more than $7.5 million.

Importantly, these funds were provided as QT funds, not as grants or philanthropy.

Now back to the new social enterprise idea I'm exploring.

Corruption, bribery and lack of transparency.

You might be surprised to learn that eight speakers actually mentioned these terms in their talks yesterday.

Bribery and corruption have both a demand side and a supply side, most of which are greedy unethical corporations and unhappy ordinary people.

And the demand side is mainly politicians, bureaucrats, and those to whom they have discretion.

The World Bank estimates that $1 trillion is paid in bribes each year, making the situation of the poor worse.

But if you analyze the average person, he or she doesn't get up every day and say, "Well, let's see who we can bribe today."

Or, "Let's see who we can corrupt today."

Often times, it is constraints and circumstances that lead unlucky ordinary people to pay bribes.

In a modern world where time is at a premium and the struggle for survival is unimaginably tough, the unlucky commoners simply give in and pay bribes just to get on with their lives.

Now let me ask you another question.

Imagine being asked to pay a bribe to get something done in your everyday life.

What is your occupation? Of course you can call the police.

But what would happen if the police were corrupt inside?

You definitely don't want to pay bribes.

But I don't have the time, resources, expertise or means to fight this.

Unfortunately, many of us in this room are proponents of capitalist policies and market forces.

But market forces around the world have yet to launch a service that can make calls, pay bills, and counter demands for bribes.

Bribery Prevention Service, 1-800-Fight-Bribes, www.stopbribes.org, www.preventcorruption.org, etc.

Such services simply do not exist.

One of the images that has stuck with me since the beginning of my career is that of a 70+ year old grandmother being harassed by City Planning Bureau bureaucrats.

All she needed was permission to build three flights of stairs from ground level to the house for easy access.

But the officer in charge would not give her permission because he wanted a bribe.

At the time, even though it hurt my conscience, I was too busy setting up a real estate company to take care of or help her.

I don't want to be trapped in such an image anymore.

Our group has been piloting to address isolated cases of requests for bribes for public services and rights.

And in all 42 cases where we used existing legitimate tools such as Freedom of Information Act, video, voice, and peer pressure to push back against such demands, we were able to achieve everything our clients set out to achieve without actually paying a bribe.

And the cost of these tools was significantly lower than the requested bribe.

I believe that the tools that have worked in these 42 pilot cases can be integrated into standard processes in environments like BPO and made available for a fee on the web, in call centers, and in franchise physical offices to serve those facing demands for bribes.

Your target market couldn't be more attractive.

Paid in bribes each year, it could be worth up to $1 trillion, or the equivalent of India's GDP.

And it's a completely untapped market.

I would like to explore this idea further and propose to explore the possibility of creating a commercial paid BPO service to deter bribery and prevent corruption.

We know the fight for justice against corruption is never easy.

It has always been so and never will be.

As a lawyer, I have spent the past 18 months fighting large-scale corruption, including corruption by India's largest corporate fraudster.

Through his philanthropic work, I have had three police cases filed against me for alleged trespassing, impersonation and intimidation.

Fighting corruption takes a toll on ourselves, our families, friends and even our children.

But we believe the price we pay is worth protecting our dignity and making the world a fairer place.

what gives us courage?

When I was told during the seeding period of the ambulance project that it was an impossible task and that the founders were insane to chalk it up to a good job, a close friend of mine replied, "Of course, at least in our own minds, we can't afford to fail at this.

Because we are crazy people trying to do the impossible.

And an insane person doesn't know what an impossible task is. " thank you.

(Applause) Chris Anderson: Shafi, that's a really exciting business idea.

Shafi Mather: You have to get through the first few days of not being voted out.

(laughter) CA: What are you thinking?

I mean, give me a typical bribe and a typical fee figure here. I mean, what's in your head?

SM: Let me give you an example.

The person who applied for the passport.

The police just sat there and demanded a bribe of around 3,000 rupees.

And he didn't want to pay.

So we actually used the Right to Information Act, which is the equivalent of the US Freedom of Information Act, to push back the police officers in this particular case.

And in all 42 of these cases, when we kept pushing them back, there were three kinds of reactions.

In fact, some people say, "Oh, admit it, let's get out of there."

Some people actually come back and say, "Oh, you want to fuck me. Let me show you what I can do."

And he will have our backs.

So if you take the next step or use the next tool available in what we're putting together, he will break.

By the third time, all 42 were successful.

CA: But if it was a 3,000 rupee, $70 bribe, how much would you have to charge? And can you actually make a business out of it?

SM: Well, it actually cost less than 200 rupees.

So it actually works.

CA: It's a high gross margin business. i like it.

(laughs) SM: Actually, I didn't want to answer this on the TED stage.

CA: Okay. These are preliminary figures and there is no price guarantee.

If you can do this, you will become a world hero.

I mean, this can be huge.

Thank you so much for sharing this idea at TED.

(applause)

The key question is, "When will we achieve fusion?"

It's been a really long time since we've known about fusion.

We have known about nuclear fusion since 1920, when Sir Arthur Stanley Eddington and the British Society for the Advancement of Science speculated that this is why the sun shines.

I have always been very concerned about resources.

I don't know about you, but when my mother gave me food, I always separated what I didn't like from what I didn't like.

And I ate the things I didn't like first, because I wanted to save the things I liked.

And I always worry about resources when I'm a kid.

And when I was told how quickly we were running out of the world's resources, I was very upset. I was just as upset when I learned that the Earth only had about 5 billion years left before it was swallowed by the Sun.

A big event in life, a mysterious child.

(Laughter) Right now, energy is dominated by resources.

Countries that make huge profits from energy have something behind them.

Coal industrial revolution in this country -- oil, gas, sorry.

(Laughter) Gus, I'm probably the only one who's really happy when President Putin turns off the gas, because it raises the budget.

We are now dominated by what we consume more and more.

And as billions of people in the Third World try to lift themselves out of poverty, energy use is accelerating in developing countries.

And those resources are running out.

And the way we will generate energy in the future is precisely from knowledge, not from resources.

Looking 50 years into the future, the way we make energy will probably be one of these three, combining wind power with others. But these will be the baseload energy drivers.

Solar power can do that, and we must develop solar power.

However, there is a lot of knowledge we have to acquire before solar power can become the world's baseload energy supply.

Split.

Our government plans to build six new nuclear power plants.

They plan to build six new nuclear power plants, and possibly more after that.

China is building nuclear power plants. Everyone does.

Because they know it's one of the surest ways to achieve carbon-free energy.

But if you want to know what a perfect energy source is, one that doesn't take up much space, has a virtually inexhaustible supply, is safe, emits no carbon into the atmosphere, and leaves no long-lived radioactive waste. It's nuclear fusion.

But there are pitfalls. Of course, there are always pitfalls in cases like this.

Fusion is very difficult.

We have been trying for 50 years.

have understood. What is Fusion? This is where nuclear physics comes into play.

I'm sorry, but this excites me.

(laughs) I was a weird kid.

The reason for the emergence of nuclear energy is simple.

The most stable nucleus is iron, which is in the middle of the periodic table.

A medium-sized nucleus.

And if you want to get energy, you have to turn to iron.

Therefore, very large uranium will try to split.

But the smaller atoms want to bond, and the smaller nuclei want to bond together to make a larger nucleus and head towards the iron.

And in this way the energy can be extracted.

And really, that's exactly what stars do.

In the center of the star, hydrogen combines to form helium, and helium combines to form carbon, which in turn forms oxygen. Everything that makes you is made in the middle of the star.

But, as you know, it's a difficult process to do because the core of a star is almost by definition very hot.

And there is probably one of the simplest fusion reactions.

It lies between two isotopes of hydrogen: deuterium, which is deuterium obtained from seawater, and tritium, which is superdeuterium.

These two nuclei become electrically charged when they are far apart.

And when you push them together, they repel.

But when you bring them close enough, something called a strong force comes into play and pulls them together.

Therefore, most of the time they repel.

Bring them closer and closer, and at some point a strong force will bind them together.

Because it contains five particles inside, it momentarily becomes helium-5.

So that's the process. Deuterium and tritium combine to form helium-5.

When helium splits, neutrons are released, releasing a lot of energy.

If you could turn something up to about 150 million degrees, the object would rattle very quickly, and every time you hit it in the right alignment this would happen and energy would be released.

And that energy drives nuclear fusion.

And what we want to do is this reaction.

There is one caveat to this reaction.

Well, the caveat is that it needs to be 150 million degrees, but there's still a caveat about the reaction.

It's pretty hot.

The complication of this reaction is that tritium does not occur in nature.

must be made from other things.

And you make it out of lithium. If you add a neutron to the bottom reaction, lithium 6, you get even more helium and tritium.

That's how tritium is made.

But fortunately, if we can do this fusion reaction, we have neutrons, so we can do it.

Now, why bother with all this?

This is basically why we bother to do so.

Let's plot how much fuel is left in current world consumption units.

And if you cross it, you'll see decades of oil. By the way, the blue line is the lowest estimate of the existing resource.

And the yellow line is the most optimistic forecast.

And when you go there, you'll find that you have decades, maybe 100 years' worth of fossil fuels left.

And God knows you don't want to burn it all. This is because there is a huge amount of carbon in the air.

And then we get to uranium.

And with current reactor technology, there is practically no uranium.

And for conventional nuclear power plants to really play a big role for us, we need to extract uranium from seawater, the yellow line.

This is a little shocking. Because, in fact, our government has met Kyoto and relies on it to do all that stuff.

To go further, you will need breeder technology.

And the breeding technology is a high-speed breeding technology. And it's pretty dangerous.

The big thing on the right is lithium, which is all over the world.

And lithium is in seawater. That's the yellow line.

And there is nuclear fusion fuel equivalent to 30 million years in seawater.

Anyone can get it. That's why we want to do fusion.

Are you cost competitive?

We estimate how much it might cost to actually build a fusion power plant.

And the price will be about the same as the current electricity bill.

So how do we make it?

Something has to be kept at 150 million degrees.

And indeed we have done this.

Hold it in a magnetic field.

And inside that, right in the middle of this toroidal shape, this donut shape, 150 million degrees in the middle.

It boils at 150 million degrees in the middle.

And indeed, we can achieve fusion.

And just beyond that is JET.

It is the only machine in the world that has actually performed nuclear fusion.

When people say fusion is 30 years away, and will be, I say, "Yeah, but we actually did it." right?

We can fuse. At the center of this device, 16 megawatts of fusion power was generated in 1997.

And in 2013, we're going to fire it up again and break all those records.

But it's not true fusion power. It's just merging.

We have to take it out and turn it into a fusion reactor.

Because I want nuclear fusion power generation for 30 million years for the earth.

This is the device we are currently building.

It is very expensive to do this research.

Despite the nonsense of cold fusion, it turns out that you can't do fusion on a tabletop. right?

you can't. I need to do that on a very large device.

More than half of the world's population is involved in the manufacture of this device in the south of France, making it the perfect place to conduct experiments.

Seven countries are participating in this construction.

It costs 10 billion. And generate 0.5 gigawatts of fusion power.

But it's still not electric.

You have to reach this.

we have to go to the power plant.

We have to start powering the grid with this very complex technology.

And I really hope that happens much sooner than it does now.

But for now, we can only imagine sometime in the 2030s.

I hope this is different. We need it now.

There will be power issues in this country in the next five years.

So 2030 seems infinitely distant.

But I can't give it up now. We must move forward and merge.

I wish I had more money, I wish I had more resources.

But this is what we're aiming for sometime in the 2030s: real power from nuclear fusion. thank you very much.

(applause)

Namaste. salaam.

Shalom. Saturday, Sri Akar.

Hello everyone from Pakistan.

It is often said that we fear what we do not know.

And Pakistan is very similar in this regard.

That's because it triggers and actually causes a visceral anxiety in the bellies of many Western souls, especially when viewed through the monochromatic lens of turbulence and chaos.

But Pakistan has many other sides.

And what follows is a series of images shot by some of Pakistan's most dynamic young photographers, intended to give another glimpse inside the mind of the average Pakistani citizen.

Here are some of the stories they wanted to tell us.

My name is Abdul Khan. I am from Peshawar.

I hope you see not only my Taliban-like beard, but the richness and color of my perceptions, aspirations and dreams, as rich and colorful as the bags I sell.

My name is Meher, this is my friend Ilim.

When I grow up, I want to become a veterinarian so that I can take care of the stray cats and dogs that roam the streets of my village near Gilgit in northern Pakistan.

My name is Kailash. And I like to enrich life through technicolor glass.

Madam, how about an orange bangle with pink polka dots?

My name is Zamin.

And I am an internally displaced person from Swat.

Can you see me on the other side of this fence?

Am I important or do I really exist for you?

My name is Iman. I am a fashion model and an up and coming model from Lahore.

Can you see me just covered in cloth?

Or will you look beyond my veil to see who I really am inside?

My name is Ahmed. I am an Afghan refugee from Khyber Agency.

I come from a place of intense darkness.

That's why I want to light up the world.

My name is Papsi.

The heart and the drum become one and beat.

If religion is the opium of the masses, for me music is the one and only ganja.

All boats float when the tide is high.

And India's booming economic growth has pushed more than 400 million Indians into a vibrant middle class.

Yet more than 650 million Indians, Pakistanis, Sri Lankans, Bangladeshis and Nepalis remain washed ashore in poverty.

Therefore, as India and Pakistan, and as you and I, we have a duty to transcend our differences, celebrate our diversity, and tap into our common humanity.

Our joint vision at Naya Jivan, which as you know it means “new life” in Urdu and Hindi, is to rejuvenate the lives of millions of low-income families by providing affordable access to devastating health care.

In fact, this is the emerging world's first HMO for the urban working poor.

As an Indian or Pakistani why should I do this?

We are just two threads cut from the same cloth.

And if our destinies are intertwined, we believe it is good karma and good luck.

And for many of us, our destiny is indeed at the bottom of the pyramid. thank you.

(Applause) Chris Anderson: Great. just stay here

It was great.

I thought it was really inspiring.

As you know, we fought hard to get at least a few Pakistani troops to come.

I felt it was really important.

They have gone through a lot to get here.

Pakistanis, could you please stand for a moment?

I really just wanted to acknowledge you.

(Applause.) Thank you very much.

I would like to talk about technology trends. This is what many of you are following, but we are also following for related reasons.

Being a tech magazine, it's clear tech trends are something we should be writing about and need to know.

But that's also part of being a monthly magazine. you live in the future And the lead time is also long.

We have to plan our problems months in advance. We have to guess what the public desires will be in six months, nine months. So we are in the prediction business.

And like many companies, we develop products based on technology trends.

In this case, ours is all about ideas and information and, if you're lucky, entertainment. But the concept is exactly the same.

So we need to understand not just why technology matters and where it is going, but very importantly when – timing is everything.

And what's interesting is that the predictions about e-commerce, Internet traffic, broadband adoption, and Internet advertising that were made at the peak of the 1990s boom were all right, but wrong in time.

Almost all of them came true after just a few years.

But the multi-year difference in stock market valuations is clearly extreme. That's why timing is everything.

You've probably seen something like this before.

This is the classic Gartner Hype Curve, which talks about something like the trajectory of a technology's lifespan.

And just for the fun of it, we put a lot of technology on to show you whether you're ascending to your first heights, falling into the valley of disillusionment, or rising again on the slopes of enlightenment.

This is one way of making technology forecasts. Understand the current state of technology and predict the next upturn.

We tend to run technology that we think is important enough. Usually twice. I would like to try it once.

We want to do that first. For the geeks who appreciate it, catch it right away with the technology trigger.

In 1997 Linux was on the cover.

But then it comes back. And big enough technology will hit the mainstream and explode.

And it's time to repeat it again. last year.

This is one way we try to time technology trends.

I would like to talk about my view on technology trends, which I call the Grand Unified Theory of Future Prediction, which is closer to the Petite Unified Theory of Future Prediction.

It is based on the assumption, and even the observation, that all important technologies go through four stages in their lifetime, at least one of them, and possibly all four.

And each of these stages can be seen as a collision, a collision with something else, for example, a significant price line that not only changes the technology, but also the impact that technology has on the world. It's an inflection point.

And these are the inflection points of what the next chapter in that technology's life will look like, and perhaps how we can deal with it.

