Now what does this mean for us?

Even though technology is further dividing people, I believe it can be used to reconnect the world by breaking down existing models and moving beyond.

By exploring how we interface with these technologies, we can break free from habitual, almost mechanical behavior and finally find common ground with one another.

Technology cannot be neutral

provide context and cut reality

This is both a problem and a solution

It can be used to discover our blind spots and retrain our perceptions so that we can choose each other's perspectives.

thank you

(applause)

To some of you during the break about the aging debate.

solicited for comment

I can say that an optimist is better than a pessimist

(Laughter) In the next 18 minutes, I'm going to talk about how we've moved from deciphering the genetic code to writing a new genetic code.

Exactly 10 years ago this month, we published the first gene sequence for an independent organism, Haemophilus influenzae.

This was the kind of technology that would cut the Human Genome Project from 13 years to four months.

Now you can complete a similar Human Genome project in 2-8 hours.

In the last decade, we've decoded most of the human pathogens, including the human genome, and the genomes of several plants, insects and mammals.

Given the speed of research 10 years ago, genetic sequencing should have completed three to five genomes by the end of this year, but it's actually hundreds, and it's actually hundreds.

We won funding from the Gordon and Betty Moore Foundation to sequence 130 genomes this year for environmental biology research.

Genetic sequencing is accelerating

If you look at it, you've just scratched the surface of life that still exists on Earth.

Because they're invisible, they go unnoticed, but microbes make up roughly half of the biomass on Earth, and animals make up only one-thousandth of the total biomass.

People in Oxford may not do this, but remember that if you take a sip of seawater, there are 1 million bacteria and 10 million viruses in every milliliter.

Up until two years ago, we had less than 5,000 microbes identified, so we decided to do something.

I've started the Sorcerer 2 Expedition, an epic ocean expedition with sampling every 320 km.

It started from Bermuda as a test voyage, then went north to Halifax, then moved south along the east coast of the United States, to the Caribbean Sea, the Panama Canal, the Galapagos, and finally to the Pacific Ocean.

It's a big task, but we're going to use a sailboat to get young people interested in science.

Easy to experiment

They pump seawater, collect organisms by filter size, and then send the DNA to a lab in Rockville that can read 100 million bases of the genetic code in 24 hours.

I've already made some startling discoveries.

For example, for the visual pigments in our eyes, only one or two species in the environment have the same pigments.

Most organisms in the upper temperate oceans have the same photoreceptors and use sunlight as a source of energy and communication.

At one point, we found 1.3 million new genes and 50,000 new species in 160 liters of seawater.

We've also received funding from the Thrawn Foundation to explore life in the air.

Count how many viruses and bacteria you breathe each day, especially on an airplane or in a closed auditorium.

(Laughter) We're going to filter it with a simple device, and in just one day, we're going to collect a billion microbes, and we're going to collect samples on top of a building in New York.

I'm currently sequencing all of those samples.

In terms of where we collected our data, we just passed through the Galapagos Islands, and we're finding tremendous diversity in seawater samples every 320 kilometers.

Some of it makes sense, because seawater has temperature differences.

Here's a satellite image showing the temperature of the ocean, where red is hot and blue is cold, and there's a big difference in species richness between the warm water samples and the cold water samples.

Another thing that surprised us was that photoreceptors are sensitive to different wavelengths of light, as you can see by looking at the amino acid sequences.

This also varies greatly by region.

Not surprisingly, in the deep ocean, light is mostly blue, so photoreceptors are sensitive to blue.

When there's a lot of chlorophyll around you, you're more sensitive to green light.

The color of light they perceive can range from extreme ultraviolet to infrared light.

In order to assess the gene repertoire we've collected so far, we've put together the data, and all the genes from this expedition are about 29 million genes, which is more than half of the genetic data on Earth.

They grouped them by their cognate genes to see what the discovery might be -- a new species in the same family, or a new family.

And we've found a whopping 50,000 independent families, and if you take samples in new locations, you'll find new families.

So I would say we're still in the early stages of discovering life on Earth, the basic genes and the building blocks of genes.

If you look at the so-called phylogenetic tree, humans are in the top right, along with other animals.

Human genomes are made up of only 24,000 genes, compared to the 29 million that have been discovered so far.

All of the animal genes combined would be less than 30,000, maybe 10,000-something gene families.

I don't think about these genes just as elements that direct evolution.

Maybe starting with Richard Dawkins' view -- instead of being genome-centric, we're taking a gene-centric view -- that genomes are made up of different combinations of genes.

Over the last 10 to 20 years, the technology for artificially synthesizing DNA has advanced almost as fast as the technology for sequencing DNA, making it faster and cheaper.

It was in 1995, when I was determining the nucleotide sequence of the second genome, mycoplasma genitalium, that I decided to try making an artificial genome.

I also made a cool T-shirt that says "Ai ♡ my genitals (the name of the bacteria)".

It's just microbes

have about 500 genes

Haemophilus is 1,800

I thought, if one organism needs 800 genes, and another organism needs 500, how many genes would be the minimum needed to make one organism?

So we started experimenting with transposons.

Transposons are small pieces of DNA that insert randomly into genes.

Once inserted into a gene, the function of that gene is lost.

We used it to create a map of all the genes that continue to function when the transposon inserts them, and we named them "non-essential genes."

But it turns out that environmental conditions are very important for an organism to survive, and that genes that are "essential" or "non-essential" change depending on what kind of environment the organism is in.

We also tried a more intelligent method with genomes from 13 similar organisms, looking for genes that they had in common.

Only 173 genes were common to all 13 organisms.

Excluding one intracellular parasite, the number of common genes goes up a little bit, and when we add in genes with important functions, it goes up to about 310.

Depending on how you think about it, the number of common genes increases or decreases, but since a natural organism has at least 500 genes, the number of "essential" genes would be somewhere between 300 and 400.

The real way to prove this is to use this genome to create an artificial chromosome containing these genes in a cassette fashion.

It turned out to be very difficult to make large pieces of DNA with precise sequences.

My colleagues Ham Smith and Clyde Hutchison have come up with a revolutionary new method that allows you to synthesize a 5,000-base-pair virus in two weeks.

It was an exciting experiment -- as soon as we injected the synthetic DNA into the bacteria, the DNA started making virus particles, and eventually the virus killed the bacteria.

This wasn't the first man-made virus -- the poliovirus had been synthesized a year earlier -- but it was 10,000 times less active and took three years to synthesize.

This is the structure diagram of the virus phi X174

This is an example of software being made into hardware, a very biological concept.

People are quick to associate it with bioweapons, and recently I was questioned in a Senate hearing, and the U.S. government has set up a special committee to look into this area.

It's important to be realistic and separate it from fantasy.

It is possible to make genomes from any virus that has been sequenced so far.

People almost faint when they hear about Ebola or smallpox, but the DNA of these viruses by themselves is not contagious.

Even if someone created a smallpox genome, the DNA itself wouldn't be infectious.

What public safety officials really worry about is the designer virus.

Only two countries in the world tried to create bioweapons, the United States and the former Soviet Union.

If research really stopped there, there would be no way to create new designer viruses in the future.

I think it will be possible to create an artificial single-celled organism within two years.

I think within 10 years it will be possible to create eukaryotic cells like the ones we have.

We're making dozens of gene fragments now, and we're going to use these to make cassettes, genes, and artificial chromosomes.

The key is how we pack all these things in.

You start with a piece of DNA, and you rearrange it as a chromosome using a system of homologous recombination, and this recombination system is Deinococcus radiodurans.

It comes from a bacterium called , which can survive three million rads of radiation.

Within 12 to 24 hours of exposure to high doses of radiation, the genomes begin to rearrange, literally after the chromosomes have been torn apart.

This bacterium is ubiquitous on Earth, and since we've already traveled to space, it may be spreading into space.

This is a glass beaker after about 500,000 rads of radiation.

Even the glass has been heated and cracked, but these bacteria are happy at the bottom.

This picture is what actually happened, and the one at the top is the zynom after 1.7 million rads of radiation.

Chromosomes literally fell apart

Here's the same DNA, 24 hours later, automatically rearranged.

It's really amazing what this bacterium can do.

Once you have a genome like this, the first thing to try is to transplant it into cells that don't have the genome.

I think that creating artificial cells in this way has great potential not only for understanding basic biology, but also for understanding environmental and social issues.

For example, Methanocardococcus jannaskii, the third sequenced bacterium that lives in boiling water, uses hydrogen as an energy source and obtains carbon from CO2 in the environment.

Thousands of organisms with these different metabolic pathways can use CO2 to survive and capture it from the environment.

Instead of using carbon from petroleum for organic synthesis, we can capture carbon from the atmosphere and use it to make biopolymers and other products.

Some organisms can utilize carbon monoxide, using it as a reducing agent to split water into oxygen and hydrogen.

It can also be designed to metabolize methane gas using alternative metabolic pathways.

DuPont has a big project with Statoil in Norway to capture methane gas from gas fields and turn it into useful products.

In the near future, there may be a new field called "combinatorial genomics." Using these new synthetic techniques, it will be possible to design robots that can make millions of different chromosomes in a single day, using different gene sequences and homologous recombination techniques.

As with all biological phenomena, we select by screening, and we screen for hydrogen production, chemosynthesis, or simply viability.

It is quite possible to understand the role of these genes.

We are now trying to improve photosynthesis to produce hydrogen directly from sunlight.

Photosynthesis is regulated by oxygen, but there are also oxygen-insensitive hydrogenases, which can completely alter chemical processes.

A cellulolytic enzyme that breaks down cellulose into simple sugars is combined with a fermentation reaction in the same cell to make ethanol.

Bacteria-based pharmaceuticals are already taking place in major laboratories.

The compounds in the environment are far more complex than the substances that chemists can make, but they are far more complex than the substances that chemists can make.

We believe that future artificial organisms will serve as a food source, as an energy source, as an environmental restorer, and as a replacement for the oil industry.

I'll end by saying a few words about ethical policy research.

In 1999, we delayed our attempts to create artificial organisms until after a year and a half of bioethical review.

All major religions participated

It was a very strange examination. The religious leaders considered their scriptures to be laws, but they didn't find anything prohibiting the creation of life, so they thought there wouldn't be a problem.

Now, the Sloan Foundation has just funded a multi-institutional research collaboration on this subject, to explore the risks and benefits of this kind of research for society, and to create rules for research teams like ours to follow in this field.

These issues are complex

Excluding the fear of bioterrorism, the problem is simple in terms of designing a way to generate clean energy and providing a simple way for developing nations to thrive at a phenomenal rate.

(applause)

When I was young, my grandfather said, "If you keep saying you're going to be this way, you'll be that way."

I grew up in the segregated city of Baltimore, Maryland, and I traveled around the country with a tape recorder -- thank goodness for technology -- interviewing people and trying to get closer to what they said... -- that's why I don't wear shoes on stage -- and I thought that by stepping into people's words, I could absorb America.

He was inspired by Walt Whitman, who wanted to absorb America and be absorbed by America.

The four characters I'm going to introduce to you are four of the thousands I've met and interviewed over the years. Four of the thousands I've interviewed.

Anyone of your age know Studs Terkel?

I thought he was the perfect person to tell a defining moment in American history.

He was born in 1912, the year the Titanic sank - the most luxurious liner ever crashed into the tip of the iceberg. The ship sank into the sea and I came to this world What an age

(Laughter) Speaking of a defining moment in American history, he said,

"There is no such thing as a ``decisive moment in American history.'' It was a big event, but it wasn't the atomic bombing of Hiroshima.

A gradual decline... "decline" is the word used in Watergate. It's a moral decline.

With the development of technology

Human interaction is declining

Something like this happened, let's talk

Atlanta airport is so modern, you walk through the gate and there you are.

There's a train to take you to the departure gate

The train runs very smoothly and is very quiet and efficient.

In-car announcements are like human voices

Once upon a time there were robots, and robots imitated humans.

Now people imitate robots

In a voice like this, "Departure Gate 1, Omaha Lincoln."

"Departure Gate 2, Dallas/Fort Worth" It's the exact same voice, isn't it?

Just before the train departed, a young couple jumped on The air door closed

Then, without slowing down at all, the voice said, "Late passenger ant. We're departing 30 seconds late."

I had a drink and it felt good So I imitated the voice of the train and said, "George Orwell, your time has come!"

They're laughing, aren't they?

you stared at me

And the three of us, a couple and I, huddled together like prisoners before the death penalty.

Then I saw a baby on its mother's lap

I could tell by the language he was speaking that he was of Spanish descent.

When I tried to talk to the baby, I thought it smelled like alcohol, so I covered my mouth with my hand and said, "I'm going to ask you," "What is your opinion of the human creature?"

I said ""that's the reaction of people! Good thing humans haven't lost yet"" But surely human contact is being lost

We should be skeptical of what's publicly held to be true.

The greatness of Mark Twain is that we admire him, but we don't read him.

"Huckleberry Finn" is a book that everyone has read

Of course hacks are good

A great scene on the raft, remember what Huck did?

Huck was an uneducated kid who didn't go to school, but there was something wonderful about him.

The official truth, in the law, black people used to be property, they were treated as objects.

Huck was on the raft with his property, slave Jim.

When he hears that Jim is going to run away with his wife and children, and secretly takes them out... Huck becomes distraught and says, "God, what should I do?"

"Jim secretly kidnapped his family... This is a robbery."

""Did anyone get on the raft?" When asked "", Huck replied ""yes"" ""Are you white? Are you black? "" ""Caucasian"" and they left.

Huck panicked, ""What should I do, God?" "" Very nice Huck's good deed A lot of goodness has been buried

Human interaction is disappearing

If you ask me what the defining moment in American history is, I would say there is no such thing.

The moment piles up and there is only now.

While such things are increasing, compassion for people is disappearing

I don't know if this is true, but Wright Maurice, a writer from Nebraska, said, "There are more ways to communicate -- fewer links in communication."

It was "Studs Turkel"

(Applause) Let's talk about taking risks, playing characters that people hate.

Actors like to play characters they like, but not all the time, especially at gatherings like today, when you want to impress people.

But when you talk about "taking risks," you're playing someone who's completely different from you, a character you don't really like.

I dare to do it, even if it means risking it.

"Risk" has certain connotations, and the same goes for "property."

There's this wonderful philosopher, Maxine Greene, who's the same age as Mr. Studs. She's a leader in the philosophical world.

She said, "Even though I'm a lot older than you, when I see the president of my university, I feel like I have to bow politely.

I still don't understand why I feel obligated to make coffee for my male co-workers."

And ""intellectually, we still don't know enough about negative imagination.

9/11 taught us that we hadn't thought about the negative imagination."

This work is about the negative imagination.

It makes you think about humanity, about nature, about risk.

I spoke with an inmate at a female-only correctional facility in Maryland.

Reproduce the story you heard off the record

People's words are like free verse, so I give a title to what I hear, which is "Put a Mirror on Her Mouth."

This is an interview with an inmate named Poulet Jenkins.

""I got better at hiding it because I didn't want anyone to know what was going on in my house.

I wanted to be thought of as a normal family.

We were very blessed with material things, but that didn't heal the wounds of the children, it didn't lessen their fears.

How did you get the bruises and scars all over your face? I've run out of lies to explain

In the end he hits again.Pretending nothing happened doesn't make the nightmare go away.The family nightmare remains.

And it escalated more and more 'cause I let it go

But the night that Meisha died, the intensity was multiplied many times.I went to get some medicine and when I came back,he got really angry at Meisha and started hitting me.I put her in the bathtub and hit her with a belt.

He used the belt in a distorted and perverted delusion that Meisha and his brother had sex, thinking they were in love.

We're talking about the night Meisha died.

So put me in the bathtub and I was in the bedroom with the baby

Four months before Meisha died, I thought I could cure him, so I gave birth to him.

it didn't work

Houston, Meisha, Dominic I became a mother to three children When Dominic was four months old I went to jail

Like I said before, she was in the bedroom, they were in the bathroom, and every time she got hit, she fell down.

Hit my head in the bathtub again and again

I heard it, but I couldn't do it, I didn't

I didn't even go to check on you.

i just sat and listened

Then he brought her down the hallway

So I told her to keep still, she was there for five hours.

then asked to stand

He stood up and said he couldn't see anything

Your face is full of bruises and black around your eyes

His head had swollen and had doubled in size.

"I said, 'Let me go to bed now,' and he listened, but

The next morning the child was dead

He was so upset when he went to wake his daughter up in the morning.

"I knew right away that the girl who said she wasn't breathing was dead.

I didn't want to admit my daughter was dead So I went over to her and put a mirror to her mouth Nothing happened she wasn't breathing at all

He... he... said, ""Nobody should know about this.""

I've been keeping it a secret for years anyway, so I just gotta keep it.

I went to the mall and told the police my daughter was lost and she's missing.

I told the security guard that my daughter was lost.

I also told him what he was wearing.

I took the baby and another child and drove to Highway 95.

I was dazed I was numb I was staring in the rearview mirror the whole time

He left his dead daughter on the side of the highway.

I put my child through those eyes

This was a case study of negative imagination.

(Applause) "On the Road: Finding American People." When I started this project with a tape recorder, I wanted to travel the country and hear stories from people, from rodeo players to cowboys to pig farmers to majorettes.

I went to two riots, one of which was the Los Angeles riots.

It's based on an interview there, where I learned a lot about racial issues.

In many interviews, this seems like an operatic aria.

Why did the Los Angeles riots occur? We all know, because a black man named Rodney King was assaulted by four white police officers.

Again, thanks to technology, it was captured on video, and the footage spread around the world.

Everyone thought the four white cops were going to jail.

They were acquitted and riots broke out.

In case you forgot, at the direction of President Bush, there was a second trial.

In that verdict, two officers went to jail, but two others were acquitted, and I was there at the trial.

People who feared the next riot were hilarious.

Amid the explosion of joy over the reversal of the ruling

There were people who weren't happy, Korean Americans, people whose stores had been burned down by the riots.

Yeon Seung-han, I think I learned almost everything about what racism is from this woman.

She, like Mr. Studd, had her doubts, questioning the official truth.

I took this opportunity to ask, What is justice as people say it is?

"Swallow your regret"

I used to believe America was the best.

I was watching high-end Hollywood life on Korean TV.

There were neither poor nor black people there

Up until 1992, I thought America was number one. Actually, even now, I can't deny that, because I'm a victim.

At the end of '92, it was really hard. I was struggling financially.

why? Why are you friends?

No medical deductions, no food aid, no universal assistance, even though many black Americans who don't work live on subsistence income.

Because I have a car and a house, because I'm a big taxpayer

Isn't it unfair that we didn't receive any government assistance at all?

isn't that right

Many black Americans are happy that they won the case.

The morning after the ruling, I sat here watching, everyone celebrating their victory, partying all day long, and all the churches in the South Central area were saying that justice had finally been done in society, but what about the rights of riot victims?

Blacks won equality by destroying unrelated Korean shops.

Those people respect Dr. King as much as I do, don't they?

He's the only role model in the black community, I hate Jesse Jackson

Dr. King is a symbol of non-violence, and that spirit should live on.

But what was that in 1992? attacked innocent people

Are you saying that's their right to win equality?

Swallowing my frustration, I'm sitting here watching them.

It's so fun and funny I think it's good

I was able to win something

Forget about the Koreans and other victims, the fact that they had someone screwed up

For 200 years they've been fighting for their rights, and they've suffered more than Hispanics, Asians, and other people of color.

I know how they feel, which is why I have mixed feelings about this verdict.

But if possible, if possible, I hope we can celebrate together.

I wish I could live in an area with black people again.

But after the riots, I can't do that anymore.

There's still fire... what was it?

The pilot, the pilot is still there

There is still a pilot fire, and it may burn violently again at any time...

It was Yeon Seung Han

(Applause) Another reason I don't wear shoes is so that when I snuggle up to someone, I don't step on them so I can walk in their shoes.

I didn't mention the chronology earlier, but in 1979, I thought I was going to go around America looking for rodeo players and pig farmers, but then I veered off to racial issues.

Two years ago, I was finally able to meet a rodeo player.

I went to the rodeo with him and we became good friends.

He's the main article in my recent Republican convention commentary.

He's a Republican. Regardless of my party preference, I just love Brent Williams. It's about toughness.

The title is "Toughness"

I'm basically an optimist

My wife Jolene's family always say, Don't you think he's a born loser?

you're out of luck anyway

But hey, the bull stepped on my kidney, and my kidney was fine. Normally, it would have collapsed.

You're so lucky

(Laughs) There were also funny things like this.

When I went to the doctor for a CT scan, there was an October 2002 Reader's Digest.

There was an article called 7 ways to increase your luck If you want to be lucky, you must first associate with positive people.

When I told my wife that you wanted to meet and talk to me, I said it was just my mouth, I was just saying that, and I said, you can't really come.

See, this is the kind of person

How can you answer her question? (Laughter) I also said that it would only embarrass me, because I didn't go to college and I didn't have any technical knowledge.

But I told you, we talked for four hours.

If I didn't talk, if I didn't want to hear you, you wouldn't have come all the way here Are you confident? I'm just going to ride it.

Confidence, you know, if you can ride that bull once, do you feel like you can ride it again?

Confidence is a good feeling, it's a feeling of conceit

Don't think too hard, I'll catch you horns (laughs) Tough Hedman's line in "8 Seconds" Pat O'Malley used to say when I was a kid Take on challenges no other kid has ever seen Challenge and set your heart are the same thing

I'll hold on to the bull no matter what, even if I'm about to fall down

Keep your head down and ride until your head is in the mud

freedom? It's called a rodeo

beauty? I don't really know what beauty is

Isn't the rodeo beautiful?

We're a rough family, shake hands and start wrestling

Gasoline and entrance fees can all be done with a cancer cancer card

Ride together, eat together, sleep together

I can't imagine the day will come when I quit the rodeo, I'm fine

I have a ranch, but I don't want to think about the last day of the rodeo.

It's like the day my brother died, isn't it?

toughness? Well, in West Jordan, Utah, this bull pushed me in the face and hit a piece of metal in my face, and I was taken to the hospital.

I sewed all over my face and put my nose back

I had to go to the rodeo that night, so I had him do it without anesthesia, with stitches all over his face.

I put a tube through my nose to straighten my nose It went all the way to my brain I felt like my head had exploded Everyone said I could die from the shock But I'm alive I'm so strong in pain

(Laughter) But hey, thanks to that tube, I can breathe through my nose. I couldn't breathe. I broke my nose at the rodeo in high school.

thank you

(applause)

Ethic and Hedge are on the ground floor of a giant tower.

It's separated from the second item, the Creation Stone, by an energy barrier.

To get it, you have to follow three energy streams and climb the tower.

As soon as you take a step forward, a 60-second countdown will begin.

At the back of the room rises an invisible tower that can hold energy within it.

After 60 seconds, the energy rushes down from above, filling one unit at a time.

In the first 60 seconds, Ethic and Hedge must decide how much energy to rain.

For each of the three attempts, find the amount of energy that just fills the cavity of the tower.

If you succeed, you can ride the energy upwards.

But if you get the amount wrong, the energy elevator won't work and you'll fall down.

The diagram on the wall shows an example.

In this form, two units of energy enter.

In this form, four units -- three on the left and one on the right.

Again, it's four units, because the energy that goes in on the far right spills out.

The energy pouring down will overflow if there is nothing to support it around.

Hedges allow you to visualize row by row of blocks and measure their height, but you can't see the entire structure at once.

How does Ethic program Hedge to figure out how much energy each tower can hold in its hollow?

Pause the video and think for yourself

One way of thinking is that each empty box can hold energy if it has walls to its left and walls to its right.

But checking this for each box would take a long time.

Can't we think about it in one column?

For example, how many units can you hold in this case?

[Pause the video and think for yourself]

Let's analyze the problem in the previous example.

There are 5 rows of blocks

The leftmost column is the tallest, so it can't hold any energy.

The second row can hold three units because it's surrounded by four tiers of blocks on either side.

Subtract the height of the block by 1 from the full energy height of 4, and the answer is 3.

The same goes for the third row, 4 on the left and 4 on the right.

Rows 4 and 5 can't hold energy because they don't have anything higher in their right hand.

We can turn this idea into an algorithm.

Based on the column where you want to find the amount of energy, go through the hedges column by column, find the tallest column on the left, then find the tallest column on the right, and the lower of the two is the height that can store energy.

If this height is greater than the height of the column itself, then subtract the height of the column from that, and the answer is the amount of energy that column can hold.

If the height at which the energy can be stored is less than the height of the column itself, the energy will be spilled.

Hedge can use a loop to apply this to all the columns, starting with the leftmost column and proceeding to the right, column by column.

Do the same for each column. Find the tallest column to the left. Find the tallest column to the right. Whichever is lower, subtract the height of the column itself, and if the answer is positive, add that amount to the sum.

The hedge repeats the loop for the number of columns

This works fine, but it takes a long time if the size is large.

because the hedge repeats the steps left and right for each column

If you have N columns, you will reference all N columns N times

Is there a faster way?

One time-saver is this: before proceeding, you can start the hedge from the far left and look up the "highest column on the left" for each column.

In this case, first 2 because the first row is higher, 2 again, then 4, 4, 4, and so on.

And then it looks at the "highest column on the right," this time from right to left: 1, 3, 4, 4, 4.

As a result, the following table is completed in memory.

Hedge then loops around one more time, and using the same formula as before, we can calculate the energy we can store in each row by subtracting the height of the row itself from the smaller of the calculated left and right heights.

Instead of referencing N columns N times, you only have to refer to N columns 3 times, which is linear time.

There are ways to further optimize this solution, but for now this will suffice.

Ethic and Hedge join forces

The first problem is a piece of cake, and you'll make your way up the tower.

The second one is a little tougher

The third one is a big challenge with dozens of rows of blocks.

Time is ticking, but Ethic's program is fast

Just in time, the steering wheel aligns, and the energy guides them to the location of the Creation Stone.

Just like with the first item, a video will appear that will bring back memories from many years ago.

The machines that run the world have changed everything, and Ethic has become alarmed by the reality he sees as chief robotics engineer.

And when the Blood Barrier started encircling people, I knew something was definitely wrong.

So Ethic created three items that gave people the power to restore their power, creativity, and memory, and then hid the items in three communities.

Before they could teach people how to use it, the government caught on to Ethic's intentions and had her and other programmers arrested by robots.

Using the machines that move the world, Ethic finally created a robot that contained this ancient device in a giant maze to protect it from the forces of ignorance.

They named the robot Hedge.

Without warning, the energy lift suddenly went off.

[As of the morning of February 27, 2020, more than 82,000 people have been confirmed to be infected with the new coronavirus worldwide—the death toll is 2,810.]

TED invited Dr. David Heyman to hear the latest on the outbreak] [What happens if you get the new coronavirus? ] In most patients, it looks like a mild illness, like the common cold.

But there are people who become seriously ill if they get infected, for example health care workers.

They come into contact with more viruses than the general population, and because they lack immunity, their symptoms are more severe.

For the general public, the amount of virus they come into contact with when they get infected is likely to be much lower than the amount that health care workers come into contact with, which is why health care workers are more likely to become seriously ill.

Compared to that, I think the general public is more likely to get mild symptoms.

On the other hand, for the elderly and those with underlying medical conditions, it is essential to seek medical attention.

[Who are the people most concerned about?] ] The biggest worry is that the epidemic spreads among people in developing countries, where there are people who don't have access to quality medical care or who can't see a doctor at all.

Those people, especially the elderly, are very dangerous.

Older people in all populations are at greater risk, but those without access to oxygen are especially at risk.

In developed countries Older people with underlying health conditions — people with diabetes and other diseases are at risk

But it doesn't seem like much of a danger to most of the general public.

[What pre-existing conditions increase the risk?] ] First and foremost, people with pre-existing respiratory conditions

And in general, older people, especially those over the age of 70, are at greater risk because older people have weaker immune systems and are more susceptible to infections than when they were younger.

In China, there have also been reports of cases of influenza and pneumonia combined with bacterial superinfection.

[Where can I get the latest information?] ] Atlanta's Centers for Disease Control and Prevention (CDC) is keeping abreast of the situation and regularly updating information on its website.

And the World Health Organization (WHO) in Geneva, which coordinates various activities around the world, also updates its website daily.

It's everyone's responsibility to get this information, to understand it well, to be able to contribute in their own way, and to prevent the spread of the disease on a large scale.

[You led the global SARS response in 2003]

How does it compare to then? ] Again, there's a problem common to all new infectious diseases.

This is the first viral infection that humans have come into contact with.

Humans have no antibody protection, and we're not sure if our immune system can handle this virus.

The virus, which usually hosts bats and other animals, suddenly began infecting humans.

That's why humans have never been infected with this virus.

But just like with SARS, more and more information is coming together.

Yes, the death toll is higher than SARS.

If you look at the ratio of deaths to the number of people infected, the number of people infected is much higher than SARS, so

With SARS, the fatality rate -- the ratio of deaths to infections -- was about 10 percent.

This time around, COVID-19, it's 2%, maybe less.

So even though it's a lot less virulent, it's still a deadly virus, so we don't want it to enter the human population.

[Is quarantine at borders such as airports being carried out properly? ] What is clear is that neither airports nor borders can stop disease from entering.

Infected people during the incubation period can cross the border into the country, and if they develop symptoms later, they will infect others.

So checking temperatures at borders is not a way to prevent infectious diseases from entering the country.

The importance of borders is that they are able to provide written and verbal knowledge to people coming from areas considered to be at high risk of infection, including the signs and symptoms of this disease and what to do if they think they have it.

[When will we have a vaccine?] ] Vaccines are currently in development and are being actively researched.

The research steps are: first make a vaccine, then use animals to test its safety and effectiveness, vaccinate animals, infect them with the virus, and then you need clinical trials.

Animal testing hasn't started yet, but it will start soon with some vaccines.

And by the end of this year or early next year, we'll have several candidate vaccines ready for regulatory review.

That means it will be at least a year before we have a vaccine that is available to the public.

[What do we still not know about this outbreak? We know how the virus spreads, but what we don't really know is how well it spreads between people, in communities, in open spaces.

We know that in confined spaces, like cruise ships, for example, the spread of infection is much easier.

What we need to know is how the infection spreads through more open contact with an infected person.

[What should be improved about the global response?] ] The big problem in the world today is that we see outbreaks in the developing world as something that we in the developed world have to do and stop.

So when there's an Ebola epidemic, even if you think, "How are we going to stop this country's outbreak?"

They don't think, "How can we help this country improve its ability to detect and respond to infections?"

So far, we haven't done enough to help countries improve their basic public health capacity.

We've focused on global mechanisms to provide assistance to other countries in the form of mobilization to stop outbreaks.

What we want is for any country in the world to be able to work to stop the outbreak in its own country.

[Will there be another outbreak in the future? ] The world population is now over 7 billion.

As people grow, they need food and other things, and they all live in close quarters.

In fact, the world is becoming more urbanized, and more people live in cities.

At the same time, more livestock are being raised for human food.

So right now, livestock and humans are getting closer and closer.

The current state of livestock intensification and the exponential growth of the human population living together on the planet creates a breeding ground for outbreaks that can and do occur.

Eventually there will be more and more outbreaks.

Infectious diseases that are emerging today are just warnings of what will happen in the future.

What we need is for the world to come together and ensure global technical coordination so that when an outbreak occurs, we can rapidly provide the information needed to understand and control what is happening.

[Is the worst over? ] Accurate predictions are not possible

So I think everyone should at least prepare for the worst.

Together, we need to learn how to protect ourselves and others from getting this disease.

[For more information, visit the Centers for Disease Control and Prevention (CDC) and World Health Organization (WHO) websites]

I'm a pediatric oncologist, doing stem cell research at Stanford University, where I've worked primarily with bone marrow transplants.

Inspired by the fact that Jill Bolte Taylor brought a human brain last year, she brought a liter of bone marrow.

Bone marrow is what we use to help tens of thousands of patients, most of whom have leukemia, malignant lymphoma and other advanced malignancies.

A few years ago, I was a transplant fellow at Stanford.

I was in the operating room and there was Bob, a would-be donor.

A child with leukemia was supposed to have his bone marrow transported across the state to save his life.

How is the bone marrow actually harvested?

There's a full operating room, a general anesthesia nurse, and there's another doctor in front of me.

Bob's on the operating table, and he's got a little needle like this -- it's not that big.

Here's how it works: basically, it penetrates the soft tissue and punctures the hard bone in the ass -- that's the technical term -- and then aspirates 10 milliliters of bone marrow, each time with a syringe.

Give it to the nurse, she puts it in a container

give it back to me repeat this over and over

about 200 times

Eventually, his arms start to hurt and his hands get calluses, not to mention Bob, and his butt ends up looking like this swiss cheese.

I thought this technique hasn't changed in 40 years.

I thought there must be a better way

So we came up with the least invasive method, a new device called the mallomeiner.

this is the instrument

Now let me show you how Marlo Miner works.

This is a standard transparent patient.

Instead of dozens of punctures in the bone, just one puncture in the front or back of the hip.

Then we use a resilient catheter that has a motorized wire loop at the tip that follows the contours of the inside of the hipbone.

This way, very quickly, you can suck out the thick bone marrow out of one hole.

You can insert the catheter multiple times through the same hole.

no robot needed

Bob can get a very quick bone marrow harvest without hospitalization with a single puncture under local anesthesia.

I got a small grant from Stanford University.

I built a prototype and did a little experiment.

Our team has developed this technology

I did a study in two big animals, pigs.

Amazingly, the results showed that not only was the amount of bone marrow increased, but 10 times more stem cell activity was obtained with the Mallomainer than with a standard harvester.

This method was approved by the FDA last year.

This is a real patient, and you can see the wire flexing along the curve.

Aspirate twice from the same hole on the same patient.

This was done on an outpatient basis under local anesthesia.

Again, we were able to harvest three to six times as many stem cells from the same patient.

Why is this important? Bone marrow is a rich source of adult stem cells.

You know embryonic stem cells, right?

It has great potential, but has not yet been tested in clinical trials.

Adult stem cells are found throughout the body, including hematopoietic stem cells in bone marrow, and we've been using bone marrow for stem cell therapy for over 40 years.

In the last decade, the use of bone marrow stem cells has exploded, and they're being used to treat a wide variety of diseases, including heart disease, vascular disease, orthopedics, regenerative medicine, and even neurological disorders such as Parkinson's disease and diabetes.

We commercialized "Maromaineer 2.0" this year.

We hope that this will allow us to collect more stem cells and have better results.

More people may sign up to become life-saving bone marrow donors.

You might be able to deposit your own bone marrow stem cells when you're young and healthy, just in case you need them in the future.

And finally -- this is a picture of people who have had successful bone marrow transplants, and we meet at Stanford every year.

I hope to see many more successful people with this technology in the future.

thank you

(applause)

I'm a neuroscientist and a professor at the University of California

For the last 35 years, I've been studying behavior, based on genes, neurotransmitters, dopamine, etc. My research is done with circuit analysis.

I usually do research like that

But for some reason, I recently decided to do something a little different.

It all started with a conversation with a colleague: Why don't he analyze the brains of psychopathic killers? I said

This is what we will be talking about

The question is "How do you become a psychopathic killer?"

When I say psychopathic killers, I mean the people I'm going to talk to you about.

Some of the brains I've studied include the brains of people you know.

I don't know what I'm looking for when I get my brain

This was a blind test and included normal human brains.

After examining about 70 brains,

Some data extracted

We're going to look at these data theoretically, based on genes, brain damage, interactions between the brain and the environment, to see how those mechanisms work.

Specific parts of the brain I'm interested in the most important parts of the brain.

We've been looking at these interrelationships of genes, what we call epigenetic effects, brain damage, environment, and how these are connected.

How you become a psychopathic serial killer depends on when the brain damage occurs.

It's just a matter of timing

There are many types of psychopaths

introduce the pattern

When we looked at the brains of the killer and the serial killer one by one, they had something in common. They had damage to the orbitofrontal cortex, which is the inner part of the orbit and temporal lobe just above the eyes.

Everyone we investigated had injuries, but all injuries were slightly different.

There were also other types of brain damage

The key is the influence of the main violent gene, the MAO-A gene.

The violent gene is present in normal people too

You have this gene in you too.

This gene is the sextant gene and is located on the X chromosome.This gene is inherited only from the mother.

So, that's why most of the time, men become psychopathic killers, or they become aggressive.

Daughters inherit one X chromosome from their father and another X chromosome from their mother, making the gene less influential.

But a son can only inherit an X chromosome from his mother.

This is how genes are passed from mother to son.

During development, it has a lot to do with serotonin in the brain, which is very interesting because serotonin has been shown to have a calming and relaxing effect.

But with this gene, the fetal brain is flooded with serotonin, so the whole brain becomes unresponsive to serotonin, and later in life it fails to function.

I presented this story in Israel just last year.

that has some consequences

In theory, what this means is that for this gene to manifest itself in a violent way, much earlier than puberty, it's not something like a petty stress or a slap.

The mirror neuron system is working

So, if you have this gene and you see a lot of violence in a particular situation, you're going to be devastated.

What I'm thinking may happen in a place of constant violence around the world, and the result will be a generation of children who will see all this violence.

If I was a girl, a 14-year-old living in a violent neighborhood, I would want a companion, I would want a tough guy to protect me.

The problem is that this gene tends to be condensed

Boys and girls today carry this gene

So I think in a few generations we might be at risk.

this was an idea

But my mother said, "I hear you're giving a talk about a psychopathic killer.

You talk as if you come from a normal family."

I said, "What the hell are you talking about?"

my mother talked about my family genealogy

Of course, my mother blames the paternal side

My mother's accusation is one of the problems. No one on my mother's side was involved in violence, but my father's side did.

My mother said, "I have good news and bad news

Your cousin is Cornell University founder Ezra Cornell

But Lizzie Borden is also your cousin."

I said, "So? Our only relative is Lizzie."

My mother said, "No, it's worse, read this book."

There is a book called "Killed Strangely"

This is a historical book. The first son-mother murder was by my ancestors seven generations ago.

That was the first maternal murder case.

This book is very interesting because it's about the witch trials and what people thought at the time.

But it doesn't stop there

All seven men of the Cornell family on his father's side were murderers.

let's take a breather

(Laughter) During World War II, my father and three uncles were all conscientious objectors and quiet people, but sometimes people like Lizzie Borden.

It appears about three times in 100 years.

(Laughter) But the moral of the story is, "Pinch yourself and know how much it hurts."

It's more like this

(Laughter) I should have taken action. the kids noticed that

all the kids look okay

But the grandchildren are going to be concerned here

So we started doing PET scans of the whole family.

(Laughter) PET scans, EEGs, genetic analysis to see if there's bad news anywhere.

Now it turns out that only one brother (a son and a daughter) didn't get along, and their pattern is exactly the same.

have the same brain/EEG

they are now as close as possible

But bad news will happen somewhere

I don't know when it will appear

that's my story

(smile)

Interestingly enough, Charles Darwin was born very pale in this pigmented world.

Darwin was very lucky in his life.

in a fairly wealthy family

Raised by caring, supportive parents

When Darwin was in his twenties, he took part in the famous voyage of the Beagle.

During that trip he saw many wonderful things, the diversity of plants, animals and humans.

The observations of this epic journey were eventually compiled into one wonderful book, "The Origin of Species," published 150 years ago.

What's interesting, and sometimes questionable, about "Origin of Species" is that there's only one line in the book about human evolution.

“Human origins and history will soon be shed light.” “Human origins and history will also be shed light.”

Darwin himself didn't speak or write about humanity for a long time after that.

In the years that Darwin traveled on the Beagle, he knew from stories he heard from explorers and scholars that skin color was one of the most important features of human diversity.

He also became interested in the distribution of skin color.

I knew that darker-skinned people were more common near the equator, and light-skinned people like him were more common nearer the poles.

How did you perceive this?

None of these are mentioned in The Origin of Species.

But later, in 1871, Darwin said,

It's strange because he said, "Of all the differences between races, skin color is the most noticeable and most characteristic."