The first is the important price.

The first stage of technological progress is below the critical price.

After falling below the critical price, if successful, it tends to exceed the critical value, or penetration.

Many technologies will be superseded by other technologies at some point, which is also important.

And eventually, many technologies become commoditized.

Near the end of life they are almost free.

Each of them is an opportunity to do something about it. It's an opportunity for technology to change.

Even if Wi-Fi missed its first boom, it has achieved significant price, achieved significant mass, has not yet been displaced, and has not yet gone free. There is still an opportunity there.

I want to show you what I mean by talking about the technology that made all this possible, DVD.

As you know, DVDs came out in the mid-1990s and were very expensive. By 1998, however, it was below $400 and $400 was the psychological breaking point.

And it started taking off. And you can see that the unit is starting to trend upwards and is starting to take off at a hidden inflection point.

A year later, critical mass was next reached. In this case, 20 percent is often a good proxy for critical mass within the home.

What's interesting here is that another thing, the home theater unit, became popular at the same time.

Suddenly I have a DVD at home. You have high quality digital video. There's a reason you have a big screen TV. There's a reason for Dolby 5.1 surround sound.

And maybe there is a reason to connect them and start introducing the rest of the entertainment.

Interestingly, Netflix was founded in 1999.

Here comes Reed Hastings. He clearly saw it as a moment, a tipping point where something could be done.

The next stage is moving.

Around 2001, we can see that it finally surpassed VCR sales.

And here, too, we can see the impact on the world as a whole.

Netflix was right. The Netflix model could leverage DVDs in ways video rental stores couldn't.

DVD has many assets, among which is that its assets are very small. You can put it on a mailer and post it cheaply.

It brought an advantage. It was a hint of technological advancement, but it wasn't obvious to everyone.

And finally the DVD is close to free.

There is an obscure Chinese company called Apex, which has been number one in DVD sales in America several times over the past year. Last year the average price was $48.

You probably know that fake Walmarts have been swamped over $30 DVDs.

But they are getting very, very cheap, and notice the interesting implications of that. As prices drop, luxury brands such as Sony are losing market share, while lesser-known brands such as Apex are gaining market share.

They're commoditized, and that's what happens when things go to zero. It's a tough market out there.

(Laughter) They introduced four ways of looking at technology, four stages in the life of technology.

I'd like to talk about other technologies out there, the ones we're looking at. And with this lens, these four, I'd like to explain where each of these technologies are in their development.

These aren't necessarily top 10 technologies. These are just examples of technology from each of these periods.

But I think it's interesting to think about what it means for them to approach these crossovers, crossroads.

Start with determining the gene sequence.

As you know, gene sequencing is largely computer-based, and prices are dropping at Moore's Law levels.

By the end of this year it will be possible to decode the human genome for $40 million - it will be possible, if Craig Venter were really here today he might have something to say about this.

This is in contrast to billions of dollars just a few years ago.

As you know, the ability to capture our creative tools is getting closer and closer.

What's interesting is that at the same time, the number of genes we're discovering is increasing rapidly.

Each of these genes has potential diagnostic tests.

If you want to know, there will come a day when hundreds of thousands of tests can be done very cheaply. You can learn about your mosaic.

Here's another technology approaching a serious price.

This is an interesting study by WHO showing the impact of generics on antiretroviral compounds and cocktails.

The price in January 2000 was $10,000, or $27 per day.

Generics were first introduced in countries such as Brazil, and had a dramatic impact on pricing.

Now it's less than 50 cents a day.

Interestingly, looking at the price elasticities and the correlation between these two, as antiretroviral drugs decline, the number of people we can treat rises sharply. And the Clinton Foundation and WHO believe that by 2005, 3 million people worldwide, or 2 million in sub-Saharan Africa, could be treated.

This has a lot to do with falling drug prices.

Linux is another good example.

Now switching to Critical Mass.

These are technologies that are currently reaching critical mass.

If you look here, Linux is in red and hits 20 percent.

Interestingly, there have been crossovers before, but no significant crossovers.

The crossover that matters is the blue crossover.

But if you look at where these lines are going, 20% of the time it's taken seriously.

It's no longer just for geeks.

I imagine that's what people in Redmond are up to in the middle of the night thinking.

(Laughter) Another technology we see around here is the hybrid car.

I don't know if anyone has a 2004 Prius, but it's great.

Looking at the trends here, by around 2008, which I don't think is a crazy prediction, it's going to be 2% of car sales.

2% isn't 20%, but it's a huge number in a slow-moving auto industry. That's the arrival.

At 2%, you will see them on any road.

An interesting aspect of the proliferation of hybrid vehicles is the introduction of electric motors into the automotive industry.

This is the first fundamental change in automotive technology in 100 years.

And once you have an electric motor, you can do anything. You can change the car structure as you like.

You can also apply regenerative braking. Drive-by-wire is also possible. Can have interchangeable body shapes. It's a small thing starting with hybrids, but it could lead to a whole new era of cars.

You may have heard of Voice Over IP.

Again, it comes out of nowhere. It's a little hard to use now.

There is a company called Skype founded by the Kazaa founders.

Look at these numbers. They launched it last August. There are already nearly 4 million registered users. This is critical mass.

And the same thing is happening on the carrier side.

IP is considering taking over some of the traditional communication standards. This is a tipping point -- pardon Malcolm if he's here -- and it's going to change the economy, the speed, and the players in the industry.

It feels a little like that.

And finally it's free. Free is really really funny.

Free comes with digital, because replication costs are essentially free. IP comes with it because it is a very efficient protocol. It comes with fiber optic because it has so much bandwidth.

Free is truly a gift from Silicon Valley to the world.

It's economic power. It's technical prowess.

If not dealt with correctly, it becomes a deflationary force.

It is abundance as opposed to scarcity.

Free is probably the most interesting one.

Here you will only see the number of songs that can be stored on your hard drive.

You know, there might be [unclear] in the movies there, but basically every song ever made could have $400 worth of storage by 2008. It takes the whole song element — the physical one — off the table.

And you've seen numbers.

I mean, the music industry is crumbling right before our eyes, and Hollywood is just as concerned.

They are facing forces they have never faced before.

And their reaction is harsh and not necessarily a way out of this situation.

And finally, here's one final free example. Probably the most powerful of all. I mentioned fiber optics, but their abundance tends to make things free.

This is the per minute call rate to India.

Interestingly, it was only in 1990 that it exceeded $2 per minute.

India had and still has a regulated phone system, and so do we.

It was surprisingly uninnovative and moved very slowly, but then there was so much fiber that it became unbearable and see how quickly prices fell.

Often 7 cents per minute.

And cheap calls to India, free calls result in angry programmers outsourcing.

This is perhaps one of the most dramatic changes in globalization and one of the most powerful economic tools we see in the world today.

The power of India, and China, and other countries that are able to reach out to our markets and collaborate with our companies, as communication is free, is just beginning to be felt.

And I think this is probably one of the most important technology trends we're watching today.

thank you.

Well, I learned a lot about ballooning, especially at the end of my round-the-world balloon flight with Brian Jones.

When I took this photo, the windows were frozen due to the humidity of the night.

And the sun was rising over it.

In other words, for those who do not dare to walk through the ice, there are things beyond the ice that are unknown, non-obvious, and invisible.

There are so many people who would rather suffer in the ice they know than risk going through it to see what lies beyond.

And I think that's one of the major problems in our society.

We may not be the famous TED audience, but many others learn that the unknown, doubt, and question marks are dangerous.

And we have to resist that change.

We have to keep everything under control.

Well, the unknown is part of life.

Balloons are a beautiful metaphor in that sense.

Because in a balloon, like life, things can go in unexpected directions.

We want to go in one direction, but just like in life, the wind pushes us in another direction.

And as long as we are fighting horizontally, against life, against the wind, against what is happening to us, life is a nightmare.

How do balloons steer?

By understanding that the atmosphere is made up of several different layers of wind, all of which have different directions.

So if you want to change your trajectory in life or in a balloon, you know you have to change your altitude.

Changing altitude in life means raising to another psychological, philosophical and spiritual level.

But how do we do that?

How does altitude change during a balloon flight or in life?

How do you move from a metaphor to something more practical that you can actually use every day?

Balloons are easy because they have ballast.

And when you drop the ballast overboard, it rises.

No more sand, water and all your tools.

And I think this is exactly how life should be.

You know, when people talk about the pioneer spirit, they often believe that the pioneer is the one with the new ideas.

it's not true.

New ideas come easily, so a pioneer is not someone who has new ideas.

Just close your eyes for a second, and many new ideas will come back to you.

No, a pioneer is someone who allows a large amount of ballast to be thrown overboard.

Habits, convictions, beliefs, exclamations, paradigms, doctrines.

What happens when you can do that?

Life is no longer just a one-dimensional line going in one direction. no.

Life is made up of every possible line going in every direction in the third dimension.

And every time we explore this vertical axis, a pioneering spirit is born.

Of course, it's not just the atmosphere in the balloon, it's life itself.

Exploring this vertical means exploring all the different ways, the different ways of acting, the different ways of thinking before finding the one that moves you in the direction you want.

This is very practical.

This is also true in politics.

This may also be a spiritual aspect.

This applies to the environment, finance, children's education, etc.

I deeply believe that life would be an even greater adventure if we could avoid the chasm between left and right wing politics.

Because we abandon these political dogmas.

I deeply believe that if we get rid of this fundamentalism that some green plants have shown in the past, we can protect the environment even more.

And if you get rid of religious dogma, you can aim for higher spirituality.

Throw overboard as ballast to change direction.

Well, these are basically what I believed for a long time.

But it actually took a round-the-world balloon ride to be invited to talk about it.

(Laughter) (Applause) It's clear that knowing which ballast to drop and which altitude to take is not easy. Sometimes you need a friend, family member or psychiatrist.

Well, balloons need weather forecasters. A person who calculates wind direction and altitude at each layer to aid balloonists.

But sometimes it is very paradoxical.

Brian Jones and I were flying around the world one day when a weather forecaster asked us to fly very low and very slowly.

And when I calculated it, I thought it would be impossible to go around the world at that speed.

So we didn't obey. We flew much higher and doubled our speed.

And I was so proud to have found the jet stream, I called the weatherman and said,

Fly twice as fast as you predicted. ”

And he said to me, "Don't do that. Get off now to slow down."

And I started arguing. I said, 'I'm not going to do that.

Not enough gas to fly so slowly. ”

He said, "Yes, but there is a low pressure system on your left, and if you fly too fast, you'll turn left and reach the North Pole in a few hours.

(Laughter) Then he asked me -- and this is something I'll never forget in my life -- he just asked me, 'You're a good pilot out there.

What do you really want? Do you want to go very fast in the wrong direction or slowly in the good direction?

(Laughter) (Applause) This is why we need weather forecasters.

That's why we need people with a long-term vision.

And this is what is failing in our current political vision, our political government.

As you heard, we burn so much energy without realizing that such an unsustainable lifestyle cannot last long.

So I actually went down.

we slowed down. And I had a moment of terror as I had no idea how the small amount of gas in the balloon could travel 45,000 kilometers.

But we were expected to be skeptical. We are expected to be afraid.

And indeed, this is where the real adventure begins.

It was a great holiday as we flew over the Sahara Desert and India.

I could land at any time and fly home.

In the middle of the Pacific, you can't land without the wind and you can't go back.

It's a crisis.

That's the moment you have to wake up from your automatic thoughts.

It's the moment you need to tap into your inner potential, your creativity.

It's time to give up all stabilizers, all certainties, in order to adapt to the new situation.

And in fact, I completely changed my flight plan.

We have completely changed our strategy.

And 20 days later, they landed safely in Egypt.

But I'm not showing you this photo to tell you how happy we were.

Because it shows how much gasoline is left in the last bottle.

We took off with 3.7 tons of liquid propane.

I landed with 40kg on my back.

When I saw it, I made a promise to myself.

I promised myself that the next time I circumnavigate the world, I would fly fuel-free, not relying on fossil fuels, so as not to be threatened by fuel gauges.

I had no idea how that was possible.

I think it's a dream and I want to make it come true.

And when my balloon capsule was officially introduced to the Air and Space Museum in Washington, along with Charles Lindbergh's plane, Apollo 11, Wright Brothers' Flyer, and Chuck Yeager's 61, I really thought then.

I thought the 20th century was amazing.

We could do all that there.

But in the future it will no longer be possible.

It takes too much energy. It costs too much.

Decades from now it will be banned because we have to conserve natural resources.

So how can we perpetuate this pioneering spirit with something that doesn't rely on fossil energy?

And that's when the project Solar Impulse really kicked into my head.

And I think this is a great metaphor for the 21st century as well.

The pioneering spirit must continue, but on another level.

It is no longer done to conquer Earth or space, but rather to improve the quality of life.

How can we cut through the ice of certainty to make the most incredible possible?

What is completely impossible today is to get rid of our dependence on fossil energy.

If you tell people that we want to be independent of fossil energy in this world, people will laugh at you, except here crazy people are being invited to speak.

(Laughter) I mean, if you fly around the world in a solar-powered plane without using any fuel, no one in the future will be able to say that you can't do it with cars, heating systems, computers, and so on.

Well, solar-powered planes are nothing new.

I had flown it before, but it didn't have a save function or a battery.

This means that we have proven the limits of renewable energy rather than its potential.

If you want to reach your potential, you have to keep flying day and night.

That means charging the battery while flying, spending the night on the battery, and flying again the next day.

It's already made in a pilotless, remote-controlled small airplane model.

But it remains an anecdote because the public failed to recognize it.

I think we need airplane pilots who can talk to colleges, students, and politicians while flying, and who are truly human adventurers.

Unfortunately, a wingspan of 4 meters is not enough for that.

A wingspan of 64 meters is required.

With a 64-meter wingspan that can accommodate a pilot and a battery, it flies slow enough for aerodynamic efficiency.

Why? Because it is not easy to change the fuel.

That's for sure.

And if you put 200 square meters of solar power on an airplane, it can produce the same energy as 200 small light bulbs.

It means a Christmas tree, a big Christmas tree.

So the question is, how can a pilot be transported around the world in an airplane that consumes as much energy as a large Christmas tree?

People will say it's impossible and that's why we try to make it happen.

We started the project six years ago with my colleague André Borschberg.

There are currently 70 people on the team working on this work.

We've gone through stages of simulation, design, computing, and getting ready to build the first prototype.

It took two years of hard work to achieve.

Cockpit, propeller, engine.

The aircraft here alone is very light.

It wasn't designed by an artist, but it could be.

50 kg for the entire aircraft.

For the wing spars it takes a few more kilometers.

Here is the complete structure of the plane.

And we announced it a month ago.

I can't imagine how it feels for a team that has been working on this for six years to show that it's not just a dream or vision, but a real plane.

A real airplane that was finally unveiled.

And what are your goals now?

The goal is to take off at the end of this year for the first test, but mainly next spring or summer to take off on my own and climb to an altitude of 9,000 meters without additional help or towing.

As soon as you load the battery, start the engine, reach the highest altitude and arrive at the beginning of the night.

There is only one goal. The goal is to reach the next sunrise before the battery runs out.

(Laughter) And this is just the epitome of our world.

You can't make it through the night if the plane is too heavy or if the pilot wastes energy in vain.

And it is clear that in our world, if we continue to corrupt and waste our energy resources and build things that consume so much energy that most companies go bankrupt today, we will never be able to hand the planet over to the next generation without major problems.

So you can see that this plane is rather symbolic.

I doubt we'll be able to transport 200 people in the next few years.

But even when Lindbergh crossed the Atlantic, the load was enough for one person and a little fuel.

And 20 years later, every transatlantic plane had 200 people on board.

So we should start by showing an example.

It looks a bit like this photo here.

This is my favorite painting by Magritte in a Dutch museum.

It's a pipe, but it says "this is not a pipe".

This is not an airplane.

It is a symbol of what we can achieve when we believe in the impossible, when we have a team, when we have a pioneering spirit, and especially when we understand that every certainty we have should be thrown away.

What makes me so happy is that at first I thought we would have to fly around the world with no fuel to get our message across.

And to show that thinking about getting rid of fossil energy is no longer completely stupid, we are invited by politicians, we are invited to energy forums, we are increasingly invited from all over the world to talk with Andre about the project, to talk about the symbol.

So through speeches, interviews and meetings like today, our goal is to get as many people on the team as possible.

You won't be successful "just" flying around the world in a solar-powered plane.

No, if enough people were motivated to do exactly the same thing in their daily lives, saving energy and using renewable energy, they would succeed.

And this is possible. As you know, with the technology we have today, a European country could save 30-50 percent of its energy, and the other half could be solved with renewable energy.

The remaining 25-30 percent goes to oil, gas, coal, nuclear power, etc.

This is acceptable.

That is why all who believe in this kind of spirit are welcome to join the team.

You can visit SolarImpulse.com to subscribe and receive information about what we do.

But more importantly, get advice, comment, and spread the word that if it's possible in the air, it's possible on the ground.

And every time there is ice in the future, we must know that life will be wonderful and success will be glorious if we can dare to overcome our fear of ice, walk through obstacles, overcome problems, and see what lies beyond.

So that's what we're doing on our part.

Everyone has their own goals, dreams and visions.

The question I'd like to leave you here is, which ballast would you like to throw overboard?

What altitude would you like to fly in your life to reach the success you desire, to get to the point where you really belong, where you have the potential, and where you can really achieve?

Because the most renewable energy we have is our own potential, our own passion.

Let's do our best. I hope you have great adventures with the Wings of the Future. thank you.

(applause)

Today I would like to talk about the human brain, which we study at the University of California.

Let's think about this issue for a moment.

This is about a three-pound chunk of meat that fits in the palm of your hand.

But we can think of the vast interstellar space.

It can ponder the meaning of the infinite and ask questions about the meaning of its own existence and the nature of God.

And this is really the most amazing thing in the world.

It is the greatest mystery facing mankind. How does this happen?

As you know, the brain is made up of neurons.

We're talking about neurons here.

The adult brain has 100 billion neurons.

And each neuron makes about 1,000 to 10,000 contacts with other neurons in the brain.

And on this basis, people calculated that the number of permutations and combinations of brain activity exceeds the number of elementary particles in the universe.

So how should we study the brain?

One approach is to observe patients with lesions in different parts of the brain and study their behavioral changes.

This is what I talked about at my last TED.

Today we will talk about another approach. It actually records the activity of individual neurons in the brain by placing electrodes in different parts of the brain.

It is like eavesdropping on the activity of nerve cells in the brain.

Well, one of the recent discoveries by Giacomo Rizzolatti, a researcher in Parma, Italy, and his colleagues is a group of neurons called mirror neurons in the front of the brain in the frontal lobe.

It has been known for more than 50 years that there are neurons called normal motor command neurons in the anterior part of the brain.

These neurons fire when a person performs certain actions.

For example, when I do that and grab an apple, motor command neurons in the front of my brain fire.

When I reach out and pull an object, another neuron fires and tells me to pull the object.

These are called motor command neurons and have been known since ancient times.

But what Rizzolatti found was that a subset of these neurons, perhaps about 20 percent of them, also fire when they see other people performing the same action.

The neuron here not only fires when I reach out and grab something, but it also fires when I see Joe reach out and grab something.

And this is really amazing.

It's as if this neuron is taking in someone else's point of view.

It's almost as if you're simulating your opponent's actions in virtual reality.

So what do these mirror neurons mean?

First, they have to be involved in things like imitation and emulation.

Imitation of complex actions requires my brain to adopt the other person's point of view.

So this is important for imitation and emulation.

So why is it important?

Now let's look at the next slide.

So how do we imitate it? Why is imitation important?

Mirror neurons and imitation, emulation.

Now let's look at culture, that is, the phenomenon of human culture.

Let's take a look at human evolution going back about [75,000] to 100,000 years ago. We can see that something very important happened about 75,000 years ago.

So many skills unique to humans suddenly emerge and spread rapidly, such as tool use, fire use, shelter use, and of course language, and the ability to read other people's minds and interpret their actions.

All this happened relatively quickly.

The human brain reached its present size about 300,000 or 400,000 years ago, but all this happened very quickly 100,000 years ago.

And I argue that what happened is that a sophisticated mirror neuron system suddenly emerged that enabled us to imitate and imitate the actions of others.

So when one of the members of the group suddenly discovered by chance that they had used, say, fire or a certain type of tool, it was not extinguished, but rapidly spread horizontally throughout the population, or vertically across generations.

So this suddenly made evolution less Darwinian and more Lamarckian.

Darwin's theory of evolution is slow. It will take hundreds of thousands of years.

It takes thousands of generations, perhaps 100,000 years, for a polar bear to evolve its fur.

A human, a child, can learn it all at once by just watching a parent kill another polar bear, skin it, skin it, fur it its body. What polar bears took 100,000 years to learn can be learned in 5, maybe 10 minutes.

And once this is learned, it spreads across the population in geometric proportion.

This is basic. Mimicking complex technology is what we call culture and is the foundation of civilization.

Now, there is another kind of mirror neuron that is involved in something completely different.

So, just as we have mirror neurons for actions, we also have mirror neurons for touch.

In other words, when someone touches me, my hand, neurons in the somatosensory cortex in the sensory area of ​​the brain fire.

But in some cases, the same neurons fire when you're just watching another person being touched.

In other words, it means that you empathize with the person you touch.

That is, if you touch another place, it will almost always catch fire. Different neurons in different locations.

But some of them catch fire even when you see others touching the same spot.

So there are neurons registered for empathy here as well.

Well, that begs the question. If I'm simply watching other people being touched, why am I not confused or literally feeling it just by watching someone being touched?

That is, I empathize with the person, but not literally.

It has touch and pain receptors in the skin that go back to the brain and say, 'Don't worry, you haven't been touched.

So, please feel free to share it with others. However, if you don't experience the feel of it in person, you'll be confused and confused. ”

Well, there are feedback signals that reject mirror neuron signals that prevent you from consciously experiencing that touch.

But when I take my arm off, it's just anesthetizing my arm, so when they put an injection into my arm and anesthetize the brachial plexus, my arm is numb and I can't feel it. Now when I see you being touched, I literally feel it on my hands.

In other words, you dissolved the barrier between you and other humans.

So I call them Gandhi neurons, or empathy neurons.

(Laughter) And this is not in an abstract metaphorical sense.

The only thing that separates you from him and everyone else is your skin.

When you peel the skin, you can feel the touch of the person in your heart.

You have dissolved the barriers between you and other humans.

And, of course, this is the basis of much of Eastern philosophy, that there is no truly independent self that observes the world apart from other human beings and observes other people.

In fact, you are not just connected via Facebook or the internet, you are literally connected by neurons.

And there are chains of neurons around this room, talking to each other.

And there is no real distinction between your consciousness and someone else's consciousness.

And this is not a gibberish philosophy.

It comes from an understanding of basic neuroscience.

So there are patients with phantom limbs. I feel it inside the Phantom as the arm is removed and the Phantom appears, watching others being touched.

Now, surprisingly, if you have pain in your phantom limb, holding someone else's hand and massaging that hand relieves the pain, as if your neurons were getting relief just by watching someone else being massaged.

Now let's take a look at the last slide.

For a long time, people thought science and humanities were separate.

CP Snow talked about two cultures. One is science, the other is humanities. The two will never meet.

In other words, the mirror neuron system underlies the interface, allowing us to rethink issues such as consciousness, self-expression, what distinguishes us from other humans, what enables empathy with other humans, and even the emergence of cultures and civilizations unique to humanity. thank you.

(applause)

So, 120 years ago, Dr. Roentgen did an X-ray examination of his wife's hand.

I don't know why he had to press her finger to the floor with his brooch. It seems a little extreme to me.

This image was the beginning of X-ray technology.

And I still use basically the same principle.

I'll give it a more modern interpretation.

The first thing I photographed was a soda can. This was to promote a brand that everyone knows. So I'm not going to benefit them by showing it.

But the second shot was the shoes I was wearing that day.

I really like this shot. Because it shows all the debris embedded in the sole of the sneaker.

It was just one of those potluck things that worked at first.

Moving on to something a little bigger, this is an x-ray of a bus.

And the bus is full of people.

I'm actually the same person. Only one skeleton.

In the 60's, I used to teach student radiologists to take x-rays of deceased people, not you or me, thankfully.

I mean, I still have access to one of the dead people called Frida. Unfortunately, she is so old and fragile that she is about to break.

But everyone on that bus is Frida.

And the bus is equipped with an X-ray that scans the cargo. This is a machine that checks for contraband, drugs, bombs, etc., like those at the border.

It's clear what it is.

Therefore, using large objects creates a certain drama, because X-rays of large objects are not often seen.

Technology is advancing and these large cargo scanner x-rays working with digital systems are getting better and better.

But again, you have to add a human element in some way to make it come to life.

And I think the reason why this image works so well is, again, Frida driving a bulldozer.

(Laughs) It's quite a difficult brief, but it makes men's pants look beautiful.

But I think the process itself shows how exquisite they are.

Fashion -- I'm kind of anti-fashion now because I don't show the outside, I show the inside.

I mean, fashionistas don't really like me because I look the same whether Kate Moss wears it or I wear it.

(Laughter) We all look the same on the inside, believe me.

The wrinkles and nuances of the material.

And I'll show you what things really are and what they're made of.

Peel off the layer to expose it.

And if it's made well I'll show it, if it's made badly I'll show it.

And I'm sure Ross can combine that with design.

Design comes from within.

It's not just Topshop, you get weird looks when you go out to pick up props.

Here I was wandering around the women's underwear section of a department store, and I was almost taken out of the store.

I live across the farm. And this was a dead piglet's piglet.

And what's really interesting is that when you look at the legs, you notice that the bones aren't fused together.

And if that pig had grown, it would have died, unfortunately, definitely after being x-rayed with the dose of radiation I used anyway.

(Laughter) But once the bones had fused together, they would have been healthy.

So it's an empty parka jacket.

But I really like the way he poses.

Nature is my biggest inspiration.

And continuing a theme already touched upon is how nature relates to architecture.

If you look at the Eden Project or the roof of the British Library, they all have this honeycomb structure.

And I'm sure those architects, like me, are inspired by what's around us, nature.

Actually, this is a Victoria water lily leaf floating on the pond.

Amaryllis flowers that look three-dimensional.

Seaweed, tide.

Now, think about how you're going to do this, where you're going to do this, all that stuff.

This is my new dedicated X-ray warehouse.

My x-ray room door is made of lead and steel.

It weighs 1,250 kilos and the only movement is to open and close it.

(Laughter) The walls are 700 millimeters thick solid dense concrete.

In other words, we are using a significant amount of radiation.

It does so much more than going to the hospital or veterinarian.

And there I am It is a very high performance X-ray machine.

What's really interesting about X-rays, when you think about it, is that the technology is being used to search for cancer, drugs, contraband, and so on.

I use such technology to create some very beautiful things.

So unfortunately I'm still working on film.

Aside from these large cargo scanners, life-size X-ray technology has not progressed sufficiently in image quality and resolution to meet my desire to make photographs look larger.

So I have to use a 1980's drum scanner. It was designed at a time when everyone was taking pictures on film.

They scan individual x-rays.

This is how I get X-rays of the same size.

So this is my daughter's dress.

It also has the tag from when I bought it, so if I don't like it, I'll take it to the store.

But there are 4 x-ray plates.

You can see that they overlap.

So when you go from something fairly small, a dress this size, to something that looks like it's done in exactly the same process, you know it's a lot of work.

In fact, this is equivalent to three months of solid state X-ray examinations.

There are over 500 individual components.

Boeing sent me a 747 in a container.

And I sent them back an x-ray.

(Laughter) I'm not kidding.

Well, Frida is my dead skeleton.

Unfortunately, this is basically two pictures.

The far right photo is of an American football player.

Radiograph on the left.

But this time I had to use a real body.

Because it needed all the skin tissue to look real, like a real athlete.

Therefore, it was necessary to use recently deceased bodies here.

And it was a very difficult and painstaking task to figure it out.

But people donate their bodies to art and science.

When they do, I get in line.

So I like using them.

(laughs) Coloring. Coloring adds another level to your X-rays.

It will be more organic and more natural.

Really, anything to my liking is fine.

It is not color-coded exactly as it actually is.

I don't think those flowers are bright orange.

But I like bright orange.

Also, using something technical like a DJ deck adds another level in a way.

Makes 2D images look more 3D.

The most difficult radiographs, the most technically difficult radiographs, are the lightest and most delicate.

If anyone knows anything about X-rays, believe me, the details are very difficult to understand.

I'm going to show you a short film, so I'll step down.

Video: (music) What's out there is very dangerous.

If you touch it, you may die from radiation poisoning.

In my career so far, I've been exposed to radiation twice, but twice is too much because radiation lasts a lifetime.

it is cumulative.

(music) It has a human connotation.

Not only is it the fact that it's a recognizable children's toy, but it also looks like a robot and comes from the science fiction genre.

It's amazing how not only humanity but also associations with artificial, futuristic, aliens.

And it's a little creepy.

(music) The bus was fitted with an X-ray machine for cargo scanning, used at the border to look for contraband and illegal immigration.

A truck goes in front of it. Then take an x-ray slice through the track.

And so it was done. It's actually a slice, a slice.

Similar to a hospital CT scanner. slice.

And if you look carefully, it's all small things.

He's wearing headphones, reading a newspaper, wearing a hat, glasses, and carrying a bag.

So these little details help make it work and real.

(music) The problem with using a living human being is that when they are x-rayed to take x-rays, they are exposed to radiation.

And in order to avoid it--which must be avoided--they use dead people.

They range from recently deceased cadavers to skeletons used by student radiologists to train them to take X-rays of the human body at varying densities.

(music) I have high-tech equipment: gloves, scissors, and a bucket.

(music) Shows how capillary action works and how it takes in nutrients. Allows retrieval of all cells within the stem.

Because it transports food from the roots to the leaves.

Look at this monster

(music) It's very basic. It just grows in the wild.

That's what I really like, the fact that you don't have to go shopping and it's completely non-GMO.

it's just happening.

And X-rays show how beautiful nature is.

It is not particularly beautiful when viewed with the human eye, how the leaves are attached. They are curled back into each other.

X-rays therefore show overlap of these small corners.

The thicker the object, the more radiation it requires and the more time it takes.

The lighter the object, the less radiation.

Sometimes we stick to punctuality because we know the details when we have time.

The longer the exposure time, the more detailed information you get.

(music) Looking at this, it's just a tube, but it's pretty bright.

However, it can get a little black in the tube, but it spoils everything else.

Therefore, these leaves at the edges begin to disappear.

What I like is the hardness and sharpness of the edges.

Yes I am very satisfied.

(music) I travel beyond the surface to show what something is worth, what it's really made of, how it really works.

But at the same time, I've also found that removing all the surfaces that people are accustomed to seeing has its benefits.

And that's kind of what I've been doing.

I now have a chance to show what I am going to do in the future.

This is a commercial application of my latest work.

I think the nice thing about this is that it's like a moment in retrospect, you have x-ray vision and you're taking pictures with an x-ray camera.

Unfortunately I do not have x-ray vision.

I dream with an X-ray. I watch my projects while I sleep.

And we know what it looks like on X-rays, and it's not too far off.

So what am I doing in the future?

Well, this year is the 50th anniversary of one of my favorite cars, the Issigonis Mini.

So I took it apart component by component and spent months and months working on it.

And we plan to use this image to display at the Victoria and Albert Museum as a light box actually attached to a car.

So I have to look at the car in half, from the middle, not an easy task in itself.

And when you get on the driver's seat and sit down, there is a wall in front of you.

If you get out of the car and walk to the other side of the car, you'll find a life-size car light box that shows how the car works.

And I intend to apply that idea to other kinds of symbolic things in my life.

My first computer was a big change in my life.

And I had a Mac Classic. and a small box.

And I think it looks very nice as an x-ray.

Also, I would like to change my work from flat to three-dimensional.

And this is a very good way.

I am also currently working on X-ray video research.

So if you can imagine, some of these flowers are actually moving and growing, and if you could get an X-ray of that, it would be pretty cool.

But that's it. i'm done. thank you very much.