He continued, "These differences are not consistent with climate differences."

he travels around

I met people of all colors from all over the world.

And yet he rejected the theory that human skin color is related to climate.

If Darwin were alive today-

I wish I lived in the NASA era.

One of the great things NASA does is launch a lot of satellites and observe different things about the environment.

It's been decades since the satellite constellation TOMS is collecting radiation data on the Earth's surface.

Data from the satellite TOMS 7 -- as you can see on the screen -- you can see how much ultraviolet light reaches the surface of the earth on average over the course of a year.

The areas in pink and red are the areas that receive the most UV radiation during the year.

The cooler the colors - blue, green, yellow and gray - less UV radiation.

The big thing about skin pigmentation is how much of the northern hemisphere falls into this gray area.

Because it has a huge impact on our understanding of the evolution of skin color.

And what Darwin didn't accept, and perhaps didn't want to admit, is that there is a strong relationship between the intensity of UV light and the amount of pigment in the skin.

Also, the amount of skin pigment is itself a product of evolution.

If you look at the distribution of skin colors as we know them today, there's a beautiful gradation from darker colors at the equator to lighter colors at the poles.

What's really important here is that early humans evolved in equatorial Africa in an environment of intense ultraviolet light.

Our early ancestors, the genus Homo, had a lot of pigment.

All of us inherited this. We were originally dark-skinned.

What happened in human history?

First, let's look at the relationship between ultraviolet rays and the surface of the earth.

Early in human evolution, areas near the equator were exposed to high levels of ultraviolet radiation.

The most active type, UVC, is blocked by the Earth's atmosphere.

But UVB and UVA pass through intact.

UVB is very important

It's very destructive, but it also triggers the production of vitamin D in the skin, which is essential for our bodies to maintain strong bones, a healthy immune system, and many other vital functions.

So living near the equator gives us so much UV and melanin, a complex and wonderful ancient polymer in our skin called melanin, which is the best natural UV blocker.

The interesting thing about melanin is that it's present in so many organisms.

Melanin existed in many forms on Earth probably a billion years ago, and was incorporated over and over again into our bodies as we evolved.

If useful, why did it change?

Melanin was introduced into our ancestors, specifically by the earliest humans in Africa, as a natural UV blocker.

It protects the body from UV-induced degradation and damage to DNA, and it also protects folic acid, an important molecule that helps cells grow, from being destroyed and encourages regeneration in the body.

Amazing, we've evolved a wonderful protective cover called melanin.

But then humans moved

And then they scattered, not once, but twice.

The Great Migration took place, from its home in equatorial Africa to the Old Continent and, most recently, to the New World.

What would humans face if they were spread across these latitudes?

It gets noticeably colder, but at the same time the UV rays are less harsh.

What happened to ultraviolet radiation for humans in the northern hemisphere?

Still exposed to a lot of UVA

But all or most of the UVB is lost in the thickness of the atmosphere.

If you ski in the snowy mountains in winter, you will be exposed to ultraviolet rays.

But it's all UVA, and what's more, UVA doesn't have the ability to create vitamin D in the skin.

That means people in the northern hemisphere don't get a chance to make vitamin D for most of the year.

This had a huge impact on the evolution of skin color.

Our ancestors who migrated to the Northern Hemisphere to stay healthy at higher latitudes lost their pigment.

By natural selection, they evolved to have lighter skin tones.

Now let's take a look at the evolution of the sepia skin gradation that characterizes humans today.

It wasn't once, not twice, maybe three times that it evolved to pale skin.

Evolution not only occurred in modern humans, but also in a distant, less related ancestor, the Neanderthals.

This is a remarkable testament to the power of evolution.

Humans have been on the move for a long time

And over the last 5,000 years, their numbers and distances traveled have continued to increase.

This great spontaneous migration of people has happened in the last 5,000 years.

Look at the major latitudinal migrations: People are moving from high UV areas to low UV areas, and vice versa.

Not all of these are voluntary movements.

Between 1520 and 1867, more than 12 million people crossed the Atlantic from high UV regions to low UV regions in the slave trade.

This has led to many of today's social problems.

And it also caused adverse health effects for people.

But humans have always moved

must have the wisdom to overcome biological obstacles.

Yes, but we tend to forget the fact that we live in an environment that our skin is not well adapted to.

Some people have light skin and live in areas with strong UV rays.

Some people have darker skin and live in areas with less UV light.

These have a significant impact on health.

If your skin is less pigmented, you have to be careful about skin cancer from the sun and the destruction of folic acid in your body.

Epidemiologists and doctors have often told people about skin protection.

The problem they haven't really communicated to the public is when people with pigmented skin are in high latitudes or indoors all the time.

This problem is very serious and very bad, and vitamin D deficiency due to lack of UVB is the number one problem.

A lack of vitamin D creeps up on people and causes many health problems.It affects the bones, undermines the immune system, weakens the immune system and possibly causes mood and mental health problems.

The wonderful product of our evolution, the color of our skin, continues to influence us today.

The impact on society is very serious.

We live in a world where light-skinned people and dark-skinned people live next to each other, but in many cases, inequitable social forces initially brought them closer together.

So how do we overcome this?

Where do we begin to understand?

evolution is key

200 years after Darwin's birth, America has its first president with moderately pigmented skin.

(Applause) That's great.

(Applause) He's a great guy for many reasons.

How would you compare his skin color to the rest of the world?

As an urbanite with a complex background, he epitomizes diverse bloodlines and diverse skin tones.

And it shares a very close resemblance to the moderately pigmented people of Africa and Southeast Asia.

They tend to tan when exposed to sunlight and develop pigment in their skin.

If they have a desk job like, say, the president, they're at risk of developing a vitamin D deficiency.

I hope he stays healthy and I hope he realizes the amount of pigment in his skin.

Now, what's amazing about the evolution of human skin color, how skin color works, is that it's evidence of evolution by natural selection, and that's what's actually happening, right there in your body.

If you ask me, "What is the evidence for evolution?"

You don't have to come up with great examples or fossils.

look at your skin

I'm sure Darwin would agree with this, even though he avoided the importance of climate in the evolution of pigment abundance all his life.

If Darwin could know the evidence we know today,

would understand and accept

first and foremost he would have chanted

spread this idea

actually touch

I can understand

Let's spread it outside this venue

Embrace and celebrate your skin color

Expand your knowledge

A piece of our species' evolutionary history is engraved on your skin.

Let's understand, appreciate and praise

Isn't it great? Isn't it lovely?

you are the product of evolution

thank you

(applause)

It's my great pleasure to speak to you here, away from the quiet congressional and political arena... this is a picture of Kim, a nine-year-old Vietnamese girl, her back torn from napalm, and she awakened America's conscience and ended the Vietnam War.

This is an Ethiopian girl, Barhan, who founded Live Aid in the 1980s.

It's Tiananmen Square

A photograph of a man standing in front of a tank has become a symbol of resistance around the world.

Next is a girl from Sudan, seconds before she dies, with vultures roaming behind her.

This is Neda, the girl who was shot during the Iranian protests, just a few weeks ago, right in the center of the attention of the YouTube generation.

What do these photos and incidents have in common?

What made us see what we can't see

What we have come to see is the invisible bond of empathy that forms the human community.

These photographs reflect feeling the pain of others, no matter how far away...

What I see in these pictures is believing in something bigger than ourselves.

These photographs reflect a morality that transcends religions, faiths, transcontinents, that not only do we share the pain of others, we believe in something greater than our own existence, but we have a duty to act.

Swedish Prime Minister Olof Palme went to see Ronald Reagan in the 1980s.

Before Palme's arrival, Reagan asked, Palme was a Social Democratic prime minister... "Is he a communist?"

"No, Mr. President, he's anti-communist," was the answer...

Reagan said, "It doesn't matter what kind of Communist Party you are!"

(Audience laughter) Reagan asked Palme, the Prime Minister of Sweden's Social Democratic Party, "What do you believe? Do you want to expel the rich?"

Palme said, "No, I want to banish poverty."

We must give everyone a chance, a chance to reach their full potential...

I believe in morality and global ethics, a reminder to all religions of all faiths and even non-religious people.

But there's something different. We now have the ability to have instant conversations across borders, anywhere in the world...

Now I can find common ground with people who I haven't met in person, but who I've met through the Internet or through other means of communication... I can even organize -- people come together to deal with issues and injustices that have to be dealt with... I think it's a unique time in the history of mankind.

200 years ago, the slave trade was opposed by William Wilberforce and others.

campaigned across the UK

won public opinion over the years

But it took 24 years to win the election.

What would you have done if you were shown a photograph in those days - with modern means of communication you can win hearts and minds...

Or look at Igrantine Jebb, who started Save the Children 90 years ago.

She was appalled by what was happening in Austria after the First World War, especially what was happening to children, so she started working in England.

But I think we could have done more. If we had modern communication, we should have taken immediate action on the misconduct that people saw.

Let's see what happened in the last 10 years

Estrada, President of the Philippines in 2001... millions of people have texted about the corruption of the current government, which has finally ousted him.

A cell phone camera could capture what was happening at the polling station, so the prime minister couldn't manipulate the election results to his liking.

A Burmese monk blogs about a country where no one knew what was going on there. Until the blog said there was a crackdown... People were being killed and persecuted. The voice of the world's greatest prisoner of conscience, Aung San Suu Kyi, has reached the world.

It's the same thing that's happening in Iran right now. After Neda was killed, those who tried to escape from the Iranian security forces posted blogs abroad, changed their addresses to Tehran, and confused the security forces.

Modern technology allows us to combine the power of our morality with the power of communication and the power of international organization.

For the first time, we, as a community, have the power to change the world.

Foreign policy is never the same again. It can't be moved by the elite. We have to listen to the people who blog, and the people who communicate with the rest of the world.

Our challenge 200 years ago was slavery

150 years ago, the problem in a country like ours was getting young people, children's rights to an education.

By 100, most European countries will have voting rights under pressure

50 years ago it was pressure on social security and welfare

In the last 50-60 years, we've seen fascism, Judaism, racism, apartheid, discrimination based on gender and sexual orientation, all under pressure from people's efforts to change the world.

When Nelson Mandela came to London a year ago

I went to a concert to celebrate his birthday and the creation of a new foundation.

I was sitting next to Mandela - by privilege - and Amy Winehouse came up on stage, and Mandela was astonished at what she looked like, and I rushed to explain who she was.

Amy said, "Nelson Mandela and I have something in common.

My husband was in prison for a long time, too."

(Audience laughs) Nelson Mandela came down on stage and summarized the challenge for all of us.

All his life he climbed the big mountains, the challenges, the fight against racial persecution, the fight against apartheid...

They say there are bigger challenges ahead: the challenge of poverty, the challenge of climate change, the challenge that requires global solutions, which requires a truly global society.

we will be the first generation

Let's combine the power of global ethics, the power of communication, the power of organizing globally against the challenges we face, which are global challenges by nature.

Climate change cannot be solved by one country, it must be solved by the world together.

We can't solve the economic crisis we're facing right now, and neither the United States nor Europe can solve it alone...the world must work together.

It's the same with security and terrorism, and it's the same with human rights and development... Africa can't solve it alone, America and Europe can't solve it alone.

We can't solve it unless we work together.

The greatest project of our generation, for the first time, is to build a truly global society out of global ethics and the power to communicate and organize, and not just ethics, but with organizations that serve that global society and build a better future.

We were the first humans to obtain that power.

Look at climate change. Clearly there is a problem. We know there is a problem with climate change. We also know that we have to give more resources to the poorest countries.

What we need to get out of Copenhagen in the coming months is an agreement that we need a global environmental organization, where we have to deal with the problem of convincing the whole world.

(audience applause) The reason one organization isn't enough is because we have to persuade people all over the world. And we have to change people's attitudes.

Look at the financial crisis

If poor countries are affected by the crisis that started in New York, the crisis that started in the subprime market in the United States.

If subprime products cross borders multiple times and affect Icelandic banks, British banks, people's savings accounts, we can't rely on a state-controlled system.

Long-term stability, economic growth, jobs, and financial stability also require a global economy that recognizes that sustainable growth must be shared, and built on the principle that global prosperity is indivisible...

Another challenge of our generation is to create a global organization that reflects the idea of ​​fairness and responsibility, not based on the financial developments of the last few years...

Now let's look at development and partnerships between nations, with the rest of the world, with the poorest nations.

There is no mechanism for effective collaboration for the future. Nevertheless, it is possible if people have global ethics and aspirations for a global society.

I recently spoke with the president of Sierra Leone

In a country of 6.5 million people, there are only 80 doctors, 200 nurses and 120 midwives.

You can't build a healthcare system with such limited resources.

What about the girl I met in Tanzania, whose name is Miriam?

When I was 11, both my parents died of AIDS, first my mother, then my father.

I'm an AIDS orphan.

She, too, suffers from HIV, and tuberculosis.

When I met her in the fields, she was dressed in rags and had no shoes on.

When I looked into her eyes -- usually 11-year-old girls are hopeful for the future -- there was an endless sadness in her eyes, and if I had told the world about her sadness at that moment, I think I could have raised enough money for the global AIDS relief fund.

We have to build the right relationship between the richest and the poorest countries, with the desire that the necessary investments in agriculture will transform us from food importers to exporters, to feed ourselves...

Let's look at human rights issues and security issues in countries around the world.

Burma is in chains Zimbabwe is a human rights tragedy In Sudan many people die in wars that could have been avoided...

In the Children's Museum of Rwanda, there's a picture of a 10-year-old boy, mourning the loss of a million people in the Rwandan genocide.

I have a picture of a boy named David

Next to the photo is written about his life

David, 10 years old

dream of becoming a doctor

Favorite sport is football What did he like?

to make people laugh

how did you die

killed by torture

His last words to his mother, who was also killed: "Don't worry, the United Nations is coming soon."

but we didn't help

The boy believed our promise to help the needy in Rwanda... but we didn't.

The world needs peacekeeping and humanitarian institutions, but it also needs reconstruction and security.In the conflict-ridden countries of the world...

what i wanted to say today

that we have the means to create a truly global society

It is possible to create an organization through our efforts.

Global ethics can infuse the fairness and responsibility that organizations need to function. We shouldn't miss this generation's chance, especially in the last decade, when America has President Obama and others around the world working together for the environment, for finance, for security and development... to understand our responsibility to others, our desire to bring the world together, and our need to address undisputed problems...

In ancient Rome, when Cicero spoke to an audience, they turned to each other and said, "Great speech."

On the other hand, in ancient Greece, when Demosthenes spoke to an audience, instead of facing each other and saying, "That's a great speech."

He said, "Let's go ahead"

We should also move forward into a global society.

thank you

(audience applause)

A couple living in a hut on the outskirts of the forest that was about to collapse at any moment was in great trouble.

A thirteenth child had just been born, and the family was running out of food and money.

The father walked through the woods to figure out what was going on.

After hours of wandering through the trees, I came across two dark figures.

The first one seemed like a god, the other one seemed like a devil.

Both offered the man that they would be godfathers to their youngest child and make their lives easier.

The man refused. I could not entrust my child to someone who would judge a person's life.

I went deeper through the tangled bushes

In the darkest part of the forest, the man came across a third figure.

The sunken eyes of the lean face have a distorted smile.

It's the god of death and offers to be godfather

He promised to come back when the child was an adult and bring him happiness and prosperity.

Knowing that everyone was equal in the eyes of Death, the father accepted the offer.

As time passed, the child grew into an ambitious young man, and the skeletal godfather appeared as promised.

In that gnarled hand held a vial of medicine for all ailments.

Death brought to his godson a potion that promised him success as a doctor.

But there were strict rules for using that powerful drug.

When the godson examines the sick, and death hovers over his head, a puff of the antidote's fragrance can cure him.

But if Death is sitting at the foot of the bed, there's nothing a doctor can do because he's already taken the patient's life.

Before long, rumors of the doctor's powerful medicine and mysterious intuition spread throughout the country.

With wealth and fame, the doctor escaped the hardships of his childhood.

When the king fell ill, this famous doctor was called in for treatment.

The doctor rushed to the palace to show his skill,

When I entered the King's room, I was disappointed to see Death sitting at the foot of the bed.

The doctor was so willing to deceive his godfather that he wanted the glory of saving the king's life.

The doctor quickly turned the bed around, reversed the position of the reaper, and applied the antidote.

Death is enraged

I warned my arrogant godson that if he cheated again, he would pay with his life.

Death and the Doctor continued their journey

Time passed, and the king's messenger came again, fetching the doctor.

The princess was very ill, and the king promised a great fortune to anyone who could cure her.

The doctor went to the princess, his eyes glistening with greed,

At one glance at the sleeping princess, my greed disappeared

The doctor was so struck by the grace of the princess that he didn't even realize Death was at his feet.

The doctor quickly cured the princess, but before she had time to thank her, Death took away her lovestruck godson.

I thought the palace was gone

The doctor was in a huge cavern lined with flickering candles that represented the length of life.

As punishment for his godson's foolish act of changing the laws of death, Death shortened his candle until it was just the wick.

Seeing the fire of his own life dwindling, The fear-stricken doctor, who has often seen his patients' eyes,

I begged Death to move my dying flame to a new candle.

The godfather thought about the request, but the doctor's betrayal was too great.

As I loosened my bony fingers, my godmother's candle fell to the floor.

Grim Reaper remained motionless and stared at the crackling flames with an illegible look until the doctor's life vanished in a puff of smoke.

For me, these career pessimism often happen on Sunday evenings, just as the sun is about to set, and tears wet my pillow as I mourn the painful gap between who I want to be and what I actually am.

I say this because I don't think it's just about me. You may think I'm wrong, but we live in a time when career junctures define life.

You can live a rich life easier than ever before

It's harder than ever to stay calm and free from career anxiety.

I'd like to think about why you might be worried about your career.

Why do I become a victim of career pessimism and wet my pillow with tears?

One of the reasons for our suffering is that we are surrounded by snobs.

Well, there's bad news for people coming to Oxford from abroad.

And that's where the real problem with snobbery comes from, people from foreign countries often

I think snobbery is a phenomenon peculiar to England, with its fixation on country mansions and titles.

that's wrong

The snob mentality is a global phenomenon, we are a global organization and this is a global phenomenon.

What is vulgarity?

It's someone who takes only a part of you and sees it as if it's all of you

that's the vulgar spirit

The snobbishism that dominates today is boasting about history.

You go to a party and within a minute you're asked the most iconic question of the 21st century, "What do you do?"

Depending on how you answer that question, the other person will either be overjoyed to see you, or look at the clock and make excuses.

(Laughter) The opposite of snob is mother.

(Laughter) I'm not talking about your mother or my mother, I'm talking about the ideal mother who doesn't care about your accomplishments.

But unfortunately, most people aren't our mothers.

Most people develop a strict interrelationship between "time" and common non-romantic "love" and "respect", and devote only a carefully defined amount of time to the other's social class position.

So we care about our backgrounds, and we care about the materials around us.

We live in a very material age, and they say we're greedy.

i don't think so

I think we live in a society where material possession is tied to some sort of emotional reward.

We want rewards, not material things.

This offers a new way of looking at luxury goods.

So if you see someone in a Ferrari, don't think, "He's greedy," but think, "He's so vulnerable and so hungry for love."

In other words -- (laughs)

Please show sympathy, not contempt

There are other reasons -- (Laughter) there are other reasons why it's harder than ever to calm down.

Paradoxically, one has to do with our expectations of our careers.

Expectations of what humanity can accomplish in its lifetime have never been higher.

I was told that anyone can do anything

I'm in a system where the caste system is gone and you can climb as high as you want.

this is a great idea

Equality spirit that we are basically equal:

There are no rigidly defined ranks.

There's a big problem here, and that's envy.

Jealousy It's taboo to talk about envy, but if there's one emotion that dominates modern society, it's envy.

And that leads to equality, let me explain.

I don't think anyone here or watching this would be jealous of the Queen of England.

She's very rich and lives in a very big house, and we don't envy her because she's so different.

she's so special

No empathy, she speaks strangely and is from a strange place.

We can't find a connection with her, we can't find a connection, so there's no envy.

The closer two people are in terms of age, situation, and surroundings, the more likely they are to envy you. That's why you shouldn't go to school reunions, because there's no better reference point than your classmates.

The problem with modern society is turning the whole world into a school.

Everyone wears jeans and it's the same

not really the same

It's a mix of equanimity and deep inequality, and it's a very stressful situation.

It would be as impossible for you to be as rich and famous as Bill Gates today as it was for you to inherit the ranks of the French upper class in the 17th century.

The point is, do you care?

The magazines and the press make me feel like if I had the energy, the technology, and a few good ideas, I could start something big in my garage.

(Laughter) This makes us feel like we're in a bookstore.

Sometimes I go to a big bookstore and look at the self-help section, and when I analyze the self-help books that are being published around the world, they basically fall into two categories.

The first is "You can do it! Nothing is impossible!"

And the other type is how to deal with "people with low self-esteem" at best, and "people who think they are the worst" at worst.

There is a correlation between a society that encourages you to do anything and low self-esteem.

This is an example of something positive having a terrible reaction.

There are other reasons why we care more about careers and status than ever before.

This is also associated with positive

it is called a meritocracy

Politicians on the right and left and everyone agrees that meritocracy is great and that we should build a truly meritocracy.

What is a merit society?

A society of merit is a society where if you have talent, energy and skill, you can rise to the top without any obstacles.

great idea the problem is

If you believe in a society where the powerful rise to the top, you are implicitly believing in a society where the incompetent stays at the bottom and cannot climb up.

You could say that this position in life was not achieved by chance, but by force.

That's why failure is so painful.

In medieval England, the poor were called the "unfortunate", literally those who had less luck.

Today, especially in the United States, people at the bottom of society are called "losers."

There's a big difference between unhappiness and loser, and this is 400 years of social evolution and life's responsibility driven evolution.

It is no longer God, but ourselves.

It's exhilarating when it's going well, but painful when it's not.

Sociologists such as Emile Durkheim have analyzed that, at worst, the rate of suicide will increase.

Individualistic countries in the developed world have more suicides than the rest of the world.

The reason is that people take full responsibility for what happened. They are responsible for their successes, and they are responsible for their failures.

Is there a way to escape from these pressures?

I think there is. Let me introduce myself.

Taking up meritocracy

The idea of ​​going where everyone else ends up is a silly idea.

Regardless of whether politicians are right or left, if you propose an idea that is half as good as this meritocracy, I will support it.

Building a purely meritocracy society is a ridiculous idea, an impossible dream.

It is impossible to build a society where everyone is evaluated fairly and the good ones are above and the bad ones are below.

There are just too many random factors: accidents, birth accidents, falling objects on your head, illness, etc.

You can't judge them, you can't judge people fairly.

There is an amusing quote from Saint Augustine in The Kingdom of God, where he says, "It is a sin to judge a man by his rank."

In modern English, it's a sin to judge who you talk to by your business card.

I don't care about my position

According to St. Augustine, only God knows who will be where, God will decide it on the Day of Judgment.

It's a ridiculous idea for a secularist like me.

Still, there's something very valuable about that idea.

Wait a minute before judging people.

You don't need to know someone's true worth

That's the unknown part, so we shouldn't pretend we know it.

There are other sources of healing that comfort these

When we think about failing in life, or failure, we fear not just the loss of income or status.

We fear the judgment and ridicule of others.

Now, the greatest machine of ridicule today is the newspaper.

No matter what day of the week you open the newspaper, it's full of people who have ruined their lives.

Had an affair with a bad person Got a bad drug Passed a bad bill No matter what it was It deserves ridicule

In other words, they failed, so they're "losers."

Now, is there any alternative to this?

Western civilization offers us a wonderful alternative, it's a tragedy.

Developed in the 5th century BC in the ancient Greek theater, tragic art is essentially an art form that avidly explores how people fail, and the compassion that goes with it doesn't come with ordinary life.

A few years ago, I went to see the desk of the "Sunday Sports" newspaper on this subject -- I don't recommend reading it in the tabloids --

I spoke with them about a tragedy in Western art.

I wanted to see at the news desk on a Sunday afternoon how they would frame the stories that would make the news.

I told them about Othello, and they didn't know the story, but they were very amused.

(Laughter) I asked him to write the headline for the story of Othello.

They "murdered the daughter of a love-mad immigrant senator."

I wrote the headline

When I give you the synopsis of Madame Bovary

they read into it with ecstasy

"Shopaholic adulteress drinks arsenic in debt hell"

(Laughter) My favorite -- they're kind of geniuses -- my favorite is Sophocles' "Oedipus the King," "Blinded by Sex with Mama."

(Laughter) (Applause) On one side of the spectrum of compassion is the tabloids.

And on the other side, there's tragedy and tragic art.

I think we should learn what's going on in tragic art.

Calling Hamlet a loser is misguided

he's not a loser he's lost himself

This is a tragic message to us, and it's very important.

In modern society, the cause of anxiety is that non-humans are not at the center of it.

We are the first in the world to live in a society that worships no one but itself.

We think very highly of ourselves, we deserve it, we put people on the moon, we've done a lot of great things.

That's why we tend to worship ourselves. Our heroes are humans.

this is a very new situation

In most other societies, at the center of it all, there was a preeminent object of worship: gods, spirits, forces of nature, the universe, whatever it was, something other than people.

Those habits are disappearing, and that's probably what draws us to nature.

People often say it's for my health, but no, it's for my escape from the human anthill.

to get out of competition and drama

That's why we are delighted to see glaciers and oceans, and to think outside the periphery of the earth.

We like to feel contact with non-humans, and that's very important.

talk about success and failure

What's interesting is that we think we know what success means.

If I tell you about someone who is very successful behind the scenes, you immediately think,

That person must be a celebrity in his field and make a lot of money.

The theory behind my success is -- I'm very interested in success, I really want to be successful, and I'm always thinking, "How can I be more successful?"

But as I've gotten older, I've come to appreciate the nuances of the word success.

Here's my insight on success--you can't succeed in everything

Work-life balance is nonsense

I can't have it all

Any prospect of success consists in acknowledging the existence of the missing element of defeat.

No matter how smart life is, there are elements that do not succeed

Our conception of what a successful life is about living a successful life is hardly our own.

Instilled by others, mainly from the father in men, from the mother in women

Psychiatrists have warned of this for 80 years.

No one takes it too seriously, but I think it's true.

We are also influenced by all the messages in TV advertising, marketing, etc.

These forces are so big and powerful they impose what we want and how we see ourselves.

If bankers were told it was a highly trusted job, more people would want to be bankers.

If the trust of bankers wanes, so does the interest in bankers.

we are very suggestible

I'm not saying you should give up on wanting to be successful, but I think you should be sure that it's for you.

It's about focusing on your own idea and making sure it's your own and that you're the originator of the dream.

It's unfortunate that you don't get what you want, but it's even worse to realize at the end of your journey that what you thought you wanted wasn't really what you wanted.

I'll end here

What I really want to emphasize is success, after all.

But let's embrace the weirdness of our thinking.

Explore your beliefs about success

Make sure your idea of ​​success is really yours

thank you

(Applause) Chris Anderson: It was very funny.

But how do you reconcile this idea that it's bad for someone to think of someone else as a loser, and that many people want to control other people's lives, and a society that encourages the existence of winners and losers?

Alan Botton: It's the randomness of the process of winning and losing. Today the emphasis is on justifying everything. Politicians always try to justify.

I'm a firm believer in legitimacy, but I don't think this is possible.

We should continue to do all that we can and continue to do all that we can.

I'd like to leave room for discussion from here on out, otherwise you might get claustrophobic.

Chris Anderson: But do you think that kind, gentle work philosophy is compatible with economic success?

Or is it impossible? Isn't it so important that we still focus on it? Alan Botton: Terrorizing People

It's a nightmare when it comes to getting a high labor force, and it can also motivate many people under even more dire circumstances.

What would an ideal father look like?

That would be a tough and gentle father image

it's difficult

Our society needs, as before, a model father figure, one that is authoritarian and strict, and one that is loose and has no rules and no rules, and a father figure that isn't polarizing.

Chris Anderson: Alain de Botton

Thank you

(applause)

I'm Goran Levin

I'm an artist and an engineer.

Even so, I feel like I'm in a strange place where everyone doesn't understand me

i found a funny picture

Here's a letter from Art Forum magazine in 1967: "I find it hard to think of a special issue on electronics and computers in art."

So are all of you successful people in the computer age more open-minded? I was browsing the iPhone App store the other day

Where is the "art"? There are categories such as "work efficiency" and "sports"

The artwork for the iPhone is something that my friend and I are trying to do right now, but it's not the kind of thing we can think of for computers.

Neither of them understands what it means to be an artist who uses contemporary materials as materials. I think it's up to artists to explore the expressive possibilities of this new tool.

I'm an artist myself, and I'm interested in -- broadening the expressiveness of human behavior and making it more expressive in a conversational way.

I want people to discover themselves as creative agents through interactive experiences.

A lot of my work is an attempt to escape the mouse.

This is a picture of a student's desktop

And when I say desktop, I don't just mean the actual desk with the mouse scratching off the surface.

If you look carefully, you can even see where the Apple menu is, where the virtual world cuts through to the physical world.

As Joy Mountford said, "The mouse is the thinnest straw you can try to suck out all the expressions of humanity."

(Laughter) What I'm really trying to do is give people a richer, more interactive experience.

How can we move away from the mouse and use our whole body to pursue aesthetic experiences, not just utilitarian ones?

That's why I write software, that's how I do it

Some of the experiences I create are reminiscent of mirrors.

Because the mirror is the first place we see our potential as agents and our work.

"Who is this person in the mirror? Ah, this is me!"

As an example, I'm going to show you a project I did last year, called "Gap Fragment Processor."

We want them to explore the shape of the crevices that are created in their daily activities.

When you make a shape with your hands or your head, or with someone else, that shape slips out and falls with a noise, transforming an invisible or unaware space into something tangible. People enjoy it and get creative.

That's how you discover your own creative work

And that person's personality manifests itself in a completely unique way.

In addition to using the whole body for input, what I've been exploring for some time now is using the voice, which is a very expressive system for us.

Singing is the oldest way to make yourself heard and understood.

I came across a wonderful 1927 study by Wolfgang Köhler, the father of Gestalt psychology, showing people two forms, like the one here.

One in Maluma

The other says Takete

Which is which? Anyone know?

Maluma is above

Most people would answer yes without hesitation

What we're seeing here is a phenomenon called sound symbolism, a form of synesthesia that we all have.

When Dr. Oliver Sacks said that synesthesia is about one in a million people, it's people who hear colors and taste shapes. Sound symbolism is something that all of us experience to some degree.

It's the correspondence between different perceptual domains between hardness, sharpness, brightness, darkness, and the phonemes we make.

There's been 70 years of research by cognitive psychologists, and we know to some extent that shapes like the one on the right are strongly associated with L, M, and B. Shapes on the left are more strongly associated with P, T, and K.

Then, by numerical processing, we get a map from line inflections to phonemes.

So I came up with the idea of ​​inverting that image.

And so the Remark project was born, a collaboration between Zachary Liebermann and Ars Electronica Futurelab.

It's an interactive work that creates the fiction that spoken words cast visible shadows.

as if in a magical light

When I speak, the shadow of my words

fly away from your mouth

In a speech recognition system -- if it can recognize it, the letter will appear, if it doesn't --

Forms that are strongly associated with sound symbolism are generated

Watch the video

(Applause) My next project was with this amazing abstract vocalist, Yap Bronk.

He's the world's leading expert in the performance of "Ursonata," which is a nonsensical poem written in the 1920s by Kurt Schwitters.

Performance is nearly impossible

Yap is the first person when it comes to this performance.

In this project we developed intelligent real-time subtitling.

This subtitle memorizes Ursonata's text -- it's generated live by a computer, and fortunately Yap knows this text very well, and the computer produces the subtitles as Yap speaks.

All of the text you see is computer generated in real time, visualizing Yap as he speaks.

There was a screen behind Yap at the venue that projected the subtitles

So...

(Applause) You can find it online if you're interested.

Audiences were divided on this one. Some people understand that live subtitles are kind of a paradox, because subtitles are usually something someone puts in later.

Many people think, "What is this?"

"Subtitles are always on TV"

I'm not thinking of people typing it in the booth

In addition to using the whole body and using the voice, another thing I've been interested in lately is how people use their eyes to relate to each other.

The amount of nonverbal information exchanged with the eyes is staggering.

And this is also one of the hottest problems being explored in computer science right now, the problem of using a camera from a distance to recognize where people's eyes are looking, what they're interested in, where they're paying attention.

A lot of emotional communication is done through the eyes.

We've done a lot of different projects to understand how humans can relate to machines with their eyes.

So basically the question they're asking is, "What if the work knew what we were looking at?"

How do we react? Do we accept or reject what we see?

What if it could look back at us?

That became the challenge for the next project.

The first thing I'm going to show you is an interactive piece of software called Eyecode. It's a circle of letters that says, "I'm seeing the imprint left by what the previous person saw. I'm looking at the imprint left by what the previous person saw."

The idea is to create the image itself based on the history of the person who has seen the exhibit.

View live demo

let's see if it works

It looks bright and well

This small one is a test screen

keep it hidden

What I'm doing here is recording every time I blink.

Hello?

No matter where I am, this is an eye-tracking mechanism that locates my eyes.

If you leave it too far, it feels like a blur

This area is barely recognizable as an eye

If you get really close and look directly at the camera, you'll see these sharp eyes.

This can be viewed as typing by eye

And I'm typing and recording my own eyes looking into other people's eyes.

You will see the eyes of everyone who came before you.

There's a much larger version of this that shows the eyes that thousands of people are looking at, looking at people they've seen before -- people.

Let's add just two more Pachikuri Pachikuri

You can see how it's trying to find my eyes and capture the moment I blink.

let's finish this

It's a sort of recursive observation system.

(Applause) Hi

The last two are new -- at least to me -- new territory in robotics.

It's called an Opto-Isolator

Here's an older version of the video, it's about a minute long.

This blinks in response to human blinks.

Blink 1 second after the person in front of you

It's a device that aims to make looking as simple as possible.

There's just one staring eye, and all the other elements of the face have been removed so that we can think of the gaze as an independent -- one element.

At the same time, the familiar psychological and social behaviors involved in looking

I try to take it in. For example, if you stare at me all the time, you'll be shy and look away.

The last project to show you is Snout

(Laughter) It's a two-and-a-half-meter-long projection with googly eyes.

(Laughter) There's a 360-kilogram robotic arm inside... I borrowed it... (Laughter) From a friend...

(Laughter) Good friends help.

We're at Carnegie Mellon University, and they have a great robotics department.

So Snout... the idea of ​​this project is to make a robot that looks at you and is surprised.

(Laughter) Basically all the time — I'm like, 'Oh, oh, oh?'

This is the reason for the nickname "Futami-kun"

I'm surprised after a moment's delay, "What?"

And because you look at me, you think, "What? My shoes?

"Is there something on your head?"

I'm looking into him

A behind-the-scenes look for all you geeks out there

It's equipped with a computer vision system that looks at people in motion.

that is the target

The skeleton on the right shows what Snout is trying to do.

What I want to do is create the body language of new creatures.

That's what Hollywood does all the time.

Not only that, but you're interacting with the people watching -- with their body language.

This body language is telling you that they're looking at you with surprise and interest.

(Laughter) (Applause) Thank you for listening.

Thank you very much.

(applause)

This year is 2009

200th anniversary of Charles Darwin's birth

Prominent evolutionists around the world look forward to this celebration.

They're trying to tell you about Darwin and nearly every aspect of his life, and to enlighten us about how he changed the way we think.

I say nearly every aspect because they don't take one aspect of this story.

They want to avoid that aspect and talk about other things.

so i speak

The question is, why are humans so different from chimpanzees?

Geneticists say that humans and chimpanzees are very closely related, with few genetic differences.

But when you look at the phenotype, chimpanzees and humans are surprisingly different, they don't look alike at all.

Culture, psychology, behavior, I'm not talking about unrealistic things.

I'm talking about the fact of comparable physical differences.

This one is hairy and walks on all fours

That one has no hair and walks on two legs

I wonder why? (audience laughter) As a staunch Darwinist, there must be a good reason.

Something must have happened for humans to undergo such a transformation

what happened?

50 years ago this

everyone knows the answer

It was a stupidly simple problem

Ape ancestors remained in the trees, human ancestors went to the plains

this said it all

Humans stood up to peek in the grass, chase animals, and secure a hand to hold a weapon.

When I hunted, my body temperature got so high that I had to shed my fur.

It's something everyone has known for generations.

But in the '90s, something began to unravel.

Paleontologists look at tiny animals that lived at the same time and place as hominids

It wasn't a savannah seed

And then when I looked at herbivores, they weren't savanna herbivores.

Paleontologists have found a way to analyze sensitive, fossilized pollen.

Surprisingly

Fossilized pollen was not native to the savannah.

It also contained pollen from vines that grow in the jungle.

This means that our most distant ancestors roamed trees on two legs before savannah ecosystems existed.

this is not my story

not a minority theory

everyone agrees

Professor Tobias came from South Africa to speak at University College London.

He told me that what he said over the last 20 years was wrong, so forget it.

When I said I had to go back to the drawing board and start over

His reputation plummeted, no one wanted to go back to square one.

I don't like that

Wonderful that has been believed for generations

It was the methodology

no one doubted

I thought it was as solid as a rock with unreal things piled on top of it

it was suddenly covered

What do scientists do then?

We know the answer, because Thomas Kuhn wrote a seminal paper on this in 1962.

Kuhn said that scientists act like nothing happened when their methodology is shattered.

(Audience: laughter) You can't ask questions without a methodology.

"You're wrong, but if you were right..." That's what they say

(audience laughter) The only option left for them is to stop asking questions.

so they did

No wonder I stopped talking about past questions

There are also some who have made it into a law

that's what we should do

Harvard's Aron Filler said, "Let's stop discussing selective pressure.

Why don't we talk about chromosomes and genes

And just record what you see.”

If Darwin found out, he would be furious!

he knew all that kind of science

He called it science without hypotheses

I hated it from the bottom of my heart

Stopping talking about selection pressure is like throwing "Origin of Species" out the window, because it's all about selection pressure.

The irony is that the methodology collapsed without a new methodology emerging.

What has been waiting since 1960

There was one marine biologist, Alister Hardy, who said, "Maybe our ancestors lived in water for a period of time."

For 30 years he did not reveal

The media got the information and there was an uproar.

His buddy said, "That's ridiculous

Do you want to be fooled by ordinary people?

Never do that again! ”

At the time, I was convinced that the aqua theory should be thrown out with UFOs and yetis, because it was a scientific fanatic minority.

I disagree with Hardy

I think there are many things that make me nod

I'd like to talk a little bit about what's called the human proof that humans have become different from our relatives and everything else.

Look at our hairless skin

It is clear that all hairless creatures and hairless mammals are aquatic animals: dugongs, walruses, dolphins, hippos, manatees.

And it also includes some species of mud animals like babirusa.

Isn't that why humans aren't covered with hair?

When I suggested that, everyone said

“No no! Look at the elephant

You forgot about the elephant, didn't you?"

In 1982, I said that the elephant's ancestor might have been an aquatic animal.

I was laughed at

"That woman is doing something wrong, she's starting to say weird things"

But it's now accepted that the elephant's ancestor was an aquatic animal.

The ancestors of hairless pachyderms are believed to be aquatic animals.

The last exception was supposed to be a rhinoceros

Last year, an extinct ancestor of a rhinoceros was found in Florida and was announced to have spent most of its time in water.

So this shows a strong relationship between hairlessness and water.

Works only unilaterally as an absolute relationship

Not all aquatic animals are hairless, as you can see from sea otters.

But every animal that has lost its fur, either in its entire life, or in the life of its ancestors, has had an absolute need for water to survive, and I think that's important.

The only exception is the naked mole rat, an animal that never sticks its trunk out above the ground.

how about walking on two legs

You can't find a comparable animal here, because humans are the only animals that walk upright on two legs.

But I would say that any ape or monkey, if they want to walk on two legs, has the ability to walk for short periods of time.