(applause)

What is called the Danish twin study proved that within certain biological limits, only about 10 percent of the average human lifespan is determined by genes.

The other 90 percent is determined by our lifestyle.

So the premise of the Blue Zone is that if we can find the optimal lifestyle for longevity, we can come up with a de facto longevity equation.

But if you ask the average American what the best formula for longevity is, they probably can't answer.

They've probably heard of the South Beach Diet or the Atkins Diet.

There is a USDA food pyramid.

Oprah tells us

Doctor Oz tells us:

In truth, there is a lot of confusion about what really helps us live longer.

Should I run a marathon or do yoga?

Should I eat organic meat or should I eat tofu?

When it comes to supplements, should you take them?

What about those hormones and resveratrol?

And does purpose have anything to do with it?

Spirituality? And how do we socialize?

Well, our approach to finding longevity was to work with National Geographic and the National Institute on Aging to find four geographically defined and demographically validated regions.

And then we bring a team of experts there to systematically research what these people are doing and extract different cultures.

And at this end I will explain what that distillation is.

But before I do, I want to debunk some common myths about longevity.

And the first myth is that if you work hard, you can live to be 100 years old.

error.

The problem is that only about 1 in 5,000 Americans live to be 100.

Chances are very low.

Even though it has the fastest growing population in America, it's hard to reach 100 people.

The problem is that we are not programmed to live long.

We are programmed for something called reproductive success.

i love that word

It reminds me of my college days.

Biologists call reproductive success to mean the age at which you have children, and the next generation, the age at which children have children.

After that, the effects of evolution disappear completely.

It's the same story whether you're a mammal, a mouse, an elephant, or a human in between.

So to live to 100, you not only have to live a very good lifestyle, but you also have to win the genetic lottery.

A second misconception is that there are treatments that help slow, reverse, or even stop aging.

error.

If you think about it, there are 99 things that cause us to age.

If the brain is deprived of oxygen for just a few minutes, the brain cells die and never grow back.

If you damage your cartilage by playing too much tennis on your knees, it won't grow back.

It can clog our arteries. Plaque builds up in our brains and can lead to Alzheimer's disease.

Too many things go wrong.

We have 35 trillion cells in our bodies, 1 trillion of which have a "T" on them. We're talking national debt figures here.

(Laughter) These cells turn over once every eight years.

And every time they flip, they do some damage. And the damage accumulates.

And it grows exponentially.

It's a bit like the days when everyone had a Beatles album or an Eagles album, copied it onto a cassette tape, and had their friends copy the cassette tape, but eventually, generation after generation, the tapes started to sound like garbage.

Well, the same thing happens with our cells.

This is why a 65-year-old is aging about 125 times faster than a 12-year-old.

So if there's nothing I can do to slow or stop aging, what am I doing here?

In fact, according to the best science, the human body, my body, your body, lives for about 90 years, and a little longer for women.

However, life expectancy in this country is only 78 years.

So at some point in time, we'll have about 12 good years left.

These are the years we can get.

And studies show that they'll have fewer chronic diseases, heart disease, cancer, and diabetes for years.

We believe the best way to make up for lost years is to look to cultures around the world that have actually experienced those years, where ten times as many people live to be 100 as we do, where life expectancy is a decade longer and where middle-age mortality is a fraction of that in this country.

We found the first blue zone on the island of Sardinia, about 200 km off the Italian coast.

The population of the island is about 1.4 million, not the entire island, but only in a highland area called the Department of Nuoro.

And here is where men live the longest, with about 10 times more centenarians than here in America.

And this is a place where people not only celebrate 100 years old, but also 100 with extraordinary vitality.

A place where a 102-year-old can still bike to work, chop wood, and beat a man 60 years younger.

(Laughter) Their history actually goes back to the time of Christ.

It's actually an isolated Bronze Age culture.

Because the land is so barren, they are primarily shepherds and regularly engage in low-intensity physical activity.

Their diet is predominantly plant-based, accented by foods they can bring into the field.

They came up with an unleavened whole wheat bread called Carta Musica made with durum wheat. It is a type of cheese made from pasture-fed animals, a cheese higher in omega-3 fatty acids than corn-fed omega-6 fatty acids, and a type of wine with three times the level of polyphenols than any known wine in the world.

It's called Kannonaw.

But I think the real secret is more in the way they organize society.

And one of the most prominent elements of Sardinian society is its treatment of the elderly.

Have you ever noticed that here in America, social equity seems to peak around age 24?

Look at the ad

Here in Sardinia, fairness increases with age and wisdom is valued.

When you walk into a bar in Sardinia, you don't see a Sports Illustrated swimsuit calendar, but a centenarians calendar for the month.

After all, this is not only good for keeping aging parents closer to the family, but it also adds about 4-6 years to life expectancy. Studies have shown that it is also good for the children of those families with low mortality and morbidity rates.

It's called the granny effect.

We found a second Blue Zone on the other side of the globe, in the Okinawa Islands, about 1300 miles south of Tokyo.

Okinawa actually has 161 small islands.

And here in the northern part of the main island is the land of longevity in the world.

This is where the oldest surviving female population was found.

This is the region with the highest disability-free life expectancy in the world.

they have what we want.

They live a long life, but tend to die very early in their sleep, and often after sex.

They live about seven years longer than the average American.

Five times as many people over the age of 100 in the United States.

The incidence of colon and breast cancer, the leading killers here in the United States, is one in five.

And the incidence of cardiovascular disease is one in six.

And the fact that this culture has brought us these numbers strongly suggests that they have something to teach us.

what do they do?

Again, a plant-based meal full of colorful vegetables.

And they eat about eight times as much tofu as Americans.

More important than what you eat is how you eat it.

They have, you know, various little strategies to prevent overeating which is a big problem here in America.

Some of the strategies we observed: They eat on smaller plates, so they tend to take in fewer calories each time they sit down.

Rather than the homely style of casually eating while having a conversation, the food is served at the counter and the food is cleared before it is brought to the table.

They also have a saying that is 3,000 years old. I think this is the greatest kind of diet suggestion ever invented.

Invented by Confucius.

And that diet is known as the Hala Hutch B diet.

It's just one word these people say before eating to remind them to stop eating when their stomachs are [80] percent full.

It takes about 30 minutes for the feeling of fullness to travel from the stomach to the brain.

And if you remember to stop at 80%, you can prevent that very behavior.

However, like Sardinia, Okinawa also has some social structures associated with longevity.

We know isolation takes lives.

Fifteen years ago, the average American had three good friends.

It's now down to 1.5.

If you are lucky enough to be born in Okinawa, you are automatically born into a system of 6 friends who will travel through life together.

They call it Moai. And if you're inside a moai, you're expected to share the prize if you're lucky. And if things go wrong, if a child gets sick, if a parent dies, there is always someone to push you.

This Moai, these five women have been together for 97 years.

Their average age is 102 years old.

Americans typically divide adult life into two sections.

We have a productive work life.

And one day, I will retire with Dawn.

And that usually means sitting in an easy chair or going to Arizona to play golf.

The Okinawan language does not even have the word retirement.

Instead, there is one word that affects your entire life. It's ikigai.

And, loosely translated, it means "the reason why you wake up in the morning."

For this 102-year-old karate master, his purpose in life was to carry on the martial art.

For this 100-year-old fisherman, fishing for his family three times a week has continued.

And this is the question. In fact, the National Institute on Aging surveyed these centenarians.

One of the questions was the people who created the survey, they were very culturally astute.

One of the questions was "What is your ikigai?"

They immediately knew why they woke up in the morning.

For this 102-year-old woman, ikigai was simply her great-granddaughter.

Two girls who are 101 and a half years apart.

And I asked her what it was like to hold her great-granddaughter.

Then she put her head back and said, "I feel like I'm flying into heaven."

I thought it was a great idea.

An editor at Geographic wanted me to find America's Blue Zone.

And for a while we observed the Minnesota prairie, and indeed there was a very high percentage of centenarians there.

But that's because all the young people have quit.

(Laughter) So we turned to data again.

And it turns out that the oldest Seventh-day Adventists in America are concentrated in and around Loma Linda, California.

Adventists are conservative Methodists.

They celebrate the Sabbath from sunset on Friday to sunset on Saturday.

They call it a "24-hour time sanctuary."

And they follow five little habits that, relatively speaking, give them exceptional longevity.

Here in America, the average female life expectancy is 80.

However, Adventist women have a life expectancy of 89 years.

And the difference is even more pronounced among men, who are expected to live about 11 years longer than Americans.

Well, here's a study that followed about 70,000 people for 30 years.

Stirling's research. And I think this very much describes the premise of this Blue Zone project.

This is a heterogeneous community.

White, Black, Hispanic, and Asian.

The only thing they have in common is a set of very small habits that they have ritually adhered to for most of their lives.

They feed directly from the Bible.

In Genesis: Chapter 1, verse [29], God speaks of legumes and seeds, while another verse about green plants is ostensibly devoid of flesh.

They take this sanctuary very seriously over time.

Twenty-four hours a week, no matter how busy you are, how stressful you are at work, where you have to drive your kids to, drop everything and focus on God and social networks, and the nature walks that are embedded in your religion.

And the power of this is not that it is done once in a while, but that it is done week after week for life.

None of this is difficult. None of them cost money.

Adventists also tend to hang out with other Adventists.

So if you go to an Adventist party, you won't see anyone swinging a Jim Beam or rolling a joint.

Instead, they're talking about their next nature walk, exchanging recipes, and yes, praying.

But they influence each other in profound and measurable ways.

This is the culture that created Ellsworth Wareham.

Ellsworth Wareham is 97 years old.

He's a millionaire, but when a contractor asked for $6,000 to build a privacy fence, he said, "If I had that kind of money, I'd make it myself."

There he spent the next three days digging cement and hauling poles around.

And perhaps as expected, on the fourth day he entered the operating room.

But not as a man on the table. A man undergoing open heart surgery.

At 97, he still performs 20 open heart surgeries each month.

Now 103-year-old cowboy Ed Rawlings starts his morning with a swim.

And on weekends, he likes to put on his board and spit chicken tails.

and Marge Deton.

Marge is 104 years old.

Her grandchildren actually live here in the Twin Cities.

She starts her day by lifting weights.

she rides a bicycle

Then, in a root beer-hued 1994 Cadillac Seville, she blew up a highway in San Bernardino, where she still volunteers with seven different organizations.

I have participated in 19 hardcore expeditions.

I'm probably the only person you've ever met who biked across the Sahara Desert without sunscreen.

But let me tell you, no adventure is more harrowing than riding a shotgun with Marge Deton.

"A stranger is a friend you haven't met yet!" she would tell me.

So what do these three cultures have in common?

what the hell are they doing?

And I was able to put it all together into 9.

In fact, this and these commonalities hold true, so we did two more Blue Zone expeditions.

And the first one, and I'm trying to be heresy here, none of them exercise, at least not in the way we think about exercise.

Instead, they set up their lives to do physical activity all the time.

These 100-year-old Okinawan women rise and fall from the ground and sit on the floor 30 to 40 times a day.

Sardinians live in vertical houses with stairs going up and down.

Whenever I go to the store, to church, or to a friend's house, I always take a walk.

They have no convenience.

There are no buttons to press to do yard work or household chores.

If you want the cake mixed, they mix it by hand.

It's physical activity.

Burns as many calories as walking on a treadmill.

When they do physical activity intentionally, it's something they enjoy. They tend to walk, the only proven way to prevent cognitive decline, and they all tend to have gardens.

They know how to set up their lives the right way and have the right outlook.

Each of these cultures takes time to downshift.

Sardinians pray. Seventh-day Adventists pray.

Okinawans have this feeling of ancestor worship.

But when we're in a hurry or under stress, we trigger what's called an inflammatory response that's associated with everything from Alzheimer's to cardiovascular disease.

Slowing down for 15 minutes a day can turn an inflammatory state into a more anti-inflammatory state.

They have a sense of purpose and a vocabulary of life just like the Okinawans.

We all know that the two most dangerous years in life are the year of birth, when infant mortality is high, and the year of retirement.

These people know their purpose and are active in life, which is worth about seven years more life expectancy.

There is no diet for longevity.

Rather, these people drink a little every day, which is not a hard sell to the American public.

(Laughter) They tend to eat a plant-based diet.

I don't eat meat, but I do eat a lot of beans and nuts.

And they have strategies to avoid overeating, doing little things to keep them off the table at the right time.

And the basis of all this is how they are connected.

They put their family first, taking care of their children and their aging parents.

They all tend to belong to faith-based communities, and doing this four times a month is worth an extra 4-14 years of life expectancy.

And the biggest thing here is that they also belong to the right tribe.

They were either born to the right people or were actively surrounded by the right people.

A Framingham study found that if three of your best friends are obese, you're 50% more likely to be overweight.

This means that hanging out with unhealthy people will have visible effects over time.

Instead, if your friend's recreational ideas are physical activity, bowling, hockey, cycling, gardening, etc., it will have the greatest impact over time if they drink a little but not too much, eat right, are enthusiastic, trustworthy, and trustworthy.

Diet doesn't work. No diet in the history of the world has worked for more than 2 percent of the population.

Exercise programs usually start in January. It is usually completed by October.

When it comes to longevity, there are no short-term solutions, pills or anything.

But come to think of it, friends are a long-term adventure, and therefore perhaps the most important thing you can do to add more years to your life, and more years to your life. thank you very much.

(applause)

I want you to throw away your preconceptions, preconceptions, fears and thoughts about reptiles.

Because that's the only way I can tell you my story.

By the way, if I'm some sort of hippie conservationist fanatic, it's all in your imagination.

(Laughter) Okay. We are in fact the first species on earth to become prolific enough to actually threaten our own survival.

And I think we've all seen the numbing images of the tragedies that are perpetrating on our planet.

We are like greedy children who run out of everything.

And today it's time to talk about water.

And it's not just because we like to drink a lot of its wonderful derivatives such as beer and wine.

And of course, watch it fall from the sky and flow into the wonderful river. But there are other reasons as well.

Growing up in New York, when I was a kid, I was obsessed with snakes the way most kids are obsessed with tops, marbles, cars, trains, and cricket balls.

And my mother, a brave woman, was partly to blame too, taking me to the New York Museum of Natural History, buying me books on snakes, and launching this infamous career of mine. Of course, it culminated in his arrival in India 60 years ago, accompanied by his mother, Doris Norden, and stepfather, Rama Chattopadhyaya.

The days were just like a roller coaster.

Two animals, two iconic reptiles really got me hooked early on.

One of them was a remarkable gharial.

In northern rivers, this crocodile, which grows to about 20 feet long, and this charismatic snake, the king cobra.

The real purpose of today's lecture is to leave a lasting mark on your mind about these charismatic and majestic creatures.

Because I hope what you get from here is a connection with nature.

King cobras are very notable for several reasons.

What you see here is a very recent image of a nesting female king cobra in a nearby forest.

This is a limbless animal that can gather huge piles of leaves and lay eggs in it, withstanding 5-10[meters] of rainfall, which can hatch for the next 90 days to hatch into tiny king cobra babies.

There she guards the eggs, and after three months the babies finally hatch.

Of course, the majority of them will die. Small reptile babies, only 10 to 12 inches long, have a very high mortality rate.

My first experience with a King Cobra was in 1972 at a magical place called Agumbe in the state of Karnataka.

And a wonderful rainforest.

This first encounter resembled a Maasai boy killing a lion to become a warrior.

It really changed my life completely.

And that's what drew me directly into the conservation movement.

I ended up setting up this research and education station in Agumbe. Of course everyone is welcome to visit.

It's basically a base where we try to collect and learn just about everything about the biodiversity of this incredibly complex forest system, hang on to what's there, make sure our water sources are protected and kept clean, and of course, also try to have a good time.

I can almost hear the drums beating in that little cottage we're staying in when we're there.

It was very important for us to tell people.

And going through the kids is usually the best route.

They are fascinated by snakes. They don't have that kind of steel that makes you ultimately fear or hate or despise or despise them in some way.

they are interested

And starting with them really works.

This gives us an idea of ​​the size of some of these snakes.

This is an average size king cobra, about 12 feet long.

And it actually sneaked into someone's bathroom and hovered there for a couple of days.

People in this part of India worship the King Cobra.

And they didn't kill it. They called us to catch it.

We have now captured over 100 king cobras over the last three years and moved them to a nearby forest.

But in order to know the true secrets of these creatures, it was necessary to actually insert a small radio transmitter into each snake's body.

Now we can track them down and find out their secrets, where babies go after hatching, and these amazing things we're about to see.

This was in Agumbe just a few days ago.

It was a pleasure to get up close to this large king cobra that caught a poisonous viper.

And do it so you don't get bitten yourself.

And the king cobra eats only snakes.

This [little snake] was a so-called 'badai' or donut or something like that.

(Laughter) Usually they eat something a little bigger.

In this case, some rather strange and unexplained activity occurred during the final breeding season, when a large male king cobra actually grabbed a female king cobra, did not mate with it, and actually killed and swallowed it.

We are still trying to explain and reconcile what the evolutionary advantage of this is.

But they also do many other notable things.

This was also [seen] thanks to the fact that one of the snakes had a radio transmitter.

This 12-foot-long male snake met another male king cobra.

And they performed this incredible ritual battle dance.

It's much like estrus, when mammals, including humans, sort out their differences from each other, but it's calmer and doesn't allow biting.

It's just a wrestling match, but it's a great activity.

So what are we doing with all this information?

What does all this mean?

King cobras are literally the linchpin of these rainforests.

And our job is to convince the authorities that these forests need to be protected.

This is one of the ways we do it by learning as much as we can about the amazing emblems of the rainforest in order to protect trees, animals and of course water sources.

You've probably heard of Project Tiger, which started in the early 1970s. It was indeed a very dynamic time for conservation.

We could say she was steered by a very autocratic politician, but she had an incredible passion for the environment.

And this is when Project Tiger comes into play.

And just like Project Tiger, our work with King Cobra is to observe certain animals and protect their habitat and everything in it.

So the tiger is the icon.

And the King Cobra is new.

All of South India's major rivers originate in the Western Ghats, a range of hills that run along the western coast of India.

It pours out millions of gallons of water every hour, provides drinking water to at least 300 million people, washes thousands of babies, and, of course, feeds so many animals, both domestic and wild, and produces thousands of tons of rice.

And what should we do? What should I do about this?

Well, basically, we dam the water, pollute it, and pour pesticides, herbicides, and fungicides into it.

Drink at the risk of your life.

And the point is, it's not just big industry.

It's not some misguided river engineer doing this. it's us.

Our citizens seem to think that the best way is to dispose of the garbage in the water source.

have understood. Now we are heading north, far north.

Our base is the Chambal River in north-central India.

This is the home of gharials, this incredible crocodile.

It is an animal that has existed on earth for about 100 million years.

It survived when the dinosaurs became extinct.

There are some notable features.

They can grow up to 20 feet in length, but they are not dangerous to humans as they only eat fish.

But it certainly has big teeth. If an animal has big teeth, it's a little harder to convince people that it's a harmless creature.

However, when we actually did some research in the early 70's, we found gharials to be very rare.

In fact, looking at maps, their original range was from the Indus River in Pakistan to the Irrawaddy River in Burma.

And now it is limited to a few locations in Nepal and India.

So, in fact, there are only 200 breeding gharials left in the wild at this time.

So, from the mid-70s, when conservation was at the forefront, we were actually able to start a government-backed project to collect wild eggs from the few remaining nests and release 5,000 gharial babies back into the wild.

And soon we started seeing scenes like this.

So to see a shoal of gharials basking in the river again is truly unbelievable.

But complacency tends to breed contempt.

And sure enough, even more trouble is piling up for the gharials, despite their initial good intentions, as all the other pressures on the river, such as sand mining, have led to very extensive cultivation all the way to the river's edge, making it impossible for the animals to reproduce.

Their nests hatch along rivers and produce hundreds of hatchlings. It is truly an amazing sight.

I actually took this picture last year.

But then the monsoons came, and unfortunately there were always dams and dams downstream, and oh, they were swept away and destroyed.

Fortunately, there is still a lot of interest.

My colleagues at the IUCN Crocodile Specialist Group, [Madras Crocodile Bank], NGOs, World Wide Fund for Nature, Indian Wildlife Research Institute, State Forest Service and Ministry of Environment are all working together.

But that may not be enough, and it definitely isn't.

For example, in the winter of 2007 and 2008, an incredible mass of gharials occurred in the Chambal River.

Suddenly dozens of gharials appeared in the river and died.

why? How could that happen?

It is a relatively clean river.

If you look closely at Chambal, the water is clean.

People scoop water from the Chambal River to drink, but most rivers in northern India do not.

So, to find an answer to this, we asked veterinarians around the world to work with veterinarians in India to try and figure out what was going on.

I was there to do a lot of dissection on the riverside.

And we actually went through all their organs and tried to figure out what was going on.

And it ended up in something called gout. As a result of kidney failure, uric acid crystals actually formed all over his body, and when exacerbated in his joints, Gaharial became unable to swim.

And it's a horrible and painful death.

Just downstream of Chambal are the sacred and filthy Yamuna rivers.

I hate to be too sarcasm or sarcasm, but this is the truth. It's just one of the filthiest cesspools you can imagine.

It flows through Delhi, Mathura and Agra and receives almost every wastewater imaginable.

So it seems likely that the toxin that killed the gharials was something in the food chain, in the fish they were eating.

And, as you know, once a toxin enters the food chain, everything is affected, including us.

Because these rivers are the lifelines of the people along their course.

To try to answer some of these questions, we turn again to technology, biological technology. In this case, it's telemetry again, placing radios at 10 gavials and actually tracking their movements. As we speak, they're being watched daily, trying to figure out what this mysterious toxin is.

The Chambal River is truly a wonderful place.

This place is famous for those who know about the Dacoits, bandits who once worked there. And there are still many around.

But Pulan Devi was one of them. In fact, Shekhar Kapoor made an amazing movie called 'The Bandit Queen' that you should watch.

You can also see the wonderful [Shambal] landscape.

However, the pressure of fishing is high again.

It is one of the last repositories of Ganges dolphins, various species of turtles and thousands of migratory birds, and fishing poses such a problem.

And now, a new element of human intolerance towards river creatures like gharials means simply cutting off their beaks if they don't drown in their nets.

Only a few animals remain, like the Ganges river dolphin, which is also endangered.

So who's next? we?

Because we all depend on these water sources.

Therefore, we all know about the Narmada River, the tragedy of the dam, the tragedy of mega-projects that displace people and destroy river systems without providing livelihoods.

And development is basically blistering towards a double-digit growth index.

Therefore, we do not know where this story will end, happy or sad.

And climate change will certainly upend all our theories and predictions.

we are still working hard.

We have a large team of talented people.

And the problem, as you know, is that decision makers and powers are gathering in bungalows and such in the capital of Delhi. All of them are well supplied with water. cool.

But there are still millions of people in the river in very poor condition.

And it's a bleak future for them.

Therefore, we have launched a cleanup project for the Ganges and Yamuna rivers.

We've spent hundreds of millions of dollars on it and there's nothing to show for it. can't believe it.

So people talk about political will.

During the gharial extinction, we activated many behaviors.

The government has eliminated all bureaucracy and recruited foreign veterans. good.

So we can do it.

But if you take a walk to the Yamuna and Gomathi rivers in Lucknow, the Adiyar river in Chennai and the Mulla Muta river in Pune, see what we can do for the rivers. sad.

But the last thing I want to say is that we can do it.

Businesses, artists, wildlife and good old everyday people can really bring these rivers back.

And the final word is that the King Cobra is looking over our shoulder.

And Gharial is watching you from the river.

And these are powerful water totems.

And they will get in the way of our dreams until we do the right thing.

Namaste.

(Applause) Chris Anderson: Thank you, Rom. Thank you very much.

As you know, most people are afraid of snakes.

And there may be quite a few people here who are very happy to see the last king cobra bite through the dust.

Do you have such conversations with people?

How do you actually get them interested?

Romulus Whittaker: I would say that I take a kind of humble approach. I wouldn't say snakes are huggable.

Not like a teddy bear.

But I think these animals have an innocence.

And when an ordinary person sees a cobra, it goes "Soooo!". As such, they say, "God, look at that angry and dangerous creature."

I see it as a creature completely frightened by anything as dangerous as humans.

that is the truth. And that's what I'm trying to get out.

(Applause) CA: Now, you've shown me this wonderful video of a viper being killed.

You said it wasn't filmed before.

RW: Yes, actually, this is the first time any of us have heard of it.

Like I said earlier, it's like a little snack for him.

They usually eat large snakes such as ratsnakes and cobras.

But this guy we're chasing now is deep in the jungle.

Other king cobras frequently invade human boundaries—plantations—to find large rat snakes and the like.

This man is a viper specialist.

The man I work with there is from Maharashtra and said, "I think they are after Nusha."

(laughter) Now, Nusha means height.

Whenever he eats a viper, a little venom comes out.

(laughs) CA: Thank you Rom. thank you.

(applause)

(music) (applause) (music) (music) (applause) (music) (applause) (applause) Herbie Hancock: Thank you.

Marcus Miller. (Applause.) Harvey Mason. (Applause.) Thank you. thank you very much. (applause)

I'd like to start with an observation, if there's anything I've learned in the past year, the biggest irony of publishing a book about slowness is that you have to promote it very quickly.

These days, I seem to spend most of my time delivering books from city to city, studio to studio, interview to interview, in really small, bite-sized chunks.

Because these days everyone wants to know how to slow down, but how to slow down really fast. So...

So I did a spot on CNN the other day where I spent more time doing makeup than actually speaking on the air.

And I think so -- it's not that surprising, is it?

Because it's like the world we live in now, a world fast-forwarded.

A world obsessed with speed, doing everything faster and cramming it into less time.

Every moment of your day feels like a race against time.

In the words of Carrie Fisher in my bio, I'll throw it in again -- "It takes too long for instant gratification these days."

No, you're speeding up, right? So we dialed in and used it. It's speed dial now.

We read a lot. It's a speed read now. we were always walking Now I will speed up and walk.

And of course, we used to date, but now we're speed dating.

And we strive to speed them up, even if they are inherently slow.

So, I was in New York recently and passed a gym with an ad in the window for a new course, a new evening course.

It was, you guessed it, for speed yoga.

This is the perfect solution for time-hungry professionals who want to pay tribute to the sun but only need 20 minutes to dedicate to it.

So these are some kind of extreme examples, great for funny and laughs.

But there is a very serious point, and I think we often miss the damage this Roadrunner lifestyle does to us in the rush of our daily lives.

We are so immersed in a culture of speed that we are largely unaware of the damage it does to every aspect of our lives: health, diet, work, relationships, environment, community.

And sometimes alarm bells are needed to warn us of the fact that we are living life in haste instead of actually living it, right? That we live a fast life, not a good one.

And I think for a lot of people, that wake-up takes a form of sickness.

When you get burnt out, eventually your body says, "I can't take it anymore," and throws in the towel.

Or maybe the relationship is on the rocks because you don't have the time, patience, or equanimity to be with the other person and listen to what they have to say.

And when I started reading bedtime stories to my son, he woke up. And when I went to my son's room at the end of the day, I couldn't slow down. You see, I was speed-reading "Cat in a Hat."

I was -- you know, skipping lines here, skipping paragraphs, sometimes entire pages. And, of course, my little son knew every corner of the book, so we got into an argument.

And what was supposed to be the most relaxing, most intimate, most tender moment of the day—a father sitting down to read to his son—instead became this kind of gladiatorial battle of wills, a clash between my speed and his slowness.

And this went on for a while until I found myself reading a newspaper article with time-saving tips for fast-footed people.

And one of them mentioned a series of books called "The One Minute Bedtime Story."

I say those words now, but my initial reaction back then was completely different.

My first reflex was to say, "Hallelujah, what a great idea!"

This is exactly what I'm looking for to further reduce my bedtime. ”

But, thankfully, a light bulb came on over my head and my next reaction was very different, I took a step back and thought:

Am I really in such a hurry that I'm ready to shoo my son away with an audio bite at the end of the day? ”

And I put the newspaper away, got on the plane, sat there and did what I hadn't done in a long time: nothing.

I just thought, and thought long and hard.

And by the time I got off the plane, I was determined to do something about it.

I wanted to explore this whole Roadrunner culture and what it does for me and others.

And I had two questions in my head.

The first was how did it get so fast.

And second, is it possible or desirable to slow it down?

Now, when we consider how our world has accelerated to such an extent, the usual suspects rear their heads.

Urbanization, consumerism, the workplace, and technology come to mind.

But if we break through these forces, I think we get to a deeper impetus, which is at the heart of the question: how we think about time itself.

In other cultures, time cycles.

It looks big and slowly circulating.

It is constantly updated and refreshed.

In the West, on the other hand, time is linear.

It's a finite resource. it's always leaking.

Either use it or lose it.

Benjamin Franklin said, "Time is money."

And I think the effect it has on us psychologically is to create an equation.

I don't have time, what should I do?

Okay, let's speed it up.

We try to do more in less time.

We turn every moment of every day into a race to the finish line. By the way, the goal line is never reached, but it's still a goal line.

And I think the question is, can we get out of that mindset?

And thankfully, the answer is "yes". Because what I discovered when I started looking around is that there is a global backlash against this culture that faster is always better, busy is best.

All over the world, people do the unthinkable. If you're slowing down, conventional wisdom says that slowing down will result in a traffic accident, but it turns out that the opposite is actually true. I realized that people can do everything better by slowing down at the right time.

they eat well They make love better. they exercise better. they work better. they live better

And among these kinds of moments and places and cauldrons of slowing action lies what many now call the “International Slow Movement”.

Now, if you'll excuse my little hypocrisy, I'd like to give you a quick overview of what's going on inside the slow movement. If you think about food, you've probably heard of the Slow Food movement.

Started in Italy, it has spread all over the world and now has 100,000 members in 50 countries.

And it's driven by a very simple and sensible message. It means that we can get more pleasure and health from food if we grow it, cook it, and consume it at a reasonable pace.

I think the explosion of the organic farming movement and the resurgence of farmers markets is another example of people desperately trying to get away from eating, cooking, and growing food according to industrial schedules.

They want to return to a slower rhythm.

And out of the Slow Food movement came what is called the Slow City movement. It started in Italy and spread throughout Europe and even the world.

And in this, cities are beginning to rethink how they organize their cityscapes so that people can slowly smell the roses and connect with each other.

So they might curb traffic or install park benches and green spaces.

And in some ways, these changes are more than the sum of their parts. Because I think it's kind of a philosophical declaration that a slow city officially becomes a slow city.

This is telling the rest of the world and people in their towns that we believe slowness has a role to play in the 21st century.

In the medical world, I think many people are deeply disillusioned with the stopgap mentality of conventional medicine.

And millions of people around the world are turning to complementary and alternative forms of medicine that tend to utilize slower, gentler, more holistic forms of healing.

Now, the jury is clearly against many of these complementary therapies, and I personally doubt coffee enemas can ever gain mainstream approval.

But other treatments, such as acupuncture, massage, and even just relaxation, clearly have some effect.

And the best medical schools around the world are starting to study these things to find out how they work and what we can learn from them.

sex. There's a lot of fast sex out there.

I meant to say - well - I'm not kidding.

As I was making my way slowly towards Oxford, passing the news agency, I came across a magazine, a men's magazine. The cover read, "How to get your partner to orgasm in 30 seconds."

In other words, even sex these days uses a stopwatch.

Now, as you know, I love quick fucks as much as anyone else, but I think there's so much to be gained from slow sex, that is, hanging out in the bedroom.

You know, you tap into it – tap those deeper, sort of psychological, emotional, spiritual currents, and you get better orgasms along with the buildup.

You can say that you can get even more value for your money.

After all, the Pointer Sisters said it most eloquently when they praised the "slow lover."

Well, we all laughed when Sting fell into tantra a few years ago, but now, years later, we see couples of all ages flocking to workshops or alone in their bedrooms finding ways to brake and have better sex.

And of course in Italy, which means Italians always seem to know where to find their pleasure, they launched an official slow sex movement.

place of work.

With North America being the notable exception, working hours have been reduced in most parts of the world.

Europe is an example of this, where people find that less work means a better quality of life and more productivity per hour.