The only situation where they're always bipedal is when they're wading through water.

do you think this is important?

David Attenborough thinks it's important, as a possible beginning of human bipedalism.

look at the fat layer

All of us have a layer of fat under our skin that no other primate has.

What is the reason?

If you look at other aquatic mammals, most land-dwelling mammals that have fat in their body walls, such as the kidneys and small intestine, have fat that migrates outside their body walls and spreads into their skin.

The whale is all over, no fat inside, all outside.

I can't help but suspect that it's starting to happen to us as well.

Our skin runs along that layer of fat.

It's the only explanation for why humans are sometimes so grossly obese, which is physically impossible for other primates.

Oddly enough, this has never been explained.

Next is about the power of human speech.

we can talk

Gorillas can't talk, why?

It's not about your teeth or your tongue or your lungs, it's about consciously holding your breath.

You can't even train a gorilla to say "ah"

Only diving animals and diving birds can consciously control their breathing.

It was a prerequisite for being able to speak.

Here again, the fact that humans are rationalized comes out

Divers who dive into the water rarely make a splash.

Imagine a gorilla doing the same thing, human beings are half shaped like fish compared to gorillas.

I'd like to say that for 40-odd years, the aqua theory has been misclassified as a minority. The aqua theory is not a stupid minority.

The irony in this is that they aren't avoiding the aqua theory to protect their own theories that they support.

No theory at all

They're avoiding the aqua theory to protect the void.

(Audience: laughter) (Applause) What is their attitude when I say this?

A common response I've heard about 20 times already is, "But it's been investigated.

When Hardy put forward the article, we first conducted a detailed investigation.”

i don't believe

I've been looking for evidence of that sort of thing for 35 years, and I've come to the conclusion that this is an urban legend.

it has never been investigated

I sometimes meet people who say, "I'm an Aquaist.

Everyone likes the aqua theory

Of course they don't believe it, but they like it."

When asked, "Why do you think it's bullshit?"

They were like, “Uh…

Everyone says the Aqua theory is bullshit

Not everyone is wrong, is it? ”

The answer is a resounding “Yes! Everyone could be wrong.”

There are many examples in history where the majority was wrong.

(Applause) Scientific problems like this can't be solved by counting the number of proponents outnumbering opponents.

(audience: laughter) Apart from that, some people's opinions are more valuable than others.

some changed their minds

So does Professor Tobias.

Daniel Dennett too

So does David Attenborough.

aren't you there too?

water feels good

(Applause) Now we have to look to the future.

eventually one out of three will happen

Even if it takes 40, 50, 60 years

"I won't talk about that. Let's talk about something interesting."

that's sad

The second thing that can happen is that someone young and smart will show up and say, 'I've found it.

It wasn't savannah or water, it was this! ”

No sign of that happening

I don't think there is a third option.

The third thing that can happen is a very nice one.

If you look back at the early 20th century, there was a sense of alienation between Mendelians and Darwinians, lots of quarrels and bad feelings.

And that's what became a synthesis, a blend of Darwin's and Mendel's ideas.

same thing will happen here

Another generalization

Hardy's and Darwin's ideas are mixed together.

From there you can move forward and get something.

that would be great

I hope that happens in the near future

(audience laughter) 'Cause I'm older than George Byrne said, 'At my age, I don't even buy green bananas'

(audience: laughter) If this is going to happen, what's stopping us?

i can sum it up

because academia says otherwise

They decided in 1960, "That's akin to UFOs and yetis."

It's hard to convince them

I think that academic journals are ignorant

I don't even touch it in textbooks

The syllabus doesn't even mention the fact that humans don't have hair, let alone why.

Because Horizon magazine, which is emulating academia, hates it.

So the only time we hear about this is when we're talking about a minority of crazy people.

I don't know where that imperative is coming from.

Somewhere out there, someone must be spreading the teachings, "Don't believe the Aqua theory."

If you want to be promoted in this position, but if you're an aquaist, don't say it out loud because it will get in the way.

I get the impression that some people in the scientific community have turned it into a kind of priesthood.

It makes me feel good, because Richard Dawkins taught me how to deal with the priesthood.

(audience: laughter) He said, "First, you have to refuse to show them the excessive reverence and respect they expect."

I will practice

Then he said, "Never be afraid to make waves"

I will also practice

Thank you very much

(applause)

look at this photo

presents a very interesting "mystery"

These African students are doing their homework under the lights of an airport in the capital, because they have no electricity at home.

I've never met them in person, but I've met other students in the same situation.

One of them... for example, the guy in the green shirt

Let's call him Nelson

Nelson must have a mobile phone

Yes, there is a "mystery" here.

Why is cutting-edge technology available to Nelson, like cell phones, but not home lighting, a technology that is 100 years old?

The short answer is "rules"

Bad rules can get in the way of win-win solutions... even when new technologies can be introduced and made available to Nelson and others to provide win-win solutions.

So what kind of rule is that?

The power companies in this country operate under a rule, which requires the power companies to subsidize the price of electricity at a very low price.

So the power companies don't have the money or the incentive to serve more users.

The president wanted to change this rule

He saw it as possible to change to a different rule, where companies would have an incentive to get more users by making a small profit.

It's exactly these rules that cell phone companies operate under, and that's where Nelson buys cell phones.

The president has seen these rules work

So he tried to change the rules on electricity prices, but what awaited him was a storm of protest, from businesses and consumers, who wanted to keep the old, subsidized electricity prices.

The president fell into the rules trap.The rules got in the way of the president trying to help his country with a win-win solution.

As a result, Nelson is still studying under streetlights.

The real challenge here is figuring out how to change the rules.

Is it possible to create rules to change rules?

Here's my take: There is a general abstract idea that we can put into practice -- that is, we can give people more choices, and we can give leaders more choices, although in many countries, leaders are also people.

(Laughter) But it would be useful to show that there is a trade-off between the two.

The options that we want to give our leaders, like giving the president the option to raise the price of electricity, on the one hand, take away the options that people want in the economy.

They're still looking for options to consume power at subsidized prices.

So if you try to give it to one or the other, you're creating tension and friction, but

If we can find a way to give both sides more choice, then we can get out of this tight spot with the rules to change the rules.

By the way, Nelson is also connected to the Internet.

And he says, "If you want to see the damage that rules do to you, if you want to see how people are in the dark because of rules, look at NASA's panorama of the planet at night."

Look especially at Asia

If you zoom in around here, you can see North Korea's border here, which is like a black hole compared to the rest of the world.

It shouldn't surprise you to hear that, but North Korea's rules keep people in the dark.

But it's important to realize that North and South Korea started out with exactly the same set of rules, in terms of laws and regulations, but also in a deeper sense: the same level of knowledge, the same social norms, the same culture, the same values, the same beliefs.

When the two countries were divided, they made choices that resulted in their rules taking very different paths.

So we humans can change the rules, under which we interact, and it can work for the better or for the worse.

Let's look at another region, the Caribbean.

Expand Haiti, this is the border

Haiti is also dark, darker than its neighbor, the Dominican Republic, and both countries have about the same number of inhabitants.

And both of these countries are bleak compared to Puerto Rico, which has half the population of Haiti and the Dominican Republic.

The warning Haiti is ringing us is that government weaknesses can be the reason why the rules are bad.

This is in contrast to North Korea, where the reason for bad rules is an overly authoritarian and repressive government.

So if you want to create an environment with good rules, you can't just destroy it.

In addition, we need to find a way to build

So the example of China really shows both the potential and the challenges of rulemaking.

In the early days of the data presented in this graph, China was the most technologically advanced country in the world.

The Chinese were pioneers in technologies such as iron making, printing, and gunpowder.

But at least at that time, China never adopted effective rules to encourage the diffusion of ideas, not motivated by profit, for example.

And soon they adopted a different set of rules that would have slowed down innovation and would have isolated China from the rest of the world.

As a result, as the rest of the world innovated, whether in terms of developing new technologies or developing new rules, the Chinese people were cut off from these advances.

Income levels in China remained stagnant, while incomes in the rest of the world surged.

The next graph shows more recent data.

Shows how China's average income level has changed as a percentage of the US median income.

You can see that in the 1950s and '60s, it leveled off at about 3%.

But in the late 1970s, something changed.

The Chinese economy began to grow, and the income levels of the Chinese people were rapidly catching up with the United States.

If you go back to the night map, you'll find clues to the puzzle, hints at the process that led to the dramatic change of rules in China.

You can see that the brightest spot in China is right here on the corner of the border: Hong Kong.

Hong Kong was just a tiny corner of China, where for most of the 20th century it operated under very different rules than mainland China, rules that copied the market economy in action at the time, and whose administration was administered by the United Kingdom.

In the 1950s, Hong Kong was a place where millions of people from the mainland migrated to find jobs like sewing shirts and making toys.

But riding the process of rising incomes, riding the process of skill upgrades, has given Hong Kong a very rapid economic growth.

Hong Kong also became a model that leaders like Deng Xiaoping could copy when they decided to move the entire mainland into a market economy model, but in doing so.

What Deng Xiaoping instinctively understood was the importance of giving people choice.

So, rather than forcing all Chinese citizens to make an immediate transition to a market economy model, we started by creating a number of special administrative regions, which in a way, like what Britain did, would offer the opportunity to work under market economy rules for those who wanted it.

So they created four special economic zones around Hong Kong, where the Chinese could go to work, where the city grew very quickly, and where foreign companies could move in and produce goods.

One of the special zones next to Hong Kong is the city of Shenzhen.

There's a Taiwanese company in Shenzhen, and the iPhones that many of you have are made by this company, by Chinese workers who moved to Shenzhen.

And after the four zones, 14 coastal cities were opened up as well, and over time, these regions showed success, and people flooded in willingly, because it was profitable to do so.

As a result of these successes, we have reached a consensus about the policy of moving the entire economy to a market economy model.

The Chinese case illustrates some important points.

The first is to keep people's choices.

Second, it's about operating at a reasonable size.

If you try to change the rules in one village, you can do it, but the village is too small to try to enjoy the same benefits as millions of people working under good rules.

On the other hand, it's too big in the country.

If you try to change the rules in your country, you can't give people the opportunity to assess things while watching the situation, and you can't get some people to try the new rules first.

But cities give us these opportunities, where we can create new places and allow people to participate voluntarily under new rules.

And cities are big enough, big enough for millions of people under good rules to enjoy all the benefits that come from working together.

So what I'd like to propose is a concept called "Special Zone City."

We're going to start with what we're going to do with the basic laws of the special zones, the basic laws that set out all the rules you need to attract the people you need to build a city.

We need investors to get there. We need investors to build infrastructure: power systems, roads, ports, airports, and even buildings.

You also have to attract businesses, and it's the businesses that hire the workers that come there.

We need to attract more households, who will come and settle there, raise their children, educate them, and get them into the workforce.

With such a basic law, people moved there

cities can be formed

Then we can extend this model to other

You can repeat this over and over

I already said that for this to work well, you need "good rules".

This will be incorporated into the "basic law" of the special zone.

The next thing we need is "choice for people."

If there's any possibility of building a city on uninhabited land, that's also part of the model.

Start with "a land where no one lives"

They can come and ask for life under the new Basic Law, but no one will be forced to do so.

The last thing we need is "choices for leaders"

In order to realize these leadership options, we need to allow for the possibility of state-to-state partnerships, and in the case of state-to-state partnerships, the practical result is that China and the United Kingdom have worked together to create a small enclave based on a market economy model, and then expand it across China.

In a way, Britain has unwittingly done more to reduce world poverty through its work in Hong Kong than all the aid programs in the 20th century combined.

So if we take these collaborations and replicate them, we can reap these benefits globally and scale them up.

In some cases, these partnerships will require the transfer of certain administrative powers from one country to another.

Now, when I say that, some of you might be thinking, "Isn't that just going back to colonialism?"

Not at all, but it's important to recognize that it's these kinds of emotions that start to arise when you start thinking about these things that can get in the way, turn you in the back, and shut down your abilities and your curiosity to experiment with new ideas.

Why is it different from colonialism?

The bad thing about colonialism, which remains in some aid programs, is that it includes elements of coercion and condescension.

On the other hand, the model I advocate is all about choice, choice for the leaders of the new land and for the people who live there.

And the choice becomes a defense against "force" and "look down"

Now let me tell you how this all unfolds in practice.

Let's take Cuban Raul Castro as a particular leader.

This is what should happen to Castro: He's got the chance to do in Cuba what Deng Xiaoping did in China, but he doesn't have Hong Kong in Cuba.

But he's got a little brighter spot in the south, where he's been given a very special status.

There's an area around Guantanamo Bay that the United States has administrative control over by a treaty, an area about twice the size of Manhattan.

Castro goes to the Prime Minister of Canada and says, "The United States has a terrible public relations problem.

want to withdraw

Can you please take over to Canada?

create and run special administrative districts

Recognize a new city in that place

allow many people to immigrate

Let's build a second Hong Kong near us

Some people will immigrate there from Cuba.

Some will stay in Cuba, but it will be a gateway for Cuba to the modern economy and the modern world."

Is there anywhere else I can try this model?

Africa, if you talk to the leaders of Africa,

Many of them fully understand that the concept of a special zone is a rule that people participate in voluntarily.

This is a rule to change rules

It's a way of creating new rules, voluntarily letting people participate rather than coercing them, as opposed to coercion through coercion.

What's more, they fully understand that in some cases, it's possible to make more credible commitments to long-term investors. And by investors, I mean investors who come to build ports and roads in new cities.

And then there's the arrangement, which is kind of like an escrow account, where the land is deposited in an escrow account, and the partner country is responsible for the administration there.

In addition, Africa has vast tracts of land on which new cities can be built.

This photo was taken when I flew along the coast

There are plenty of lands like this, lands where hundreds of millions of people can live.

Now let's generalize this idea even further, not just one or two, but a dozen special-zone cities -- groups of cities that will provide a place for hundreds of millions, even billions, of people to migrate over the next hundred years. Will there be enough land for that?

If you look around the world and see the lights at night, you might mistakenly think that most of the world is already developed.

I'll show you why it's wrong

Let's show all the lands like this

Let's represent all the arable land on earth as a rectangle like this.

And let's point the land already occupied to represent the urban areas where three billion people live today.

Let's move the point towards the bottom of this rectangle, and we'll see that the three billion people who live in urban areas now make up just three percent of the arable land on Earth.

So if you were to build another billion cities, that would be about this amount.

It's just going from 3% of arable land to 4%.

By creating more cities for people to migrate, we can dramatically reduce the amount of human-affected land on the planet.

If these cities are governed by good rules, people will be protected from crime, they will be protected from epidemics and unsanitary conditions, and they will have job opportunities.

get basic public infrastructure like electricity

you can educate your children

So what would it take to build the first special district city and then expand it to create more cities?

A manual would be helpful...

(Laughter) What a professor can do is write down the details that should be included in this manual.

No one wants us professors to run cities or go out and do city planning.

No one wants to let a researcher out into the wild... (Laughter) But you can leave us to consider these questions. Raul Castro may not be the only country to sign a treaty with, say, Canada.

Brazil might want to get involved, Spain might want to join, and I'm sure Cuba itself would want a four-state joint venture.

What kind of treaty should we make?

Precedents will be few, but they won't be hard to solve.

How should we raise funds?

In Singapore and Hong Kong, it turned out that the land originally owned by these cities was making huge profits.

We can use this land appreciation to pay for the police, the courts, and so on, as well as the school system and the health care system, which make places to live more attractive and increase the incomes of the people who live there, which in turn increases the value of the land.

So the incentives for those who help build this area and the incentives for those who set the ground rules for it really point in the right direction.

There are many other details, such as

How can we build low-cost buildings that can accommodate people starting out in jobs like building iPhones? On the one hand, energy-efficient buildings are desirable, and they must also be designed to be strong enough to withstand earthquakes and typhoons.

There are many detailed technical considerations, but for those of us who have already begun to pursue these directions, the only obstacle is the lack of imagination, and the lack of imagination is what keeps us from truly global win-win solutions.

Finally, I would like to conclude with this figure.

With so many people living on the planet, the reason we are able to live so abundantly is because of the power of ideas.

Ideas can be taught to others and can be taught by others.

This is not the case with scarcity, where the more you share, the less you get.

The more ideas you share, the more everyone gets.

When we think of ideas in this way, what we usually think of is technology.

But there's another kind of idea, which is the "rule" that governs how we interact. And one of those rules, for example, is the tax system, which supports research universities in making certain knowledge available for free.

Another example is the system of land ownership, where land ownership is registered with a public office, so people can use it as collateral.

If we can continue to innovate in the realm of rules -- especially in the sense of coming up with rules to change rules -- then we can keep making progress without falling into the trap of bad rules, and truly make the world a better place, and people like Nelson and his friends won't have to study under the streetlight anymore. Thank you.

(applause)

Before I start this story, I'd like to give you a little bit of my own background, because let me tell you, it's the older people's opinions about COVID-19 that you shouldn't be listening to right now.

(Laughter) I've been working in global health for 20 years, and my area of ​​expertise is medicine and the health care system, and what we can do when the health care system is severely hit.

I've been a global health journalist, contributed articles to newspapers and web media about global health and bioterrorism safeguards, and a few years ago I wrote a book about the great health threats facing humanity.

The epidemiological efforts I've supported and led have ranged from evaluating Ebola treatment centers, to analyzing tuberculosis transmission in health facilities, to responding to avian influenza.

I have a master's degree in international health

I am neither a doctor nor a nurse

My specialty is not patient or individual care.

It's about looking at the relationship between the public and the medical/health system, and what happens when there's a major disease outbreak.

If you rate medical information in terms of global health expertise on a scale of 1 to 10, and someone anonymous's Facebook post is a 1, and information from the World Health Organization is a 10, then consider what I say on the scale of a 7 or 8.

With that in mind, please listen to me

I'll start with the basics, because I feel like they're lost because of the poor quality media coverage of COVID-19.

COVID-19 is the coronavirus

A coronavirus is a specific subspecies of a virus that has some unusual characteristics among viruses.

It's a virus that uses RNA instead of DNA as its genetic material, and the surface of the virus is covered with protrusions.

used to invade cells

This crown-like projection is the reason why it is called "corona".

COVID-19 is known as the novel coronavirus, but that's because until December 2019, there were only six known coronaviruses.

Because COVID-19 is the seventh type

new discovery

With a new genome structure, it's just got a new name.

That's why it's "new"

Remember SARS (Severe Acute Respiratory Syndrome) and MERS (Middle East Respiratory Syndrome), both of which are types of coronaviruses.

Both are called respiratory syndromes because that's what coronaviruses are all about: they attack the lungs.

No vomiting, no bleeding from the eyeballs, no other form of bleeding, instead the lungs get hit.

Same with COVID-19

Causes a wide range of respiratory symptoms, from dry (no phlegm) cough and fever to fatal viral pneumonia

It's this breadth of symptoms that makes tracking outbreaks so difficult.

Many people get COVID-19, but the symptoms are so mild that they never seek medical attention.

It is not recognized even by the system of the medical institution

Children are largely unaffected by COVID-19, which should be a blessing.

Coronaviruses are viruses that are transmitted from animals to humans.

Some coronaviruses, such as COVID-19, can also be transmitted from person to person.

Viruses that are transmitted from person to person are fast moving and have a wide range, COVID-19 is a good example.

Eliminating zoonotic diseases is very difficult because of the animal source of the virus.

Bird flu, for example, can be eradicated from farmed animals like turkeys and ducks, but it's still reappearing every year because it comes from wild birds.

The reason it's not talked about much is because it's not contagious from person to person, but every year there are outbreaks in poultry farms around the world.

In the case of COVID-19, the strong line is that it was transmitted from animals to humans at a wildlife market in Wuhan, China.

I'm going to get away from the basics here.

This won't be the last major outbreak

It's going to happen again and again, and so will epidemics.

It's not "may happen" it's "will happen"

It's a result of the way we humans interact with the planet.

It's the choices that humans are making that are pushing us into a situation where there will be more outbreaks in the future.

Part of that is climate change, which means that a warming climate makes the planet a better place for viruses and bacteria to live.

But it's also partly because of the way humans continue to encroach on wilderness areas on Earth.

When the Amazon rainforest is slash-and-burn and plowed to get cheap land to build farms, when Africa's last bushlands are converted to farms, when the wild animals of China are hunted to extinction, humans come into contact with wild animal populations they've never been in contact with before.

Bats, in particular, are more likely to carry diseases that can be transmitted to humans, but it's not just bats.

So, as long as we keep remote places close to inhabited, outbreaks will continue to occur.

Measures like quarantines and travel restrictions will not stop outbreaks

Intuitively, everyone wants to do that, if people don't move, they should be able to prevent an outbreak.

But in reality, it's very difficult to have an effective quarantine system in place.

It is also very difficult to impose travel restrictions.

Even countries that have put a lot of effort into public health, like the United States and South Korea, can't impose these kinds of travel restrictions quickly enough to stop an outbreak immediately.

There are logistical reasons for that, and there are medical reasons.

In the case of COVID-19, we currently know that up to 24 days can be completely symptom-free after being infected.

So people are carrying the virus and walking around without symptoms.

You can't be quarantined, no one knows you even need to be.

And quarantines and travel restrictions have real disadvantages.

Humans are social animals, and they resist attempts to restrain or isolate them.

During the Ebola epidemic, as soon as the quarantine policy was decided, everyone started trying to escape the quarantine.

Patients who know strict quarantine procedures are in place may avoid healthcare because they are resistant to the healthcare system, they don't have the money for treatment, or they don't want to be isolated from family and friends.

Politicians and government officials who know that publicizing an outbreak or case will lead to a quarantine may try to hide information about the situation for fear of triggering a quarantine.

Of course, it's this kind of evasion and fraud that makes it so difficult to track outbreaks.

Improving quarantines and travel restrictions can and should be done, but it's not the only way, nor is it the best way to deal with this situation.

The long-term response to prevent outbreaks from escalating is to build a global medical system and help all countries in the world to have basic health care systems in place so that even the poorest countries around the world can quickly identify and treat new infectious diseases as they emerge.

China received a lot of criticism for how it handled COVID-19.

But what if COVID-19 broke out in Chad? A country with 3.5 doctors per 100,000 people.

Or what if it happened in the Republic of the Congo? A country that has just finished treating its last Ebola patient.

The reality is that these countries don't have the resources to deal with infectious diseases, they can't treat patients, they can't report quickly enough to help the world.

I led the evaluation of an Ebola treatment center in Sierra Leone, and the fact is that doctors there were among the first to recognize the Ebola crisis, first identifying it as a dangerous, contagious, hemorrhagic virus, and then identifying it as Ebola.

But we identified it, but we didn't have the resources to deal with it.

We didn't have enough doctors, we didn't have enough beds, we didn't have enough information about how to treat Ebola, we didn't have enough information about how to implement infection control measures.

Eleven doctors have died in the Ebola epidemic in Sierra Leone.

When the Ebola crisis started, there were only 120 doctors.

For comparison, the Baylor Medical Center in Dallas has over 1,000 staff doctors.

This kind of inequality is killing people.

First, the poor people die in the early stages of the outbreak, and then as the outbreak spreads, people die all over the world.

If we really want to mitigate and minimize the impact of outbreaks, we need to ensure that every country in the world has the capacity to identify, treat, and report new diseases to share information.

COVID-19 will put a tremendous strain on healthcare/medical research institutions

COVID-19 has also exposed a serious weakness in the global medical supply chain.

An ordering system that minimizes inventory is great during normal times, but the flip side is that in times of crisis, you have no reserves.

If a hospital, or a country, runs out of masks or personal protective equipment, you can't just restock it from a huge warehouse full of stock.

You have to order replenishment from your supplier, wait for it to be produced, wait for it to be shipped, usually from China.

This kind of lag occurs at a time when quick response is important.

If it had been ready to fight COVID-19, China would have recognized the outbreak much earlier.

Even if we didn't build a new hospital, we would have been ready to deal with the infected.

They would have disclosed the correct information to the public without hiding it, and would not have spread outrageous rumors on Chinese social media.

By sharing information with international health authorities, we could have started recording in China's domestic medical information system and preparing for the virus outbreak.

In response, state-owned medical institutions could have stockpiled protective gear as needed and trained medical workers in procedures and infection prevention.

There should have been science-based procedures for dealing with different situations, such as an infected person on a cruise ship.

And it would have allowed truthful information to reach every corner of the world, without the embarrassing incidents of xenophobia, such as the violence against Asian-looking people in Philadelphia.

But even with all these preparations, outbreaks do happen.

It's inevitable as a result of our daily choices about how we live on Earth.

What the experts agree on about COVID-19 is that here in the United States and around the world things are going to get worse before they get better.

There have been cases in communities where people with no travel history have spread the infection.

It's a sign that the outbreak is getting worse, and I can't say it's contained.

It's depressing, but it's not surprising.

When global health experts talk about novel virus outbreak scenarios, scenarios like this one come up.

We all hoped for an easy solution, but when the experts plan to fight the virus, this situation, and the way the virus behaves this way, is what they expect.

One last piece of advice from me

Wash your hands!

Wash your hands frequently

You're all clean people, so you're already washing your hands frequently, but I want you to wash your hands more often.

Set tips and habits in your life to remind yourself to wash your hands

Wash your hands every time you enter and leave the building

Wash your hands before entering and after leaving the meeting room

Establish a hand-washing ritual

Sanitize your mobile phone

Do you often touch your phone with dirty, unwashed hands?

I know you're taking it to the bathroom.

(Laughter) So sanitize your cell phone and don't use it in public.

TikTok and Instagram Limited to home?

don't touch face

don't rub your eyes

don't bite your nails

Do not rub your nose with the back of your hand

In the first place, it's dirty to look at, so let's stop

(Laughter) Please don't wear a mask.

Masks are for sick people and health care workers.

When you're sick, a mask can trap coughs and sneezes to protect the people around you.

If you're a healthcare worker, a mask is part of a suite of personal protective equipment that you've probably been trained to use to protect yourself from getting sick while caring for a patient.

If you're a normal, healthy person, a mask will do little more than make your face sweat.

(Laughter) Leave the masks in the store and save them for doctors, nurses and sick people.

If you suspect you have symptoms of COVID-19, stay home and call your doctor

If you've been diagnosed positive for COVID-19, remember, it's usually very mild.

If you are a smoker, now is the perfect time to quit smoking.

In fact, if you're a smoker, it's always a great time to quit, but if you're a smoker and you're worried about COVID-19, I can tell you with absolute confidence that quitting is the best way to protect yourself from the worst possible effects of COVID-19.

COVID-19 is terrifying, especially at a time when everything in the news seems to be scary.

And there are so many wrong but intriguing ways to deal with it: panic, xenophobia, agoraphobia, dictatorship, and oversimplified lies that make us think that hate, anger, and loneliness are the solutions to outbreaks.

there's no way

It will hinder your preparation.

There are some modest but effective options for dealing with outbreaks, such as improving healthcare, working locally, everywhere, focusing on healthcare infrastructure, focusing on disease surveillance, getting the medical and healthcare systems in place around the world to know when new diseases emerge, looking at strengthening supply chains and preparing for emergency demands, and improving the quality of education so that people can talk about disease outbreaks and risk numbers instead of just panicking in a daze.

We should proceed with fairness in mind, and in this situation, and in any other situation, we need fairness, above all, for ourselves.

Thank you for listening today.

(applause)

How can the global pandemic of the novel coronavirus be contained? Interview with Infectious Disease Expert Adam Kucharski Q1 What is "containment" against an outbreak of an infectious disease? Containment is about closely tracking infected people and their contacts.

It won't affect many people. If you have an infected person, you can isolate them.

It's a very targeted approach that worked very well during SARS.

But this time around, there may be cases that go unnoticed or go undetected, and we have to figure out a large population at risk.

If there is a dropout, there is a possibility that it will lead to an epidemic.

Q2 What if containment is not enough? In that case, it would change people's social interactions on a massive scale.

We will ask everyone to reduce close contact with others, which is an opportunity to spread the infection, to, say, one-third, to curb the spread.

Work from home or change your lifestyle to avoid crowds and restaurants.

There are also measures, like school closures, to try to reduce people's social contact.

Q3 What should everyone be careful about? It's not just who you shake hands with, but who that person shakes hands with next.

You have to think about the secondary, you may be young and at low risk, but you may be indirectly connected to someone who could be seriously ill if you get it.

There's a social dimension that we all need to consider, and it may be a big change in behavior, but it's necessary to reduce the impact of the problems we face.

Q4 How far should I keep my distance from other people? It's hard to say with certainty, but it's worth remembering that there's not much evidence that aerosols can reach very far, and that they're relatively close range.

The virus isn't coming from someone sitting a few meters away, it's from a more immediate interaction.

Infections often occur at meals and in very close gatherings.

We need to be more concerned about those situations, because the virus that's out in those situations can end up on surfaces, on your hands, on your face.

Q5 What kind of measures should each country take? I think we're gathering information about what works first.

It's been a couple of weeks that I've learned that it seems to be possible to control it with strong interventions.

There are also time limits

We've been in lockdown for six weeks in China, but it's not easy, we have to think about the trade-offs -- what can we ask people to do, and what is the most effective way to ease the burden?

[For more information, visit the Centers for Disease Control and Prevention and the WHO website]

In 1958, Rachel Carson received a letter saying that songbirds were suddenly falling from tree branches.

The author of the letter said that the bird's death was due to a pesticide called DDT, which was planted by an exterminator on a nearby wetland.

With this letter, Carson began investigating DDT.

I've heard scientists and conservationists worry that overuse of pesticides can endanger fish, birds, and even humans.

I started interviewing government officials I met while working at the Fisheries Bureau.

I asked, "What silenced the voices of spring?" In 1962, Carson published the results in his book "Silent Spring."

Discussed the harm of chemical abuse to nature and human health.

"Silent Spring" was immediately met with both praise and strong criticism, as well as vicious personal attacks on the author.

How did this mild-mannered biologist and author become such a controversial figure?

Carson began his career as a diligent graduate student, balancing biology studies and part-time work at Johns Hopkins University.

But I had to leave college before I got my PhD to take care of my sick father and sister.

Carson gets a part-time job as a marine biology radio writer at the Fisheries Department.

Her superiors were impressed by her ability to write articles of public interest, and in 1936 Carson became the second woman officially hired by the Fisheries Service.

In 1941, I wrote the first of three books on the ocean, combining science and lyrical meditation on the underwater world.

This sea-exploring story has resonated with a wide range of readers.

In "Silent Spring," Carson looks at how human activity threatens the balance of nature.

DDT was originally used during World War II to de-infest crops and protect soldiers from insect-borne diseases.

After the war, it was often sprayed over large areas to control pests, but sometimes with unintended consequences.

When it was used to eradicate fire ants in the southern United States,

While killing wild animals indiscriminately, it didn't do much for fire ants.

Despite these bad examples, the USDA and the chemical companies are lauding the benefits of DDT.

It was largely unregulated and the public was unaware of its potential dangers.

In response, Carson showed that the abuse of chemicals led to the evolution of resistant species, which in turn led to the development of more deadly chemicals.

And because DDT is insoluble in water, she argued, it accumulates in the environment, through the bodies of insects and the tissues of the animals that eat those insects, and eventually into humans.

And they suggested that exposure to DDT could alter the genetic structure, with unpredictable effects on future generations.

The response to "Silent Spring" has been explosive.

For many, this book was a call for regulation of substances that could cause catastrophic harm.

On the other hand, others argued that the role of DDT in reducing pest threats to human health was not mentioned.

Former Agriculture Secretary Ezra Taft Benson asked, "Why would a childless old maid care about heredity?" He denounced Carson as "a communist anyway." A pesticide lawyer said Carson and his supporters were an "evil force" trying to make corporations look unethical.

rejecting the widespread notion that humans can and should control nature.

In 1964, Carson died of cancer, just two years after Silent Spring was published.

Her work has inspired an entire generation of environmental activists.

In 1969, at the behest of environmental activists, Congress passed the National Environmental Policy Act, requiring government agencies to assess the environmental impact of their activities.

To enforce this law, President Nixon created the Environmental Protection Agency.

In 1972 the Environmental Protection Agency partially banned the use of DDT

Long after her death, Rachel Carson continues to advocate for conservation through the influence of her books.

If you haven't ordered yet, rigatoni with spicy tomato sauce and small bowel ailments are the perfect match.

(Laughs) Excuse me, I felt that I should do a play because of the setting of the stage.

So today, in the next few minutes, I'd like to share with you a story about London in 1854, a plague epidemic, an event that contributed to the world we live in today, and that particularly affected today's cities.

In the middle of the 19th century, 1854 was, for many reasons, a rather interesting period in London history.

But the most important point, I think, is that London, with 2.5 million citizens, was the largest city in the world at the time.

And it was the largest city in history.

The people of the Victorian era wanted to survive this era, and at the same time, they wanted to build a new living environment. Today, this new living environment is colloquially called the metropolis.

The creation of living environments in 1850 was a disaster in many ways.

People back then lived under the social infrastructure of the Elizabethan era and the industrial city functions of today.

For example, there was a cesspool in the basement, about 30 to 60 cm deep, which was a little offensive to people.

People vaguely thought that they would turn the bucket over there and it would disappear eventually. Of course it wouldn't.

These habits have piled up, and it's become the worst city in the world, where just walking makes you feel sick.

It was a stinky city, not just because of the cesspools, but because of the disgusting numbers of livestock.

In those days, not only horses, but dairy cows were kept in the attic, and they would just keep them locked up there until they died when they ran out of milk, and then dragged them down the road to the incinerator.

If you had walked through London in those days, you would have been astonished by the stench.

Ultimately, the emerging public health authorities were convinced that the smell was responsible for the mass deaths of people and the disease that spread throughout the city in cycles of three or four years.

Cholera was the leading cause of death at the time

Every four or five years since the 1832 cholera epidemic in London, there have been epidemics of 10,000 to 20,000 people in London and throughout England.

Authorities have come to believe that the smell is the problem

Must get rid of bad odors

So, in fact, we envisioned public health measures as part of urban development, one of which was an anti-nuisance ordinance, where authorities encouraged people to empty as many cesspools as possible and flush them to the river.

The reason is that if there is no sewage on the streets, the stench will be improved... That's right, we drink river water.

In short, it only contributed to the cholera epidemic, because, as we all know, cholera lurks in water.

Not the type that smells or inhales when breathing

Lives in water and enters through drinking water

So one of the 19th-century public health measures effectively poisoned London's water resources more effectively than today's bioweapon terrorism.

This is London in 1854. In the midst of so many deaths and suffering, the true cause of death was still unknown scientifically. John Snow, a prominent 19th-century interdisciplinary scholar, was a doctor in Soho, London.

health officials often ignored his opinion

He's done a lot of research and published papers on this, but it's done very little.

What's particularly interesting about this story is that it shows how cultural change happens, and how the best voices triumph over the worst voices.

Snow had this great insight that everyone ignored.

On August 28th, 1854, a five-month-old baby whose last name was Louis, whose name is unknown, was infected with cholera.

You can't see it very well on this map, but this map is the focus of the rest of my book.

It's a working-class town in the heart of Soho, and it was discovered when this girl fell ill that the cesspool that had been running against the ordinance was actually adjacent to a pump that was used frequently.

As a result, this little girl unintentionally polluted the water at this water station, causing the deadliest cholera epidemic in British history a few days later.

Literally 10% of the population died in seven days.If the population hadn't fled when the pandemic broke out, an untold number of people would have died.

It was such a terrifying event

Within 48 hours, people watched families die in a one-room house.

It's a frightening experience

Snow, who lived nearby, had heard of the epidemic and, with transcendent courage, jumped directly into the demon's belly. He thought he could persuade people that cholera was transmitted through water, not air, in terms of local epidemics.

He predicted that this epidemic would start at a single point.

So it's a place that people would go to, because it didn't have the slow transmission path that you might imagine.

He actually visited and asked people

And then we enlisted the help of an influential person, he's also the main character in this book, Henry Whitehead, he's a minister.

We knew who was drinking the pump water and who wasn't.

Snow finally completed the map of the cholera epidemic.

People who drank pump water developed symptoms

It has been found that people who do not drink do not develop symptoms

I thought about making a chart showing the percentage of people who didn't drink water in different regions, but I realized that I needed something visually comprehensible.

It gives you a clear visual picture of what's going on in this region.

So he made this map, showing all the people who died in this area with a black dot by address.

As you can see, there's a pump in the center, and you can see from this map that 15 people died in the area below it.

The actual map is slightly larger.

The further away you are from the pump, the lower the number of fatalities.

At a glance, you can feel something toxic coming from this pump.

After making this map, and over the next couple of years, Snow and Whitehead trying to popularize the idea, in fact, the authorities began to trickle in.

It took much longer than we thought, but by 1866, when another cholera epidemic broke out in London, the health authorities believed, partly because of this story and partly because of this map, that the water was actually the culprit.

In London, sewage systems began to be built, and they quickly responded to the second cholera epidemic by ordering people to thermally disinfect the water.

This was the last cholera epidemic in London history.

There's a very scary side to this story.

But at its core, it's actually a very optimistic story, which means that if we know the cause, if we read the map, if we accept Snow and Whitehead's story, if we listen to the locals who know what's going on, it's a problem that can be solved.

This is what ultimately led us to believe that large-scale urban living was possible.

When we saw 10% of our neighbors die in seven days, there was a general consensus that 2.5 million people couldn't live in a big city.

But because of what Snow did, this map, and the series of reforms that this map made possible, a city of 10 million people is now the norm.

Today, no one expects New York to die like Rome, or to shrink to 10% of its size in 100 or 200 years.

This is in some ways the legacy of this map.

It is thanks to the map of the dead that we can now enjoy a whole new life. Thank you for your attention.

"Just because you can't see it doesn't mean it doesn't exist." There is an old saying.

my work is a reflection of myself

What I wanted to do was show the world that small things can be big things.

When humans look down on the ground, they tend to think that there is nothing there.

People say "nothing"

There's always something, so there's no such thing as nothing

When I was a kid my mother said don't forget to respect the little ones

Tell me how you got started in this business.

it was when i was 5 years old

To be honest, I was a kid who couldn't express himself at school.

I was seen as a "nothing" child

my world was looked down upon

That's why I don't want to live in that kind of world

I thought I needed an escape somewhere

My mother took me to school, she thought I was at school, but I ran back home and quickly hid in a shed in the garden.

One time I was hiding in a closet My mother seemed to sense something Though she thought I was at school

My mother was like the woman in Tom and Jerry

I can only see my feet

(Laughs) So if I was hiding in the storeroom like this

Sudden…

I saw my mother's feet

My big mother grabbed me like this, lifted me up, and said, "Why aren't you at school?"

When the teacher doesn't treat me kindly and I'm called a fool or a failure

told my mother

But I couldn't say it that way at the time, and I told him I wasn't feeling well.

My mother just said, "I'm going tomorrow."

I didn't expect it because I thought they would scold me...

but it was different

So I sat there and thought

I looked at the ground and noticed there were ants

and stepped into a fantasy world

I thought, "Are you looking for a queen ant?"

"Or do you need a house?"

"If I build a house for ants-" "I'm sure ants will move"

(Laughter) So we built a house.

collect the tree thorns

I cut it with a shard of glass and built a little apartment

It looked like a shack when it was finished

I thought the ants would live

it was as expected

It didn't turn out very well, but then I built a little apartment, a merry-go-round, a seesaw, a swing, a ladder, etc.

I wanted ants to live there, so I used sugar to lure them in.

As I sat and waited, an ant came

Say "Did you make it for us?"

(Laughter) And I said, "It's your house."

Ali started living there, but he didn't pay the rent

(Laughter) I've been looking at this little world ever since.

became part of me

When I realized this kind of talent, I wanted to create an invisible world.

I realized that there are more important things in life than just the big things that surround us.

So I started teaching myself about things like small molecules.

Even after I grow up, if I show my mother

I was told to make it smaller

Show your work here

made here

As you can see, it's the head of a pin

(Laughter) (Applause) This is called Huff House.

The gentleman who requested the work was Mr. Huff.

He asked me, "Can you build a house on the head of a pin?"

lol

(Laughter) And he said, "I don't think you can do it. Can you really do it?"

“I can do it”

"No, I don't think I can do it," he said, "I understand."

Long story short, I went home and broke a shard of glass that

A piece of glass seen through a microscope

It was jagged

I shattered the pieces of glass into the frame of the house as you can see here.

The roof is real fabric I got it from my sister's teddy bear

(Laughter) I asked the teddy bear, "Can I get some fiber?"

borrow the fiber

When I looked under the microscope, I found flat fibers.

Cut through the fibers Made by honing the tip of a needle to a sharp point - Using a tool to cut through

Gradually my nerves calmed down

You work between heartbeats, you have 1.5 seconds to work

The only thing you have to be careful about is breathing in and not breathing in the work

(Laughter) (Applause) I've inhaled it.

(Laughter) Back to the glass

this little piece of glass

I wanted it to be square somehow.

I was wondering how to do it

Get the oilstone and break the horn

started scraping the glass

I use tweezers made from barrette

Rubber was wrapped around the tweezers so as not to break the glass.

And I started rubbing gently until I got a square shape and then I put it together

Assemble by making a groove in the head of the pin

I made it so that the glass gets into it by friction

when doing that work

The tool I was using became like an injection machine

I flew away

it's too late

(Laughter) I lost it.

"If I told you I lost my house," "Mr. Huff wouldn't like it."

In the end I decided to start over

I found a piece that splattered, so I decided to put it together slowly, holding my breath, moving my hand between heartbeats, making sure everything was flat.

It's too small to make mistakes

decided to assemble

Using the fibers of the jumper Stretching the fibers

made beams around the house

I had to put together the windows and the balcony.

I used cherry spider silk instead of glue, but it was troublesome and I had no choice.

I managed to get through

The day after completing the house

I noticed that there is a resident

Have you ever heard the voice of a dust mite?

The dust mite family has moved

(Laughter) And this is how we completed the house.

you see

(Applause) (Laughter) As you can see, Bart Simpson is kind of pissed off.

You seem to be arguing about pinhead space

I don't think there's enough for two

I don't think he meant to push Bert down

You must have threatened me

I made this by stripping the fabric from my nylon shirt.

take the tag and look through the microscope

I used a needle with a blade-like tip

Can you see the sword at the tip of the needle?

Audience: No

Same here, hold your breath and work slowly, you need to be creative with cutting plastic.

When it comes to this amount of work, sometimes it's unpredictable

When it comes to molecular level

Sometimes it hops and gets thrown into the air

so many things happen

If you put a fence around it so you can use cellophane to hold it in place

static electricity occurs

that was so hard

I'm having trouble with static electricity

Sweat was dripping from my forehead because I had to shave Homer Simpson like that.

After shaving it to that shape, we also have to make room for Bert's neck.

do the same thing and then color

carve them and then paint them

I tried something with dead flies.

Pluck the hair from the fly's head

I decided to write

(Laughter) I would never do that to a live fly.

(Laughter) I heard a fly struggling.

Saying "it hurts"

They annoy me, but I don't kill bugs There's a hymn that says, "Creatures big and small."

So I decided to pluck out the downy hair on my face.

look through a microscope

I decided to write

You have to be careful when you color it, the paint clumps up

and it dries quickly

have to work quickly

Otherwise, I can't get closer to what I should be

You'll be like Humpty Dumpty

so you have to be very careful

This took six or seven weeks to complete.

I usually finish a piece in 5-7 weeks, not always predictable.

(Applause) This is, as you can see, a miniature version of Charleston Heston.

(Laughter) "Willard, why me?" he asks.

You say, "Because the movie was good"

The one in the picture is a fly

So that you can see the actual size of the sculpture.

surely the size

about a quarter of a millimeter

period when writing

The size about half is the size of this work

the carriage is made of gold

Charleston Heston was floating in the air - made of fabric

There are times when the fibers are illuminated by the sun and float in the air

I walk around the room (Laughter) and find fibers and look under the microscope.

One day, when I was doing that, the window was open

There was a woman waiting at the bus stop

she saw me walking around

(Laughter) saw me

So if I do this too

It seems that he thought, "You're not crazy."

I used gold to make this carriage.

I had a 24K gold ring

shave the gold

After cutting and rounding, I made a carriage

horse made of nylon

Using spider silk as a bridle

It was very difficult to make the horse symmetrical, because I wanted the horse to stand on its hind legs and move.

When I made this, one guy said, "How can you do this without machines?"

“It can’t be made by humans”

"It's definitely a machine"

So "If you say it's a machine that much..."

(Laughter) (Applause) This piece took about six weeks.

(Applause) That's the most famous statue in the world.

this was really messed up

(Laughter) I have to put a torch on it.

This is also made in the same way

The base is made by shaving sand.I wanted to make it look like it was using stone.

I used a tiny piece of diamond to scrape the base.

I feel proud when I look at this piece, because the Statue of Liberty reminds me of the first people to immigrate to America.

The sight of Ellis Island and America for the first time

the first thing they saw

I want to create that scene

this is what i made

(Laughter) You know this is the Hulk.

I wanted to give movement to the eye of the needle

Everyone can look at a needle

So break the needle

It looks like the Hulk broke it

I punched a small hole in the bottom of the needle to put my foot in.

I rarely use glue

Because the friction calms me down

Friction is used here as well.

Hulk makes a face

I'm sure the mouth is about 3 microns.

Eyes are about 1 micron

The ship here is made of 24-karat gold

I'm going to use spider silk for the rigging.

I used glue for this

Spider silk was a nuisance. It got tangled in my hands.

It's made out of 24k gold

assembled the plate

everything is symmetrical

The flag was also made from filamentous gold

I feel like I'm going through surgery to get this done.

(Applause) This is dressage.

(Laughter) I just wanted to show you how to make symmetrical shapes.

I made the bridle rigging out of the same material.

cut your shirt

I painted the pin head green and cut off a piece of the green shirt to press it onto the needle.

I really struggled, but the best things come in small packages.

(Laughter) It was Mr. Willard Wiegan.

(applause)

In 1165, copies of strange letters began to circulate in Western Europe.

The letter contained the "Tower of Babel" and the "Fountain of Youth" -- a fictitious kingdom ruled by a mysterious sender, Prester John.

Today we know that this wonderful king never existed.

The legend of this fictional kingdom and its mighty ruler influenced the decision-making of European leaders for the next 400 years.

The legend of Prester John ushered in the Age of Discovery, transcontinental diplomacy, and, indirectly, civil war.

Europe was on a Crusade when Prester John's letter appeared.

In this series of religious wars, Europe fought to reclaim Christian sanctuaries.

The church condemned non-Christian religions, including Jews and Muslims living in the Holy Land.

The Crusaders fought a holy war and struggled to find a Christian kingdom.

They were particularly interested in rumors of a powerful Christian kingdom that had defeated a huge Muslim army in the Far East.

They were in fact Mongolian nomads, some of whom had converted to Christianity, and were routing the Muslim army.

But the news of the victory got through without credibility.

Merchants and messengers filled in the missing parts of the story with epics and biblical stories.

By the time the story reached Europe, the Mongolian nomads had been replaced by a great Christian army, commanded by a king who sympathized with the purpose of the Crusaders to march to Jerusalem.

The appearance of a letter attributed to Prester John excited the princes of Europe.

The actual author is unknown, but it seems to be a Western forgery because it fits with Eastern stereotypes and European objectives.

Although the letter was clearly European propaganda, the legend of Prester John was too influential for the Crusaders to ignore.

Before long, European cartographers began looking for the location of the legendary kingdom.

During the 13th and 14th centuries, European missionaries traveled to the East via the renewed Silk Road.

Instead of looking for the letter's author, who would have been over 100 years old, they were looking for his descendants.

It wasn't long before several Central Asian kings with the title of Prester John were identified, but it was soon discovered that, being Mongols, they weren't Christians.

And when the Mongol Empire began to decline, they took a different route to the Far East, seeking new clues to Prester John's whereabouts.

As explorers went south, Ethiopian pilgrims came north.

In Rome, European scholars and cartographers were the first to show their interest.

Ethiopia converted to Christianity in the 4th century, so the Ethiopian story matched the legend perfectly.

Portuguese explorers scoured Africa to find a kingdom, and finally, in a mix of chaos and diplomacy, the legend became a reality.

In Europe, they treated Ethiopians with respect, believed their ruler to be Prester John, and wanted to make deals.

The Ethiopians were at first puzzled by the Portuguese calling their emperor by a different name, but they realized that being smart would give them a diplomatic advantage.

An Ethiopian diplomat played Prester John's vassal, and Bortgar proudly proclaimed an alliance with the legendary king, more than 350 years after the letter reached Europe and the expedition began.

But this long-awaited relationship is soon put to the test.

Ten years later, the region's dominant power, the Adar Sultanate, invaded Ethiopia with the support of the Ottoman Empire.

Portugal sent reinforcements to Ethiopia to win this war.

But by this time it was clear that Ethiopia was not the strong ally that Europe wanted.

To make matters worse, the frustrated Roman Catholic Church saw Ethiopian Christianity as heresy.

The Ethiopians, once revered as ideal Christians, were forced to convert, and eventually civil war broke out, and in the 1630s, Ethiopia cut ties with Europe.

More than 200 years later, the legend of Prester John has slowly faded into oblivion, the end of a world that made history, even if it didn't exist.

Good morning everyone

I'm going to talk to you about two things today.

First, it's about water.

We've all been enjoying the water the conference has provided for the past few days.

You would think that the water is from a safe source

What if not?

What if you came from a place like this?

Statistics show that if that were the case, half of you would be suffering from diarrhea by now.

All my life, I've been talking about statistics and talking about safe water supplies.

but it didn't work very well

i think i know why

Because the scale of the problem seems too big to solve in the current way of thinking.

So we stopped thinking that way, ourselves, our governments, our aid agencies.

I'm going to show you today that by changing the way we think, we've solved the problem.

By the way, as I speak, 13,000 people in the world are suffering from diarrhea.

Four children have just died

I developed the Lifesaver bottle because I was pissed off.

Like all of you, I was sitting watching TV after Christmas in 2004 when a shocking image of the Asian tsunami jumped in.

For days and weeks after that, people took refuge in hilltops, were forced to drink contaminated water, or faced death.

it was very shocking

A few months later, Hurricane Katrina hit the coast of the United States.

I thought, "Okay, this is a first class country. Let's see how it goes."

Day 1: nothing happened

Day 2: nothing happened

Did you know it took five days for water to reach the Superdome?

There were gunfights in the streets, people were fighting over TVs and water.

It was then that I decided to do something

Over the next few weeks and months, I spent a lot of time in the garage, and in the kitchen, sorry for my wife.

ok let's do some science

Prior to Lifesaver, even the best manual filters could only filter down to 200 nanometers.

The smallest bacteria are about 200 nanometers

So a 200 nanometer bacterium can pass through a 200 nanometer hole.

The smallest viruses, on the other hand, are about 25 nanometers.

Of course this goes through a 200 nanometer hole

Lifesaver holes are 15 nanometers

so nothing goes through

ok, let's do a little demo

do you want to see it?

I've been preparing for this all along, so I should do it.

we are in the city of oxford

So - someone messed with this...

It's nice weather in Oxford, and I've been out for a while, and I've got some water from the flowing Cherwell and the Thames, and that's the water.

But I thought, hmm, if this was in the middle of Bangladesh's flood zone, the water wouldn't look like this.

So I decided to add some additives

and this is my pond water

(Smell and seki) Smell it, cameraman

ok (laughs) ok

put this in water

Audience: Whoa!

Michael Pritchard: Okay, there's also the sewage drain on the farm.

let's put this in

(laughs) Put it in, okay, okay

(Laughter) Let's add a few more lumps.

Because my friend's rabbit gave me a gift

put this in too

(Laughter) Okay (Laughter) Now

Lifesaver bottles are easy to use

scoop water

Today I'm going to use a jug so I can see better, put this dirt in,

It's not that dirty. Let's stir it up a bit.

Okay This is really dirty water. Put this in. Anyone want to drink?

(Laughter) Okay, let's go.

put the lid on

Pump a few times Okay?

this is enough

As soon as you remove the cap, you'll have sterile drinking water.

ok ok

How about you, be careful with the electrical system

safe and sterile drinking water

(Applause) Cheers

(Applause) Go ahead, Chris.

(Applause) How does it taste?

Chris Anderson: It's delicious.

Michael Pritchard: Okay

Please keep an eye on Chris from now on Okay?

(Laughter) Okay, Lifesaver bottles are used by thousands of people around the world.

Can handle up to 6000 liters

When the limit of use is reached, a safety device shuts off to protect the user.

take out the cartridge and insert a new one

Then you can use 6000 liters again

Let's see how to use

Classically, what do you do in the event of a disaster?

carry water

In the next few weeks, we set up camp

People have to come to camps to get safe drinking water

What happens when 20,000 people gather at a camp?

The plague spreads. We need more supplies.

the problem becomes persistent

But by changing the mindset and carrying these things, people don't have to move.

They can make their own sterile drinking water and rebuild their homes and their lives.

You don't need a natural disaster to make this work.

The old way of thinking about national infrastructure and plumbing is too expensive.

If you do the math on the calculator, it'll be a huge amount of money.

That's why I'm trying to change my mindset

Instead of transporting water and using man-made means, rely on Mother Nature, we have a wonderful system.

We pump the water here, desalinate it, and for free, transport it over there and pour it into the mountains, rivers, and streams.

where do people live it's near the water

All you have to do is sterilize

You can use a Lifesaver bottle, right?

or you can use something like this

It is a water tank using the same technology

It can handle 25,000 liters and can last a family of four for three years.

How much does it cost to run?

about 1/2 cent a day

thank you

(Applause) So what I'm saying is that if we change our mindset and treat water where it's used, mothers and children won't have to walk four hours every day to collect it.

You can get water nearby

So, for just eight billion yen, we can achieve the Millennium Development Goal goal of halving the number of people without access to safe drinking water.

If you think about it logically, the British government spends £12 billion each year on foreign aid.

why stop there?

$20 billion will give everyone access to safe water

As a result, we save the 3.5 billion people who suffer each year and the 2 million children who die each year.

thank you

(applause)

In January 1953, a storm surge hit the North Sea.

Nearly 2,000 people died near the Dutch coastline after huge waves crashed.

Fifty-four years later, a similar storm threatened the region.

But this time, Holland was ready.

As sea levels rise, the latest computer sensors activate emergency protocols.

Over the course of 30 minutes, a 240-meter steel arm guarding the waterway ahead closed.

Using a 680-ton ball joint, the seawall moves with changing winds and waves.

By morning the storm had passed and the flooding was minimal.

Maaslantkering's local start-up was a huge success.

As one of the world's largest movable structures, this seawall is a marvel of human engineering.

But Maaslantkering is just one part of a larger interlocking flood control system called the Delta Project, the most sophisticated flood control project in the world.

The Netherlands has a long history of water management.

The country is located in the delta of Europe's three major rivers, with nearly a quarter of its territory lying below sea level.

This geography makes the area highly prone to flooding.

So the old governing body in the Netherlands acted as an informal "water management board" to manage flood control projects.

But after the storm of 1953, the Dutch government took official action.

He created the Delta Commission, tasked with defending the entire Southwest.

We focused on densely populated cities with a goal of less than 1 in 10,000 chances of flooding each year, which means about 100 times safer than a typical coastal city.

Achieving these lofty goals called for a variety of infrastructure projects along the southwestern coast.

The first line of defense was to dam the flood-prone estuaries of the region.

Through this large inlet, many of the Dutch rivers flowed to the North Sea, and during storms, floodwaters surged inland.

The Delta Commission has used a series of dams to transform these estuaries into vast lakes that serve as nature reserves and regional parks.

But this strategy doesn't work for Nieuwe Waterlweg.

As the lifeline of the local shipping industry, this channel needed to be open when it was safe to act as a levee during high tide.

Once completed in 1998, the Maaslantkering provided the much-needed flexible defense.

In addition to grassy banks and concrete breakwaters, these levees were a large part of the Delta plan and were focused on keeping the storms off the coast.

But in the decades that followed, the Netherlands sought additional measures to complement the Delta program and protect more inland areas from flooding.

The "Room for the River" plan relocated farms and banks away from the coast.

This created a place to store water in the low-lying floodplains, creating reservoirs and habitats for local wildlife.

Not only has this strategic land retreat reduced the risk of flooding, but it has also enabled denser, more sustainable construction in redeveloped settlements.

Perhaps no city embodies the multifaceted nature of Dutch water management more than Rotterdam, a thriving city mostly at sea level.

When threatened by storms, old, densely populated neighborhoods are protected by traditional embankments.

On the other hand, the new districts have artificially raised ground, and there are many green sports facilities where the roofs of the buildings can store rainwater.

Many of the city's structures, such as parking lots and squares, are turned into water reservoirs, and these structures are usually used as theaters or stadiums.

Meanwhile, in the harbor, there are floating pavilions that rise and fall according to the water level.

These are early planned amphibious structures, some of which have water purification systems and solar panels.

This initiative is just one of the technologies and policies that have brought the Netherlands to the forefront of water management.

The country continues to find new ways to make cities more resilient to natural disasters.

As rising sea levels due to climate change threaten low-lying cities around the world, the Netherlands is an excellent example of how to go with the flow.

4,300 years ago in ancient Sumer, the most powerful man in the city of Ur was exiled to a vast desert.

Her name is Enheduanna.

A high-ranking priestess who serves the Moon God, and the first known writer in history.

He wrote 42 hymns and 3 epics before he was exiled, but he didn't stop there.

Enheduanna lived 1,700 years before Sappho, 1,500 years before Homer, and 500 years before the biblical patriarch Abraham.

She was born in Mesopotamia, between the Tigris and Euphrates rivers, where cities and advanced civilizations first arose.

His father was King Sargon, who founded history's first empire, conquering and uniting the city-states of Mesopotamia.

King Sargon was an Akkadian-speaking Northern Sumerian, and the old Sumerian cities in the south regarded him as an invader from outside.

In an attempt to restore its independence, it rebelled repeatedly, creating rifts in the new kingdom.

To bridge the cultures, King Sargon appointed his only daughter, Enheduanna, as priest of the empire's most important temple.

A royal woman traditionally had a religious role, and she was educated in both Sumerian and Akkadian reading, writing, and arithmetic.

The act of writing began in Sumer as a method of accounting, allowing merchants to communicate with distant partners in foreign trade.

About 300 years before Enheduanna, pictographs for recording evolved into letters.

This early form of writing, called cuneiform, was written by pressing a reed pen into soft clay to make cuneiform marks.

Before Enheduanna, writing was done exclusively for the sake of recording and copying, and there was no creation attributed to an individual author.

The town of Ur, where Enheduanna lived, had a population of 34,000, narrow streets with multi-storey brick houses, granaries and irrigation canals.

As a priest, Enheduanna managed the town's grain stores, oversaw the hundreds of people who worked in the temple, interpreted religious dreams, and presided over the monthly new moon and equinox celebrations.

Enheduanna tried to fuse the old Sumerian culture with the new Akkadian culture.

To that end, I wrote 42 religious hymns that combined both mythologies.

Each city in Mesopotamia had a patron deity, and her hymns were dedicated to the major city deities.

She honored the city's temples, extolled the attributes of the gods, and explained the relationships among the gods.

She portrayed the gods not as aloof, but as human to suffer, to fight, to love, to respond to human desires.

Enheduanna's most precious literary work is a poem dedicated to the goddess Inanna, the goddess of war and desire, the chaotic divine energy that animates the world.

Inanna liked all forms of sexual expression, was very powerful and transgender, and her earthly servants were also prostitutes, eunuchs and transvestites.

Enheduanna placed Inanna on top of the gods as the most powerful god.

Her ode to Inanna is the author's first use of the first person and the first use of sentences to explore deep personal feelings.

When Enheduanna's father, King Sargon, died, the generals staged a coup to take advantage of the power vacuum.

Enheduanna, an influential member of the royal family, was targeted and banished from Ur.

Her nephew, the legendary Sumerian king Naram-Sin, eventually crushed the rebellion and restored her aunt to her priesthood.

Enheduanna served as a priest for a total of 40 years.

A god after death, his poems were transcribed, learned and performed in the empire for more than 500 years.

Her poetry inspired the Hebrew Old Testament, the Homeric epic, and Christian hymns.

Enheduanna's legacy lives on today on clay tablets that have stood the test of time.

If I were to reveal something hidden, at least in modern culture, it would be like revealing something we once knew as well as our own names but had forgotten.

And I guess that means we live in a high-performance world, a wonderful planet, and we're surrounded by geniuses.

"Biomimicry" is about learning from these geniuses and getting design advice from them in new fields.

This is where I live, and the university is also here.

I'm surrounded by geniuses, and I can't help but be reminded of the organisms and ecosystems that know how to live gracefully on this planet.

If you ever forget it, remember this

this

this happens every year

nature keeps its promises

This happened while we were rushing to rescue

spring

Imagine Designing Spring

Imagine that command

You'd think it would be hard to run TED. (Laughter) Right?

Imagine And if you haven't done this in a while, do it

Imagine the timing and coordination. All of this without top-down laws, politics, and a climate change protocol.

this happens every year

there are a lot of shows

the sky is full of love

various things bloom

I promise you, all creatures will keep their priorities right.

There's a kid next door who always reminds me of this. He spends most of his time lying on his back looking up at those grasses.

One day he came and he was seven or eight years old

I had a wasp nest right in front of my door, and I let it grow.

Most people knock it down when it's small

But it was fascinating to me, because I'd seen beautiful Italian book covers that looked like this.

and he came and knocked

Every day he comes to show me something

And keep knocking like a woodpecker until I open the door

He said, "How did you build a beehive like this?" He had never seen anything like it.

I said: "Cody, this was made by a bee."

and watched it together

And I know why he thought so, because it was so beautifully made.

it was architectural and precise

But I wondered: How could such a little child believe the myth that if something was beautiful, it was made by us?

Why couldn't he know that we weren't the first to start building, something we've all forgotten?

We didn't start processing cellulose

We weren't the first to make paper. We weren't the first to optimize space. We weren't the first to create waterproof, warm and cool structures.

We are not the first to build a home for the younger generation

Now, in a field called "biomimicry," people are remembering that other organisms, other organisms in nature, are doing very similar things that we need to do.

As a matter of fact, other life forms on this planet are doing it in a graceful way that they can live for billions of years.

So biomimicry engineers are nature's apprentices.

they focus on functionality

Here are some of the things they learned

They ask themselves, "Why don't you ask, 'How is nature doing?' when you invent something, and I'm going to show you what they learned.

This is a great photo by Czech photographer Jack Hedley

This is the story of a JR West engineer

The people who built the Shinkansen

It used to be called a "bullet train," because it's bullet-shaped at the tip.

So the engineering leader said, "We have to find a way to be quieter."

He happened to like bird watching.

He went to organizations like the Audubon Society in America

he studied and there was a picture of a kingfisher

He thought, "A kingfisher jumps from one density medium, air, into a different density medium, water, but does not splash. Look at this picture.

There is no splash, so you can see the fish.”

And I thought, "Why don't we try this?"

Then the train became quiet

10% faster and 15% less power

How does nature eliminate bacteria?

We're not the first to need protection from germs.

Actually — this is a Galapagos shark

The shark has no bacteria on its surface, does not smell bad, and does not have barnacles.

not because they swim fast

A leisurely, slow-swimming shark

Then, how does the body become such that bacteria cannot multiply?

not due to chemicals

It's actually some sort of tooth-like protrusion that does that, like the Speedo swimwear that broke so many records at the Olympics.

It's the architectural structure of the pattern of protrusions that keeps bacteria from sticking to them.

There's a company called Sharklet Technology that puts patterns like this on the walls of hospitals to keep germs out, and that's more effective than washing them down with antibacterial agents and harsh detergents, which many bacteria are now resistant to.

In the United States, 100,000 people die each year from hospital-acquired infections, which is more than AIDS, cancer, and car accidents combined.

This is a creature that lives in the Namibian desert.

There's no fresh water to drink, but this creature drinks water from fog.

There are uneven protrusions behind the sheath feathers

it acts like a magnet for water

There are hydrophilic protrusions and the sides are smooth.

When fog occurs, it condenses on the tip

slide down the side into this creature's mouth

There's Andrew Parker at the University of Oxford who's researching this.

And dynamic architecture companies like Grimshaw are starting to think of it as a way to coat the walls of buildings and collect water from fog.

10x better than fog nets

Carbon dioxide as a building block

Living organisms do not consider carbon dioxide to be poisonous.

Plants, shell-building organisms, and corals see it as building material.

There's a cement manufacturing company in the United States called Clara.

They're borrowing recipes from coral reefs, and they're using carbon dioxide in building blocks, cement, and concrete.

Conversely, cement typically releases 1 tonne of carbon dioxide per tonne of cement.

Now, that equation has been reversed, and we're sequestering half a tonne of carbon dioxide thanks to a recipe from coral.

I don't use living things for this

Just use blueprints or recipes from living organisms.

How does nature collect solar energy?

This is a new type of solar cell based on the functionality of leaves.

It is an automatic assembly type

Adheres to any material

very cheap and can be recharged every 5 years

This is actually a company I'm involved with with Paul Hawken called OneSun.

Nature has many ways to filter salt out of water.

we press the water against the membrane by pressurization

And you wonder why the membrane clogs so much, why it consumes so much power.

nature does much more gracefully

it is present in all cells

Every red blood cell in your body has these hourglass-shaped pores called aquaporins.

it allows water to pass through

It is a kind of "advance penetration".

Let the water molecules pass through and leave the solute on the other side.

A company called Aquaporin is starting to make a desalination membrane that mimics this technology.

Trees and bones are constantly rearranging themselves according to the direction of stress.

Today, this algorithm is used in bridge lightening software to lighten piers.

GM Opel uses this to build this kind of skeleton, and it's called a bionic car.

It builds its skeleton out of the least amount of material, which is a prerequisite for living things, while ensuring maximum strength.

This beetle, unlike this wood chip, uses only one material, chitin.

And we're finding ways to give it a lot of functionality.

it is waterproof and

strong, resilient and

Breathable Creates color from structure

Wood chips need 7 layers to have this function.

What we have to invent in order to get any closer to these creatures is to find ways to use the least amount of material, the least variety, and add design to it.

Nature uses five different polymers to do what I'm showing here.

In the human world, that would require 350 different polymers.

nature is subtle

We hear a lot of concern about nanotechnology, nanoparticles, etc.

Nanoparticles in the wild It's very intriguing, but not many people ask: "How can we ask nature how to make nanotechnology safe?"

Nature has been doing it for a long time

For example, we are constantly attaching nanoparticles to things.

Sulfate-reducing bacteria release nanoparticles into water as a by-product of their synthesis process.

But shortly after that, the bacterium also releases a protein that gathers and aggregates the nanoparticles so that they can be separated from the solution.

Energy use Living things spend energy little by little because it's in exchange for everything they get.

The biggest area here right now is energy grids. You've heard of smart grids, right?

There's a lot we can learn from social insects.

It's "swarm intelligence technology." There's a company called Regen.

They're looking at how ants and bees find food and flowers most efficiently as a whole hive.

And they've developed appliances that talk to each other through algorithms that minimize peak power usage in your home.

A group of Cornell University scientists are developing something called a "synthetic tree," and they say: "There's no pump at the bottom of the tree."

Capillary action and transpiration draw water drop by drop, lift it up, release it from the leaves, and pump it up again from the roots.

And they're making - think of it as a kind of wallpaper

We're going to put this on the inside wall of a building and pump water without a pump.

The Amazon electric eel, one of the most endangered species, has chemicals in its body that generate 600 volts of voltage.

And what's even more interesting is that 600 volts doesn't burn them to death.

You know polyvinyl chloride (PVC), it's used to insulate wires.

How do these creatures insulate themselves from the electricity they emit?

I have a question that I haven't addressed yet

This is a manufacturer of wind turbines inspired by whales

Humpback whale fins have wavy edges

And this waveform works to reduce the resistance to water flow by 32 percent.

As a result, this turbine turns even at extremely low wind speeds.

MIT just recently developed a radio chip that runs on very little power.

It's based on the cochlear apparatus in your ear, and it can process the internet, radio, television signals, radio signals, all in one.

Finally, let's talk about ecosystem scale.

At my consulting company, Biomimicry Guild, in collaboration with HOK Construction,

I'm looking at the construction of an entire city from the planning department.

What we're saying is, shouldn't our cities serve at least as well in terms of ecological role as the natural systems they replace?

So we create what we call an ecological function standard, and we have cities align themselves with this higher standard.

The problem is, biomimicry is an incredibly powerful innovation.

The question to ask is: "What is the problem worth solving?"

If you haven't seen this, it's very interesting

Dr. Adam Niemann

This is a picture of all the water on Earth compared to the volume of the Earth, all the ice, all the fresh water, all the seawater, and the volume of the Earth compared to all the atmosphere we can breathe.

The contents of this sphere have created a rich environment in which life can live for 3.8 billion years.

And we are in the long, long stream of life that has appeared on this planet, and we ask ourselves: How can we gracefully navigate this long stream? "and

How can I follow the laws of life

It is to prepare an environment in which life can be inherited

And to do that now, we need to remember these geniuses and meet them again as the design challenge of our century.

One big idea, one big project that I can get involved in, and that's a website, and I want you to see it.

It's called AskNature.org

So what we're doing is, in a TED way, organizing all the biological information in terms of design and engineering functionality.

We are collaborating with Ed Wilson's TED wish Encyclopaedia Of Life (EOL)

He's trying to gather all the biology information on his website.

And the scientists contributing to EOL are answering the question, "What can we learn from this organism?"

That information is brought to AskNature.org.

And I hope that every inventor, anywhere in the world, can type in the process of creation, "How does nature separate water from salt?"

Then you'll see mangroves, sea turtles, and your kidneys.

And we'll be able to connect, like Kodi did, to these incredible models of our predecessors who have been on this planet much longer than we have.

And, hopefully, with their help, we learn how to live on this planet that is our home, and not ours alone.

Thank you very much

(applause)

My name is Emmanuel Jal

so far in many places

I've been telling everyone about my painful experience

Traveling around the world and writing a book about my experiences

It was difficult to give a lecture

But I prefer to express my feelings through music, because I was good at it.

Labels himself as "War Child" and is a singer.

How sad the mothers who lost their children in my home village because of my activities

I want to tell everyone on behalf of newspapers whether they want social change

Also, I speak for the voices of young people who are illiterate and unable to express their opinions about how to change society.

There's no internet in my country, so young people don't have the chance to talk to people from around the world.

Maybe it's the dreams I have that allow me to talk about such painful experiences Dead people appear in my dreams and tell me, "Don't give up, don't give up."

There are times when I feel like I don't want to talk like this anymore.

Certainly I was born in the wrong era My country is at war

The village I lived in was burned to the ground

The world around me disappeared completely before my eyes

I was five years old when I saw my aunt raped

mother died in war

brothers and sisters gone missing

There is a rift between me and my father, and even now the rift has not closed.

Watching people die every day My mother cried I was brought up with "violence"

That's why I'm a "bad child of war"

And I've actually been a child soldier since I was eight years old.

I don't know the reason for war

It's just that some kind of image is stuck in my head

I went to the training camp and said, "Muslims and Arabs - kill a lot."

Those who were able to endure the rigorous training were the victims of murdered families and villagers.

I wanted revenge

But now I don't think so, now I know the truth

It wasn't the Muslims who were killing us, it wasn't the Arabs.

What's bad are the people who take advantage of the way the world works and steal from us in the name of religion They're taking oil and diamonds and gold and even land

When I realized this truth, I thought, there's no point in hating Muslims.

now i sing and dance with muslims

Muslims funded my movie 'War Child'

i don't hate them anymore

because i have a lot to talk about

It's time to start something else, that makes it easier for me

The lyrics I'm going to read are from the album "War Child", "Forced to Sin"

this is what i tasted

One of the toughest experiences I had was walking around with nearly 400 people, hungry enough to eat my friends.

Only 16 people including me survived

singing such a thing

My life is full of hard things

always in my head

What I hear is the voice of my comrade who was killed

My friend died by my side, hungry

In blazing jungles and barren lands

Thanks to God for not dying

He saw me from heaven trying to eat my comrade's corpse, and he took pity on me.

We raided villages and robbed them of livestock and anything that could be eaten.

It's bad, but I need food.

I had no choice but to commit a crime That's what I did to live I'll either commit a crime or starve to death

Sacrifice to survive is inevitable

anyway don't give up

left home at age 7

At the age of 8, a life where you can't let go of a rifle

Even when I sleep, I keep one eye open

run, bend down or die

They all died like worms

I've never seen a corpse that I killed myself up close.

I'm still confused, but I'm not discouraged

An environment surrounded by thunderous gunshots

I, who was a young and timid child, still can't forget

Don't retreat, don't surrender, the words of the sergeant raising his arms

I'm still traumatized

I am a motherless child raised by war I will continue to fight

But from now on, I won't be fighting alone

Even if you become famous, you won't stop there With the patriotism of a police officer

I'll do my best to survive each day

I do bad things to correct the absurdity of the world

What a human life

I used to think it was just a dream

darfur hungry

I'm fighting for my children

in my hometown

i don't know when i can go home

the country is ravaged by war

I grew up hearing bombs and gunshots

A lot of people have died and my tears have dried up

God tell me my mission

Are all my friends still poor?

Why was I learning how to fight while other children were learning to read and write?

Snails, eagles, snakes, whatever creatures

was going to eat

It was painful but I couldn't help it

This is the lesson I learned from life

(Applause) Thank you.

(Applause) It's the music that gave me the power to act

Until now, no one listened to me and gave me advice

That's why music healed the wounds in my heart

When I'm playing music, I feel really at peace, and when I'm dancing, I feel like a kid again.

When I play music, I feel the power of music. It penetrates every single cell of your nerves, shakes your heart violently, and before you know it, it affects the way you live.

When you hear music, you get out of bed and move your feet naturally That's the power of music

I think the power of music is like the power of love Sound and love are blind

The person you fell in love with looks the best

When I was a child soldier, I felt that music has power.

I hated northern guys

But I don't hate northern music

I also dance to the music of the north

Arab musicians once played in front of soldiers like us.

At that time, I danced in a dream

I wondered why

Now that I know the power of music as a singer

what am i doing here

I've had a rough journey

For the past 233 days, I've only had dinner.

I don't eat breakfast or lunch

We're currently running a campaign called "Sacrifice to Win".

Only by sacrificing something can I win this battle

The money you didn't eat for breakfast and lunch will go to a charity I created to fund a school in Sudan.

I chose this method because I live on one meal a day in my hometown.

I haven't eaten three meals here.

I look forward to the day when the children in my village will listen to the BBC radio and I'll eat breakfast, the day the school will be built.

That's why I said, "I don't eat breakfast"

If you're as famous as me, I thought you'd get together right away, but I'm glad I didn't make a big deal.

(Laughter) It took me 232 days to get here.

I won't stop until I reach my goal

on facebook or myspace

You can donate $3

The lowest donation ever made is 20 cents

apparently from online

how did you do it

(Laughter) But I was happy.

Education is very important to me because I realize it

What I want to achieve by all means I can gain a lot from education

The more you know, the more opportunities you will have and the better your life will be

In my homeland suffering from inconvenience

We all live on aid

Young people in their 20s and 30s living in refugee camps

We only eat food that the UN drops from the sky

That's our current situation. Just giving out aid supplies is not enough for young people.

If you really want to save us, there's another way.

we need farm equipment

Because when it rains, there's land where food grows

(Applause) I want you to invest in education.

If we can provide a solid education, we can create a trend that will change society.

All the old people who spent all their lives in war in Africa will eventually die.

But if we focus on education, we can change Africa.

that's what i want

(Applause) And that's why we founded Gua Africa to send our kids to school.

some went on to college

40 are former child soldiers We accept anyone who needs help

I promise to make it happen

Trust me, everyone will help me

That's why I hope that by working like this, I'll be able to change even a little.

I'm running out of time, so one last song

Ladies and gentlemen, please stand up and thank British aid worker Emma McCune for helping me.

This song is about how Emma changed my life

Emma realized that what my country lacked was education.

To help Sudan, we need to spend more money to educate women and children well. If we understand the complex structure of society, we can change it.

Emma married a Sudan People's Liberation Army commander.

and saved over 150 child soldiers

one of them happened to be me

I would like to take this opportunity to honor Emma.

are you ready

Audience: Oh!

Emmanuel: Let's go

♫I'm here because I was saved♫ ♫It's an honor to take over after you♫ ♫Rest in peace now♫ ♫If it wasn't for Emma♫ ♫What would I be like now? It's all because of Emma ♫ ♫ Yeah! Yeah! ♫ ♫ I could have been the refugee on TV ♫ ♫ Swollen belly ♫ ♫ Eyes full of flies and a big head ♫ ♫ I could have been one of those starving kids ♫ ♫ You gotta be tough if you're going to run around Africa ♫ ♫ I'm not an angel yet ♫ ♫ I want to be like Emma ♫ ♫ If Emma hadn't come to me ♫ ♫ I wouldn't be here now ♫ ♫ I wouldn't have lived like this ♫ ♫ ♫ Yeah, yeah! ♫ ♫ I could have starved to death ♫ ♫ I could have died of sickness ♫ ♫ Probably uneducated ♫ ♫ I was one of the refugees ♫ ♫ The one who kept me here ♫ ♫ The one who kept me here ♫ ♫ Like Emma ♫ ♫ What have I been doing ♫ ♫ In the corner of a refugee camp ♫ ♫ You must have been hungry ♫ ♫ When I was little ♫ ♫ I couldn't read or write ♫ ♫ Now I'm educated ♫ ♫ I know my limits and I've got my freedom Or ♫ ♫ Just sit back and let the politicians do ♫ ♫ Nothing will get better ♫ ♫ They won't do anything ♫ ♫ I'm paying for their champagne ♫ ♫ A child soldier in a refugee camp ♫ ♫ I'm not losing my self-esteem ♫ ♫ Because of him ♫ ♫ If Emma hadn't saved me ♫ ♫ I would have died in the African wilderness

♫ Praise Emma ♫

♫ More, more, more ♫

♫ I don't know what would have happened ♫ ♫ If Emma hadn't shown up ♫ ♫ I would be hungry by now in a refugee camp ♫ ♫ If Emma hadn't helped me ♫ ♫ What would I be doing ♫ Yeah, yeah ♫ ♫ I must have starved to death somewhere ♫ ♫ I would have died from a disease ♫ ♫ I wouldn't have had a good education if I had lived ♫ ♫ I was just a refugee ♫ (Applause) Thank you

(Applause) Respect children's lives.

(applause)

let me confess first

I regret something I did about 20 years ago that I'm not very proud of.

It's the kind of thing I don't want anyone to know, but I still feel the need to disclose it.

(Burning) In the late 1980s, out of youthful bliss, I went to law school.

(Laughter) In America, law is a professional degree, and you go to college first, then to law school.

In law school, I didn't do very well.

not very good to say the least

Graduated in the top 90%

(laughs) Hi

I've never done any legal work, maybe I shouldn't have let you do it

(Laughter) But today, despite the bad news, and against my wife's advice, I decided to re-engineer this legal skill.

I'm not telling stories today

prove the claim

I want to rethink how we do business with rational, evidence-based, courtroom-like arguments.

Dear Jurors, please click here

This is what we call the "candle problem."

Some of you may know

In 1945, a psychologist named Karl Dunker

I devised this experiment and used it in a variety of behavioral science experiments.

Let me explain, let's say I'm the experimenter.

i let you in the room

I give you candles, thumbtacks and matches.

And they say, "Please hang the candle on the wall so that the wax doesn't drip on the table."

what would you do?

Many people try to stick the candle to the wall with thumbtacks.

but it doesn't work

I saw some people over there mimicking, and some people come up with the idea of ​​melting a candle with a match and sticking it to the wall.

nice idea but it doesn't work

After five or 10 minutes, most people find a solution, and this is how you do it.