Now, clearly, the French 35-hour work week has its problems: too much, too early, too strict.

However, other European countries, especially the Nordic countries, have shown that it is possible to maintain a thriving economy without becoming a workaholic.

And Norway, Sweden, Denmark, and Finland currently rank among the top six most competitive countries on the planet, working long hours that make the average American cry with envy.

And beyond a certain national level to the micro-enterprise level, more and more companies are recognizing that they need to allow employees to work shorter hours during workdays and weekends, take lunch breaks, or sit in quiet rooms and turn off their Blackberries, laptops, or cell phones. Doing so gives employees time to recharge and their brains to shift into that kind of creative thinking mode.

But it's not just adults who are overworked these days, right? It's children too.

I am 37 years old and my childhood ended in the mid 80's. I look at my children now and it is simply amazing how they keep themselves busy with more homework, more tutoring and more extracurricular activities than I could have imagined a generation ago.

And some of the most heartbreaking emails I get on my website actually come from young people on the brink of burnout, writing to their parents begging for help to slow down and get off this full-throttle treadmill.

Thankfully, though, there's also a backlash against parenting, and it turns out that towns in the US are banding together to ban extracurricular activities on certain days of the month so people can unwind, spend family time, and slow down.

Homework is another thing. Across the developed world, homework bans have begun in schools that have piled up homework for years, and we are now discovering that less is more.

So when there was a recent incident in Scotland where a top-performing private school banned under-13s from doing homework, top-performing parents panicked and said, "What the hell, look, my kids are going to fall," and the principal said, "No, kids need to slow down at the end of the day."

And just last month, test results arrived, with math and science scores up an average of 20 percent last year.

And I think what's been very clear is that the elite universities, which are often cited as the reason people put their kids in cars and send them to greenhouses, are starting to realize that the ability of the students to come there is declining. These kids are doing great work. Their résumés are chock-full of extracurricular activities that make your eyes water.

But they lack brilliance. They lack the ability to think creatively or think outside, and they don't know how to dream. So Ivy League schools like Oxford and Cambridge are starting to send the message to parents and students that they need to put some brakes on it.

And at Harvard, for example, we send letters to undergraduates, freshmen, telling them that if they put the brakes on or do less, they can get more out of life, and more from Harvard, but spend time doing things, giving them the time they need to enjoy and savor things.

Even if it does nothing at all.

And the letter is called - I think it's very revealing - "Speed ​​it down!" -- with an exclamation mark at the end.

So it seems to me that wherever you look, the message is the same. In other words, less is more, more is less, and slower is better. Of course, slowing down isn't so easy, is it?

I mean, while researching a book on the benefits of slowness, I heard I was ticketed for speeding, which is true, but there's more to it than that.

At the time, I was on my way to a dinner hosted by Slow Food.

If that's not shameful enough, I got that ticket in Italy.

If you've ever driven an Italian highway, you know how fast I was going.

(Laughter) But why is it so hard to slow down?

I think there are many reasons.

One is that speed is fun and speed is sexy.

It's all an adrenaline rush. It's hard to let go of it.

I think there is a kind of metaphysical aspect to it. Speed ​​becomes a way to protect yourself from bigger and deeper questions.

We fill our heads with distractions and busyness so we don't have to ask, "How am I?" I'm happy? Are my children growing well?

Are politicians making the right decisions for me?

Another reason why it's hard for us to slow down, and perhaps the strongest reason, is the cultural taboos we've built up against slowing down.

"Slow" is a dirty word in our culture.

This is a pronoun for "lazy person", "lazy person", that is, a person who gives up.

You know, "he's a little slow." It's actually synonymous with being stupid.

I think what the slow movement is, the purpose of the slow movement, or its main goal, is really to address that taboo and say yes, sometimes slow isn't the answer, there is such a thing as a "bad slow".

I recently got stuck on the M25, the ring road around London, and spent three and a half hours there. And I can tell you that this is really badly slow.

But the new idea of ​​the slow movement, a kind of revolutionary idea, is that there is also such a thing as a "good slow".

It's also good to turn off the TV and take time to eat with your family.

Or you can take the time to look at the problem from every angle in your office and make the best decisions for your job.

Or you can simply take your time and enjoy your life slowly.

Now, of all the things that have happened around this book since it came out, one of the things that has cheered me the most is the reaction to it.

And when my book on slowness came out, I knew it would be welcomed by the New Age forces, but it was also picked up with great pleasure not only by the corporate world, you know, economic newspapers, but also by large corporations and leadership organizations.

Because I think people at the top of the chain, people like you, are starting to realize that the system is too fast, too busy, and it's time to find or regain the lost art of gearshifting.

I think another encouraging sign is that this mindset is not only being adopted by developed countries. In the developing world, countries such as China, Brazil, Thailand, and Poland, which are just about to rise to first-world status, the idea of ​​the slow movement has been embraced by many and is causing debate in the media and on the streets.

Because I think they look at the West and say, "We like that aspect of what you have, but we're not very sure about it."

Having said all that, is it possible?

That is the main question facing us today. Is it possible to slow down? And I am happy to say that the answer is a resounding yes.

And I present myself as proof A that I am some kind of reformed, rehabilitated speed junkie.

I still love speed. As you know, I live in London and work as a journalist, and I enjoy the hustle and bustle and the adrenaline rush that comes from both.

I play squash and ice hockey, two very fast sports, and I'm not going to give them up for the world.

But over the past year or so, I've also been able to get in touch with my inner turtle.

(Laughter) And that means I'm no longer overloading myself unnecessarily.

My default mode is no longer lashaholic.

I no longer hear the winged chariots of time approaching, at least not as much as I used to.

I can actually hear it now because I know the time is passing.

As a result, I actually feel much happier, healthier, and more productive than ever before.

It feels like you're living your life rather than actually just rushing.

And perhaps the most important measure of whether this has been successful is that my relationships feel deeper, richer, and stronger.

And I think, for me, the litmus test as to whether this works and what it means will always be a bedtime story. Because that's where the journey begins. And there's rosy news there, too. At the end of the day, I go to my son's room.

i don't wear a watch I turned off my computer, muted the sound of mail arriving in my basket, and read slowly to match his pace.

Also, kids have their own tempos and internal clocks, so they don't spend quality time scheduling 10 minutes to get them to open up.

They need you to move with their rhythm.

Ten minutes into the story, my son suddenly says, "Today, I had something on my mind at the playground."

And we will discuss it.

And now I realize that bedtime stories were like boxes on my to-do list. It was something I was afraid of because it took so long and I had to finish it quickly.

It's my reward at the end of the day and something I hold very dear.

And I would like to end my talk this afternoon in a Hollywood way. It looks like this: A few months ago, I was preparing to go on another book tour and was packing up.

I was waiting for a cab downstairs on the doorstep and my son came downstairs and made a card for me. and he was carrying it.

He stapled together two cards very similar to these and put a sticker of his favorite character, Tintin, on the front.

So he said to me, or handed me this and read it, it said, "Daddy, love Benjamin."

And I thought, 'Oh, that's really nice.

Is it a book tour card fortune? ”

And he said, "No, no, Daddy, this is the card that will make you the best storyteller in the world."

And I thought, "Oh, slowing this down really works."

thank you very much.

Hi. For those who have never seen a dancing bear, here is a dancing bear.

In 1995, we embarked on a two-year research project to try to figure out what was going on.

Because of this, sloth bears in the wild were clearly depleted.

This is the Kalandal community. They are a marginalized Muslim community throughout India and have lived in India since the 13th century.

We started getting evidence of what was going on.

This is footage from a hidden camera on the button.

And we pretended to be buyers and went inside.

And we found this in this very state, Karnataka.

And cubs were captured, sold, and traded across the country.

These sell for about $2,000 each, are used in bear paw soup, and are sometimes later trained to become the dancing bears we saw earlier.

Sadly, Kalandar's family depended on this bear.

The couple has just turned 18.

Next to them there are already four children. You can see it.

And the family's economy and livelihood depended on those animals.

Therefore, we needed to address this issue in a very realistic and sustainable way.

Well, I started digging deeper and found that it was illegal.

These people could face up to seven years in prison if caught by the authorities.

What they were doing to the bear was truly terrifying.

it was not accepted.

Mother bears are usually killed.

Kidnapped children are separated.

Their teeth are basically stamped out with metal rods.

A red-hot iron needle is then used to pierce the muzzle.

Now we had to change these people and start shifting them from using it for a living to getting something else.

So, this is the first experimenter, Mr. Bitu Kalandar.

And we were very unsure if this would work.

We weren't quite sure. And we managed to persuade him.

And we said, 'Okay, here's the seed fund.'

Let's see if we can get anything else. ”And we handed over the bears – we established sanctuaries There are 4 sanctuaries in India.

And now he sells cold drinks by the highway.

he has a phone booth

And so it began, and after that there was no turning back.

This is Sadua who has come to hand over the bear.

And now he runs a cattle feed store and a grain store near Agra.

Then we never looked back.

We rented a cycle rickshaw.

We have set up a carpet weaving troop and provide vocational training for women.

Women were not allowed to come out of their communities and work in mainstream society. So we were able to deal with it.

education. Children never went to school.

They had only a Muslim education and received very little.

And they were never allowed to go to school because they were extra earners at home. So we managed to get an education.

That's why we currently sponsor 600 educational programs for children.

We were able to guarantee a bright future for these people.

Of course I had to include the bear as well.

This is what happens when a bear comes in.

And this is what we change them.

Our rescue center has a veterinary facility.

So in 2002 there were 1,200 dancing bears.

We have rescued over 550 dancing bears.

We were able to ensure a better future for people and bears.

The big news we want to announce today is that next month, India's last bear will be brought into a rescue center.

(Applause.) And India no longer needs to witness this cruel barbaric practice that has been going on for centuries.

And people can hold their heads high.

And the people of Kalandar will rise above the cruel and savage past they have lived.

And of course the beautiful bears can live in the wild again.

And no more exterminating these bears.

And the children, both humans and bear cubs, can live in peace. thank you.

(applause)

Contagious is a good word.

Even in the H1N1 era, I still like this term.

Laughter is contagious. Passion is contagious.

Inspiration is contagious.

We heard some great talks from some eminent speakers.

But to me, what contagious was that they were all infected with what I call a 'could' bug.

So the question is, why only them?

With a population of a billion and a few people, why so few?

Are you lucky? Chance?

Are we all systematically and consciously immune to infection?

Now, I would like to share my story in the next eight minutes.

I was 17 when I got infected, and when I was a student at a design university, I met adults who actually believed in my ideas, challenged me, and drank a lot of chai.

And I was struck by how wonderful it was and how contagious the feeling was.

I also realized that I should have been infected when I was 7 years old.

So when I started Riverside School ten years ago, it became a lab, a lab for prototyping and refining design processes that could consciously infect the mind with the “I can” bug.

And when learning is embedded in a real-world context, blurring the boundaries between school and life, children experience a journey of 'awareness' in which they can see, 'enable', change, and 'empower' and guide change.

And it directly increased student happiness.

Children have become more capable and less helpless.

But all this was common sense.

So I'd like to give you a little idea of ​​what the common customs are in Riverside.

A little background. When my 5th graders were learning about children's rights, they were wrapped in incense amanita for 8 hours to experience what it means to be child laborers.

it changed them. What you see is their journey and their complete conviction that they can go out and change the world.

(music) That's their roll.

And after breaking their hips, they changed their clothes two hours later.

And when that happened, they took to the streets and convinced everyone that child labor just had to be abolished.

And look at Raghav, at that moment his face changed because he could see that he had changed the man's way of thinking.

And it doesn't happen in the classroom.

In other words, Raghav experienced the transition from “my teacher told me” to “I am doing it”. That's the "can do" mind shift.

And it is a process that can energize and nurture.

But some parents said, "It's fine to raise your kids to be good people, but what about math, science, and English?"

Please show me your grades. ”

And we did. The data were conclusive.

When children are empowered, they not only do good things, they actually do very well. Children in Riverside outperformed India's top 10 schools in math, English and science, as seen in this national benchmark assessment conducted by more than 2,000 Indian schools.

So it worked. Now it's time to take it outside Riverside.

So, on Independence Day, August 15, 2007, the children of Riverside began infecting Ahmedabad.

Well, it wasn't about Riverside School.

It was all about children. I mean, we were shameless.

We went to municipalities, police, news outlets, corporate offices and basically said, "When are you going to wake up and realize the potential in every child?"

When do you include children in the city?

Basically, be open with your child. ”

So how did the city respond?

Since 2007, the city has closed high-traffic streets every other month, turning them into playgrounds for children and childhood.

Here was a city that told children, "You can do it."

Signs of infection in Ahmedabad.

Video: [unintelligible] So the busiest street was closed.

We have the cooperation of the traffic police and local governments.

It will be passed on to your children.

they are skating They are street playing.

They are all free to play for all children.

(music) Atul Karwal: aProCh is an organization that has been working for children for a long time.

And we plan to expand this to other parts of the city.

(music) Kiran Bir Sethi: And the city will give you free time.

Ahmedabad has the world's first crosswalk for children.

Geet Sethi: If cities donate to children, children will give back to cities in the future.

(music) KBS: That is why Ahmedabad is known as India's first child-friendly city.

Now you know the pattern. First 200 Riverside kids.

Since then, Ahmedabad has 30,000 children and more.

It's time to infect India.

So on Independence Day 2009, August 15, we followed the same process to empower 100,000 children to say, "I can do it."

how? We designed a simple toolkit, translated it into eight languages, and delivered it to 32,000 schools.

Basically, we gave our kids a very easy task.

We said, take one idea, whatever you care about, choose a week, and change the lives of a billion people.

And they did. From Nagaland in the east to Junjunu in the west, Sikkim in the north and Krishnagiri in the south, stories of change flooded in from all over India.

Children thought of solutions to various problems.

From loneliness to potholes to alcoholism to the 32 children who stopped 16 child marriages in Rajasthan.

I mean, it was incredible.

Basically, it reaffirms that if an adult believes in a child and says, "You can do it," the child will do it.

infection in India.

This is a rural village in Rajasthan.

Children: Our parents are illiterate, so we want to teach them to read and write.

KBS: For the first time ever, an unprecedented assembly and street performance was held in a rural school to teach parents why reading and writing are important.

Look what their parents say.

Man: This show is great.

It is a great pleasure to teach children to read and write.

Woman: I am very happy that my students are doing this campaign.

From now on, I will never question the abilities of my students.

look? they have done it.

KBS: A school in the inner city of Hyderabad.

Girls: 581. This house is 581...

Must start collecting from 555.

KBS: It was quite a challenge for the girls and boys in Hyderabad to go out, but they did it.

Woman: They are very young and they did a very good job.

First they will cleanse society, then Hyderabad, and soon India.

Woman: It was a revelation for me. I can't believe there was so much in them.

Girl: Thank you, everyone.

Our auction has some great paintings for you. The money you donate to us will be used to purchase hearing aids for a very good reason.

Are you ready? Audience: Yes!

Girls: Are you ready? Audience: Yes!

Girls: Are you ready? Audience: Yes!

KBS: So the Charter of Mercy starts here.

Street plays, auctions, petitions.

So they were changing lives.

It was unbelievable.

So how can we maintain our immunity?

How can you escape that passion, energy and excitement?

Last but not least, we have to talk about the most powerful symbol of change: Gandhi.

Seventy years ago, one man was able to infect an entire country with the power of "We can."

So who would it take to infect 200 million children from 100,000 children in India today?

Last I heard, the preamble still said, "We the Indian people."

So who, if not us?

When if not now?

As I said earlier, contagious is a good word.

thank you.

(applause)

In 2008, Cyclone Nargis devastated Myanmar.

Millions of people were in serious need of help.

The United Nations wanted to rush people and supplies to the area.

But there were no maps, no road maps, no maps pointing to hospitals, no way to get help to cyclone victims.

Looking at maps of Los Angeles and London, it's hard to believe that in 2005, only 15 percent of the world was mapped to a geocoding level of detail.

The United Nations was the first to face the problem of not having detailed maps facing the majority of the world's population.

But help was coming.

At Google, 40 volunteers used new software to map 120,000 kilometers of roads, 3,000 hospitals, logistics and relief points.