The key is to overcome "functional fixation."

When I first saw that box, I thought it was just a container for thumbtacks.

But it can also be used in other ways, as a platform for candles, and that's the problem with candles.

Now I want to share with you an experiment that a scientist named Sam Glucksberg did using this candle problem. He's currently at Princeton University. This experiment shows you the power of incentives.

He gathered the participants together and said, "I'll put a clock on how fast you can solve this problem."

And one group says they want to know how long it typically takes to solve this kind of problem, the average time.

We present a reward to the other group.

"The top 25 percent will get $5.

$20 for first place."

This was many years ago, so when you factor in inflation, it's not bad for a few minutes of work.

enough motivation

How quickly did this group solve the problem?

The answer, on average, took three and a half minutes longer.

It took me three and a half minutes longer. Isn't that strange?

I'm American and I believe in the free market

it can't be like that

(Laughter) If you want people to work better, you have to pay them.

Bonuses, commissions or whatever—

Give them incentives. That's what the business world does.

But here the result was different.

We set up incentives to sharpen our thinking and accelerate our creativity, but the result has been the opposite.

Thinking was dull and creativity was stifled.

What's interesting about this experiment is that it's not the exception.

This result has been replicated over and over again for 40 years.

This reward-for-performance motivation -- the if-then, "if you do this, you'll get this" kind of thing works in some situations.

But for many tasks, it doesn't work, and sometimes even hurts.

This is one of the most robust discoveries in the social sciences, and also one of the most neglected.

Over the last few years, I've been focusing on the science of motivation, specifically the dynamics of extrinsic and intrinsic motivation.

there is a big difference

When you look at this, you can see the disconnect between what science has figured out and what business is doing.

In the system of business operation, in the assumptions and procedures behind the business, the question of how to motivate people, how to assign people, relies almost exclusively on extrinsic motivation, carrots and sticks.

For a lot of 20th century work, this actually works.

But for 21st-century work, the mechanical reward-and-punishment approach doesn't work, and it either fails or hurts.

let me explain what

Glucsberg did another experiment similar to this one, and presented the problem in a slightly different way.

Please put a candle on the wall so that the wax doesn't drip on the desk.

Same conditions, you measure the average time.

give you an incentive

What happened?

This time, the incentivized group won by far.

I wonder why? If there were no thumbtacks in the box

Because the problem becomes stupidly easy

(The "monkey can understand" candle problem) (Laughter) If Then rewards work really well for tasks like this, when you have simple rules and clear answers.

Rewards narrow your horizons and focus your mind, which is why rewards often work.

So this kind of narrow field of view, where all you have to do is look straight at the goal in front of you, works well.

But in the real candle problem, we can't afford to take that view.

Because the answer isn't in front of you, you have to look around.

Rewards narrow our horizons and limit our possibilities.

Why is this so important?

In much of Western Europe, Asia, North America, Australia, and so on, white-collar jobs have fewer of these types of jobs, and more of these types of jobs.

Routine, rule-driven, left-brained work, certain types of accounting, certain types of financial analysis, certain types of programming can be easily outsourced, easily automated.

software is faster

We have low cost service providers all over the world

So what's important is the ability to think more right-brained, creatively.

think about your job

the problem you are facing

Or is this the kind of problem we're discussing here? Like there are clear rules and one answer?

I don't think so, the rules are vague

The answer, assuming it exists at all, is surprising and far from obvious.

Everyone here is dealing with their own version of the candle problem.

And the problem with candles is that if-then rewards of any kind, in any field -- and many companies do -- don't work.

This is going crazy

what do you mean

this is not an emotion

I'm a lawyer, I don't believe in emotions

this is not a philosophy

I'm American, I don't believe in philosophy

(Laughter) This is a fact, and in Washington, D.C., where I live, we often use the term "true fact."

(Laughter) (Applause) Let me explain with an example.

present a piece of evidence

I'm not telling a story, I'm proving

Dear Jurors, I'm going to present you with proof that Dan Ariely is one of the greatest economists of our time.

We give our students a lot of games, games that require creativity, motor skills, concentration.

And we've prepared three types of rewards for performance: small rewards, medium rewards, big rewards.

Full reward for very good grades Half reward for good grades

What happened?

"As long as the task was mechanical, the reward worked as expected, and the higher the reward, the better the performance.

But when it came to tasks that demanded more or less cognitive ability, higher rewards resulted in lower performance."

So they thought, "Maybe there's a cultural bias.

Try it in Madurai, India."

because the standard of living is low

A small reward in North America means a lot in Madurai.

The experimental conditions are the same: lots of games and three levels of rewards.

What happened?

Those who were offered medium rewards performed no better than those who received small rewards.

But this time, those who were offered the highest rewards performed the worst.

"Across three experiments, higher incentives resulted in lower performance on eight of the nine tasks."

Is this a familiar, sensuous socialist conspiracy?

No, they're at MIT, they're at Carnegie Mellon, they're economists at the University of Chicago.

And who funded this research?

United States Federal Reserve Bank

This is the very American experience.

Head across the ocean to the London School of Economics (LSE), home to 11 Nobel Prize winners in economics.

Great economic minds are studying here: George Soros, Friedrich Hayek, Mick Jagger (Laughter).

Last month, just last month, economists at the LSE looked at 51 cases of performance-based pay in the corporate world.

They concluded that financial incentives can have a negative impact on overall performance.

There's a disconnect between what science finds out and what business does.

Standing in the rubble of this collapsed economy, my concern is that too many organizations base their decisions and their policies about people and talent on outdated and untested assumptions, based on myth rather than science.

If we're going to get out of this economic quagmire, if we're going to be high performers on 21st-century unanswered tasks, we need to stop doing the wrong thing any longer. Stop luring people with sweeter carrots and threatening them with sharper sticks.

we need a whole new approach

The good news is that scientists are showing us new approaches.

It's an intrinsically motivated approach.

I do it because it's important I do it because I like it I do it because it's interesting I do it because I'm part of something important

The new operating system for business revolves around three elements: autonomy, growth and purpose.

Autonomy is the desire to control the direction of one's life.

Growth is wanting to be good at something important.

Purpose is a longing to do something for something bigger than ourselves.

These are the elements of an entirely new operating system for our business.

Let's just talk about autonomy today.

In the 20th century, the idea of ​​management was born.

Management doesn't just come naturally.

Management is not like a tree, it's like a TV.

someone invented

It's not going to work forever.

management is great

If you want obedience, the traditional management mindset is a good fit.

But if you want participation, autonomy works better.

Let me give you an example of a slightly radical way of thinking about autonomy.

Not too many, but very interesting things are happening. We're going to pay people properly, fairly, without fail, we're not going to let them think about money anymore, and we're giving people a lot of autonomy.

I'll give you a concrete example.

How many of you know a company called Atlassian?

(no one raises their hand) …it's not even half

(Laughter) Atlassian is an Australian software company.

they're doing some really cool stuff

A few times a year, I tell my engineers, "You can do whatever you want in the next 24 hours, whatever you do as long as it's not part of your day-to-day job.

do whatever you like"

Engineers use this time to piece together code and do elegant hacks.

And at the end of the day, there's a chaotic all-hands meeting to show your teammates and the company what you've built.

Since it's Australia, we drink beer together.

They call it "FedEx Day"

Why you ask? because you have to deliver something overnight

nice isn't it

It may be a trademark infringement, but it fits perfectly.

(Laughter) Many of the software fixes that came out of this day's intense voluntary effort would not have happened without this effort.

This worked so well that we took it to the next level and started 20 percent of our time, which Google is famous for doing: engineers can spend 20 percent of their time doing whatever they want.

Autonomy in time, tasks, teams, and technology used

It's a big decision

And at Google, as we all know, nearly half of all new products come from this 20 percent time: Gmail, Orkut, Google News.

Let me give you a more radical example. There's something called the Results Only Work Environment, or ROWE, which was devised and implemented by American consultants, and there are about a dozen companies in North America.

At ROWE people don't have schedules

You can go to work when you want

You don't have to be at the office at a specific time You don't have to go at all

Just get the job done

It doesn't matter how you do it, when you do it, where you do it

Meetings are optional in such circumstances

What would be the result?

In most cases, productivity increases, tenure increases, employee satisfaction increases, and turnover decreases.

Autonomy, growth and purpose are the building blocks of new ways of doing things.

I'm sure some people hear this story and say, "That's fine, but it's a pipe dream."

No, I have proof

In the mid-1990s, Microsoft started creating an encyclopedia called Encarta.

We set the right incentives, paid thousands of professionals to write articles.

A well-paid manager oversaw the whole thing and made sure it was on budget and on time.

A few years later another encyclopedia was started.

i had a different model

I do it for fun, not a single cent, a single euro, a single yen

I do it because everyone likes it

Suppose, just 10 years ago, you went to an economist and said, "Hey, I've come up with two models for creating an encyclopedia.

Who do you think will win in a confrontation? ”

Ten years ago, not a single sane economist on the planet would have said the Wikipedia model would win.

It's a big showdown between two approaches.

It's the Ali vs. Frazier battle of motivation.

The legendary Manila decisive battle

Intrinsic Motivation vs. Extrinsic Motivation

Autonomy/Growth/Purpose vs Carrots and Sticks And who will win?

Inner motivation Autonomy, growth, purpose

I will win by knockout. Let's wrap it up.

There's a disconnect between what science has figured out and what business is doing.

science has clarified

1. 20th century rewards, the motivations we all take for granted in business, that work but fit a surprisingly narrow range of situations.

2. If Then rewards sometimes kill creativity

3. The secret to high performance isn't in rewards and punishments, it's in the invisible inner drive: the drive to do something for yourself.

Willingness to do it because it is important

The important thing is-

It's just that we know this, science has only confirmed it.

If we correct this mismatch between scientific knowledge and business practice, if we adopt 21st-century motivational thinking, if we move away from the lazy, dangerous, ideological carrot and stick, we can make companies stronger, solve more candle problems, and perhaps change the world.

This concludes the proof

(applause)

Nikola Tesla was the first person to think of wireless power transmission, about 100 years ago.

No one ever thought that we could transmit power wirelessly.

"Who will use it?"

Yet he set about in many ways

The result was the Tesla Coil, and this tower was built on Long Island in the early 1900s.

The idea is to send electricity anywhere in the world.

No one knows if this actually worked, but the FBI apparently pulled it out because of security concerns, in the early 1900s...

The only thing that's become clear about electricity is that we love it.

think about how much you like it

If you walk outside, you'll see that trillions of dollars are being invested in infrastructure around the world, the infrastructure that runs the wires and gets the electricity from the power plant to where it's consumed.

We also like dry batteries

If you're interested in environmental issues, listen up. Every year, 40 billion single-use batteries are made. Generally speaking, electricity is within your reach from where you have very cheap electricity.

On my way here, I thought, "I'm from North America.

common words in america

Let's find out first."

This sixth is the North American definition of the word suck...

Power cords are really bad

Think about it, wouldn't it look like this, or would it look like this under your desk?

Batteries are the worst

this is dead worst

Have you ever wondered what would happen to this guy?

40 billion pieces are made each year.

It will be like this

It will crumble into pieces.In the end, it will be thrown away in a place like this.

So when you're thinking about how expensive electricity is, you have to think about the cost per kilowatt-hour of battery-powered power in units of over 100 kilograms.

think about it

The world's most expensive grid power costs thousands of times that.

Fortunately, the word suck also means "to create a vacuum."

And nature does not leave a vacuum

A few years ago, a group of theoretical physicists at MIT came up with the concept of sending electricity over long distances.

I was able to turn on a 60 watt bulb that was basically two meters away.

That's 50 percent efficiency, which by the way is thousands of times more efficient than doing the same thing with a dry cell battery.

I succeeded in turning on the light bulb, and it worked very well.

This is an experiment, so the coil is a bit large.

Turning on a light bulb was a relatively easy task for them.

The original impetus was when a professor was woken up one day by his wife's cell phone ringing three nights in a row with a very low battery.

He thought, "There's a lot of electricity on the wall right next to me. If I could get a little bit of my phone in, I'd be able to sleep better."

And that's how I came up with this concept: resonant energy transfer.

An ordinary transformer has two coils

These two coils are very close together, and they use magnetism to wirelessly transfer power over a very short distance...

What Dr. Sojacic discovered was separating the transformer coils so that they could be used over longer distances, a technique similar to how opera singers break glass across a room.

It's called a resonance phenomenon, and he won the MacArthur Fellowship, also known as the "Genius Prize," for this discovery last September.

So what is the principle?

Imagine a coil, engineers, put a capacitor there too.

If you can get that coil to resonate, it will start vibrating at alternating frequencies, which, by the way, will be quite high frequency.

If you can take another device and get it close enough, it will operate at exactly the same frequency, and you can transfer magnetic energy between them in what is called a "strong coupling."

So, on one side, we convert the electricity into a magnetic field, and on the other side, we convert the magnetic field back into electricity, and that's how electricity is transmitted.

The most frequently asked question is safety

Some people worry about the security of their mobile phones.

Is there any safety issue? Say

First of all, this is not radiation technology.

does not emit radio waves

no electric field, just magnetic field

And the magnetic field only stays in what we call the "source of power" and in the device.

The magnetic field we're using here is basically the same as the Earth's magnetic field.

we live in a magnetic field

Another cool thing about this technology is that it only radiates energy to things that move at exactly the same frequency.

This is nearly impossible

And finally, governments everywhere are beginning to regulate.

Everything I'm showing you today is within the limits set by the regulations.

mobile electronics

home electronics

I'm sure you're all familiar with the cords like this under your desk, and the same goes for batteries.

Some are for industrial use

and most recently electric vehicles

electric cars are beautiful

But is it troublesome to insert the charging cord every time?

We built a system where when you park your car in a garage, the car automatically charges it, and there's a mat on the floor that's tied to the wall.

It charges your car safely and efficiently.

There are many other uses, such as implanted medical devices, and no one dies from infection anymore.

There are also credit cards and cleaning robots.

I'd like to take a few minutes here today to show you how it works in practice.

here is almost everything

here is the coil

An RF amplifier connected to the coil creates a magnetic field that oscillates at a high frequency.

I have the same one behind the TV.

By the way, this is made to look easier than it actually is.

It's packed with electronic components and little secrets and all sorts of intellectual property.

Now what happens here is create a magnetic field,

creates a magnetic field in the other device as well

If the demo god is in a good mood, the TV will turn on in about 10 seconds.

As for why it takes 10 seconds -- I don't know if anyone has ever tried to turn on a TV with a cord.

Ordinarily, you would have to walk up to it and press a button, so we had a little computer inside that wake up and tell it to turn on the television.

I will insert the code

create a magnetic field here

That is transmitted to this side as well.

Like I said, the TV should turn on in about ten seconds...

This is a normal -- (applause) normal color TV that's sold in a store.

Imagine if you got this, you'd want to hang it on your wall.

How many of you would like to hang your TV on the wall?

Think about it, you wouldn't want your cord hanging around.

Imagine if you could get rid of the code

Let's talk about safety

no problem i'm fine

I'll do it again, just to be safe.

When people see this, they immediately ask, "How small can it be? Can it be small enough?"

Remember, Dr. Sojacic's original idea came from his wife's cell phone.

I have something to show you

We are equal opportunity designers--

First is Google's G1

you know it came out recently

running on android OS

Surely someone was talking

It's a little weird, besides the battery.

It also has coiled electronics that we WiTricity put on the back.

Could you bring the camera closer? Okay, see. If you bring this closer...

Become a completely wirelessly charged phone

(Applause) And I know there are Apple lovers out there.

It's actually not easy to mess around with the inside of an Apple phone.

So I put a little case in the back and it should boot.

This is the familiar green screen for iPhone users.

(Applause) Nokia tried it.

You can see I've got a little thing attached to the back that should also make a sound when it's turned on.

I usually use it to illuminate the screen, but...

Imagine what you can do in the ceiling

You can put it on the floor, of course you can embed it under the desk

If you walk into the room and you have a wallet, you can charge it in your wallet.

You'll never have to plug these things in again

Think about what you would use it for

Finally, I added one more slide, like The New Yorker's immortal vision.

It's kind of hard to see, but it says, "It looks like wireless technology."

thank you very much

(applause)

My story is about the world's greatest conundrum

I'm not going to talk about "environmental skepticism," although that would have been a good story, too.

(Laughter) But I'm going to talk about what are the big problems in the world.

Before we begin, I'd like to ask you one thing. Get out your pen and paper. We want you to know how we do it.

Have pen and paper ready

In short, there are many problems in the world.

I will list some of them

800 million people are hungry

1 billion people do not have access to clean drinking water

2 billion people live without sanitation

Millions are dying from HIV and AIDS

the list goes on

2 billion people will be severely affected by climate change - and more

So many problems pile up in an ideal world.

All problems are solved, but not really

can't solve all problems

So there's something to ponder, which is why I'm talking about this economics session, is when you can't do it all, which problem should you solve first?

This is the question I wanted to ask you

If you could spend $50 billion in the next four years to help the world, where would you spend it?

I've selected 10 of the world's most important problems, and I'm going to read them to you: global warming, epidemics, conflict, education, financial instability, governance and corruption, malnutrition and hunger, immigration, sanitation and water, subsidies and trade barriers.

I think in many ways they cover some of the world's most important issues.

A natural question arises: What do you think is the most important issue?

Where do I start to troubleshoot these issues?

but the question is wrong

At the Davos meeting in January, this question was actually asked.

The downside is that it forces you to focus on the problem.

because these problems cannot be solved

The biggest problem in the world is that everyone dies.

We don't have the technology to solve it.

The important thing is not to prioritize the problems, but to prioritize the solutions to the problems.

Then things get a little more complicated.

If it's global warming, the Kyoto Protocol would be the solution.

For communicable diseases, it's clinics and mosquito nets.

In conflict, it's a United Nations peacekeeper.

So what I'm going to ask you to do, which is kind of a very difficult request, is to write down what you think is your top priority in 30 seconds.

And the nasty side of economics, write down the things you shouldn't do first.

what's at the bottom of the list

You have 30 seconds. You can talk to the person next to you. Decide what your top priorities are.

What's amazing about this process --- it's actually only 18 minutes, so... are you sure?

Let's go through the details of this process together. This is exactly what we did.

I want you to think about how we actually prioritize, and I'm going to continue the discussion.

Come to think of it, why haven't we had this kind of list before?

One reason is that prioritization is really unpleasant.

nobody wants to do

Every organization wants to be number one on the list

I don't want to be anything other than number one on the list

There are so many places on the list other than number one, so it's no wonder you don't want to make a list like this.

Some 60 years after the founding of the United Nations, there has never been a significant list of all the great things we could do in the world and which ones to start with first.

It's not that we don't prioritize. Every decision prioritizes something, and implicitly, we prioritize. It's hard to imagine that if we prioritized and discussed each one the way we did, it would rank as well as it did.

My proposal made it clear that the menu to choose from has been presented for a long time.

There's a lot on the menu that we can do, but there's no price, no size.

I had no idea about it

Imagine walking into a restaurant and being handed a large menu with no idea of ​​the price.

There's pizza, but I have no idea how much it costs

it could be a dollar, it could be a thousand dollars

It could be family-sized, or it could be a small one-person pizza.

i want to know where

The Copenhagen Consensus effort tries to put a price on these challenges.

So basically I proceeded like this

We picked the 30 best economists in the world, three in each area.

And three economists report on global warming.

What can you do? What is the cost? What are the benefits?

The same is true for infectious diseases.

Compiled by 3 of the world's top experts

what you can do and how much it costs

how to act and what are the consequences

about each issue

Then, in May 2004, eight economists from among the best economists in the world, including three Nobel laureates, met in Copenhagen.

It's a dream team

The guys at Cambridge University are calling it the Real Madrid of economics.

Works in Europe but not in America

Now, economists have come up with a list of priorities.

You might wonder why economists do

Thank you very much for listening (laughs). It's a really good question.

First of all, if you want to know about malaria, of course you'll talk to a malaria expert.

Ask a meteorologist about climate issues

But I don't know who to ask which of these issues to tackle first.

It's not their job, it's the economists' job.

prioritizing

It's the economist's job to do the tedious task of showing what to do first and what to do later.

So here's the list, and I'd like to share it with you.

Of course, you can find it on the website, and I'm going to talk about this list.

So basically, I've created a list of things like this, and there are projects that are "can't," which are projects that you don't get back for every dollar you put in.

Then there are projects that are good, good, and excellent.

Of course, you should start with the "excellent" project.

Now let's start from the bottom and finally look at the best projects.

Here's a "can't" project

At the bottom is global warming.

A lot of people got offended by this, and a lot of people say it's better not to tell me this story.

But I want to tell you this story Don't you think it's funny

why did this matter

I think it's probably a point that doesn't match up with the lists you've made, so I'll come back to that point later.

The reason why the Kyoto Protocol and subsequent proposals have come to the conclusion that they are not worth the money is that they are not efficient.

I'm not saying that global warming isn't happening.

That's not to say it's not a serious problem.

He says that there is too little that can be done about this, and the cost of doing so is very high.

The average cost of all macroeconomic models, if all countries agreed to the Kyoto Protocol, would be $150 billion a year.

it's really huge

double or triple international development assistance to developing countries

Still, it's almost useless.

It delays the progress of global warming by 2100 by 6 years.

Delay 2100 floods in Bangladesh to 2106

Slightly better but not as effective

You're spending huge sums of money on small improvements.

For comparison, the United Nations estimates that half that amount, or $75 billion a year, could solve the world's major problems.

We can bring clean drinking water, sanitation, basic health care and education to every person on the planet.

Think again, are you spending twice as much money for a small effect?

Or do you do wonders for solving problems for half the price?

That's why I made it a "impossible" project.

Even if you have enough money, it doesn't mean you won't do it.

Money is limited, so it's not the number one priority.

I'm not going to comment on everything here, but I gave communicable diseases a "pass" because of the scale of basic health services. It's simply a matter of scale.

very useful but also very expensive

Again, it's about starting to consider both sides of the equation.

Good projects have sanitation and water.

Sanitation and water are also really important, but they require huge infrastructure investments.

Now, here are the top four, and these are the first problems to tackle when we talk about tackling the problems of the world.

The fourth problem is malaria, malaria control.

[200-300 million] contract malaria each year

It costs infected countries as much as 1 percent of their GDP each year.

Investing $13 billion over the next four years could cut the prevalence in half.

We could cut half a million deaths, and more importantly, we could cut malaria [100 million] a year.

These people's abilities will enable them to tackle other problems they face, including, of course, global warming.

3rd place is free trade

Basically, according to the model, if we could maintain free trade and reduce subsidies in the United States and Europe, we would be able to revive the global economy to a staggering $2.4 trillion a year, half of which would go to the Third World.

The bottom line is that we can lift 200-300 million people out of poverty in two to five years, which is amazingly fast.

This is the best thing you can do, number three.

The second will focus on the problem of malnutrition.

Malnutrition, especially micronutrient deficiencies, can be addressed very cheaply.

Essentially half the world's population is deficient in iron, iodine and vitamin A.

An investment of $12 billion would be an effective response to this problem.

The second most effective investment we can make

The best projects focus on HIV/AIDS

Investing $27 billion over the next eight years will prevent 28 million new HIV/AIDS cases

Again, there are two different ways to tackle HIV/AIDS, which is something to notice and focus on.

One is treatment, the other is prevention.

And in an ideal world, I would do both.

When you can't do both, or you can't do both, you have to think about where to start investing.

Treatment is much more expensive than prevention

So we focused on how we can do more by investing in prevention.

For a given amount of money, if the treatment yields X benefit, prevention is 10 times that benefit.

So the first thing to do is focus on prevention rather than cure.

The list made us think about our priorities.

I want you all to take a look at your priorities. Are they the same?

Is your list close to ours?

Of course, climate change will be an issue.

Even if the prospects are faint, there must be many people who believe that global warming countermeasures are necessary.

We should also tackle global warming, because this is a very big problem, and that's reason enough.

Still can't address all problems

There are so many problems in the world

What I want to tell you is that if you focus on one problem, shouldn't you focus on the right problem?

Focus on problems that yield more than small improvements

Thomas Schelling, who joined the Dream Team, put it very well.

One of the things that people often forget when discussing the impact of climate change 100 years from now is that people will be much richer then than they are today.

Even with the most pessimistic outlook of the United Nations

By 2100, the average citizen in the developing world will be as rich as we are today.

We may be two to four times richer than we are today.

Of course we should be richer than that.

But the point is, when we talk about helping people, when we talk about helping people in Bangladesh in 2100, we're not talking about poor people in Bangladesh today.

Helping a very wealthy "Dutchman"

I mean, do we really want to spend a lot of money and give a little bit of support to a very wealthy "Dutchman" 100 years from now?

Or do you want to help the really poor and needy people in Bangladesh now who can help for very little money?

Or, as Schelling puts it, if you're a wealthy Chinese or a Bolivian or a Congolese in 2100, you can look back at 2005 and say, "There's something strange about that. People were worried about climate change and helped us a little bit.

I hope this helps you understand why you need to get your priorities right.

Even if it's different from what you thought was normal

One of the main reasons is that climate change is picturesque.

There is also a movie called "The Day After Tomorrow"

It's a flashy movie, and I would love to see it too, but what about Emmerich's next movie, starring Brad Pitt, digging a toilet in Tanzania?

In many ways, I think the Copenhagen consensus and the debate over priorities is a defense against boring problems.

not for self-satisfaction

It's not about getting media attention, it's about making room for the most effective projects.

An important counter-argument to address is the question of whether we're making the wrong choices.

In an ideal world, we would do everything, and there's no dispute about that.

but in fact it's not

In the 1970s, the developed world decided to do twice as much for the developing world as they do today.

Aid was cut in half after that.

So I don't think all the big problems are going to be solved right away.

Similarly, some people say, what about the war in Iraq?

We've spent $100 billion. Why can't we use that amount to make the world a better place?

I totally agree

Somebody please tell President Bush please

No, but if you're going to spend another $100 billion, you want to make the best use of it, right?

Ultimately, it's a question of rethinking and prioritizing appropriately.

Simply put, is this list we got really correct?

Asking the best economists in the world necessarily means asking older white Americans.

This is not necessarily the best way to get a bird's eye view of the world as a whole.

So we actually got 80 young people from all over the world to solve the same problem.

The only two things I asked for were to study at university and to speak English.

Most of our members came from developing countries.

We gave them the same material, but allowed the scope of the discussion to stray too far from here, and they did, and they made their own list, amazingly enough.

The list ended up being very similar, with malnutrition and disease at the top and global warming at the bottom.

we have done this several times

Even if I change seminars and colleges over and over again

I always got almost the same list

And there's great hope in that, and I believe that if we think about our priorities, we can see a way forward. So what are the big issues for the world?

In an ideal world, I would be happy to work on everything.

When you can't, let's start by considering where to start.

The Copenhagen Consensus believes process matters

We did it first in 2004, and then in 2008, in 2012, we hope to bring more people together and get better information.

We want to find the right path for the world, and we're starting to think about ranking by political urgency.

I'm starting to think about appealing like this: "Let's stop doing things that have little effect and cost a lot of money. Let's stop doing things that we don't know how to do. Instead, let's start doing important things that are useful to the world and that don't cost much."

Ultimately, you may not agree with the priorities that we actually set. There are some things we have to be honest and upfront about, and there are other things that we do that go untouched.

If you focus too much on one particular thing, you lose sight of other things.

I hope that today's talk will help you think more about prioritization and what you can do for a better world.

thank you

I'll tell you about your mindset

Is your mindset aligned with my dataset?

(Laughter) If it doesn't fit, you'll have to upgrade one or the other.

When I talk about global issues, I always hear students during recess talking about "us" and "them."

So when the break is over, I ask, "What do you mean by 'we' and 'them'?"

I say, "It's easy, the Western world and the developing world."

"That's what I learned in school."

When asked, "Then what is the definition of that?"

"Everybody knows that," he says.

Even so, if I dare to ask for an answer

A female student gave a good answer

“Longevity and small families in the Western world

Short lives and big families are the developing world.”

I like this answer because it allows me to translate their mindset into a dataset.

Here is that dataset

The horizontal axis is the size of the family. One woman, two children, three children, four children, five children.

The vertical axis is how long you live, meaning that the average life expectancy is 30, 40, and 50 years.

The student's answer was exactly the image of this world.

And this is really a bedroom problem

A man and a woman decide to have a small family and take care of their children and how long they live

This is a toilet and kitchen problem. Soap, water and food keep people alive.

The students were right, the world is like this, with one big family, short-lived developing world on one side.

On the other hand, a small family with a long life

There was the Western world, and then-

Amazing things have happened in the world in my lifetime

Developing countries get soap, water and vaccines

get to do family planning

It's partly thanks to the United States providing technical advice and investment.

And as you can see, the world as a whole is heading towards a two-child family with a lifespan of 60 to 70 years.

But some countries are left behind

Afghanistan is here

Also Liberia and Congo

There are countries with such conditions

So the problem for me is that the image students have of the world predates their teachers.

(Laughter) (Applause) I've actually done this in various places.

Last week, the Global Health Conference was here in Washington, and it turns out that even those working in the United States are similarly mistaken in their thinking.

let's move forward in time

Please look

They're catching up Mexico is here

It's on par with the United States on these two social dimensions.

Less than 5 percent of global health experts are aware of this.

Mexico, this wonderful country, has a problem with arms crossing the border from the north, and this needs to stop because it's got a weird relationship with the United States.

But what if we change the horizontal axis to income per capita?

Then it becomes

As you can see, it's a completely different shape.

This is how we explain how to use our site, Gapminder World, and the reason why I recommend it is that it's a free utility available on the internet.

If you set it up well, you can go back 200 years in history.

America is here

Show other countries

The horizontal axis is income per capita.

America had only about $2,000 at the time.

Life expectancy is 35 to 40 years, similar to today's Afghanistan.

Then let me show you what happened to the world

Even if you don't study history for a year at university

See it all in 1 minute

(Laughter) The brown circle is Western Europe, the yellow circle is the United States, getting richer and healthier.

This was 100 years ago, and the rest of the world is still the same.

Come here and get the flu

No wonder we're all afraid of the flu

I still remember that life expectancy has dropped significantly.

Then it rises again.

Here's China, here's India, and then what?

Note we have Mexico here

Mexico isn't on par with the United States, but it's pretty close.

It's especially interesting to look at China and America in the last 200 years, because Google bought this software, and my oldest son is now working at Google.

It's actually child labor, because my son and his wife spent years in a closet developing this.

My youngest son is studying Chinese in Beijing.

Children have come to have these two perspectives.

My youngest is studying in Beijing, and we're taking a long-term view.

My eldest son works at Google, and he works on a quarterly or half-yearly cycle.

Well, Google is generous, so it might be done in a year or two.

The reason the Chinese look at things across generations is because they remember a very infamous era of 100 years of setbacks.

And then I remember the very bad times at the beginning of the 20th century, and then there's the so-called "Great Leap Forward."

1963

Mao finally brought health to China, and after Mao died, Deng Xiaoping started this astonishing advance.

It's kind of funny, don't you think?

The Chinese get healthy much sooner because they used their education, their knowledge of nutrition, they benefited from penicillin and vaccines, they did family planning.

In Asia, social development precedes economic development.

As a professor of public health, it's no surprise to me that these countries are growing so fast.

What you're looking at here is Thomas Friedman's flat world, you know?

Not really flat

Because of the existence of this middle-income country, I'm telling my students to stop using the term "developing world."

Talking about the developing world is like dividing the history of America into two chapters.

The later chapters are now in the Obama era, and the earlier chapters are in the old days, from Washington to Eisenhower.

Because from Washington to Eisenhower, it seemed like a developing world.

From the Mayflower to Eisenhower, you could say, it was a developing world collectively, with cities growing at an incredible rate, some countries with great entrepreneurs, others going bankrupt.

So how can we capture it better?

One way is to look at the distribution of income see

This is the distribution of income for people around the world on a dollar, although they have something to eat.

You will go to sleep hungry

The vertical axis is the number of people with that standard of living.

$10 There are public and private health services. Here you can take your family to the doctor and send your children to school. Blue is OECD countries Green is Latin America Orange is Eastern Europe

Yellow is East Asia Light blue is South Asia

and how the world has changed

changed like this

Can you see the growth? Hundreds of millions of people in Asia are lifting themselves out of poverty

and I've come this far

It's going to be a prediction from here on out, but we have to stop at Lehman Brothers (Laughter) because from there on out the predictions are no longer correct

Maybe the world will be like this

and keep going like this

For the most part, this is what will happen, and our world can no longer be seen as divided.

Here are the high-income countries, the United States leading the way, and the fast-growing countries in the middle, spending a lot of money on emergency aid.

In fact, they're the source of the money. They were saving at the end of the 20th century.

Here are low-income countries with entrepreneurs,

And here are countries that are bankrupt or in conflict: Afghanistan, Somalia, parts of the Congo, Darfur.

it all exists at the same time

That's why it's problematic to say what the developing world is like.

What's happening there is so different

So I suggest calling it a little bit differently.

There are also big differences within the country.

I heard that the departments of the State Department are divided according to regions.

Here we have sub-Saharan Africa, South Asia, East Asia, Arab countries, Eastern Europe, Latin America, OECD countries.

Horizontal axis is GDP

The vertical axis is infant survival, and it's no surprise that sub-Saharan Africa is at the bottom.

But let's take this apart and put the circles into countries, where the size of the circle is the population.

Sierra Leone and Mauritius are totally different

Even within sub-Saharan Africa, there are differences

Let's break the others apart, this is South Asia, and the Arab countries.

Everyone is a different department.

Eastern Europe Latin America OECD countries

And the whole world is continuous

cannot be split in two

The Mayflower is here Washington was founded here.

Lincoln advanced the country here.

Eisenhower brought modernization to the nations of the world

And here is America today

the country continues

There's something important in understanding how the world has changed.

I would like to make a declaration here

(Laughter) I think it's my job to say thank you to the American taxpayer on behalf of the rest of the world, the Demographic and Health Survey (DHS).

A lot of people don't realize it... but it's serious

very

It's a systematic measure of child mortality, with 25 years of continuous support from the United States, that gives us a picture of what's happening in the world.

(Applause) And the U.S. government has done its best to provide useful facts to society without claims.

Thank you for making the world's data available for free on the Internet.

It's the exact opposite of the World Bank, which uses government money, tax dollars, to collect data and sell it for a small profit in a very inefficient, Gutenberg way.

(Applause) But the people who work at the World Bank are some of the brightest people in the world.

Highly skilled professional

We want to upgrade our international institutions to face the world in a more modern way, like we do.

The United States is number one when it comes to free and transparent data.

This is very hard for a Swedish public health professor to talk about.

(Laughter) I'm here unpaid, too.

Let's use this data to show you what happened.

This is income on the horizontal axis

This is a world where the vertical axis is the infant mortality rate.

What happened to the world?

In the 50 years since 1950, infant mortality rates have fallen sharply.

DHS made it possible for me to understand this.

income increased

The blue, once-developing nations are mingling with the industrialized nations of Western Europe.

It's a continuum, but there's still this part, this is the Congo, where poor countries have always existed throughout history.

Today, we hear about an entirely new approach to this bottom billion.

How quickly did this happen?

MDG 4 (Millennium Development Goal 4)

America is not very enthusiastic about MDG 4.

But the United States is a major sponsor of this measurement, the only infant mortality rate that we can measure.

They said they would reduce it by 4% a year.

Let's see how Sweden was

We Swedes used to boast about the speed of social development.

This is where we were in 1900

Sweden in 1900

Same infant mortality rate as Bangladesh in 1990, but Bangladesh has lower incomes.

Good start. Good use of aid.

immunized children and improved drinking water

And it lowered the infant mortality rate by a staggering 4.7 percent a year in Sweden --

We've beaten them, and Sweden is running the same 16 years.

The second round is Sweden in 1916 vs. Egypt in 1990.

America's power is here again

We got clean drinking water, we fed the poor, we eradicated malaria.

5.5 percent faster than the Millennium Development Goals

Give Sweden a third chance against Brazil.

In the last 16 years, Brazil has seen an astonishing social improvement, faster than Sweden.

This means that the world is converging

Middle-income countries, emerging economies, they're catching up.

They're flocking to cities, where they're getting better support.

Sweden protests

"It's not fair, these countries have vaccines and antibiotics that we didn't have.

We have to compare them at the same time.”

All right, let's play against Singapore the year I was born.

Child mortality in Singapore was twice as high as in Sweden

It's a tropical country, it's an equatorial wetland country.

Takes a while to become independent

Then economic development begins

And then there's social investment, we're going to get rid of malaria,

We built a great healthcare system, and we beat the United States and Sweden.

We never thought they would beat Sweden!

(Applause) All the countries in green are meeting the Millennium Development Goals.

yellow are countries nearing the target

Red is a country that hasn't changed, we need to do better.

rather than a simple guess

We need to find ways to help these countries get better.

We must respect what middle-income countries are achieving.

and we need to see the world as factual

The horizontal axis is income per capita The vertical axis is the percentage of people infected with HIV

Africa is blue

The size of the circle represents the number of people infected with HIV.

You can see the dire situation in South Africa

20% of adults are infected

Despite their high incomes, there are many people living with HIV.

And then there are the African countries that are down there.

HIV is not an African disease.

There are about five or 10 African countries on par with Sweden and the United States.

And then there are countries with very high infection rates.

I'm going to show you what happened to one of the strongest and most well-managed economies in Africa: Botswana.

very high level

It's been going down, but it's not going down. PEPFAR (President's Emergency Plan for AIDS Relief) is working, and people aren't dying.

As you can see, it's not an easy story. It wasn't the war that caused this.

There is a conflict here in the Congo

And here in Zambia is peaceful

It's not because of the economy, it's slightly more expensive in rich countries.

Let's break Tanzania apart by income: The rich 20 percent have more HIV than the poor 20 percent.

there are differences even within the country

Kenya seen state by state, very different

The situation we see here is not due to poverty

It's a peculiar situation, and it may be due to heterosexual concurrent sexual relations in some countries and regions in eastern and southern Africa.

This is not a problem of Africa as a whole, nor is it a race problem.

It's a local problem, and it needs to be done locally, in ways that are available locally.

And finally, I'll show you another unknown suffering of the poorest billion.

No cell phones, no computers, people without electricity in their homes.

This is konzo disease, which I've been researching in Africa for 20 years.

Caused by improper detoxification of cassava under conditions of famine

Similar to pellagra in Mississippi in the 1930s

Similar to other nutritional disorders

rich people don't take

we saw this in mozambique

It's endemic in Mozambique and even in northern Tanzania.

You've never heard of this disease

But this disease affects far more people than Ebola.

Giving birth to people with disabilities all over the world

In two years, 2,000 people became lame in the southern tip of Bandungdu province in Congo.

This is where the illegal diamond trade took place. It was controlled by UNITA in Angola.

It's gone now, and they have big financial problems.

A week ago, the first four-line description appeared on the Internet.

Developing emerging economies Great power of people in middle-income countries Don't confuse peaceful and low-income countries.

1 billion people are still miserable

We need a different concept than developing countries or the developing world.

We need a new mindset. The world is converging, but, but, except for the bottom billion.

they are still poor

This is not sustainable, it won't happen around one superpower.

But the United States will continue to be the most important superpower, and for the time being it is also the most promising one.

And this State Department will play a very important role, not just for America, but for the world.

So the Department of State is a bad name, because it's not a department for the state.

this is the world ministry

We have high hopes for you. Thank you very much.

(applause)

i love theater

I find it fascinating to play someone else and see life from a completely different perspective.

It would be nice if people could gather in one place and listen to a play for a few hours.

It's a wonderful thing, regardless of age, race, color, religion, etc., that we can all come together in that place and time.

Then we transcend both space and time.

Theater awakens our senses and opens the door to our imagination.

It is this imagination that pushes us to try new things.