And it took 4 days.

What new software did they use? Google Map Maker.

Google Mapmaker is a technology that allows each of us to map what we know locally.

People have used this software to map everything from roads to rivers, schools to local businesses, video stores to corner stores.

Maps are important.

Nobel Prize nominee Hernando de Soto has recognized that the key to economic recovery for most developing countries is to harness vast tracts of land without capital.

For example, $1 trillion in real estate remains uncapitalized in India alone.

In the last year alone, thousands of users in 170 countries have mapped millions of pieces of information, creating maps with a level of detail never thought possible before.

And this is made possible by the power of dedicated users around the world.

Let's take a look at some of the maps that users are currently creating.

So people are making world maps of these 170 countries as we speak.

Brigitte in Africa has just made a map of roads in Senegal.

And, close to home, we have NG Charua. Bangalore road.

It is the result of computational geometry, gesture recognition and machine learning.

This is a win for thousands of users, one edit at a time, in hundreds of cities.

This is an invitation to the unmapped 70 percent of the planet.

Welcome to the new world.

(applause)

Let's talk about secrets.

The best way to keep a secret, obviously, is to tell them not to say anything about it.

(laughs) Secret. I'm using PowerPoint this year because, you know, I'm interested in TED.

(Laughter) And when you use these things, you don't have to do it that way.

Just press.

(Laughter) Oh, hey. Um, yes.

(laughter) Yes. I'm sure! Just change!

(Laughter) Is Bill Gates here?

Change it! come! what?

(laughs) Oh! have understood.

It's not my slide, but it's okay.

(Laughter) As you can see, these are all maps.

And maps are important devices for communicating information, especially given the human cognitive capacity.

It turns out that all formulas are actually maps.

Now, we humans map places we rarely go, but that seems a bit of a waste of time.

Of course, this is a lunar map.

They have very nice names.

Sedative flame, [uncle]. My favorite is frigolis.

What are these people thinking? frigoris?

frigoris what are you doing Names are important.

frigoris? This is the moon. People will be able to live there someday.

See you in Frigolis! No, I don't think so.

(Laughter) So we again see Mars with many different names.

By the way, all this is done by the International Astronomical Union.

This is a group of real people sitting down to name the bodies of the planets.

This is from their actual book.

Ladies and gentlemen, these are some of the names they chose.

I'll tell you a little bit about them. Borotnitsa.

It is, of course, a Slavic swamp mermaid.

(Laughter) Now that I think about it, the whole concept of mermaids doesn't really fit into the swamp atmosphere.

(laughter) "Oh, look! A mermaid is out of the swamp. Whoa!"

It's Borotnitsa time! ”

(laughs) Jabran Fructus.

What if it doesn't flow off the tongue?

(Laughter) So the kids were studying this stuff and the word "fluctus" came up. That's wrong.

(Laughter) Having a dyslexic child can ruin your life.

(Laughter) "I waved, Mom."

Hikureo wave.

It's a little more flowing. Hikuleo sounds like Leonardo DiCaprio's 17 syllables.

That is the Tongan underworld.

And one of my favorites is Itoki Fructus, the Nicaraguan goddess of insects, stars, and planets.

Well, if you're a goddess of the stars and planets, why not drive insects to someone else?

(laughs) "No, no, I'm really busy with the stars.

Could you get me some bugs? Thank you darling.

Oh, and take the spider too. I know it's not an insect, but I don't care.

Get rid of furry creatures, monkeys and chimpanzees. ”

(Laughter) Well, we're going to Mars one day. And when we do, it will be unfair that the people who live there have to live with these ridiculous names.

So you are on Mars, on Helles Pointica de Plessio which must be a really "high" place.

(Laughter) Yes, I'm in Diplesio. I want to go to Amazonis, so I hook it up to the map of Mars, click a button, and it gives me directions.

Go to Chrysoceras.

(Laughs) On the left is Timia Mata.

Then to Niliacus Lacus, which isn't a bad name.

Niliakus Lacus, practice, slick-a-chick-a-bacus.

That's a cool name. I say so.

So I'm holding back my poison for these astronomical misnomers a bit.

And of course from Arnon to Thoth.

And of course there are ads.

This is from the International Astronomical Union rulebook.

And you can see that they are international because they also write "en Francais".

For those who don't speak French, L'Union Astronomique Internationale.

I thought I would translate for you.

From the rulebook: Nomenclature is a tool.

The first consideration is to be clear, simple and clear.

And I think Djabran Fluctus is perfect for that mode.

(laughter) It's simple, Goat Goddess, very simple.

Jablan Wave.

"Now, Frank, do you understand this, Jabran Fructus?"

"Yes, that's the Goat Goddess, isn't it? Abakazanian?"

(laughs) It's clear to me. ”

"Listen, I'm going back to the mermaid in the swamp. Can you call me in a little while?"

(Laughter) I've also highlighted parts from the actual documentation that I thought were interesting.

Anyone can suggest a name change.

So I have high hopes for you as a fellow member of the global community.

This has to change quickly.

So these are the names of the people who actually work there.

I investigated further.

More people work in this group.

And as you can see, they don't use first names.

(Laughter) These are the people who name the planets, they don't use first names.

Something is skewed here.

(Laughter) Is it because his name is really Jupiter Blank?

(laughs) Is that Ganymede Andromeda Bulba?

(laughs) Is that Maas Ya Marov?

don't know. However, there is no doubt that it is investigative material.

Some cartographers use their own names.

Witness Eugene Shoemaker, from an early age he was determined and passionate about making maps of the heavens.

A day at the cobbler's house must have been a very interesting day.

"Mom, I want to make a map."

"Great, Eugene. You can make a map of Toronto."

"No, I want to make a map of the planet."

"Yes, please go to your room."

(laughs) Martians, Venusians, Jovians.

We are naming places where there are no people.

It seems kind of silly.

There are no Jupiterians.

Back to the premise, I used stamps by the way because you don't have to pay anyone for the rights.

(Laughter) (Applause) Obviously there's Einstein, Niels Bohr, de Fermat's Last Theorem, but I don't know if it's James Coburn or Richard Harris.

(Laughter) It's definitely one of two things. I'm not sure which one.

But clearly important is that numbers are maps.

And are there in numbers the fundamental secrets of the universe?

That is the premise of this presentation.

By the way, this is a natural picture of Saturn without any adjustments. It's just beautiful.

So beautiful that I can even give up laughter to explain my love for this particular planet, and the wonderful day Saturday named after it.

Thus, formulas associate numbers with formats.

That's Euler. His formula was one of the inspirations leading to the beginnings of string theory. This is cool in a way, not very funny, but cool.

(Laughter) He was also notorious for not having a body.

(Laughter) A lot of people are like, "How did he figure that out?"

He has no body, no people, only his head hovers high.

Emergence of Euler.

(Laughter) That's the icosahedron. This is one of the five sacred bodies and is a very important shape.

You can see the regular icosahedron again.

Dodecahedron, it is double.

I have a dodecahedron that I had to do in my room last night.

Five sacred solids, as seen there.

Don't confuse this with the Five Divine Salads.

(laughs) Blue cheese, ranches, oil and vinegar, a thousand islands and houses.

suggest a house

Reality, here and now is important.

The key here is that these shapes are duals of each other.

And we see how the icosahedron recedes into the dodecahedron, and then they merge with each other.

So the whole notion of the brane of the universe, if the universe were dodecahedron shaped, this would be a very good map of what is possible.

And, of course, that's what we want to talk about here.

What a coincidence!

On October 9, in France, Jean-Pierre Luminet said that the universe is probably shaped like a dodecahedron, based on information obtained from the spacecraft.

This is the normal waveform.

But far in the microwave background they see these kinds of strange swells.

It doesn't match the flat universe they expected.

So by extrapolating it under this giant diagram, we can kind of get an idea, and we get an idea of ​​what the primordial universe was like.

It looks a little like a cheeseburger.

(Laughter) So I think the universe is either a dodecahedron or a cheeseburger.

And for me, it's a win-win.

I'm glad everyone went.

(laughs) You really should hurry.

I throw this in because as important as all our intellectual abilities are, but without heart and love, it's all meaningless.

And it's really beautiful to me.

(Laughter) Except for the creepy guy in the background.

(Laughter) Going back to the point of my particular presentation, one of my great heroes, Kepler, realized that these five solids I just spoke about were somehow planetary related, but he couldn't prove it. It surprised him.

But that led to Newton's discovery of gravity.

So the map of things leads to an organized understanding of the universe in which we appear.

Well, this is Isaac on the Vietnam stamp.

(laughter) I'm not at all suggesting that my Vietnamese brothers and sisters might be able to take advantage of a little art class here and there. but ...

(laughs) Not a very good photo.

(Laughter) Not a very good picture. Now our friends in Nevis are a little better. Look at that! That's Isaac Newton.

That person rocks.

(laughs) What a handsome cat.

Once again Nicaragua has disappointed me.

(Laughter) And Copernicus looks like Johnny Carson, which is really weird.

(laughs) I have no idea.

Once again they enjoy it.

Isaac is kicking his butt. Oh he looks like a rock star

This is a very important method.

This is Sierra Leone.

There was a little baby there, floating there.

(laughs) Man. No need to comment on this.

But I didn't know Isaac Newton was in the Moody Blues. Oh really?

(laughs) When did this happen?

(laughs) Of course it's a different kind of course. So do they have 5 apples?

That is, they are extrapolating a region that is not necessarily valid.

Of course, 5 is a good number.

Ecuador, my friend Kepler, you see, they call him Juan.

(laughs) Juan? no! It's Johannes, not Juan.

Not Carlos Chaplain. that's wrong.

(Laughter) Of course, Rene Descartes. Again, people of Grenada, this is too bad for anyone's imagination.

He is cloudy all over. Little children lean against his legs and little ghosts fly around. Guys, we have to clear this up quickly.

(Laughter) Of course, these are Cartesian coordinates.

Again, it's Sierra Leone.

This again shows how numbers relate to space and how they relate to shapes and maps of the universe.

I'm thinking to really understand things and love each other because that's why we're here.

Descartes. (laughs) In front of the horse. (Laughter) Well, Monaco just took Descartes and flipped it over.

Now for me Monaco is a problem and I will explain why.

Here is the map. All they have is a casino.

(Laughter.) And why Franklin Delano Roosevelt is on their map, I don't want to risk guessing.

But I think he recently went to Hellespointica Depressio.

(Laughter) This is the flag of Monaco. Ladies and gentlemen, this is the Indonesian flag. Please consider.

(Laughter.) (Applause.) I don't know how this happened, but it's not right.

In Monaco, "No, what are you talking about?

they are very different.

Look, ours is redder and longer.

They stole our flag! They stole our flag! ”

(Laughter) Bode's law wasn't even his law. It was a man named Titus.

The reason I bring this up is because it's a law that doesn't really work.

It's Jude Law, but some of his movies haven't fared well lately.

(Laughter) It's just a correlation that shows how things are misunderstood.

And did the photographer say, "Okay, Jude, can you feel my teeth? That's fine."

As a tip, if you're being photographed for press photography, don't touch your teeth.

(Laughter) Primes, Gaussian, one of my favorites.

The Golden Section, I've been obsessed with this since before I was born.

I know it scares a lot of people, but that was my goal.

There you can see the Fibonacci numbers related to the golden section. Because Fibonacci and the golden section, as I'm referring to, are concerned with the expansion of the measured matter in meters.

If Fibonacci was on Paxil (laughs), that would be the Fibonacci sequence.

"10 milligrams, 20 milligrams"

"Leonardo, dinner is ready. Let's put the books down and take the medicine."

"Yes, Mom."

(Laughter) So where is this going? that's a good question.

This is the premise I started with 27 years ago.

If the laws of this incredible universe we live in can be expressed numerically, I suspect that through some sort of reverse engineering we can deduce the basic structural elements of this universe from the numbers.

And that's what I did. 27 years ago I started working on this.

And I made a particle accelerator.

(Laughter) And it didn't work.

So I thought the calculator was a metaphor.

You could just divide the numbers, but that's like pulverizing atoms.

that's what i did. That's how I found Moleeds.

Moleed, I believe, can prove string theory.

They are nodes on strings, patterns, relations, 27, 37.

That was the first chart I came up with.

You can see the beauty of symmetry without looking for numbers.

Numbers from 1 to 36 are divided into 6 groups.

symmetry, pair.

All vertices add up to 37.

Below are 74 in all.

I don't go there now because I have a lot of very complicated relationships. Because they're going to say, "Hey, go back to the fructus part."

(Laughter) Circle of fifths, sonic harmony, geometric symmetry.

I knew the two were related.

Again, a kind of Descartes crossover.

So I said, if you're going to put a circle, let's see what pattern you get, Dawn, it's a red system.

Look at that Folks, you can't just make this up.

(Laughter) You can't just go, "Oh, if you put some triangles in a circle, they'll be symmetrical, and then you add them all up and you get this, oh yeah, I figured it out."

This is beyond what anyone can easily create.

It's called the Orange System.

(Laughter) As you can see here, these are multiples of the number 27.

And even though it is a circle of 9 and this is a circle of 36, they reproduce the shape. It's funny.

(Laughter) That's the green system. In the green system everything between 18 and 19 folds in half.

blue system. Violet. it's all there.

(Laughter) Look! I mean, you can't make something up like that.

(laughter) It won't fall from the tree, folks.

27 years of my life!

(Laughter) And I'll present it here at TED. why?

If the aliens landed, it will be here, so I hope you will come.

(Laughter) "We're going to destroy the planet. Hmm... maybe not."

(Laughter) This past year I discovered a subsequent system that enables the mathematical possibilities of Calabi-Yau manifolds in a way that does not require these small hidden dimensions.

This works mathematically, but it doesn't sound like a god to me.

It seems hidden, not sexy or elegant.

I don't want to hide it, I want to see it.

(Laughter) It turns out that all the other pairs have symmetry, but unlike the master pair, the symmetry is split.

can't believe it. This is crazy.

am i the only one seeing this?

(laughs) By the way, I didn't draw this in one day.

Try making a graph like this at home.

Must be exact! Measurements include increments.

By the way, these are maps.

It's not a stamp, but someday.

(Laughs) Well, let's get down to business. Golden ratio is amazing.

And look at this, embedded in it is the golden ratio.

I start watching it and watch them again.

They begin to look like planets.

I go to JPL.

Look at the orbits of the planets.

We find 18 such examples in our solar system.

I never told anyone. This is the first. This may be history.

(Laughter) Kepler was right.

(laughter) 18 and 19, the middle of the molyd, 0.618 is the golden section.

Multiplying these together, 18.618 x 19.618 equals 365.247.

This is .005 different than the number of days in a year.

Dude, you can't make this up.

(laughs) Thank you very much.

(Applause.) Thank you.

(Applause.) Thank you.

(applause)

I like fashion.

In fact, when I go to bed every night, I think about what to wear the next day.

Clothes change me, define me and give me confidence.

You may not feel the same way about fashion, but you probably have your favorite t-shirts and jeans that transform you. It makes you feel good, gives you confidence, and makes you feel like yourself.

When I was younger I wanted to be Betsey Johnson.

I thought we were the same kind of crazy hair genie.

I went into fashion design, worked in the industry for years and loved it.

I was married and had 3 children.

But life can also be heartbreakingly ironic.

My middle child, Oliver, was born with a rare form of Muscular Dystrophy (MD).

MD affects his muscular strength and pulmonary system, distorting his body and making everyday life more difficult than others.

By the time he was able to walk, when he was only about two and a half years old, he had to wear braces on his legs to stabilize them.

He wasn't growing properly and had to have a feeding tube put in his face.

He endured the gaze, and so did I.

But my husband, Greg, and I told him that no matter what, he was just like everyone else.

But for Oliver, the day-to-day work we all take for granted was incredibly difficult.

The simple act of dressing up, which I adore, was a nightmare for him.

His MD form has no effect on his mind.

His brain is A-plus, which means he's acutely aware of his shortcomings.

This became very apparent when he started attending school, and the act of dressing himself every day was a constant reminder of what he could and could not do.

So our solution was for Oliver to wear sweatpants with his uniform every day, at school, at parties and on vacation.

On special occasions, he wore neat trousers.

But more than once I had to take him to the men's restroom because he couldn't handle buttons and zippers well, which was incredibly embarrassing for him and the other men there.

But they said, I said, "Oh please, there's nothing I've never seen before."

(Laughter.) For years we struggled.

But when Oliver was in third grade, I realized he looked more like me than I ever imagined.

Oliver also paid attention to fashion.

One day he came home from school and plainly said he was going to school wearing jeans like everyone else.

Sure, I couldn't go to class with him or take him to the boys' room, but I couldn't tell my 8-year-old son that he couldn't wear what he wanted.

So that night I took MacGyver's jeans off thoroughly.

It reminded me of that rubber band trick I had when I was pregnant and couldn't stop when my favorite pair of pants ripped.

Moms remember what I'm talking about?

Through the buttonhole, rubber around the button and behind?

Instant stretch.

So I unzipped it so he could put it up and down on his own.

I cut the side seams of his trouser legs and applied Velcro to fit his leg braces. Everyone, please hold your ears. Peel and stick. Just to be sure, I made sure it closed the perimeter.

When I showed Oliver my arts and crafts project, he had a big smile on his face.

He went to school with his head held high.

Those jeans changed him.

He was able to dress himself and go to the bathroom on his own. Those jeans gave him confidence.

I didn't realize it at the time, but this was my first entry into the world of adaptive clothing.

Adaptive clothing is defined as clothing designed for people with disabilities, the elderly, and those who have trouble dressing themselves.

Adaptive clothing existed, but it lacked mainstream fashion elements.

It was very medicinal, very functional, but not stylish.

This is a big question because what you wear matters.

Clothing can affect your mood, health and self-esteem.

Now, as a fashion lover I've known this all along, but scientists actually have a name for this.

This is what we call “Enclothed Cognition,” where two things happen simultaneously: the symbolic meaning of clothing and the physical experience of wearing it, both of which are directly correlated to how we feel about ourselves.

There is actually a professor in England named Karen J. Pine.

She wrote a book, Watch What You Wear: The Psychology of Fashion.

In her book, she states that when we wear clothes, whether we are conscious of it or not, we adapt the characteristics of what we are wearing.

That's why wearing perfectly fitted jeans makes you feel like a rock star.

That's why wearing a powered suit makes me feel invincible, and wearing a little black dress makes me feel beautiful.

But that's exactly why Oliver felt lonely when he couldn't wear what he wanted to wear.

One time he said to me: "Mom, wearing sweatpants every day makes me feel like I'm wearing disabled clothes."

There are 1 billion people on our planet who experience some form of disability.

1000000000.

If 10 percent of that billion people experience dressing challenges, that vast number of people may not feel as confident, successful, or even happy as they hoped.

The morning after Oliver wore those jeans to school, I realized there was something I could do about it.

And so did I.

In 2013 I founded an organization called Runway of Dreams.

Its mission was to educate the fashion industry that it can make modifications to the mainstream clothing of this community that has never been offered before.

And it started with a full year of research.

I went to school, I went to institutions, I went to hospitals.

Whether in a wheelchair, with a walker, or with a slight limp, I literally chased people down the street.

(Laughter) I must have looked crazy, but I knew that if I really wanted to make a difference, I needed to truly understand the dressing challenges of as many different people as possible.

I met an 18 year old with cerebral palsy.

He attended Harvard University.

He said to me, "Can you imagine

I got into Harvard and my dream is to be able to wear jeans on campus like other freshmen. ”

I met a little girl named Gianna who lost her left forearm and hand.

Her mother said she couldn't bear to see the difference her daughter made with the dangling sleeves and had all of her long-sleeved shirts professionally tailored.

Can you imagine the time and money she spent?

I also had the great honor of spending time with former Rutgers footballer Eric Legrand, who was paralyzed in a tackle in 2010.

At this point, I've seen some unfathomable things, but this one was by far the most heart-stopping.

As you know, Eric was a really big guy and it took two helpers and a lift to get him dressed.

I sat and watched this process for over two hours.

When I told Eric of my shock, he looked at me and said, 'Mindy, this happens every day.

what can I say?

i like to look sharp. ”

Research completed.

I knew I had to use my background to really figure out how to modify these clothes if I was going to make a difference in the industry.

So, after gathering the information I've collected over the past year, I've discovered that there are actually three categories that are being impacted overall.

The first was closure.

Buttons, snaps, zippers and hooks were difficult for almost everyone.

So I replaced them with a more manageable technology: magnets.

Thanks to magnets, freshmen at Harvard University can now dress themselves and wear jeans on campus.

Second: Adjustability.

Pants lengths, sleeve lengths, and waistbands have been a challenge for so many differently shaped bodies.

So we added an elastic internal hemming system.

In this way, Gianna can wear a ready-made shirt by simply adjusting one sleeve.

Finally: Another way to put the garment on and off the body, other than the traditional way of putting it on over the head.

So I devised a way to go armed first.

For someone like Eric, this could take five steps off the actual getting dressed process and reclaim the gift of time.

So I went out, bought an outfit off the shelf, sat at my kitchen table, ripped it apart, and prototyped prototype after prototype until I felt I had a great fix.

And I was ready for the big leagues, the fashion industry.

Instead of designing my own collection, I thought I had to go mainstream if I was going to really make a difference.

I believed there was a need to educate the industry on the sheer size of this population and the fact that they were simply unconsidered consumers.

And I'm happy that the industry listened to me.

Runway of Dreams has collaborated with the most amazing and forward-thinking brands on the planet (applause). This brand brought my vision to market and made fashion history by launching the first mainstream adaptive collection.

And the rest is yet to come.

(Applause) So -- (Applause) Fashion is an important lifeline.

Clothing can change.

Dressing gives you confidence.

So when you're thinking about what to wear to start your day tomorrow, I want you to appreciate the process and think about how your choices will make you feel.

Oliver turned 13 today.

He wears adaptive khakis and a shirt with magnetic buttons down the front that makes him feel like the coolest kid.

My son is completely arrogant.

(Laughter) As I said earlier, Oliver's disease is a degenerative disease, which means that over time, muscles are destroyed.

This is by far the most devastating part for me.

I have to sit back and watch my son go from bad to worse.

And there's nothing I can do about it.

So I'm looking at what I can do instead of what I can't control. Because I have no choice.

So I'm looking up.

And I'm asking you to look to the fashion industry.

And now, I want you all to look up.

thank you.

(applause)

Uvira, eastern Congo, 1996.

It's Bukeni.

Militia commanders enter his village, knock on neighbors' doors, and take children to training camps.

Bukeni borrows a video camera from a local wedding photographer and disguises herself as a journalist to enter the camp and negotiate the release of her children.

He filmed footage of children being trained as soldiers.

[Soldiers don't worry!] [wear uniforms!] [cars are free!] [beans are free!] Many of these children are under the age of 15 and this is a war crime.

[Free!] But you don't have to go to eastern Congo to find human rights violations.

In a rapidly aging America, experts estimate that one in ten people over the age of 60 will experience abuse.

It is a hidden epidemic and most of the abuse is actually carried out at the hands of close family caregivers and family members.

I'm Vicky.

Fearing that her nephew had taken over the house as a drug den, Vicky installed an iron gate in her bedroom door, making her a prisoner in her own home.

And this is Mary.

At age 65, Mary picked up a video camera for the first time in her life and asked Vicky and 99 other seniors who had experienced abuse to tell their stories on camera.

I am Dutch, so in Holland I am obsessed with truth.

Well, when you're a kid, that's great. Because you can basically go through anything like, "Yeah, Mom, I'm the one who smoked the cigar."

(Laughter) But I think that's why I've dedicated my life to popularizing citizen videos to expose human rights violations. Because we believe in the power of video to create undeniable truths.

And my organization, WITNESS, cooperated in using the Congolese video to convict and send to prison a notorious warlord named Thomas Lubanga.

And with the videos Mary shot, we trained Mary and many other elder justice advocates to ensure that stories of elder abuse reached lawmakers, and those stories helped persuade lawmakers to pass landmark legislation to protect America's older people.

So we suspect billions of people now have this powerful tool at their fingertips.

It's a camera.

So why don't we all become a stronger army of Citizen Witnesses like Mary and Bukeni?

Why isn't all this growth of video leading to more rights and justice?

I think it's because it's hard to be a witness.

Your story will be denied, your video will be buried in a sea of ​​images, your story will be distrusted and targeted.

So how can we help Witnesses?

In Oaxaca, Mexico, the teachers' movement organized protests after the president pushed for highly undemocratic reforms.

Federal police arrived by bus and opened fire on the demonstrators.

At least seven people were killed and many more injured.

Images of the shooting started circulating, and the Mexican government did what it always does.

The company issued a formal statement, which basically accused independent media of creating fake news.

"We weren't there, we didn't shoot, this never happened," it read.

But we had just trained Mexican activists to use metadata strategically with their images.

Well, metadata is a type of information captured by a camera that indicates date, location, temperature, and weather.

It can also show a very unique way of holding the camera when shooting something.

So the images started to circulate again, but this time they had very verifiable and verifiable information on them.

And the federal government was forced to withdraw its statement.

Now, justice for the people of Oaxaca is still far away, but their story, their truth, can no longer be denied.

So we started wondering what it would be like to have a "proof mode".

What if everyone had a camera and every platform had such verification?

So we worked with an amazing Android developer called the Guardian Project to develop a technology called Proof Mode. It combines metadata and images, verifies and validates videos.

Now imagine a flood of images being sent from camera phones around the world.

Imagine the possibilities for journalists, human rights investigators, and human rights lawyers if that information were a little more credible.

So we started sharing Proof Mode with our Brazilian partner, an amazing media collective called Coletivo Papo Reto.

Brazil is a tough place for human rights.

Brazilian police kill thousands every year.

When do you think the investigation will be conducted?

when there is video.

Seventeen-year-old Eduardo was murdered in broad daylight by Rio police. See what happens after the police kill him.

They placed a gun in the dead boy's hand and shot the gun twice (shots) to fabricate a story of self-defense.

The woman who filmed this was a very, very brave witness who had to hide for her life after posting the video.

But people are filming, and they're not going to stop filming. So we are now working with media groups to frequently give residents guidance and tips on WhatsApp, how to film safely, how to upload videos they have shot safely, and how to capture scenes that can actually count as evidence.

This is inspired by a group called Mídia Ninja from Brazil.

The man on the left is a heavily armed gendarmerie.

He walks up to demonstrators and tells them, "If you protest in Brazil, you can get arrested or worse," and "Be careful, I'm going to search for you now."

And the protester, a live-streaming activist wearing a small camera, told the gendarmes, "I'm watching you, and 5,000 people are watching you with me."

Now, the tide has turned.

Distant witnesses, spectators watching, they matter.

So we started thinking, what if we could tap into that power, the power of the distant witness?

What if you could leverage their expertise, influence, cohesion, and skills when frontline communities needed their presence?

And so we started developing a project called Mobilize Us. Because I think many of us want to help and lend our skills and expertise, we are often not on the ground when frontline communities and individuals face abuse.

And it can be as simple as showing the perpetrator on the other end of the phone how many people are watching him, like this little app we built.

But now imagine you could put a layer of computer task routing on top of that.

Imagine being able to call in 100 legal observers via livestream in a community facing an immigration raid at the right moment, the right moment.

How would that change things?

So we started piloting this with our partner community in Brazil.

This is a woman named Camilla. She is the leader of a favela called Favela Skor. After the forced eviction of her community last summer to make room for a very glamorous Olympic event, she was able to gather distant witnesses through her livestream to help translate, help broadcast and spread her story.

So we're talking good sightings, but what if the perpetrator is filming?

What if a bystander filmed and did nothing?

This is Chrissy's story.

Chrissy, a transgender woman, walked into a McDonald's in Maryland to use the women's restroom.

Two teens violently beat her for using the women's restroom, which was filmed on a mobile phone by a McDonald's employee.

And when he posted a video of himself, it received thousands of racist and transphobic comments.

So we started a project called "Capturing Hate".

We have collected a very small sample of eyewitness videos showing abuse against transgender and gender nonconforming individuals.

You searched for the two words "tranny fight" and "stud fight".

And these 329 videos have been watched, and are still being watched as we sit in this theater, an astonishing almost 90 million views, and hundreds of thousands of comments on these videos, fueling more violence and more hate.

So we set out to develop a methodology to take all the unquantified visual evidence and turn it into data, and turn video into data. With that tool, LGBT groups are now using that data to fight for their rights.

And then we take that data back to Silicon Valley and tell them: "Is it possible that these videos still exist in an environment where hate evokes more hate and evokes more violence, even though we actually have a policy not to allow this kind of content? - urging policy change.

So I have hope.

I have hope that more videos can be turned into more rights and justice.

10 billion videos are played on Snapchat every day.

So what if we could turn the Snapchat generation into effective and safe citizen witnesses?

What if they could be this new generation of Bukeni?

In India, women are already using Snapchat filters to protect their identities when speaking out about domestic violence.

[They tortured me at home and never let me go out. ] The truth, the real truth, the truth that doesn't fit into any TED talk, is hard to fight against human rights violations.

There are no easy solutions to human rights violations.

And no technology can stop perpetrators.

But for survivors, victims and marginalized communities, their stories, their truths, matter.

And that's where justice begins.

thank you.

(applause)

I usually make a big fuss about sustainability when I start a story like this. Because many people out there don't know what sustainability is.

I want it to be like the 60 Second Crib Note version because this is a crowd that knows what it is. right?

So please be patient. I'm going very fast, do you understand?

Please fill in the blanks.

So sustainability, small planet.

right? Imagine a small earth revolving around the sun.

About a million years ago, a pack of monkeys fell from a tree, harnessed a little clever fire, invented the printing press, and made a bag on wheels.

And they built the society we live in today.

Unfortunately, although this society is arguably the most prosperous and vibrant the world has ever produced, it has some serious flaws.

One is that every society has an ecological footprint.

Our impact on the planet is measurable.

How much things flow in your life and how much waste is left?

And at this point in our society, this has really dramatically reached unsustainable levels.

I've used up about 5 planets.

If everyone on Earth lived like we do, it would take 5, 6, 7, or even 10 planets to make it happen.

Clearly there are less than 10 planets.

Again, mental, visual, ten planets, one planet, ten planets, one planet. right?

we don't have that. That's one problem.

The second problem is that the earth we own is being used in a very unfair way. right?

North Americans like me are basically like wriggling gluttonous pigs, eating all sorts of things.

And it extends to people living in the Asia-Pacific region and even Africa.

And people don't have enough to live on.

This is creating all kinds of tension, all kinds of dynamics that are very disturbing.

And more and more people along the way. right?

So this is what the Earth will look like in 20 years.

It will be a very crowded place with at least 8 billion people.

To make matters even more difficult, the planet is very young.

One-third of the people on this planet are children.

And those children are growing up very differently than their parents, regardless of where they live.

They are exposed to this idea of ​​our society, of prosperity.

And they may not want to live exactly like us.

They don't want to be American, British, German, or South African, they want a richer, more dynamic, more fun life, their own way.

And all of this combined creates an enormous amount of torque on earth.

And if we don't find a way to deal with that torque, we'll quickly find ourselves in increasingly unthinkable situations.

Everyone in this room has heard the worst case scenario.

No need to go into that.

But I ask the question what is there instead.

And at this point, I think the alternative is unimaginable.

As you know, we are experiencing the unthinkable on the one hand. On the other hand, we are experiencing unimaginable events.

We do not yet know how to build a society that is environmentally sustainable, shared with all peoples of the planet, promotes stability, democracy and human rights, and is achievable within the timeframes necessary to overcome the challenges we face.

I still don't know how to do this.

So what is it that changes the world?

You might think of Worldchanging as a little news service about the unimaginable future.

What we do is look for examples of tools, models, and ideas that, if widely adopted, would make a difference.

A lot of the time when I give a talk like this, I'm going to talk about something that I think everyone in this room has already heard, but most people don't know.

So I thought I'd do something a little different today and talk about what we're after rather than giving a proven example.

Talk about what we are considering.

Take a peek at our editorial note.

Considering you only have 13 minutes for this, it should be over pretty quickly.

So I don't know, just hang out. right?

So, first of all, what are we looking for? Bright green city.