It is this imagination that makes us inventors and creators and gives us individuality.

In 2003, I was asked to create an original show, and I started working on "Upwake."

"Upwake" is about Zero, a modern businessman who walks to work with his suitcase.

Seeking the same quality as the movie in Upwake's visual and auditory effects

I also wanted to let my imagination run free.

So I started drawing the story that was running through my head.

If Saint-Exupéry, the author of The Little Prince, was here, he would have drawn three holes in the box and said, "There is a sheep inside."

Because if you look carefully enough, things will emerge.

It's not a box, it's a representation of my fantasies from my head to the paper, from the paper to the screen, until it becomes a reality.

In "Upwake," buildings wear suits, and Zero tap-dances on giant keyboards, clones with scanners, tame mice, slips from scraps of paper into dreams, and launches into space.

I wanted to create a stage space with movement and change like a magician.

Warp to another world in an instant

I wanted it to be a show that had humor, beauty, simplicity, complexity, and metaphorical expression of thought.

For example, at the beginning of the show, Zero will play the dream and reality as a DJ.

Technology is the tool that allows me to project my vision in high definition on the live stage.

So today I want to talk to you about the relationship between theater and technology.

Let's start with technology

(Fuse sound) If that's the case, let's start with the play

(laughter) (boom) (huh huh bang) (laughter) (applause) Thank you.

"Upwake" has a running time of 52 minutes and 54 seconds

3D animation is projected onto all four sides of the stage, and I interact with it.

It was a series of discoveries in the way of using video and projection

I used it not as a special effect, but as a partner on stage.

No special effects in "Upwake" No artifice

Minimal and simple, yet complex and deep

What started out as a one-man play turned into a collaboration between 344 frames, several commissions, and four and a half years with 19 talented artists.

I will show you some scenes

(Applause) Thank you.

This is a relatively new show that has just started touring

I was asked to do a simple demonstration in the afternoon at a school in Austin, Texas.

When I visited one of these schools, I was greeted by an unexpected sight: a gymnasium full of 600 students waiting.

Animation Costume I was a little worried about acting without makeup.

But later the teachers told me that they had never seen children so focused.

I think this is because I was able to play with their words and reality and take them to another world.

During this time something happened

Zero became a person instead of a character in a play.

Zero doesn't speak and has no gender

Zero is Zero, the little hero of the 21st century, and Zero can touch more people's hearts than I do.

It's about introducing new territories into this framework and at the same time taking theater out of the framework.

I'm a street performer, and I've learned that people want to understand each other.

Unless I'm a little weird and human looking, people are usually willing to participate and have fun.

Something that resonates with the audience seems to be sprouting

It seems that meeting and interacting with the mysterious figure helps the audience open up a little.

Because if you wear a mask, the other side will take off the mask.

being human is a form of art

I know that theater can enrich people's lives and heal people.

I used to work as a clinical clown in a hospital for two years.

I've seen sick children and their sad parents and doctors saved in moments of carefree laughter.

Theater can connect people.

Zero tells a wide variety of stories in different mediums to inspire action for today's and tomorrow's generations.

comic books quantum physics video games

And Zero wants to go to the moon

In 2007, he launched a green campaign, suggesting his friends and fans turn off the lights every Sunday from 7:53pm to 8:00pm.

It's a simple, basic idea, it's not original, but it's important, it's about participation.

revolution is happening

This is a human and technological revolution.

movement and emotion

is also information

Visual and musical Sensory and conceptual

It transcends universal words and numbers.

this revolution is happening now

The natural evolution of science and art converging on each other enhances the human experience.

We're seeing a revolution in the way we think, the way we share things, the way we express our stories and developments.

It's an era of communication, connection, and creative collaboration.

Charlie Chaplin revolutionized cinema, telling stories through music, silence, humor and poetry.

He's outgoing and his character Tramp has appealed to millions.

He gave entertainment, pleasure and peace of mind to many in a time when they needed it most.

We are here not to ask what is possible, but to challenge the impossible.

In today's scientific world we become artists

Become a scientist in today's art world

We design the world and create possibilities

We teach, we interact, we move

Now is the time to put our diverse talents to full use and create something intelligent, meaningful and wonderful.

(Lingling) Thank you very much

(applause)

It's been 35 years since my fascination with agricultural diversity began. It all started when I came across an obscure academic paper written by a man named Jack Harlan.

He explained that the diversity of agricultural products, such as different types of wheat and rice, is a genetic resource.

I remember well that it said, "Genetic resources stand between us and unimaginable catastrophic hunger."

I wondered what this person was saying, and wondered if he was a strange person.

But as I investigated more closely, I realized that he wasn't crazy.

He was the most prominent scientist in this field.

According to him, agricultural diversity is the biological basis of farming.

It is a material that enables the evolution of agricultural varieties.

It's very important.

He also warned that agricultural diversity, the foundation, is being broken.

In fact, it meant mass extinction in our fields, threatening even the future of agriculture.

A mass extinction was beginning to occur, but few people noticed it, much less worried about it.

I'm sure many of you are familiar with the diversity of agricultural systems in theory, but let's look at the reality.

But you don't see them in newspapers every day.

When you go to the supermarket, you don't have many options.

Even with apples, there are only red ones, yellow ones, and green ones.

This photo shows an example of diversity.

This is a bean, and there are 35 to 40 kinds of beans in this picture.

Think of each one as a completely different species, like a poodle and a Greatdale.

If you were to show pictures of all the different breeds of dogs in the world, it would take about 10 slides in total, with 30 to 40 breeds on one slide. After all, there are roughly 400 breeds of dogs in the world.

For beans, there are 35,000 to 40,000 different types.

So if I'm going to show you all the beans in the world, and I'm going to have slides, even if I show you a different slide every second, it's going to take my whole TED speech. I don't have to say anything.

Notice how this diversity is horribly lost.

There are 200,000 varieties of wheat and 200,000 to 400,000 varieties of rice, but they are decreasing.

Here's an example.

It becomes a personal thing.

In the United States, the best data available in the 1880s, farmers and gardeners were growing 7,100 named varieties of apples.

7,100 names were attached to apples.

Today, 6,800 of them are extinct and we will never see them again.

When I gave a talk about extinct apple species, I used to bring a list of extinct species and pass it around.

So I ask them to look for their last name, maiden name, mother's maiden name, etc. in an alphabetical list.

At the end of the speech, when I asked, "How many people have you found names for?"

Two-thirds of the people there always raised their hands.

Then he said, "Did you know? This apple was handed down from your ancestors, and the ancestors were given the highest honor.

He gave the apple his name.

Unfortunately, it has become extinct.

Fortunately, the apples of the third who did not raise their hands still remain.

find out And keep it off the list. '' I told him.

And the good news is that Fowler's apples are alive and well.

read a passage in this old book

This book was published in 1904.

This is the second volume of a book called ''Apple of New York''.

As I said, there used to be a lot of apples.

Fowler's apples appear in this book. Don't be surprised, it says "beautiful fruit".

(laughter) I don't know if we named the apples or if the apples gave us names.

Actually, there is a continuation, and it is written that it is not a high quality apple.

That's not all.

Oh my God, this book seems to have been written by my old teacher.

"The fruit grown in New York is generally of poor shape, poor quality, and unsatisfactory," he said.

(Laughter) Now there's something to learn from this. Why should it be protected? That means.

I am often asked this question. Shouldn't we just keep the best ones? What?

There are several answers.

First, nothing is best.

Even today's best seeds are dead when they become prey to insects and pests.

Another answer is that Fowler's apples and now-uneconomical wheat seeds may be more resistant than other varieties to the diseases and pests that come with climate change.

So Fowler's apples don't have to be the best in the world. good

The important thing is that each one has a unique feature.

So, we have to protect it.

Reason? As a material, as a property that can be used in the future

Diversity gives us options.

That option will become very important in the age of climate change.

I'd like you to look at two slides. First, at the Global Crop Diversity Foundation, working with scientists from Stanford University, University of Washington, and others, we're addressing the question, "In an era of climate change, what will agriculture look like in the future, and what characteristics and characteristics will it need to adapt well?"

Simply put, in many countries in the future, the coldest seasons will be warmer than ever before for crops.

The coldest growing season of the future will be hotter than the hottest of the past.

Can agriculture adapt to it?

don't understand. Can a fish play the piano?

If agriculture has never experienced it, how should it respond?

South Asia and sub-Saharan Africa currently have the highest poverty and hunger densities in the world and, ironically, perhaps the worst impacts of climate change.

Let me give you two examples.

In this histogram, the blue bar indicates the range of temperatures so far. It goes as far back as the data is available.

You can see that there are variations from year to year. You can see the difference.

There are cold years and warm years, and it's a normal variance pattern.

The highest point corresponds to the average temperature.

In the future, in the second half of this century, we will jump out of the current fluctuation range.

The agricultural system and even the field crops of India have never experienced anything like this.

This is South Africa. Same deployment.

In fact, in South Africa, problems will arise before 2070.

By 2030, production of corn, a staple crop that provides 50% of South Africa's food, will fall by 30%. Because in 2030 the climate is already changing.

A 30% drop in production while the population continues to grow means a food crisis. Worldwide.

You will see children dying of hunger on TV.

At this point, you might think that 20 years is still a long way off.

It takes 10 years to create a new variety of corn,

Two chances to fix.

We have to start planting crops that suit the climate, and we need to hurry.

The good news is that I've been saving properly.

So far we have conserved a lot of biodiversity and agrodiversity. I deposited them in a seed bank and kept them frozen.

If you want the seeds to last longer and be useful to breeders and researchers, dry the seeds and then freeze them.

Unfortunately, these seed banks are located in vulnerable buildings around the world. It is very valuable.

disasters do happen. Recently, gene banks and seed banks have been lost in Iraq and Afghanistan. You can guess why.

Rwanda and Solomon Islands.

Seed bank buildings can also be hit by the usual disasters. Financial problems, management failures, equipment failures, and all sorts of other things can happen, and each time that happens, extinction occurs. You lose diversity.

It's not the same as losing your car keys.

It's the same as the extinction of the dinosaurs, Once lost, it will never return.

So a few of us got together and decided that we had enough and that something had to be done and that somewhere we really needed a facility that could really protect biodiversity.

The endangered panda may be more of a concern than the endangered carrot, but it is a very important part of our diversity.

So I went quite north to find a really safe place.

Actually, I went to Svalbard.

It is located north of the main island of Norway, next to Greenland.

It is located at 78 degrees north latitude.

It is the northernmost point that can be reached by regular flights.

The scenery is so beautiful that words cannot describe it.

It's otherworldly and just beautiful.

We worked with the Norwegian government and the Norwegian Genetic Resources Program (NorGen) to create this facility.

This figure is a general view of the facility built on the mountain of Svalbard.

We chose Svalbard as a cold place and realized a natural freezer.

It's a remote place, but the traffic is secure, it's safe, and it doesn't have to be mechanically frozen.

It sounds like a dream, but it's not a dream, it's reality.

You can see what the Svalbard looks like in this photo.

This is the main entrance to the facility.

When you open this front door, it looks like this. Simple, isn't it? I have a hole in the ground.

It's a tunnel, and once you're inside, it's a 130-meter tunnel cut through solid rock.

It looks a little different now with some security doors.

And if you go back, you'll reach my favorite spot.

This looks like a cathedral to me.

This may sound like a nerd, but

(Laughter) The best days of my life

(laughter) I spent it here.

(Applause) This is what you see when you walk into one of the rooms.

It's plain, but it's impressive for those who know what's here.

There are now samples of about 425,000 kinds of agricultural products.

There are 70,000 different types of rice in this facility.

One year from now, the number of samples will increase by 500,000.

We'll reach 1 million of them, and one day we'll have about 500 seeds frozen and stored in this facility for each type of produce.

This is a backup system for global agriculture.

It is also a backup system for the seed bank and storage is free.

It acts like a safe deposit box.

Norway owns the mountains and facilities, but the seeds are the property of the depositor.

If anything happens, you can come back here and get your seeds.

Pictured here are national seed collections in the United States and Canada and an international organization's seed collection in Syria.

What I find interesting is that this facility is the only place where all the different countries, really all the countries deposit their seeds in this facility, where all the countries of the world come together and try to do something long-term, sustainable and positive.

As far as I know, I can't think of any others.

We can't confidently say that we have solutions to climate change and water problems.

Agriculture requires 70% of the fresh water on earth.

We can't talk about energy problems, world hunger, and conflict peace with confidence.

I cannot say that there is one simple solution, but one thing I can say is that all these problems cannot be solved without product diversification.

Because without product diversity can you come up with an effective, efficient and sustainable solution?

Because if agriculture really can't adapt to climate change, neither can we.

If crops cannot adapt to climate change, neither can agriculture. we too.

Yes, doing this is neither cute nor fun.

Many people want to preserve diversity for its own value.

It's a fun thing to do, I agree.

But this is necessary.

So really, I think we should all come together as an international community to fulfill this obligation.

The Svalbard International Seed Vault was given to us by Norway and others as a wonderful gift. But it's not a perfect answer.

Diverse species that have not yet been collected must be collected

Then, they must be deposited in a seed bank so that they can be handed over to researchers in the future.

I also need to create a catalog. It is a library of life, and now the card catalog is not in place.

We must also provide financial support.

I think it makes sense to create a fund for wheat in the same way that the museums and school facilities funds that are commonly seen in my ideas.

With a donation of $30 million, all varieties of wheat can be preserved forever.

Think about it seriously.

And finally, of course, we may save ourselves by saving wheat, rice, potatoes, and other varieties.

thank you.

(applause)

Imagine you're driving tomorrow, and you're shopping for an item that was advertised online, let's say a cool $3,000 mountain bike.

For that price, it might have a motor. (Laughter) It might have a windsock on the steering wheel.

(Laughter) The seller told me to pay cash only, so I have $3,000 in cash in the glove compartment of my car.

suddenly the car stopped

A police officer asks, "Do you have drugs or weapons or large amounts of cash in your car?"

I honestly say yes, because we have cash, not drugs or weapons.

At that moment, I was ordered to get out of the car.

The cops search the car and find the cash.

Officers seize cash on the spot, officers say it's suspected to be linked to drug crimes.

A few days later, the local prosecutor submits a document that your money, which was confiscated, will not be returned.

This happens without being charged or convicted.

You might say, "This would never happen in America."

(Laughter) Things like this happen every day in our country.

This is one of the greatest threats to your property rights most people have never heard of.

This is called "civil forfeiture"

You may have some familiarity with criminal forfeiture, but the term itself may not be very familiar to you. So first, what is forfeiture?

When something is confiscated, we give it away, and sometimes we are forced to give it up.

In criminal forfeiture, when someone is indicted and found guilty, they must relinquish property related to the crime.

For example, if you use your car to transport or trade drugs,

When you're arrested and convicted, part of your sentence is to give up your car, which is confiscation.

This is criminal forfeiture

Civil confiscation, on the other hand, does not prosecute the "person" for the crime, but the "thing" is prosecuted and convicted.

(Laughter) Believe it or not, the government actually convicts "inanimate objects."

as if the "thing" had committed a crime

That's why civil forfeiture cases have strange names, like "United States of America v. One 1990 Ford Thunderbird."

(Laughter) "Oklahama vs. $53,234 in cash."

(Laughter) My favorite is this one: "United States of America vs. One Solid Gold Item - The Golden Rooster."

(Laughter) You're probably thinking, How could this happen?

When I first learned about civil forfeiture, my wife and I were traveling in a car and they said exactly the same thing.

All right, we weren't stopped by the cops.

(Laughter) As part of my job as research director at a law firm, I read a book about the history of civil forfeitures, and I stumbled upon the case I was talking about earlier, "United States of America vs. a 1990 Ford Thunderbird."

In that case, Carol Thomas lent her son his car.

In that car, my son committed a minor drug offense.

Carol hadn't committed any crimes, so the police couldn't convict her and confiscate the car.

Carol was completely innocent, but she lost her car.

So she was punished for a crime she didn't commit.

when i read this what is this

Impossible and

why is this legal

Its origin lies in Japan's maritime law.

In the beginning of America's independence, the government was going to war against pirates, yes, real pirates.

The problem was that the government often failed to catch the pirates, so the government applied civil forfeiture, confiscating the pirates' convicted property and denying them access to their illicit profits.

Of course, the government could have simply seized and confiscated the loot without resorting to civil forfeiture, but doing so would have meant that the government had violated our most basic legal process and property rights.

Now, until the 1980s, when governments rarely used civil forfeiture, the war on drugs began.

We extended civil forfeiture to drug crime and then to other crimes.

Canada and the EU have adopted similar clauses, and now all sorts of people are caught in a web of forfeiture, Russ Caswell.

I ran a low-budget motel in Tewkesbury, Massachusetts.

Founded by his father in 1955 and taken over by Russ in the 1980s

During the years that Russ ran it, there were people who occasionally rented rooms and committed drug crimes.

Russ couldn't let this go unnoticed and called the police as soon as he learned about it.

Russ was totally innocent, but the Department of Justice confiscated his motel simply because someone else had committed a crime there.

But it wasn't just Russ.

Between 1997 and 2016, the U.S. Department of Justice seized more than 635,000 properties.

So every year, tens of thousands of people lose their property in cases that they themselves are neither prosecuted nor convicted of.

They're not necessarily cases involving big drug lords, or headline-grabbing financial fraud groups, or hundreds of thousands of dollars.

Many of them are cases involving ordinary people, like Russ, like you, like me.

there's an even worse story

Are you interested in where does all that cash and assets go?

most of the time the police have it

The police use that money to buy equipment, repair buildings, or pay salaries and overtime pay.

This is clearly a conflict of interest

The act creates an incentive for illicit profit that can distort policing.

It's also recognized within the police that it's a problem.

Roger Peterson, former police chief of Rochester, Minnesota, describes the choices police officers often face:

For example, let's say I'm a police officer who finds drug crimes.

So you're faced with one choice: track down the buyer and clear the street of illegal drugs, or track down the seller and take the cash the police can use?

It's easy to understand why cops prefer cash.

It's these circumstances that led the Philadelphia police to choose to confiscate the entire house.

In 2014, Chris and Marcella Solovelis' son sold $40 worth of drugs on the street away from home.

for $40

The police are watching the drug deal

We could have arrested the buyer and seized the drugs, but we didn't.

We could have arrested the Soloveris' son red-handed and confiscated $40.

did not

When the police got home, they arrested my son, because then they could seize the whole house.

The house was worth $350,000

And that's what I mean by illicit revenue incentives.

But the Solovelis case was no exception.

Philadelphia, the city of brotherhood, the Athens of America, the cradle of liberty, the city where the Constitution was born, the city of the Liberty Bell and Independence Hall, the city of the Independence Hall, the city that will love you back (Laughter).

From 2002 to 2016, Philadelphia earned more than $77 million through forfeitures, including 1,200 homes.

I sold my cars, my jewelry, my electronics, everything, and kept the proceeds.

(Applause and cheers) Thank you.

We've improved police confiscation practices and provided compensation for victims.

(Applause and cheers) When we first started looking at confiscations in 2007, we didn't even know how much income there was from confiscations.

no one actually knew

It wasn't until our groundbreaking research, "Police for Profit," was released that we found that federal law enforcement was making roughly $40 billion. That's roughly $40 billion.

Unfortunately, we don't know how much state and local police made in this study, because many states don't have reporting requirements.

Therefore, until the reform of the confiscation system is carried out, the actual situation of confiscation activities in our country will not be clarified.

we need reform

Legislature should repeal civil forfeiture and replace it with criminal forfeiture.

Also, any confiscated funds should be collected in a neutral, general fund.

When confiscated funds stop directly funding the police, we can put an end to profit-seeking policing.

(Applause) As you can imagine, the police bosses don't like these suggestions.

(Laughter) The police are going to lose a lot of money, and they think civil forfeiture is an effective way to fight crime.

The problem is that it is not valid

In June 2019, a study we published found that civil forfeiture does not help fight crime.

The study also found that during recessions, law enforcement seeks to collect more forfeitures.

Then, when city and county budgets are tight, the police will use the forfeiture system to generate funds.

And then you'll be convinced by the predictions of senior police officers that there will be an explosion of crime -- (Laughter) -- once civil forfeiture reform is approved.

On the other hand, some states have already enacted reforms.

In Japan, in the UK, in EU countries, and in other countries

People like you and me, Mr. and Mrs. Solobelis, and Russ Caswell, who just go about their daily routines, can get caught in unexpected traps.

It's time to put an end to profit-seeking policing, forever and ever.

thank you

(applause and cheers)

This is the story of two ancient cities whose destinies were divided by trees.

In 3000 BC, Uruk was a more densely populated city than modern-day New York.

This crowded city continued to expand its irrigation system to support its growing population.

2,500 years later, the city of Anuradhapura in Sri Lanka had a similar problem.

The city continued to grow and, like Uruk, relied heavily on complex irrigation systems.

As the uruk grew, farmers started cutting trees to expand their fields.

On the other hand, in Anuradhapura, trees were sacred.

There was a tree that grew from the branch of the Bodhi tree where Buddha was said to have attained enlightenment.

Out of religious reverence, farmers didn't cut trees blindly, and even planted trees in parks.

In the beginning, Uruk's expansion was going well

But the loss of the trees that purify the water has polluted Uruk's irrigation system.

After the water evaporated, it left behind precipitated minerals that made the soil too salty for agriculture.

In Anuradhapura, on the contrary, the irrigation system was designed to coordinate with the surrounding forest.

It grew to a population more than double that of Uruk, and even today in Anuradhapura, trees planted over 2,000 years ago are tended.

We tend to think that nature and urban space are unrelated, but trees have always been essential to the success of cities.

Trees act like sponges, absorbing rainwater and releasing it into the atmosphere.

The network of tree roots prevents landslides and allows the soil to retain moisture and strain out toxins.

Tree roots prevent flooding and reduce the need for storm drains and water treatment plants.

The porous leaves trap carbon and pollutants to purify the air and are essential in fighting climate change.

The benefits of trees like this have long been understood,

Trees are not only necessary for the foundation of a healthy city, they also play an important role in the health of our residents.

Manhattan in the 1870s was mostly treeless, except in the parks.

When summer heatwaves hit, the lack of trees to provide shade meant that many buildings would absorb nine times as much solar heat.

The heat and humidity, combined with the poor hygiene standards of the time, made the city a breeding ground for germs such as cholera.

Modern Hong Kong has high-rise buildings and underground structures, making it difficult for trees to grow.

It contributes to dangerous levels of air pollution, causing bronchitis and poor lung function.

Trees also affect mental health

Studies have shown that green foliage can help you stay focused and lower your stress levels.

Hospitalized patients who can only see walls have been shown to recover more slowly than those who can see trees.

Fortunately, many cities have greenery like this, and it's no coincidence.

In the 18th century, city planners became aware of the importance of trees in cities.

In 1733, when Colonel James Oglethorpe planned the city of Savannah, Georgia, he wanted every house to be within a two-minute walk of the park.

After World War II, Copenhagen developed along five highways, sandwiched between parks.

This placement made the city more resistant to pollution and natural disasters.

Humans aren't the only ones who benefit from urban trees.

Portland's Forest Park preserves the biodiversity of the area and is home to a wide variety of local plants, 112 species of birds and 62 species of mammals.

No city puts as much effort into trees as Singapore.

Since 1967, the Singapore government has planted more than 1.2 million trees, including 50-meter-tall vertical gardens called Supertrees.

This structure supports itself and the surrounding greenhouse with harvested solar energy and rainwater.

Over 50 percent of Singapore's land is now covered with trees and plants, reducing the need for air conditioning and encouraging the use of low-pollution modes of transport.

Over 65% of the world's population is expected to live in cities by 2050

Urban planners can lay the foundation for eco-friendly cities, but it's up to residents to make urban forests home to a wide variety of creatures.

I'd like to talk about one of the world's biggest conundrums and its solutions.

Let's do a little experiment first.

Raise your hand if you wear glasses or contact lenses or have had LASIK.

Unfortunately, there are too many of them to get accurate statistics.

But probably about 60% of them, by guesswork. This is roughly the percentage of people who have their eyesight corrected in developed countries.

According to the World Health Organization's estimates... well, the World Health Organization has various estimates of how many people need glasses, but the low estimate is said to be 150 million.

Some estimates put it at around 1 billion.

But in fact, the experiment we're doing here right now shows that vision aids are in demand by about half of the people in the world.

And vision loss is not just a health problem, it is also an educational problem, an economic problem, and a quality of life problem.

Eyeglasses are not very expensive and are produced in large quantities.

The problem is that there is a shortage of eye care professionals who can wear vision corrective devices correctly. They are only found in developed countries.

There are ways to address this acute professional shortage.

Now look at the slide. Here are the spectacle specialists, and the blue little ones represent about 10,000. This is the ratio in the UK.

Here is the professional to population ratio of eyeglass preparation in sub-Saharan Africa.

In fact, in some countries in sub-Saharan Africa, one ophthalmologist sees eight million people.

What do you think? How can I fix this?

I have come up with a way to solve this problem. We came up with a solution based on adaptive optics.

The solution is to make your own spectacles, which solves the problem of the shortage of spectacle fitters.

Now let's prove that you can make glasses by yourself.

I will show you how to make glasses. Put this in your pocket.

I'm nearsighted. Even if you look at the sign behind it, you can hardly see it.

Okay, now I can see people running over there. People running over there.

I now have glasses that match my prescription.

Let's move on to the next step.

I was able to prepare glasses that fit my prescription.

yes. After preparing the glasses

yes. After preparing these glasses that match my prescription

The rest is like this...

Your glasses are now complete.

(Applause) There are other glasses in the world that can be prepared this way.

This technology is advancing day by day.

Since its development in 1985, progress has been very slow.

About 30,000 sets are currently in use.

It is used in 15 countries and is spreading all over the world.

I have one vision. Let's talk about that now.

An international vision for sight.

The vision is that by 2020, 1 billion people will have the glasses they need.

This is just a nascent technology.

Technology continues to evolve. Costs must also come down.

These glasses now cost $19.

But costs must come down.

Cost reduction is essential to reach poor people who live on $1 a day.

How can I resolve this issue?

Let's take a closer look.

Examine your slides. Any problem is explained briefly.

How is it distributed? What is the fitting method?

How to get them to notice that you have a vision problem?

How do you deal with manufacturers?

The answer is research.

We created the Visual Assistance Center for Developing Countries at this university.

For more information, please visit our website. Thank you for your attention.

(applause)

Last year at Buzzfeed, some of our employees had a prank on their boss, Zay Frank, and it was Zay's birthday.

I decided to bring a baby goat to his office.

(Laughter) We had just started experimenting with Facebook Live, so naturally we decided to live stream the day online, and we wanted to capture Zay walking into the office and discovering the goat.

I figured that the series of events would be over in about 10 minutes, and that at most hundreds of employees would see this inside story.

But what happened?

Zey didn't show up for a long time, he went to get a drink, he was called to a meeting, the meeting dragged on, he went to the bathroom.

Gradually, more and more people started watching for the goats.

Over 30 minutes later, by the time Zay showed up, the live video had 90,000 viewers.

Our team had many discussions about this video and why it was so popular.

The number of viewers was not the highest ever.

The best video ever was the cheese fountain video.

But this video has far exceeded my expectations.

What was unexpected about the video with the goat in the office?

A sharp-eyed person may come up with any number of hypotheses.

Baby animals might be popular with viewers

Maybe pranks at work are popular

Boss and birthday surprise stories may be popular

But our team didn't think much about the content of the video.

What we were thinking about was what the audience was thinking and feeling.

After reading some of the 82,000 comments that were received during the broadcast, I came up with a hypothesis that the viewers might have been excited because they were participating in a "shared expectation" that something was about to happen.

Even if it was just for that moment, I think I was happy to be part of a certain group.

So I thought I should test this hypothesis.

What can we do to verify the exact same thing as this time? and

The next week, I informed them that food videos were very popular, and had two people in hazmat suits wrap rubber bands around a watermelon until it exploded.

(Laughter) It had 800,000 viewers, and when the 690th rubber band was rolled, the watermelon exploded and became the most-watched Facebook Live video ever.

The most frequently asked question is this: "How do I make my content go viral?"

The question itself is irrelevant, it's not the content that matters.

We look at what people are thinking when they read or watch content.

Most media companies have themes and formats in mind when they think about metadata.

About goats About workplace pranks About food Summary articles/videos/quizzes 2000 words 15 minutes long 23 tweets 15 images

That kind of metadata is kind of interesting, but it doesn't tell you what's really important.

Instead of categorizing articles and videos by content, how about this? Think about what role it plays in the user's life.

In a project we started last year, along these lines, we created a formal taxonomy of our content.

I named it "Cultural Map"

It's a formalization of what we've been doing privately for many years, not just thinking about themes, but rather about the impact that content has on readers and viewers.

Let me show you the cultural map I brought today.

Each circle represents a specific role, and is color-coded and grouped by related roles.

First of all, in the "humor" system

It's "something that makes you laugh"

There are many ways to make people laugh.

You can laugh at someone, you can laugh at certain Internet jokes, you can laugh at dad jokes that are funny, not vulgar, and harmless.

Next is the “self-expression” system.

Opportunities to show “this is me” in the media have increased, and other

"This is my upbringing," "the environment I grew up in," "what I am passionate about," "guilty pleasures," and "how to self-torture" are introduced.

There is also a system that "connects with others"

It's one of the great features of the Internet.

It's great to find a medium that can accurately represent a bond with someone.

It's a "helpful" system that makes it easier to settle arguments, learn about yourself and others, and explain your story.

This is the "emotion-producing" system, which creates curiosity, sadness, and restores faith in humanity.

A lot of media companies and creators certainly think from the user's point of view.

But in the age of social media, you can go even further.

People are connecting with each other on Facebook and Twitter, and more and more conversations and interactions are happening through the media.

I think we've done a real job for them if we've helped them in the process of establishing a deeper relationship.

Let me give you an example of how this is done.

This is one of my favorites, '32 specific images to send to your sister right now.' Right now.

For example, "I was looking for my sister's things, and I heard her footsteps coming upstairs."

of course i did

“Watching them get mad at me for blaming my sister for what I did.”

of course i did

This article has been viewed 3 million times

I wonder why?

Because this article did a great job of doing multiple things: "This is us."

"Connect with family"

"Makes me laugh"

Here are some of the many comments that various sisters exchanged after seeing this article [Sister, this is who we are lol]

Sometimes, after the content is released, we discover the role it played.

The quiz, ``I will guess your age and height exactly from the clothes you choose,'' has become very popular and has been viewed 10 million times.

10 million times

Did it really guess the ages and heights of 10 million people exactly?

It's unbelievable

I didn't actually guess

(Laughter) As a result, this quiz turned out to be very popular among women over the age of 55.

(Laughter) "The quiz showed that I was 34 years younger and 18 cm taller.

I wear comfortable clothes and I don't care what people think

Age is a matter of feeling."

The success of this quiz wasn't because they made the right decisions, but because the quiz played such an important role for women: bragging under the guise of humility.

This idea also applies to recipes and food.

A recipe's normal role is to tell you what to serve.

Normally, when you come up with a recipe, you decide the ingredients you want to use, decide how you want to cook it, and finally think about the role of the recipe and sell it.

What if we reversed the order and started thinking about roles?

We held a brainstorming session on the theme of deepening bonds.

Can you make a recipe that deepens your bond?

It's not common for recipe book publishers to come up with recipes in this order.

Everyone loves baking with other people, and we all love doing difficult things with other people, so we decided to come up with a recipe that incorporates those two things.

The resulting video was "The Best Chocolate Brownies."

It's been a huge success on all fronts, with 70 million views.

Our users were telling us exactly what we were aiming for: "Colette! Let's build this. Are you up for the challenge?"

"Where you want it."

It was a content that fulfilled the intended role and deepened the relationship between sweets making and chocolate.

I'm really excited about the possibilities this project brings.

When I talk to content creators about this framework, they quickly understand, even if they're working in different genres, or live in different countries, or speak different languages.

Thanks to the cultural map, the breadth of employee training has been greatly expanded.

And when I talk to advertising companies and manufacturers about this project and this framework, they're also very quick to understand, because advertising companies, even more than media companies, understand the importance of understanding the role their products play for consumers.

But the thing that excites me the most about this project is that it changes the relationship between media and data.

Most media companies think media is self-centered.

how many fans do i have?

how many followers did i get?

How many views have my videos received?

How many unique IDs does my data warehouse have?

This misses the essence of the data: the receiver.

If you can dig out the content that matters to your audience from the data and have a deep understanding of how your content can help them in their real lives, then you can create content that's both relevant and resonating with them.

Who are the recipients?

how did you get there

where are you going?

what do you care

What can you tell me?

That's the "cultural map"

thank you

(applause)

Two years ago, I took the subway from central London to a district in the east, and stepped into a small rental warehouse with the intention of meeting a man who was selling 2,000 high-end polo shirts.

As I walked down the aisle, the broken lights were flickering like a scene from a gangster movie.

The man was already waiting for me, standing in front of a four-padlocked warehouse.

In the first exchange, the other side opened their mouth first

Name is? Do you have a business card?

where do you sell?

You seem to have heard the answer and opened your heart, now it's my turn.

Where is the polo shirt produced?

what procedure did you take?

And when will the next shipment come in?

(Laughter) I spent about 20 minutes looking carefully at the item, looking for hard evidence that it was a counterfeit. For example, the tag was poorly sewn, or the front had a large, sticky logo.

I always feel the same after I come home from a scene like this. My heart is pounding. I don't know if they really believed the story, and they might follow me to find out.

The relief comes when you turn the first corner and turn around to make sure you're not being followed.

Still, little did the man selling the polo shirts know that, according to the research I did, he'd be raided in the wee hours of the morning by eight officers on his doorstep, and that all the counterfeits would be seized.

But in the end, this guy was just one of his minions behind him, with a network of counterfeit goods that spanned three continents.

Why are you doing this?

Isn't selling counterfeit goods a victimless crime?

Big corporations make a good profit, and if I had to say, selling counterfeit goods is kind of like free advertising, right?

Consumers also think that buying and selling counterfeit goods is no big deal.

But I'm standing here to tell you otherwise.

You wouldn't believe that the fake handbags you see on your travels were sewn by a child who was separated from your family in human trafficking. Even the owner of an auto repair shop doesn't realize that his fake brake pads are being used by criminal gangs involved in drugs and prostitution.

These stories are terrifying to imagine, but they're even more serious, because counterfeit goods also fund terrorism.

let's think for a moment

Terrorists sell counterfeit goods to raise money—when a terrorist attack hits your neighborhood, everyone becomes a victim.

No one buys a live scorpion because they might sting you before you take it home, but what about a fake handbag? What if you knew that the sale of your handbag would fund the bullets—and that you and innocent people would be killed in six months as a result?

you won't buy

I also confess

When I was young, yes, I know it may seem young, but I once bought a fake watch while traveling in the Canary Islands.

Why are you telling me this?

Has anyone experienced it? There must be someone close to you

And until recently, you wouldn't have suspected it either: I applied for a cryptic job ad to become an intellectual property investigator.

It was written in the advertisement that "there will be fulfilling training and overseas business trips."

In less than a week, I created my first pseudonym, and for the next 10 years, I spent the next decade investigating counterfeit goods, dealing with counterfeit auto parts, tire wheels, pet shavers, bicycle parts, and of course the classics of counterfeiting: fake luxury leather goods, clothing and shoes.

I've been in this business for 10 years and I've learned that when you look under the surface of counterfeiting, you get to the depths of its utter corruption.

The profit you make from selling drugs on the street is between 100% and 200%.

Selling counterfeit goods on the Internet can generate as much as 2,000 percent profit, and the risks and penalties are lower than drug sales.

The easy hoarded profits can be used to fund more serious crimes, to fund the establishment of criminal organizations, and to make them appear legitimate.

Let me give you an example

Earlier this year, we launched a series of raids into the cases I've been involved with the longest.

The scene was five warehouses in Turkey, where more than two million counterfeit goods were seized, or 16 truckloads.

But they were clever

I launched my own fashion brand, registered it as a trademark, and even went on a yacht in Italy to take photos.

A large number of counterfeit goods were transported in containers to fictitious companies set up across Europe under unsuspecting brand names.

Documents found during the investigation also uncovered falsified shipping documents, so customs officials had no idea who sent these goods in the first place.

Nearly €3 million was laundered from Spain in less than two years from a single bank account obtained by the police. Just two days after the investigation, they were trying to bribe a law firm to recover the seized goods.

The whereabouts of a large sum of money is still unknown, and we don't know where to send it, but it certainly won't benefit ordinary people like us.

But these groups are nothing like street thugs.

I'm a business expert and I fly first class.

They work with legitimate customers and use authentic invoices and paperwork, so everything looks real.

Counterfeit goods sales also take place offline

Over the years, I've attended car trade shows, and apart from the luxury car brands in the big halls and the bright lights, there's also counterfeit dealers.

The auto parts they sell are estimated to be faulty and responsible for more than 36,000 fatalities each year.

Counterfeit sales are on the cusp of growing into a $2.3 trillion underground economy, and the damage this money can do is terrifying.

because counterfeit goods breed terrorism

Fake sneakers on the streets of Paris, fake cigarettes in West Africa, bootleg CDs in the United States, all helped fund trips to military training camps and materials for weapons, bullets and bombs.

In June 2014, French security officials ended interception of communications after a three-year investigation into brothers Said and Sheriff Kouasi, who were on a terrorist watch list.

That summer, only information about Sheriff importing fake sneakers from China was intercepted by French authorities, so he was removed from Islamic extremist terrorism surveillance and declared a petty criminal.

I'm out of sight

Seven months later, when the Kouasi brothers stepped into the Charlie Hebdo newspaper, they killed 12 people and injured more than 11 others, using guns procured from the sale of counterfeit goods.

Either way, counterfeit sales aren't a fire on the other side of the river in China.

It's a familiar issue

More than just Paris

Ten years ago, in 2004, a commuter train bombing in Madrid claimed the lives of 191 people.

Pirated CDs sold in America were part of the funding for the terrorism.

And two years earlier, Al-Qaeda's training manual had heavily endorsed the sale of counterfeit goods as funding for terrorist organizations.

But despite all this evidence linking terrorism and counterfeit goods, the purchase of counterfeit goods persists, and the demand is only increasing, and there's even a store in Turkey called "I love genuine counterfeit goods."

TripAdvisor has 5-star reviews for photos of tourists posing at the storefront

But if the store had a different name, would the tourists have gathered? What if "I love genuine fake Viagra" or "I love funding terrorism"?

i don't think i'm going

A lot of people think that we can't do anything about organized crime and terrorism, that we can't prevent the next terrorism, but I don't think so.

Anyone Can Become a Counterfeit Detective

Cut off funding sources and destroy criminal networks -- stop buying counterfeit goods and change your mindset that selling counterfeit goods is a victim-creating crime.

Let's spot the counterfeit and don't hand over the money

So here are some quick tricks you can use to spot counterfeits.

Part 1. Here is a typical counterfeit online shop.

Notice the URL

Be very suspicious if you come across a website like medical-insurance-bankruptcy.com while looking for sunglasses or camera lenses.

(Laughter) Counterfeiters register expired domain names to try and keep the old site's page rank on Google.

2. Is your website claiming that all products are 100% authentic, but you're getting 75% off this season's collection?

Look for words like "original," "off-stock," and "factory-fresh."

It's a joke that could be written in a deliberately lame font.

(Laughter) Number three, if you go to the checkout page and you don't see https or a padlock next to the URL, you really should consider closing the page, because these are security measures that protect personal information, credit card numbers, and so on.

Finally, let's find the "Contact Us" page

If all you see is a simple web form, with no company name, phone number, email address, street address, etc., then that's the decisive factor, and the search is over.

I found a counterfeiter

Unfortunately, I had to go back to Google's search engine and start shopping all over again, but luckily I didn't get scammed.

The world's most famous detective used to say, "Hey Watson, the game is on."

Ladies and gentlemen, as far as this one is concerned, the game is painfully realistic.

The next time you're shopping online, or in any other situation, take a closer look, be very skeptical, and ask yourself before handing over cash or clicking the "buy" button, "Am I sure it's real?"

Please tell your friend who bought the fake watch that this act could have brought the next attack a day earlier.

If you see an advertisement for a counterfeit product on Instagram, don't ignore it and report it as a scam page.

Let's expose the darkness of counterfeit sales hidden in everyday life

Please spread the word and continue the investigation.

thank you

(applause)

It's hard to believe it's been less than a year since the day global finance and credit froze.

massive cardiac arrest

The effect, TIT, is probably preceded by a longtime Bernie Madoff-like predator.

Excessive use of steroids, overeating, etc.

It's only been a few months since government agencies put in a lot of money

The world is in a state of wonder right now, and no one knows what really works.

without clear guidelines

I don't know which expert to trust

What I'm going to talk about today is one direction, what's behind the financial crisis, what should we look at, what can we learn from this financial crisis.

Leadership is defined as "the ability to lead from the least danger to the greatest effect."

What I want to talk about is how we can make the most of this not-so-small crisis.

Let me start with myself

Perhaps my extremely complicated background is well suited to these complicated times.

As you can see, I have a PhD in telecommunications.

I also learned about Buddhism about this person

I also became a civil servant and was in charge of politics under this person.

But my story began when I was a student in a city.

It's still a beautiful city with balls and punts Flying beautiful people Many believed Ronald Reagan, "If the hard work doesn't hurt you, why risk it?"

But back then, many of my teenage peers were in a different situation, and with youth unemployment soaring, leaving school hit a wall as a career opportunity.

I spent more time with them than kicking a ball

They had intelligence and grace and energy, yet they had no hope, no job, no prospects.

And when people aren't allowed to be "needed" they quickly find themselves "useless"

At that time, only the music industry flourished and nothing else

Since then, my question has been, why is capitalism so amazingly efficient at times and inefficient at other times, innovative at some things and uninnovative at others?

We're living through an extraordinary boom right now, the longest boom in the history of this country.

Unprecedented prosperity, prosperity, but growth hasn't brought us what we need

As H.L. Menken said, "Every complex problem has a simple solution, but it's the wrong one."

I'm not saying growth is wrong.It's amazing the fact that many things didn't get better in the age of growth.

In Western Europe, the number of people suffering from depression continues to rise.

If you look at Americans, the number of people who have no one to talk to about important things has gone from 1 in 10 to 1 in 4.

People spend more time commuting, and as you can see in this graph, the length of commuting time is inversely related to people's well-being.

It is an obvious fact that economic growth does not automatically lead to social or human growth.

The time has come for many young people to face harsh working conditions.

Nearly a million young people will be unemployed by the end of the year, and thousands of Americans are losing their jobs every day.

We must do whatever we can to help them, but at the same time we must ask a more fundamental question: can we not use this crisis as a springboard to transform into a new economy, an economy that is more in line with people's needs, an economy that is better balanced with society?

History teaches us that even the worst of crises can be new opportunities.

Crisis Brings Ideas From the Periphery to the Mainstream

Accelerating much-needed reforms

As seen in the 30s, the Great Depression paved the way for the Bretton Woods Conference, the Welfare State.

A new economy, a form of capitalism, may begin to sprout and grow around us.

you can see it in everyday life

In tough times, people take care of themselves Around the world, from Oxford to Omaha to Omsk, urban farming is on the rise, and people are turning land into temporary farmland with roofs and even barges.

I'm doing just a little

I have about 60,000 of these in my garden

some chickens this is the hen attilla

What I'm doing is part of a larger movement, which for some people is about survival, it's about values, it's about economics being different, it's far from consumption and credit, but it's important to us.

The proliferation of time banks and parallel currencies is everywhere People are using superior technology to connect all the resources released from the market - people, buildings, land - and those who need them most.

Similar examples can be found in the world of politics.

Again Ronald Reagan's hilariously funny two sentences "I'm in the government, I'm here to help."

But when the government intervened last year, people were very welcoming of the government's measures.

Now, months later, good politicians are still holding back and unable to hide their lack of self-confidence.

Because no matter how much money you put into the economy, it's clear that you're only cleaning up the past and giving emergency aid to banks and car companies, and you're doing nothing for the future.

No matter how much money we spend on concrete and inflated consumption, the fundamental problems we need to solve are not solved.

All over the world, with unprecedented amounts of our money, and our children's money, thrown into the depths of the financial crisis, people will be asking: Surely these funds should be used for the long term, instead of just handing them over to the incumbents, should they be used to accelerate the transition to a green economy, to address aging societies, and to tackle inequality, especially in countries like the United States?

Clearly, this money should be given to entrepreneurs, to civil society, to new creative people, not to companies with huge, thick pipes, or policies that are just big and don't work.

As the great Chinese sage Lao Tzu said, "Governing a big country is like cooking a small fish.

Don't overcook

And more and more people are asking, "Why are we spending more without changing what we're consuming?"

For example, the mayor of São Paulo has scrapped advertising, and San Francisco and many other cities are building infrastructure for electric vehicles.

The same thing is slowly happening in the business world.

Some bankers seem to have learned nothing and forgotten nothing.

However, "How will huge industries change in 10, 20, 30 years?"

So far, the healthcare industry already accounts for 18% of the US economy and is expected to grow to 30-40% by mid-century.

Nursing care and childcare for the elderly have already crossed over from the automobile industry.

The education industry, which accounts for 6-8% of the economy, is also growing

The environment, the energy industry, and countless green industries are moving toward a whole new kind of economy, one that's not just about commodities, it's about networks, it's about caring for each other, it's about relationships, sometimes it's one-on-one, it's for others, and it's not just about selling products.

And I think it's a very simple but difficult thing to combine civil society efforts, governmental and business efforts.

Our society must change radically now.

We can no longer return to the world before the crisis happened

But by trying experiments, we can see if we can find our way to low-carbon cities, support older generations, and help drug addicts.

here is the problem

In science, we systematically conduct experiments

Today, we systematically invest two to four percent of our GDP in new discoveries, in science and technology, paving the way for great inventions and creating opportunities like TED.

I can't say for certain that scientists are much smarter than they were 100 years ago, but they are probably smarter.

Shockingly, there has been no investment or systematic experimentation in areas that capitalism is not good at, such as compassion, empathy, relationships, and caregiving.

Well, I didn't understand anything until I met this man, who was 80 at the time, and he was a little messy, but he ate nothing but tomato soup and said ironing was overrated.

He contributed to the creation of post-war British society, the social welfare system, and the economy, and also worked on new businesses as a social entrepreneur, contributing to the foundation of many organizations

For example, the Open University brings together 110,000 students, and the University of the Third Age brings nearly 500,000 post-retirement peers to educational activities, from unique things like do-it-yourself and language lines to schools for social entrepreneurs.

Later in life he sold these to venture capital

His belief is that when you see a problem, don't force others to act, but take action yourself. As a long-lived man, he repeatedly found his ideas initially rejected and said that we should ask "no" questions but not "no" answers.

His life was a series of experiments that led to answers for a better society, not theories, but experiments involving people who had the brains that society needed and at the same time those who needed them.

We live with people, we share the world, so I believed that new things should be shared with people, not for others.

His actions, which had no name at the time, are now starting to attract attention.

We are an organization that inherits his will, challenging and devising new businesses, and encouraging creation and establishment, including educational institutions, web-related companies, and health care institutions.

We are part of a movement that aims at social innovation so that various organizations can use the ideas of design, technology, and social organization, and not rely on theory, but on practice and action, to create seeds for the world of the future.

The movement has spread from South Korea to Brazil to India to America to Europe.

The economic crisis, unemployment, and the need to deal with social collapse have given us new momentum.

There are some funny complaints

It's like a chorus of complaints

People get together and sing their troubles

(Laughter) Some of them have practical appeals -- health advice, mentoring, vocational clubs, etc.

There are also initiatives such as social impact bonds that raise funds to prevent youth crime or prevent the elderly from having to be hospitalized, and get a return on the results.

What all of this shows is rapidly becoming common knowledge among us, a response to the financial crisis, and a reminder of the need for technological progress and reforms for social progress.

Earlier this year, a large health reform fund and a public works research institute were set up in the UK.

In northern Europe, many governments have reform research institutes.

A few months ago, President Obama launched the Social Reform Agency in the White House.

So what people are asking is, just like we invest 2% to 4% of GDP in research and development, what if, say, 1% of public spending goes into social reform, old age care, new education, disability protection.

We can probably get the same kind of results that we've seen on the economic and technical side.

And just as landing on the moon was a challenge to mankind a generation or two ago, what we need now is to end child malnutrition and human trafficking. As an immediate challenge for the West, how about setting the goal that today's generation will live a billion years longer?

Such a goal could be achieved in less than a decade, through radical and methodical experimentation, using not just technology, but lifestyle, culture, policy and institutional power.

Now I want to finish by mentioning my thoughts on what this means for capitalism.

All movement from the edge is still insignificant

Can't compare resources with CERN, DARPA, IBM, Dupont

capitalism is becoming more social

already in social networks

From now on, social investment, social protection, and so on, will be associated with industries that are not just about selling things, but that behavior for others has value, as much as it comes from human relationships.

Interestingly, in the future, society will take hints from capitalism about how the DNA of endless reform is embedded in society to make things possible and to grow further.

I think the future will be amazing for many people

In recent years, many intellectuals believe that capitalism has won

I thought that history was over, that society would be inescapably subordinated to the economy.

But I've been struck by how people talk the same about capitalism today and when the French monarchy was restored after the French Revolution 200 years ago.

The monarchy could rule everything because it's human nature.

All humans are different The argument that humanity needs classes

Just as proponents of open-ended capitalism say that individualism and curiosity are human nature.

The monarchy was driven out by a well-intentioned social experiment doomed to failure: the challenger of mass democracy. It's like capitalism drove out socialism.

Even Fidel Castro said, "The only thing worse than being exploited by transnational capitalism is not being exploited by transnational capitalism."

Just as in monarchies palaces and fortresses filled towns with universal conviction, so today gleaming bank towers rule all towns.

I'm not suggesting that mobs storm barricades and tie investment bankers to streetlights, but that wouldn't be bad either.

Rather than being a self-contained system, as happened with monarchies and military regimes, financial-economic centrism will come to an end, becoming a supporting player and moving to the fringes of society, from ruler to servant to the productive economy and the needs of the people.

At that time, we remember the basics of capitalism, not the self-contained system that we read in economics textbooks.

Relying on other systems such as ecology, family, community, etc. that capitalism will suffer if these are not met

Human nature is full of compassion, not selfishness

Competitive as well as compassionate

In this financial crisis, we now have a choice

Crisis deepens around us

It will get worse by the end of the year, and probably a year from now it will be even worse than it is now.

It's also a precious time, a time to choose whether we're going to ride our bikes frantically to get back to where we were a year or two ago, blind to the true nature of the economy, or to start over and take a big step towards doing what we're supposed to be doing.

thank you

(applause)

A baby cursed at birth A fierce battle between good and evil

True love wakes up with a kiss

"Sleeping Beauty" is one of the world's favorite folktales.

But there's one very famous form of staging that tells a story without words.

Since its premiere in 1890, "Sleeping Beauty" has become one of the most frequently performed ballets in history.

So what is it that makes this work so popular?

What does ballet bring to this story and others?

The essence of ballet is the many gestures painstakingly perfected by the dancer over countless hours of practice.

This unique set of gestures has been performed for centuries, and each movement has a lot of meaning and history.

But just as you don't have to learn music to be moved by a song, you don't have to learn ballet to understand it.

And just as a composer combines notes and passages to compose, a choreographer adds new movements to these gestures to create expressive combinations.

Ballerinas perform these combinations precisely to express stories, emotions and personalities, along with live orchestral scores.

In the opening scene of "Sleeping Beauty," the fairy court presents gifts to baby Princess Aurora with a burst of finesse.

The Breadcrumb Spirit walks delicately on her tiptoes, called a "pointe," and matches her steps to the light sound of the violin.

In perfect harmony with the music, the ballerina mimics the violin's "trill" with a graceful "pas de boule".

Giving Aurora the gift of willpower, the Spirit of Fierce is choreographed to look like she's shooting lightning from her fingers.

She hops across the stage, doing a quick 'chéné' (rotation) and then a 'jute' without hesitation.

And then there's choreography that has more literal meaning.

Carabosse, the evil fairy, curses the princess with her death-dealing pose "X."

Of course, the relationship between music and movement isn't always that simple.

Although classical ballet gestures are often matched to musical elements, the pacing of the dancers and the orchestra also plays a role in determining the choreography.

Some synchronize the movements of the characters with the scene to create rhythmic clarity, while others deliberately move away from the orchestral performance.

Dancers and musicians maintain this delicate balance throughout their performances, where there's a lively tug of war between speed and rhythm.

But in ballet, even more important than acting, is the relationship between the choreographer and the music.

Choreographer Marius Petipa and composer Pyotr I. Tchaikovsky collaborated on "Sleeping Beauty" down to the last detail.

This is evident in the exhilarating entrance of Princess Aurora on her 16th birthday.

Tchaikovsky's impassioned music often leans forward abruptly, trying to capture her impatience even with shortened passages.

Petiva represented the aurora awaiting the start of the party with a choreography that jumps back and forth, a choreography called "pas de chat," which is French for "cat's step."

When the celebration begins, it's the dancer's job to dance gracefully with this gesture and show off their physical beauty.

The hardest part of playing Aurora is the famous Rose Adagio.

As four suitors scramble for her hand, the princess maintains remarkable balance, all dancing on "pointe".

She takes each suitor's hand briefly, but with breathtaking strength and skill she balances herself unsupported.

But conveying meaning isn't just about technique, it's about how you move and your personality.

Ballerinas can convey a range of emotions through their movements, just as actors convey their lines.

Sometimes Aurora throws her hands away as if to dismiss a suitor, appearing elegant and calm.

It can also show cunning and flattering behavior, such as showing a sense of self-confidence while acting gracefully on "pointe".

"Sleeping Beauty" showcases the full potential of ballet.

A graceful show, dramatic physical expression, and an enchanting harmony of music and choreography perfectly captures the themes of fantasy romance.

But ballet isn't all about epic fairy tales.

Ballet can be an emotional journey without narrative, an experimental subversion of form, or simply a demonstration of technique.

Because this art form is constantly experimenting with centuries-old rules, it's the perfect medium for telling stories old and new.

I'm a creative technologist, and I mainly work on public installations.

One of my passions is exploring nature and searching for hidden data in nature.

And it seems to me that this potential data exists everywhere around us.

Sounds, smells, vibrations, everything can be converted into some kind of data.

And through my work, I've been looking for ways to use information from the natural world to manifest them.

This led me to the field of cymatics.

Cymatics, as you can see, is the process of making sound visible by basically vibrating a medium like sand or water.

So let's start with a brief introduction to the history of cymatics, first the observations of sound resonances made by da Vinci, Galileo, the British scientist Robert Hooke and then Ernest Crudney.

He then devised an experimental method to cover a metal plate with sand and move the bow of a stringed instrument to create a clad knee pattern like the one on the right.

The next pioneer in this field was a gentleman in the 1970s named Hans Jennie.

he actually coined the term cymatics

And now, one of the pioneers in this field I would like to introduce is my collaborator, cymatics expert John Stewart Reid.

He kindly recreated the Crudney experiment for us.

So what we're seeing here is a metal plate, and this time it's connected to an audio system that's combined with a frequency generator.

And as the frequency goes up, so does the complexity of the pattern that appears on the metal plate.

as you can see

(Applause) What is it about Cymatics that excites me?

Cymatics is like a magic tool for me

It's like looking into a hidden world through a mirror.

By applying cymatics in a variety of ways, we can actually reveal things we couldn't see visually before.

As you can see, a device called a cymascope is used to scientifically observe cymatic patterns.

The list of scientific applications grows every day

For example, in oceanography, visualizing the sonar emitted by dolphins actually creates a dictionary of dolphin language.

And in the future, we'll be able to better understand how they communicate.

Cymatics can also be used for healing and education

This is an installation that I created with school children whose hands are captured so that the cymatic patterns of reflections they produce can be positioned and controlled.

Cymatics can also be used as pure beautiful art

This image was created from a portion of Beethoven's Ninth Symphony played through a Cymatics device.

You can change the way you look at things

This is Pink Floyd's "Machine" played in real time through the Cymascope.

You can also see the nature of another world through cymatics

And we can actually reconstruct nature in its typical form.

For example, there are naturally occurring snowflakes like the one seen on the left

And on the right you can see the snowflakes created by Cymatics

This is a real starfish, this is a cymatics created starfish

there are a lot of things like this

So what do all these mean?

There's still a lot to explore, and it's still early days, and there aren't many people working in this area.

But think about the fact that sounds actually have shapes.

And we also saw the fact that sound affects matter and forms forms within matter.

Now let your imagination run wild and think about the formation of the universe.

And imagine the enormous sound in the formation of the universe

And if you think about them, maybe cymatics might have influenced the formation of the universe.

So, for all of you, here are some of the best creations created by DIY scientists and artists around the world.

Cymatics is available to everyone

And I would like to encourage everyone here to bring your passion, your knowledge, your skills to a field like Cymatics.

And jointly create a global community,

If we inspire each other,

We will be able to further evolve our search for the invisible. Thank you very much.

(applause)

"I'm 14 and I want to go home."

"I'm Beth, I'm on your side, tell me more."

"It's not the first time I've run away from home, but I've never been caught up in something like this.

I think they put drugs in their alcohol."

"You seem to be in danger.

The fastest way to call for help is to call 911 yourself."

"Ahaha!

If they ask me, they'll kill me.

Another man is about to come in and rape me. Please hurry up."

"I know you're in danger.

I'll call 911 for help

I mustered up the courage to ask for advice."

"Thank you Beth

Tell the police to be careful, they have weapons."

I can share this story because it was widely reported in the news media across this country.

we called 911

Police rescued this girl and two other girls and arrested three men, all in a San Jose motel.

I'm Nancy "Beth" Lublin

Co-founder and CEO of Crisis Text Line, a free 24/7 service that uses text messages and Messenger to help people with emotional and behavioral problems.

As a crisis counselor, my name here is "Beth."

I happened to be in charge of that conversation earlier.

This is the essence of our service

Others reaching out to others helps those at rock bottom stay alive, feel less lonely, and find strength in themselves.

Crisis Text Line quietly launched in Chicago and El Paso in August of 2013, and within four months it was working with all US area code codes because people who used the service had such a good experience and told their friends that it just grew naturally.

And in six and a half years, we've processed about 150 million messages.

This free, 24/7 service has a high concentration of young people, because it's an SMS consultation, so it's young at heart.

45% of users are under 17

And there are many poor people, and there are many different races.

17% are Hispanic and 44% are LGBTQ

The top five consultations are relationships, depression, anxiety, self-harm, and about one in four consultations is suicidal.

All of our clients are having a hard time, but users of our service usually give us a satisfaction rating of about 86%.

The reason for the high rating

The technology, the data, and the people.

First is technology

This service is not an app

it doesn't require a download

It's free, there are no complicated surveys, and it's very easy to use.

just send an SMS

Uses machine learning to prioritize consultations based on severity

It's like a hospital emergency room prioritizing a gunshot wound over a child with a twisted ankle.

we do the same

Prioritize high-risk projects

People who chugged a whole bottle of pills and so on are prioritized over others.

This is data science to save lives

But counseling is human.

So far, more than 28,000 volunteer counselors have been trained, after an online application, a background check, and about 30 hours of training.

The people who pass -- not everyone does, the pass rate is only 33 percent -- can save lives from the comfort of their couch.

It's based on the "gig economy." Volunteerism is the volunteer version of Uber and Lyft.

We also have full-time staff with master's degrees in related fields.

As an administrator, I oversee all conversations and intervene when necessary.

Thanks to technology, data and the volunteer labor model, we can reach out to many people in need.

People who have no other recourse, like a gay teenage boy who can't talk to his parents, because their parents only tell them to pray that they're not gay.

Or a girl who can't sleep until 2 a.m. She's worried about her final exams because she doesn't want to disappoint the people who love her.

That's where the consultation comes.

We treat them with love

Be supportive and remind yourself of your own strengths

And we'll discuss what to do to keep them safe.

And then I tell them, if you open up about your troubles and feel better -- 68% of our clients say they've told us things they've never told anyone before -- if you tell us and they feel better, find one more person in your life tomorrow to talk to.

And after the conversation, the caller implements the safety plan we just discussed.

then go to sleep

I might write a diary

Or you might listen to BTS or Lizzo or write a letter to your sister or your boss or yourself to read back in the near future.

This is how you escape danger.

Sometimes people are delusional, delusional about the plans, the means, the timing to hurt themselves and others, and we can't quell it.

For example, five years ago on Christmas Eve, a man from Texas told me that he only felt joy when he caused pain to others, and that he wanted to kill women, and that he was going to kill them that night.

In such dire situations, call 911.

I'm grateful to 9/11, because that Texas incident, reportedly, 9/11 sent cops to the man's house, who had a pile of bullet-laden weapons and, according to records, a human leg.

Currently, less than 1% of consultations request intervention and rescue.

That's still about 26 cases a day.

Of those, six a week are consultations about murder.

The classic example is the school shooter.

32,000 rescue interventions to date

Our data and external research confirm that we have saved and changed many lives.

We are using data as a tool to change the system.

For example, the best way we've found, the best words to use to assess the risk of suicidal thoughts, is not to say, "Are you thinking about suicide?"

Instead, say something like, "Are you thinking about death or dying?"

"Are you thinking of choosing death with your own hands?"

Please share with the press so that they can use such expressions.

I shared it with [suicide prevention] activists.

We are also advising the National Emergency Number Association (NENA) and the 911 Association on the best course of action for first responders to suicide.

We're also working with the Veterans Affairs Administration to identify suicidal veterans.

(sighs) Pain is not just for Americans

It's a human experience

So our organization has expanded.

So far, we've expanded our activities one country at a time: Ireland, England, Canada, in both English and French.

We can maintain a pace of one country at a time,

At that rate, it will take decades for our services to reach even a third of the world's population.

it's too late

Consultations have increased 40% since COVID-19 began spreading in early March.

Words like "upset," "scary," and "panic" appeared in 78% of them.

Anxiety about COVID-19 makes people nervous about symptoms and worried about family members working on the front lines

Quarantine itself is also having an impact.

People are far from their normal activities, and maybe they're in home quarantine with their abusers.

Sexual abuse is up 48 percent, domestic violence is up 74 percent.

One of the biggest effects of the virus and lockdowns that we've seen is economic stress.

An increasing number of people are coming to us for advice out of fear of financial collapse, such as what to do if they go bankrupt or lose their place to live.

Right now, 32 percent of those who call us self-report that they have a household income of $20,000 or less.

The usual ratio is 19%, so it's increasing.

Therefore, it is necessary to expand the service quickly.

For months, we've been planning to declare that we're going to expand our service by language, and we're planning to have it available in five languages ​​in the next five years, reaching 32 percent of the world's population.

Then COVID-19 happened

the situation has changed

Now, I feel that five years is too long.

So today, here and now, I promise to do it in half the time.

Achieve 5 languages ​​in 2.5 years

No matter where you are, in Spanish, in English, in Portuguese, in French. What's the fifth language?

it's arabic

We're going to serve people in countries and populations where mental health services are hard to come by and where we have little data on what's going on.

Coverage includes immigrants with mobile phones

And young people, who are often excluded from research, have cell phones.

We're moving to a language that makes technology easier to use because we're going to use WhatsApp and Messenger in addition to SMS.

And if we do it globally, we'll have more capacity to get help in the middle of the night, because we're able to serve all time zones.

What that means is that all over the world, other people will reach out to other people.

It's like a giant love organization that spans the globe.

It's just a blessing to me and the whole team that the TED community has supported our wildest dreams.

The best way to show our appreciation is to let everyone know that we are ready and ready.

We will use your support to impact millions of lives around the world.

It's a tough time now

It's disturbing and depressing, and everyone feels lonely at times, especially during quarantine.

But no matter how old you are, no matter what your situation is, no matter where you live, the way to connect with us is at your fingertips and in your pocket.

I've been thinking a lot over the past few weeks about that girl who was forced into prostitution, and she's the girl I consulted.

I hope you are somewhere safe

To me

I don't know how she's quarantined or who she's with, but I hope she's okay.

I don't even know how she got our phone number last year, or how she got a cell phone to ask for help.

because you didn't listen

it didn't matter

The important thing is that she was able to contact us, that she had the number, and that she was able to call for help quickly.

This is the goal: to make getting help easier than avoiding it.

Never leave anyone alone, even in times of hardship or danger, when you must keep your distance.

With Crisis Text Line, no one is ever really alone

[Support this effort at AudaciousProject.org]

I'm very happy to be here, and today I'm going to present you with probably the biggest stunt on the planet, probably the biggest stunt on the planet.

no, rather than on earth

It's almost a parachute drop from space.

More on that later

I'm going to start with a very brief introduction to the world of stunts used in film and television.

I've been a professional stuntman for 13 years.

He's also a stunt coordinator, he does his own stunts, and he also directs.

I always think about health and safety while working

Now, if you're doing a car crash stunt, it's imperative to ensure the safety of the stunt performer as well as the staff.

I can't let the cameraman and the stuntman die.

No one can die or get hurt on set, not even passers-by, so safety is everything.

But there were times when it wasn't

In the old days of silent movies, Harold Lloyd, famous for his scene hanging from the hands of a clock, and many others did their own stunts, which was impressive.

There were no security measures, no technology, you could call it.

It was a very dangerous environment.

This is the first start woman, Rosie Wenger, an amazing woman.

As you can see from the slide, he's a very strong person.

She really paved the way at a time when no one, let alone a woman, did stunts.

The person I admire and respect is Yakima Kanute

He created a template for a fight scene in a stunt.

He worked with John Wayne, and Yakima was always involved in the stunts, either directing or acting, in the Western fistfight scenes.

This is a scene from "Stagecoach." Yakima Kanute's dangerous stunts are like no other.

It's really dangerous. There's no back support, no padding, no cushioning mats, no sandbox.

It's arguably the most dangerous stunt ever on a horse.

Speaking of dangerous stunts, if you look more recently, one of the most dangerous categories is the fire stunt.

This is not possible without advances in technology

Especially dangerous is this face without a mask.

It was shot for The Sun and FHM magazine.

It's very dangerous, but you won't see me wearing anything under my clothes.

Fire suits of the past were made of bulky, heavyweight wool, but modern materials have replaced them. Wonderful materials like Nomex and, more recently, Carbonex have allowed stuntmen to stay safe, burn longer, and look flashier.

continue a little longer

It's being done with a flamethrower.

There's a stunt that we do all the time, and it's a constant in action movies, and it blows you away.

I used to use a mini trampoline because that was the only way.

And it's an incline.

Now we're going to use the technology, this is called airlum.

It's a terrifying piece of equipment for novice stunt performers, because if you don't get it right, you can break your leg like crazy.

Putting that aside, this device uses compressed oxygen.

It's facing upwards, but you ride it, and you launch it with a remote control or with the power of your own legs, and depending on the pressure of the gas, you can send a human nearly 10 meters away.

In fact, here you can fly to the balcony.

I'm sorry for bothering you

i will stop today

Car stunts have become easier and safer due to advances in technology and engineering Car stunts have become easier and safer

Car stunts can be performed even more flashy than before

It's still hard to get hit

It's a classic grueling, brave and rough stunt.

But thanks to padding and amazing shock absorbers like sorbothane, a bump like this doesn't hurt too much.

The picture on the bottom right is from one crash test I did.

You can see that there are various stunts

This is an experiment where you run into a signpost.

We're using Lattix struts, which are woven lattice posts that collapse when hit.

The car on the left ran into a steel pillar

You can't see it very well, but the engine was right up to the driver's seat.

Operated by remote control

I drove the other car at the same speed of 100 km/h, and I was fine, no injuries.

Technology is also used for rolling cars

The traditional method is to ride up the incline, which is still used today.

But now we have cannons that use compressed nitrogen.

Under the car, by the wheels of the other car, you can see the black bars.

That's a piston fired from the ground

You can flip over a big truck, a passenger car, a bus, whatever. It depends on the power of the nitrogen cannon. (Laughter) Good job.

While I'm shopping at the store, sometimes I make this kind of phone call with Bluetooth Sometimes I make this kind of phone call with Bluetooth

"Um, let's blow the bus up, set it on fire, and let someone explode."

Then the people around you will make a face like this

(Laughter) It seems that I no longer feel that this kind of conversation is weird.

The next thing I want to show you is a stunt commissioned by Dunlop earlier this year for Channel 5's "Fifth Gear."

It's the world's largest somersault

Only one person ever succeeded

Now, in the old days, the solution for stuntmen was, "As fast as you can go, 100 kilometers per hour.

Let's go with all our might, step on the accelerator to the floor"

Well then you will die

So I went to Cambridge University over there and talked to a physicist who had a PhD in mechanical engineering, and he said he calculated that we need 60 kilometers per hour.

Even then, 7 G's of gravity hit me, and I lost some consciousness on the way.

There is a considerable height to fail and fall

And that's where science comes in again, and engineering, and we've improved the car body and the wheels.

Falling from height is a classic stunt.

And what's interesting is that they use airbags, and some of them are very advanced, they're very safe, they're designed differently than they used to be, so that if you land slightly wrong, you won't slide sideways.

But fundamentally, it's basic equipment.

Inflatable Same as a bouncy toy Side slats allow air to escape

The rest is the same as the air toy

That's why I do it. This job is full of fun things.

The funny thing is that they still use cardboard boxes.

It's been around for years and is still in use today.

It's interesting that it's retro

You can jump on it from a certain height

On the other hand, acting as a stuntman, which can be described as a form of art using the body, has been combined with extremely advanced technologies such as IT and software.

It's a jump that uses a green screen instead of a cardboard box.

This is a scene from the movie "Terminator"

Two stuntmen doing a non-trivial stunt.

From a height of about nine meters into the water, it's very simple.

With a green screen, you can put anything in the background, whether it's moving or stationary, and these days you can't see the seams.

Here are two parachutists doing exactly the same thing.

It's completely safe in the studio, and we'll skydive later, and then we'll use the footage to composite the moving sky and flying clouds.

Reducers and wires are also often used

You can fly a person by hanging it with a wire like this

This person doesn't skydive, he's being flown like a kite, or he's being moved like a kite.

And this is an attempt at Guinness World Records.

In 2004, I was asked to open the 50th anniversary show.

Again, the technology allowed me to do the fastest abseil, over 100 meters, and stop less than a meter off the ground without friction melting the rope, thanks to a special alloy in the descent device.

held at the Centrepoint Building in London

The nearby intersection was overflowing with people stopping

Helicopter stunts are always fun, even if they're hung outside.

Also aerial stunts Skydiving is a must

Here's a nice way to get back to the point: Project Space Jump.

In 1960, Joseph Kittinger of the U.S. Air Force did something amazing.

It's a descent from 30,000 meters, 31,000 meters to be precise, and it's a new aircraft that climbs to an altitude of about 25,000 meters, as a test of a high-altitude system used by military pilots.

So I'd like to show you a little video of what he did there.

In 1960, you were quite brave in those times.

It's Project Excelsior

consists of 3 jumps

First of all, drop some dummies.

And that's a giant gas balloon

It's shaped that way because the helium needs to spread out.

My balloon inflates 500 times, and when fully inflated, it looks like a giant pumpkin.

These are dummies that were dropped from 30,000 meters above the ground, and equipped with cameras.

At that altitude, you can clearly see the curvature of the Earth.

I'm planning a descent from 36,000 meters, so about 36 kilometers.

It becomes an almost vacuum environment of minus 50 degrees.

it's a very harsh place

This is Joseph Kittinger

It's 1960 everyone

I didn't know if he would survive, he's an extremely brave man.

I spoke with him on the phone a few months ago.

He was a very humble and wonderful person.

In his email, he said, "I wish you the best of luck with your project," and he signed, "Have a nice day."

He's in his eighties and lives in Florida.He's a very nice guy.

This is a figure in a pressure suit

Now, one of the challenges of increasing altitude is when you get closer to 10,000 meters -- amazing, right? At 10,000 meters, we have to rely on oxygen.

If you climb above 10,000 meters, or closer to 15,000 meters, you'll need assisted breathing, and you'll wear a G-suit.

This is him in old rock 'n' roll jeans with cuffed jeans.

I also need a pressure suit

You need a positive pressure breathing system and a tight G-suit, they help you breathe.

Above 15,000 meters, you need a pressure suit, like a space suit.

At 30,000 meters, no aircraft can fly.

Not even one with a jet engine.

You're going to need something like rocket power and a very large gas balloon.

It took years and years of hard work to find a team to build a balloon for this role.

The team finally found it in America.

The balloon is made of polyethylene and is very thin.

We'll have two balloons for the test descent and two more for the actual descent, because it's a well-known fact that they burst during takeoff.

Really very easy to break

This is where he jumps off, and he wrote about it, "One step on the world's highest level."

how does that feel?

I feel excitement and fear at the same time and in equal amounts.

Here's footage from a camera attached to him as he spins, before the stabilizing drogue chute opens to slow him down.

A droguechute is a small parachute that helps you maintain a face-down position.

You can see it pop open

Those are drogue chutes, he's got three.

i researched quite a bit

I can see you coming back to earth soon

Now, I want you to know the size of the balloon, but those little black dots are people.

It's about 60 meters tall, and it's huge.

Taken in New Mexico

This is a photo of the United States Air Force Museum

There's also a dummy of him, just like the situation at the time.

My gondola will be simpler than that one.

It's basically a box with three sides.

Training is essential for preparation

Here's a picture of me training for a high altitude descent last year in Morocco, where the Atlas Mountains run.

This is the view from 27,000 meters This is the view from 27,000 meters

Now, you might think this is a thrilling adventure, or just a fancy stunt.

no it's not like that

The search for this spacesuit for skydiving led me into a technological area that I hadn't originally thought of.

I visited an American company that makes suits for NASA.

That's the newest suit, and this is a picture I took with the chief engineer last year.

it was about $1.5 million

And it weighs nearly 140 kilos, so you can't skydive.

It's a tough one, and for the last 15 years, I've been looking for a suit and a manufacturer for this.

But something groundbreaking happened, very recently, at the same facility.

This is a parachute prototype that we're currently ordering and manufacturing, the only one in the world.

Made by the Russians who designed most of the spacesuits used by the Soviet Union over the last 18 years.

He left the company because, like everyone else in the spacesuit industry, he saw the emergence of a spacesuit market for space travel.

If you're on an airplane at 10,000 meters and the air pressure inside the plane drops, oxygen will help.

You can't live at an altitude of 30,000 meters

You lose consciousness in 6 seconds and die in 10 seconds.

The blood tries to boil, it's called vaporization.

My body swells up It's scary

It's not very fun

We and others expect that maybe the Federal Aviation Administration or the Civil Aviation Administration will say, "We need to put on a non-inflatable suit and hook it up to the plane."

With this giant visor, you'll be comfortable and have good vision.

If an emergency happens while the plane is descending and the cabin pressure suddenly drops, everyone is safe.

Now, I'm going to call Costa here and show him the one and only suit in the world.

I was going to wear it, but I asked my wonderful assistant, Costa.

Thank you very hot Thank you Costa

This is a communication headset, found in many spacesuits.

This is a 2 layer suit NASA's suit is 13 layers

This is a very light suit, weighs about 15 pounds.

Almost weightless Made just for me

It's a working prototype, and we plan to use it on all our descents.

Costa, can you take a look around?

Thank you very much

You can't really see the difference when you inflate it, as you can see in the picture below.

I've also skydived in a wind tunnel with this suit, which means I can do all the training I need to do safely, before the actual descent. Thanks a lot, Costa.

(Applause) Ladies and gentlemen, that's all for me.

The current state of the mission, we still need big sponsors.

I'm sure you will find

i think it's a great challenge

I hope you can see this is the best stunt on the planet I hope you can see that this is the best stunt on the planet

Thank you very much

(applause)

Australians are "runners" British are "trainers"

Americans call them "tennis shoes" or "sneakers"

Whatever the name, these rubber-soled casual shoes are worn by billions of people around the world.

Originally invented in the late 19th century, this simple piece of thick cloth and rubber has changed a lot since it was first used on the road.

Now more than ever, sneakers are being consumed.

The United States buys the largest number of sneakers in the world, with an average person buying three pairs of sneakers each year.

To meet this demand, we need to produce about 23 billion pairs of shoes each year, many of them in factories in China and Southeast Asia.

But the process of making shoes is becoming more complex, more labor-intensive, and in some ways more dangerous to workers and the planet.

About a fifth of the carbon emissions of the fashion industry come from shoe factories.

Sneakers alone emit 313 million tons of CO2 each year, the equivalent of 66 million cars a year.

To better illustrate the impact of shoes on CO2 emissions, let's take a look at the construction of shoes.

First, there's the heel, the midsole, the midsole, and the upper. These are usually made from synthetic fibers like polyester, nylon, latex, polyurethane.

Mining fossil fuels, which are raw materials for these materials, emits a large amount of greenhouse gases.

And the process of turning these raw materials into synthetic fabrics uses a lot of energy, making air pollution even worse.

The chromium used to color the uppers of some sneakers, which are made from natural materials such as leather, is a carcinogenic chemical that can damage freshwater ecosystems.

The outsole of most shoes is made of rubber, which is made through a process called vulcanization.

In this technique, raw rubber is heated to very high temperatures and sulfur is added to create a material that is both resilient and tough.

Until recently, sneakers used natural rubber in this process.

Today, most outsoles are made synthetically from natural rubber and by-products from petroleum and coal.

This manufacturing process accounts for 20% of a sneaker's carbon footprint.

But two-thirds of the carbon impact of sneakers comes from the next process: manufacturing.

A typical sneaker is made up of 65 parts, each of which is produced by a specialized machine.

So it's cheaper for the factory to mass-produce individual parts than it is to produce all the parts in one place.

But transporting those parts to one assembly plant creates even more CO2.

And when all the parts arrive on the assembly line, various processes such as cutting, pouring, melting, firing, cooling, and bonding are performed before stitching.

Assembling a typical sneaker requires more than 360 steps and accounts for the remaining 20% ​​of a sneaker's environmental impact.

The decentralization of factories also creates another problem: labor abuse.

Most brands don't operate or own production plants, so the factories with workers are in countries with little or no labor protection laws.

As a result, many workers earn less than they can afford to live on, and are exposed to toxic chemicals such as adhesive fumes.

Once the shoes are manufactured, they are packed and shipped to stores around the world.

In many cases, shoes can be worn for years,

For someone who runs 30km a week, it will wear out in about 6 months.

Because shoes are made from so many different materials, it's nearly impossible to take them apart and recycle them.

20% of the discarded shoes are incinerated, the rest are dumped in landfills and take up to 1,000 years to decompose.

So how can we reconcile our love of sneakers with our need for sustainability?

First, we have to streamline design elements and focus on eco-friendly materials.

Factories need to integrate numerous steps and parts to develop energy efficient manufacturing processes.

And consumers should support companies that use clean energy and ethical manufacturing processes.

We can buy fewer sneakers, wear them longer, and even donate the ones we don't use anymore.

One way or another, we will be on our way to a sustainable future.

(Helen Walters) Who's the first one?

-- Chris Anderson, someone who's been very worried about the pandemic all his life.

It played a key role in the world's eradication of smallpox more than 40 years ago.

In 2006, I was at TED, warning about the danger of a pandemic, and talking about what we should do.

I'm Dr. Larry Brilliant.

larry welcome

(Larry Brilliant) Thank you very much.

CA: In that talk, you showed me a simulation of what a pandemic would look like.

I would like to see it here again I got chills from that

(TED2006) Let's take a look at a simulation of what a pandemic might look like, so you know what we're talking about --

I'm assuming this happened in the south of Asia.

At first, it slowly spreads to 2 or 3 distant places.

Then a secondary outbreak of infection happened.

The disease spreads from country to country so quickly that you don't know what's happening.

Within three weeks, it's spread all over the world.

If we had an "Undo" button, and we could turn back time and isolate where it started -- if we could detect it early, respond early, and catch all the virus -- that's the only way to deal with something like a pandemic.

CA: That talk was about "early detection" and "early action," and you had people repeat those words.

Is that still the key to preventing pandemics?

(Larry) Yes

If you waste the first two weeks against a pandemic that's spreading at an exponential rate, and you're two weeks late, you're not losing the first two weeks of deaths and sickness, but the peak of the two weeks.

If you move fast, you can prevent it.

Early response is important, and that requires early detection.

(Chris) How would you rate the global early detection and early response to COVID-19?

Larry: I've been asked this question before, so I've been thinking about it.

I did an assessment of each country and actually made a list.

The island nations of Taiwan, Iceland, and New Zealand are A.

Britain, which is an island nation, and the United States, which is not an island nation but looks like an island nation, are failing marks.

South Korea and Germany are B

Each country responds differently

The whole world is struggling to cope

The current situation is not very commendable.

CA: It was discovered pretty early, or at least some doctors in China were aware of it early on.

(Larry) It was earlier than SARS in 2002.

It took six months then, but this time it took six weeks.

Discovery isn't just about being aware, it's about figuring out what the pathogen is.

I can appreciate that

Transparency and communication are another story.

CA: What's the big mistake that failing countries have made?

CA: The fear, the political incompetence, the presence of interference, the delay in taking it seriously, it's very human.

Throughout history, every pandemic was initially denied and suspected.

But those countries have responded quickly, and some, like South Korea, have started late but are recovering and doing well.

we wasted two months

We gave the virus a chance to explode for two months.

this is not a good idea

(Chris) Sure

Information about this virus is still confusing.

What is the scientific consensus going to end up like? For example, the two numbers that are important, like infectivity and lethality?

Larry: There are three factors that have to be kept in mind that contribute to virus activity.

The first is the basic play count, which is how many people an infected person will infect.

I've been told it's 2.2 or 2.4 in this case.

Three weeks ago, an important paper was published in Emerging Infectious Diseases, and they looked back at the data from Wuhan, and they said it was actually 5.7.

For the purposes of this discussion, let's assume that the virus spreads at an exponential speed and has a cardinality between 2.2 and 5.7.

The second important factor is what's called the latency period, or generation time.

The longer it takes, the slower the pandemic will emerge.

If it's short, like six days, it spreads very quickly.

And the third, often overlooked, but most important, is the percentage of susceptible people.

It's about how many potential customers the virus has, so to speak.

This time it's a new virus, so it's targeting 8 billion people.

All humans are equally susceptible to this virus facing the world.

It doesn't matter the color of your skin, or your race, or whether you're rich or poor.

CA: None of the numbers you've given seem to differ from other infectious diseases that have emerged in recent years.

What combination makes it destructive?

Larry: It's a combination of a short incubation period and high infectivity.

Anyone watching this will know someone who has this disease.

many people have lost loved ones

It is a serious disease when it becomes severe.

Critical care physicians and intensive care physicians around the world are calling me, and they're all saying the same thing: "How do I choose who to save?

We are too short of resources.”

It's a horrible disease that puts you on a ventilator and you die alone, but it affects every organ.

Calling this a respiratory disease is misleading.

I feel like I have the flu

In fact, many patients have kidney problems, hematuria, gastroenteritis, high rates of heart failure, known to affect their sense of taste and smell (olfactory nerves), and, of course, lung problems.

Rather, I wonder if there are organs that are not affected.

It reminds me of smallpox in that regard.

Chris: It's a predicament.

how do i proceed from here

(Larry) The coping method will not change.

Early detection Early response

find all infected people, trace all contacts

We've got some great new technologies for contact tracing, and great scientists are working fast to make test kits, antivirals, vaccines.

We all have to slow down the epidemic, although in Buddhism they say to slow down time for the sake of mental unity.

We need to slow down the virus, so social distancing.

Let's be clear, social distancing and flattening the graph doesn't change the absolute number of cases. But we're trying to flatten peaks like Mt. Fuji so that lives aren't lost to hospital bed shortages, people who have had a heart attack, people who need chemotherapy, people who have a difficult birth so they can be hospitalized, so they can make ends meet with limited resources -- especially in the developing world.

We're going to slow down the epidemic, stomp each wave with force, find every infected person, trace every contact, test every case, quarantine only those who need to be quarantined, and so on until we have a vaccine.

Chris: We have to move from the stage of simply trying to suspend activities in general and trying to mitigate the damage, to the stage of re-identifying individual infected people, tracing contacts, and dealing with them individually.

And that will require a lot more coordination, more will, more organization, more investment, which is not happening in some countries.

Can you do it? How can we do that?

(Larry) Of course you can.

Taiwan and Iceland are doing great, Germany and South Korea have different strategies.

That requires good governance and taking it seriously, and listening to scientists who know the virus, not politicians.

Of course it is possible

I want you to remember that this is not the end of the zombie world, nor is it a mass extinction.

98% or 99% of people will survive.

We have to deal with it the way we know we can do it, and we all need to bring out the best in us.

So do the people at home, the scientists, the politicians.

Chris: Do you think there will be worse pathogens in the future?

Can you envision a worse combination of numbers to be prepared for?

Larry: Smallpox has a base play count of 3.5 to 4.5, and COVID is probably about the same.

Smallpox killed a third of the people

there was a vaccine

there is such a difference

It's also a concern that I made a movie called "Contagion," because some of you may have seen it, but it's fiction.

There's a much deadlier virus in the movies.

Chris: That movie is popular on Netflix, isn't it?

I heard you served as an advisor

(Larry) yeah yeah

I made that movie to show what a real pandemic looks like, so I made it a really scary virus.

And that's where the virus travels from the bat to the apple to the pig to the cook to Gwyneth Paltrow, and it's called a spillover or a zoonotic disease, where an animal disease can pass to humans.

If you think about the past and the next 30 years, in the last 30 years, Ebola, SARS, Zika, swine flu, bird flu, West Nile, you could name all those harsh names.

There were between 30 and 50 new viruses that became infectious to humans.

Unfortunately, we are entering an era of pandemics, and we need to behave accordingly and live the One Health concept. We need to understand that humans, animals, and the environment live in the same world, and we need to let go of the illusion that we are a special species.

It's no different for viruses

(Chris) I see

I was exposed to the vaccine

Is there a way to accelerate vaccine development?

(Larry) There is

It's exciting to see things that we thought were only in computer science actually happening, and that the multi-step, sequential process that we used to think of as such is changing.

Safety test then effectiveness test then efficiency test

then manufacture and

We're doing those three or four steps in parallel, not in series.

Bill Gates says he's building seven vaccine production lines in the United States, and he's starting to prepare for production before we know what the final vaccine will be.

We're testing safety and efficacy at the same time.

This would make the National Institutes of Health happy.

it's very exciting

CA: When will we have a vaccine?

Is it possible after a year or a year and a half?

Larry: And Anthony Fauci, who's the leading authority on that, says 12 to 18 months.

I think the first vaccine will come sooner.

But, as you may have heard, this virus may not provide long-term immunity like smallpox does.

Therefore, we are trying to create a vaccine with an antigenic enhancer that can fight off diseases and provide strong immunity, so that we can acquire long-term immunity.

That's why it takes a little longer

CA: Last question.

When I received the TED Prize in 2006, the wish I heard was that I wanted to create a system to prepare for a pandemic, to prevent something like what is happening now.

I hope the world has let you down

If you were to make another wish now, what would it be?

Larry: Far from disappointing in terms of speed of discovery.

rather happy

Back in 2006, it took an average of six months to find a virus that passed from an animal to a human, like the first Ebola.

Now we're finding the first cases in two weeks.

I'm not complaining about this, but I would like to reduce the time to discovery to the length of the incubation period.

there's a bigger problem

People of all colors, all religions, people of all races, so many nations joined forces to eradicate smallpox.

The world worked together to overcome the pandemic.

Now we feel like we're victims of centrifugal force.

separated by a fence of nationalism

We can't beat the pandemic if we don't think we're all in this together.

This is not the idealism of the flower garden, but the pandemic has compelled us to recognize it.

We all need to work together for global solutions to global problems.

there is no other way

(Chris) Larry Brilliant Thank you very much

(Larry) Thank you Chris

In 1905, psychologists Alfred Binet and Théodore Simon devised a test for struggling children in French schools.

Laying the foundation for IQ tests aimed at judging children with special needs

Since the late 19th century, researchers have hypothesized that cognitive abilities -- such as verbal abilities, working memory, visual and spatial abilities -- reflect basic general intelligence, or the g-factor.

Simon and Binet created a suite of tests that measured these abilities and expressed the results as a single score.

The questions are age-adjusted, and the score tells you how well you're doing compared to your peers.

Score ÷ Age x 100 = Intelligence Quotient (IQ) Score ÷ Age x 100 = Intelligence Quotient (IQ)

Now, at each age group, we set the average score for the population at 100, with 68% of people between 85 and 115.

Simon and Binet thought that the abilities measured by this test reflected general intelligence.

But there is, and still is, no consensus on the definition of general intelligence.

That leaves room for using IQ tests with their own preconceived assumptions about intelligence.

What started out as a test to identify children in need of learning support has rapidly begun to be used in other ways, often based on a very wrong ideology, to screen people.

An early, large-scale example was the IQ test used by the military in the United States during World War I to select recruits for officer training.

At the time, many believed in eugenics, and believed that we could and should control desirable and undesirable human genetic traits through artificial selection.

There were many problems with the idea that intelligence was not only fixed and genetic, but also related to race.

Influenced by eugenics, scientists falsely claimed that certain races were superior to others based on military-sponsored IQ test results.

It was not taken into account that many recruits who took IQ tests were new immigrants to the United States and lacked formal education or exposure to the English language.The military created a false hierarchy of intelligence based on ethnicity.

The intersection of eugenics and IQ testing has had an impact not only on science, but also on policy.

In 1924, Virginia drafted a law allowing forced sterilization of people with low IQ scores, upheld by the Supreme Court.

Nazi Germany officially admitted to killing low IQ children.

In the wake of the Holocaust and the civil rights movement, there were voices opposing discrimination based on IQ test results on moral and scientific grounds.

Scientists have begun gathering evidence that IQ is influenced by the environment.

For example, in the 20th century, IQ test scores were regularly calibrated, and newer generations scored steadily higher than previous generations.

It's a phenomenon called the Flynn effect, because the scores are rising too quickly to be considered a genetic evolution of traits.

It was probably environmental -- improved education, health care, better nutrition, and so on.

In the mid-20th century, psychologists used IQ tests to diagnose things other than general intelligence, specifically schizophrenia, depression, and other mental conditions.

These diagnoses rely somewhat on the clinical judgment of the rater, and some of the tests were used to determine IQ, which later investigations found to be clinically useless.

Today's IQ tests employ many similar design elements and question formats to earlier tests, but there are also techniques that better identify potential test biases.

Tests are no longer used to diagnose mental conditions.

Similar problematic tests using subtest scores are still sometimes used to diagnose learning disabilities, despite the advice of many experts.

Psychologists around the world still use IQ tests to identify intellectual disabilities, and test results are used to determine appropriate learning support, vocational training, and assisted living.

IQ test results have been used to justify policies of terror and scientifically unfounded ideologies.

It's not that the test itself is worthless. In fact, it does a pretty good job of measuring logical thinking and problem-solving, which is what IQ tests are for.

But it's not the same as measuring human potential.

IQ tests encompass many complex political, historical, scientific and cultural issues, but more and more researchers agree on this point and refuse to classify people with a single score.

In early 1828, Sojourner Truth came to the Grand Jury in Kingston, New York.

Truth, in the eyes of the judge, knew nothing of the legal system, had no money, no power.

Despite jurors, Truth said he had appeared in court for custody of his five-year-old son, Peter, who was illegally sold into slavery in Alabama.

To survive the months of trial, Truth raised money, strategized with his lawyers, and believed.

In the spring of 1828, custody of Peter was finally regained, but the Battle of Truth continued.

Truth dedicated his life to the pursuit of justice and spiritual understanding.

Truth was born a slave named Isabella Baumfrey in Ulster County, New York, in the late 18th century.

New York state had declared the abolition of slavery in 1799, but the emancipation was gradual.

Those currently in slavery were forced into indentured servitude until their mid-20s.

During this time, Baumfrey was repeatedly sold by slave owners and torn apart from those he loved.

Even when I started a new relationship, I was blatantly thwarted

Baumfrey later married a slave named Thomas and had three children.

I desperately wanted to live with my new family, but my hopes were in jeopardy when the emancipation of the slaves was slow.

Her master, John Dumont, promised her release by 1826.

Not keeping his promise, Baumfrey felt unsafe and fled.

During the escape, only the youngest daughter, Sophia, was rescued, but the others remained slaves.

It took two years to regain custody of Peter.

Then it took another two years to get some of the other children back.

During that time, Baumfrey sought salvation in faith, and gradually fell in love with it.

After settling in Kingston, New York, Baumfrey joined a group of Methodists and shared his political views.

At home, I continued the practice of speaking aloud to God, and one night, while praying, I received a revelation from God.

Baumfrey claimed he was told by God to leave Kingston and share God's word with others.

Though illiterate, Baumfrey was known as an inspiring preacher, citing scriptures, religious ideals, and his own experiences as a slave.

In her sermons, she openly condemned the oppression of African Americans and women, and she became famous in the abolitionist and women's liberation movements.

In 1843, he changed his name to Sojourner Truth and began his legendary preaching circuit.

Truth saw itinerant preaching as a destiny.

Out of faith, she frequented America's most hostile neighborhoods and preached as the only black woman to bigoted audiences.

Truth believed in divine protection, but some in the audience responded to her courage with violence.

During one sermon, a white mob set fire to the tent she was preaching at and threatened.

In his memoirs, Truth wrote that he was determined to face the mob, "If I didn't have enough faith to go out and hold back the mob... I felt like I had three hearts!

They were big men and I couldn't do anything about them." He quelled the mob with hymns and prayers until he lost the will to do harm.

Truth's sermons touched thousands of people in American society, but her work didn't stop there.

During the Civil War, the Union Army recruited recruits and organized supplies for black troops.

Recognized for his achievements, he had an audience with President Lincoln.

Using that opportunity, the government argued that the former slaves should be given land.

Truth continued as an itinerant preacher well into his 80s.

He fought for his rights in a hostile world as an outspoken critic until his death in 1883.

Truth once said, "Even in the midst of my enemies, I feel safe because the truth is compelling and pervasive."

What's this?

Fluffy socks? Overripe bananas? A tube of moldy toothpaste?

It's actually a humble sea cucumber, and as strange as it may look, it's the sea cucumber's daily efforts that bring the entire ecosystem to prosperity.

Sea cucumbers belong to the phylum Echinodermata, along with sea urchins, starfish, and other marine invertebrates with radially symmetric "echinoderms."

Some sea cucumbers have feathery tentacles protruding from their mouths, others look like inflated balloons, and others look like headless chicken monsters, which is actually the common name given to this rare deep-sea creature.

But it's generally characterized by a long, cylindrical shape.

Sea cucumbers are basically brainless, with fleshy forms lining the digestive tract, closed at each end by a mouth and an anus.

It has sticky tube feet all over its body that allow it to stomp on the ocean floor.

Many sea cucumbers actually breathe through their anus, but their specialized tube feet are used both for feeding and for breathing.

As you contract and relax your muscles in a regular fashion, your breathing tree, a lung-like structure inside your body, draws in and out of water, extracting oxygen from seawater.

Certain species of crabs and clownfish use this regular movement to escape inside the sea cucumber's anus when it opens.

A single sea cucumber can have as many as 15 clownfish on its rear end at the same time.

But not all sea cucumbers put up with their intrusive behavior.

One species has five teeth around its anus, which may have evolved to counter unwanted guests.

But even sea cucumbers without anal teeth are equipped with tools to protect themselves.

They evade threats and fight back with mutant collagen tissues, also called MCTs.

This gel-like tissue contains bundles of collagen called "fibrils." Proteins can push these fibrils toward each other, stiffening the tissue, and pulling them apart to soften them.

This versatile tissue has many benefits: it helps with efficient locomotion, it allows sea cucumbers to fit into tight spaces, and it divides to allow asexual reproduction.

But the most intense use of MCTs is when they are attacked by predators.

By loosening internal tissue attachments and rapidly softening and contracting muscles, many sea cucumber species are able to shoot various organs out of the anus.

This act is called "gut ejection," and it's a surprisingly effective defense mechanism.

In addition to frightening and distracting predators, the internal organs of some sea cucumber species are sticky and toxic.

Gut release may seem drastic, but after a few weeks, sea cucumbers are able to regenerate the lost gut.

Aside from a few species that have evolved to swim and feed without moving, many of these heavy, unwieldy creatures subsist on seagrass.

Sea cucumbers live everywhere from shallow shores to 6,000-meter-deep trenches.

Sea cucumbers make up the majority of the animal biomass in the deep seafloor, reaching 95% in some areas.

As this magical sausage-shaped creature walks, it sucks up sand, digests the organic matter it contains, and excretes its by-products.

In the process, the sea cucumber cleans and oxidizes the seafloor by breaking down debris and recycling nutrients.

This creates an environment in which seagrass beds and shellfish thrive.

Sea cucumber excreta may also help form corals and act as a buffer against acidification of the marine environment.

As ocean cleaners, sea cucumbers are doing an amazing job.

The next time you enjoy the feeling of sand between your toes, imagine that these sands might have been excreted by a naughty butt-breathing sea cucumber at some point.

For the most part, science and art see each other on two sides of mutual misunderstanding.

Seeing each other creates great confusion

Art, of course, sees the world from a mental, emotional, sometimes unconscious, and aesthetic point of view.

Science sees the world in terms of rationality and quantification -- what can be measured and described -- but it also provides art with an amazing framework for understanding.

With the "Extreme Ice Survey," we aimed to combine these two areas of human understanding, to bring art and science together to help us understand the relationship between nature and humans.

In particular, having spent my life as a professional nature photographer, I believe that photography, video and film have tremendous power in helping us understand nature and the relationship between humans and nature.

In this project, of course, there was a special interest in ice.

I was fascinated by the beauty of ice, its ability to transform, its capacity to transform, and the amazing shapes it could take.

The first photo is from Greenland

But ice has another meaning

Ice is the "canary in the coal mine" for the entire planet.

Here you can see, touch, hear and feel the reality of climate change.

In most of the world climate change is very abstract

Believe it or not, rely on your senses to tell you whether it rains more or less than before, or

It says that the temperature is gradually rising or falling

Or what the computer model says or not, or what other measurements are.

Put all that stuff aside, because the Earth's polar or high altitude environments have ice, and climate change is real there.

The changes are happening in very visible ways

I can photograph it, I can measure it

95% of the world's glaciers are retreating and shrinking

This is around Antarctica

95% of glaciers are retreating and shrinking because snowfall and temperature patterns are changing.

there is no scientific debate about this

Observed and measured infallible information

The great irony or tragedy of our time is that the public thinks scientists are still debating whether this is true or not.

science doesn't argue that

In the pictures I'm going to show you, huge glaciers and ice sheets that are hundreds of thousands of years old are breaking apart in chunks, and icebergs are drifting away one by one, morphing into rising sea levels.

After watching this over the course of my 30-year career, until about 10 years ago, I was still skeptical about climate change, because I thought climate change was based on computer models.

In fact, I didn't know it was due to robust measurements of ice sheets, ocean floor sediments, lake sediments, tree rings, and other methods of measuring temperature.

When I learned that climate change was real and not just a computer model, I knew that one day I would do a project to capture and express climate change in the form of photographs.

And that's how I got to this project

In the beginning, I was doing normal, single still photography for my job at National Geographic.

And then one day, I had a wild idea, and I thought, when I'm done with this job, I'm going to set up a time-lapse camera or two near the glacier, and shoot every 15 minutes, every hour, or whatever, and see how the landscape changes.

And then, in three weeks, without even realizing it, I had 25 cameras planned.

The next six months ended up being one of the toughest years of my life, designing, building and installing 25 time-lapse cameras.

The power source is the sun. It is powered by a solar battery.

It charges the battery, and there's even a special computer that controls when to shoot.

Cameras are placed on rocks on the sides of the glacier, and from a stationary position on the bedrock, they look down on the glacier and watch the landscape evolve.

We just set up some cameras on the Greenland ice sheet.

For the last six weeks or so, we've been drilling holes in the ice, going below the ice level, and setting up cameras there.

the camera is still there

Anyway, the camera is about every hour or so

Take a picture every 30 minutes, every 15 minutes, every 5 minutes

This is the time-lapse shooting of the time-lapse shooting camera production process

(Laughter) I have a special obsession with these nuts and bolts and washers.

When I make my own equipment like this, I spend about half of my life at the local hardware store.

we worked on most of the major glaciers in the northern hemisphere

We have time-lapse cameras in Alaska, the Rocky Mountains, Greenland, and Iceland, and we have the locations we always go to, that is, the locations we visit every year, like British Columbia, the Alps, Bolivia.

It's a big job, and I'm here tonight to represent the whole team.

There are many people currently engaged in this work

I have 33 cameras now

Thirty minutes ago, there were 33 cameras across the northern hemisphere filming, and we're looking at what's going on.

I spend a lot of time on site. It's a lot of work.

It's been going on for two and a half years, and it's going to continue for another two and a half years.

But it's just part of the job

The other job is to tell this story to the world

Scientists collect this kind of information on a timely basis throughout the year, but much of it remains in the scientific world.

Likewise, a lot of the projects are confined to the art world, and I feel I have a responsibility to maximize policy impact with these pictures, through my relationships with, say, TED, or the Obama administration, Congress, or John Kerry's office.

I've made a movie, I've written a book, and I have more to do

We have a site on Google Earth, kindly provided by Google Earth, because we need to spread this story, which is direct evidence of climate change that is happening right now.

Well, before watching the video, a little science study

If everyone in the developed world could understand this graph and take it into their heads, the gravity of the matter would make climate change even less of a debate.

Everything else is just propaganda and confusion

The key is this: this is a 400,000 year record

This same pattern happened about a million years ago.

there are a few important things

One: the temperature and the amount of carbon dioxide in the atmosphere are roughly in sync.

You can tell by the orange and blue lines

Nature can tolerate up to 280 ppm carbon dioxide

that's the cycle of nature

It hits 280 and then it goes down, and the various reasons for that are not important right now.

280 is the peak

Right now, if you look at the top right corner of the graph, it's now 385ppm.

far outside the normal natural range of variation.

The earth is heating up

Over the last 100 years, the temperature of the planet has risen 1.3 degrees Fahrenheit, 0.75 degrees Celsius, and is rising, because we're dumping fossil fuels into the atmosphere.

at a speed of 2.5ppm per year.

continues to rise relentlessly

have to turn back

That's the key, and hopefully one day we'll be able to proudly display it in places like Times Square in New York City.

But anyway, let's go to the ice world

Columbia Glacier in Alaska

This is the view of the ice separation plane

This is what the camera observed over the course of several months.

The glacier flows in from the right and falls into the sea, and the camera is shooting every hour.

If you look around the center back, you can see that the ice separation surface moves up and down like a yo-yo.

So the glacier is floating and unstable, and we're going to see the consequences of that floating.

Despite its size, the ice separation plane in the photo is 100 meters high and has about 32 floors.

It's not about a small cliff, it's about the size of an office building in the city center.

At the ice breakup surface, you can see the ice breaking apart, but it actually extends about 600 meters below the surface.

So a wall of ice that's 600 meters deep would collapse to that point if the glacier was on the bedrock, otherwise it would flow away.

The Columbia Glacier is over, and this is the southern part of Central Alaska.

This aerial photograph was taken by me in June three years ago.

This was taken this year

the glacier is receding

The main stream, the main body of the glacier, is coming from the right side, but is rapidly retreating upstream.

I'm going there in a few weeks, and I'm probably 800 meters back, but I wouldn't be surprised at all if I went that far and was 8 kilometers back.

It's really hard to get a sense of the scale of a place like this, because glaciers -- places like Alaska and Greenland are so huge, they're not normal landscapes -- they're not only receding, they're shrinking, like deflating balloons.

So this glacier has a feature

In the middle of the picture you can see a 'ridge' above it with an arrow on it, that might help you understand.

There is a mark line called "trim line (excavation line)" where the red line is drawn

I don't think any self-respecting photographer would do that -- I'm putting in a little bit of an illustration, just to make the point clearer.

So the shrinkage of the glacier since 1984 is bigger than the Eiffel Tower and the Empire State Building.

As the glacier retreats and shrinks, huge amounts of ice have been washed out of this valley.

These changes in the Takayama region are accelerating.

not static

Especially in the world of sea ice, natural change is much faster than we expected a few years ago, and either the situation is accelerating, or our initial assumptions were simply underestimated.

In any case, even as we speak, a tremendously large-scale change is taking place.

Here's another time-lapse footage from the Columbia Glacier

See how far the glacier has come in spring, June, May and October

Okay, let's move the frame

I shoot once an hour

It's a geological scale event.

Everyone says it's not progressing in winter

No. This is an "unhealthy" glacier that has been retreating through the winter.

eventually catch up and retreat

I watch these videos over and over again, because there's a very strange fascination with seeing things move that normally aren't supposed to.

Seeing is believing, and that's what we see at TED Global.

This kind of camera allows you to see

I can see what I can't see

A large crevasse is open

A large island of ice drifts away. Look at this.

This is spring this year. It's a huge collapse. It's happened in about a month and it's lost so much ice.

So what we started recording three years ago is far to the left, and this is from a few months ago, when we last went to the Columbia Glacier.

To give you a sense of the scale of the retreat, I'll use another little illustration: a British double-decker bus.

295 double-decker buses are lined up vertically until the retreated place

It's a great distance

it's iceland

One of my favorite places is Seoul Heimajökull Glacier.

You can see the glacier terminal retreating.

a river is formed,

will shrink

Without the means of photography, you can never see it, you can't see it.

Even if I stand here for the rest of my life, I won't be able to see it.

turn it backwards

2 years back in time

starting here,

ended here a few months ago

it's greenland

Less ice means faster impacts of climate change

Greenland took some time to react to global warming in the last century, but over the last 20 years, it's been accelerating.

The temperature in that place has risen tremendously

It's a big place, it's all ice

All that is colored is ice, over 3 kilometers thick, a huge dome that flows in from the coast and rises in the center.

Greenland has one glacier that sheds more ice into the ocean than all other glaciers in the Northern Hemisphere combined: the Ilulissat Glacier.

Several of our cameras are on the southern edge of Ilulissat, capturing this dramatic retreat from the ice breakup plane.

This is what it looked like two years ago

You can see the scale from the helicopter in the front part, it's getting smaller and smaller.

The width of the front is more than 7 kilometers. I pull the camera, but I can still see only 2.4 kilometers.

Imagine how big it is and how much ice is flowing

Greenland Inland is on the right

flows toward the Atlantic Ocean on the left

An iceberg that is dozens of times larger than a building crashes into the sea

Two weeks ago, on June 25th, I downloaded a picture of a massive collapse site.

Coming soon

In the last 15 years, the speed of glaciers has doubled

Over 40 meters of ice flows into the ocean every day

Every three days, it's pulsing down, but on average, it's a little over 40 meters a day, twice as fast as it was 20 years ago.

So a team observing this glacier has documented the largest collapse event in recorded video history.

9 cameras are spinning

2 of them recorded

130 meters of ice flakes off

A huge iceberg will flow out

Well how big was it?

It's hard to imagine.

1.6 km retreat (approximately) in 75 minutes Collapse width of 4.8 km for this single release

The block is 800 meters high, and if you compare the width of the collapsed surface to London Bridge, it's 20 bridges long.

In American terms, the United States Capitol is 3,000 ice cubes, and you know how big it is.

It's only 75 minutes

Now, after studying climate change for so long, my conclusion is that it's not a matter of economics, technology, or policy.

The problem is "cognition"

Politics, economics, technology are too many problems, but they can be solved.

you can definitely

But there's a cognitive problem here, and many people still don't understand the gravity of the matter.

You're an elite audience here, so I can understand.

Fortunately, many of the world's major political leaders are elite listeners who can understand this.

But we need more people to join us

And that's why organizations like TED, the Extreme Ice Survey, and the like can have a huge impact on human cognition and work together.

'Cause I think now's my chance

We are on the brink of crisis, and yet we have the opportunity to face the greatest threat of our generation, or this century.

The call to do the right thing is at stake for us and for the future.

I hope that our wisdom will take this opportunity to awaken our consciences to do what is right. Thank you very much.

(applause)

When I was about 12 years old, my father took me to an exhibition about space, not far from here in Brussels.

I think it was 1988, around the end of the Cold War.

At a time when the United States and Russia were fiercely competing, some of them were glimpsed at the exhibition.

NASA brought a giant photo of the space shuttle, but Russia brought the Mir space station.

It was actually a training module, but you could go inside and try everything.

It was the real thing, with all the buttons and all the wiring, where the astronauts ate and worked.

As soon as I got home, I started drawing spaceships.

But it's not a sci-fi spaceship, no.

It was a technical blueprint

It was a cutaway view of what the structure should be, how the wires should run and where the screws should go.

I didn't become a space engineer, but luckily I became an architect.

This photo is part of a project I've been involved in over the last 15 years.

Each project was different and had a completely different shape, but it was built in a different environment.

because they had different constraints.

I think design becomes really interesting when you have really tough constraints.

Each project took place in different parts of the world

A few years ago, this map wasn't enough.

it was too small

I had to add this because I was going to be involved in a European Space Agency project on the surface of the moon, and they asked me to design a residence on the moon.

As an architect, when I visit a new place and design something, I first look at the local architecture -- the precedent.

But on the Moon, that's the only thing like this, so of course that's difficult.

There is only the legacy of the Apollo program

I wasn't even born during the last moon landing, and they only had three days.

It's kind of like going camping, right? It's very expensive camping.

One of the biggest challenges when it comes to building something on another planet or moon is how to transport the building materials.

First of all, it costs roughly $200,000 to bring, say, a one-kilogram object to the surface of the moon, which is very expensive.

so it has to be very light

Secondly, space. We have limited transportation space.

This is the Ariane 5 rocket

The usable space for this rocket is not that big, 4.5m in diameter and 7m in height.

So, building systems need to be compact or can be compact, lightweight, and here's one of the answers.

very compact and very light

This is actually what I inflated earlier.

But there's a big problem with this, which is that inflatables are fragile.

You need protection, especially if you're going to use it in a very harsh environment like the moon.

please think about it

The temperature difference on the moon base can be as much as 200 degrees.

When one side of the moon base is 100 degrees Celsius, the other side is -100 degrees Celsius.

we need to protect humans from it

Second, the moon has no magnetic field, so all radiation, including solar radiation and cosmic rays, hits the moon's surface.

We need to protect astronauts from these things as well.

And third, it's important to remember that the moon doesn't have an atmosphere, and incoming meteorites will hit the moon's surface without burning up.

This is why the surface of the moon is full of craters

We also need to protect astronauts from meteorites.

So what kind of structure do you need?

A cave is the best choice. A cave is surrounded by a lot of objects, and we need those objects.

Having an object protects you from temperature changes, it protects you from radiation, it protects you from meteorites.

this is our solution

can you see the blue part

This is the inflatable part of the lunar base.

You can create large living quarters and lab spaces with cylinders attached that have the necessary support, life support and airlocks.

On top of that is a domed structure that protects the interior with a large amount of material.

Where do these materials come from?

Will it transport concrete and cement from Earth to the Moon?

Of course I can't do that because it's too heavy.

costs will be enormous

I will procure it locally.

Using local materials is the same as on Earth.

Wherever you build, whatever country you build in, find out what materials are on the ground.

On the moon, the question is, what are the local materials?

there really aren't that many

really only one

It's moon dust, or the fancy scientific name for it is "regolith," the surface soil of the moon.

great thing it's everywhere

it covers the surface

It's anywhere from about 20 cm to a few meters thick.

But how do you build with that material?

we use 3d printers

If you ask what a 3D printer looks like, you probably think of something that prints something that's big enough to hold in your hand and that's the size of your palm.

I don't want to carry a giant 3D printer to build a lunar base.

I'm going to use a smaller one, about the size of that device.

So this is the little device, the little robot rover, and it has a little shovel, and it carries the regolith into the dome, and it builds up thin layers of regolith, and the robot builds it layer by layer.

It's a pretty unique structure to print on a 3D printer, and I've got a sample here.

It's called a closed cell structure.

looks like a natural

The reason we use it as part of the shell structure is that only certain parts need to be solidified, so we can carry less coagulant from the Earth, and it's lighter.

By the way -- the approach of building something and putting a protective dome on top of it was also used on the Mars project.

This image has three domes

You can see the printer making the dome structure.

Let me explain that there is a big difference between Mars and the Moon.

This diagram shows the Earth, the Moon, and the distance between them, 400,000 kilometers, to the same scale.

When you go to Mars, it's a lot farther away, and this is a picture of Earth taken by the rover Curiosity as it landed on Mars.

The earth is here, 400 million kilometers away.

The problem with this distance is that it's 1,000 times farther than the moon, so you can't communicate directly over the radio with, say, Mars Curiosity.

You can't remotely control it from Earth.

You can't just say, "Turn left on the rover," because it takes 20 minutes just to get to Mars.

If the rover turns left, it takes another 20 minutes before the answer comes, "Yes, we turned left."

At this distance, it's essential that rovers and robots work autonomously.

The biggest challenge is that Mars missions are risky.

just a few weeks ago

What if half of Mars missions don't make it to Mars?

What should I do?

Instead of building one or two rovers like we do on the moon, we're building hundreds of rovers.

It's like the termite mound you know.

Even if you remove half the termites, you can create an anthill.

it may take extra time

I do it the same way

If you don't get half the rover or the robot, you can still complete it, even if it takes extra time.

There are three different types of rovers here.

A drilling rover can be seen in the distance

Good at excavating regolith

And then there's the transport rover, which is great for transporting regolith to construction sites.

And finally, there's this cute little guy with little legs that doesn't have to move much.

It goes over a layer of regolith, stops, and microwaves it to harden it, layer by layer, creating a dome structure.

This is -- I actually wanted to try it, so I decided to go on an expedition and build a swarm of robots.

This is the street

I made 10 units. It's a small group.

We took six tons of sand, and we tested these little robots to see if they could actually move sand, and in this case it was Earth sand.

and it wasn't remotely controlled

There are no instructions to go right or left, no pre-determined route.

All I gave you was a task to bring the sand from that area to this area.

And when it comes across obstacles like rocks, the robot has to solve it on its own.

I needed to be able to make decisions when I encountered another robot.

It should be able to complete the task even if the battery dies and half falls off.

need redundancy

It's not just robots

The same could be said for housing

For the Mars mission, we decided to have three domes. Even if one didn't reach it, the other two could still be used to build the base.

Why are you involved in space as an architect?

You may think it's strange to get involved in this

This is an area that requires special techniques.

I believe that really difficult, very constrained problems can be solved with a creative perspective, a design perspective.

I really feel that design and architecture are really necessary for projects like extraterrestrial settlement.

thank you

(applause)

you are innocently accused

impossible to prove innocence

If you go to great lengths to prove your innocence, you will be convicted and executed.

But confess your sins, apologize, and point out your accomplices, and you're free.

Will you make a false confession? Or risk a public execution?

Those accused of witchcraft had to make this choice, which happened in the village of Salem, Massachusetts, between February 1692 and May 1693.

They are victims of supernatural delusions, religious superstitions, and a system in which repentance is justice over truth.

Salem Village was settled in 1626 by the Puritans, a group of English Protestants.

The people of Salem live in isolation under strict discipline.

He was constantly getting into trouble with his Native American neighbors and French settlers.

People were frightened by hunger and disease, and relationships were strained.

To make matters worse, 1692 was the coldest winter on record.

That winter, two cousins, 9-year-old Betty Paris and 11-year-old Abigail Williams, began acting strangely.

Doctors could not find a clear cause, and instead gave them the diagnosis of "bewitched." The Puritans believed that the devil used human servants and witches to destroy nature, summon terrifying demons, and torment children.

As the news spread throughout the village, so did the "strange behavior."

Twelve so-called "suffering" girls contorted, had seizures, and complained of sore skin.

Four of these girls sued three local women as perpetrators.

These three women were, in a sense, considered outsiders.

On February 29, authorities arrested them: Sarah Goode, a poor mother with a young daughter and pregnant with her second child; Sarah Osborne, a long-time church skipper suing the accusers' family;

Tituba initially denied

Eventually, he confessed to following the devil's instructions and using witchcraft, and said Goode and Osborne coerced him into doing so.

Osborne and Goode continued to plead innocent.

Osborne died in prison, and Goode's husband testified of Osborne, "Whether she was a witch, or she would have become a witch at once."

Goode's four-year-old daughter was also imprisoned to testify against her mother.

Good gave birth in prison

The baby died and was hanged shortly after being convicted.

Tituba was held until May, after which he was released.

The sacrifice of three people is just the beginning

As the accusations mounted, others, like Tituba, made false confessions to protect themselves.

Even the authorities reportedly told those accused of witchcraft that if they didn't confess, they would be hanged, and if they confessed, they would be set free.

Without a proper investigation, the authorities followed the teachings of the church, asking the defendant to confess, begging for forgiveness, and promising not to engage in witchcraft any more.

The courts used any form of evidence, no matter how dubious, including so-called "spiritual evidence," including the girl's obsession and rampage.

To make matters worse, many jurors were relatives of plaintiffs, undermining their objectivity.

Those who dared to speak up, like Judge Nathaniel Saltonstall, were accused.

By the spring of 1693, more than 100 prisoners had been imprisoned, 14 women and 6 men had been executed.

By this time, accusations had begun to spread beyond Salem to neighboring towns, targeting those in power.

When the wife was indicted, the governor of the Massachusetts Bay Colony stopped the trial.

The sentence was amended, the prisoners released, arrests stopped.

Some say the girls were hallucinating.

But in the end, we don't know what causes them to act.

What we do know is that adults accepted children's wild accusations as solid evidence.

The Salem Witch Trials left us with a lesson today: the horrors of herd psychology and scapegoating, and that fear can even manipulate our perceptions.

(Shah Rukh Khan) The next speaker knows and understands the value of words better than anyone else.

In more than 40 years of writing experience, this man has chosen words of beauty and variety, like "a single rose that bursts forth."

Mr. Bachchan's punchy lines and

(Laughter) Urdu best-selling poetry collection.

Words that only Javed Akhtar can express.

(Applause) Yes (Applause) Please give me a warm welcome. Here comes Mr. Javed Akhtar.

(Applause) (Javed Akhtar) Gentlemen, this is an interesting subject and one that I dearly hold dear.

Strangely enough, we often don't think deeply about the things that are right in front of us.

How many people ask, "Why is the air transparent?"

"Why is the water wet?"

How many people think about what passed by

About the time that has passed, "What has come? What has passed?"

How many people are wondering?

similarly

How often do we think about the words we speak and hear all the time, "What does this word really mean?"

words are strange

One day, we humans saw an animal and decided to call it "Cat."

But "cat" is just a sound

nothing to do with the animal

But I decided, "That's Cat."

I decided to identify this animal by this sound.

Then I made a semicircle, drew the shape of a pyramid (Λ), cut it in half, then drew a straight line, pulled another line down, and wrote "CAT."

He filled in the gaps between these intersecting lines with sounds, and gave those sounds meaning.

Now, like "cat," sounds have been associated with everything: love, anger, thoughts, ideas, pain, suffering, happiness, surprise.

The sounds were harmonized in intersecting lines, what we call letters.

Three things that have nothing in common come together to make one word.

First, sounds and concepts that have no meaning in themselves are added.

And then straight lines and curves were added to form words.

Amazing!

Words have come to possess humanity over time

I've come to think that you can tell who you are by looking at the person you're dating, and so are the words.

Are you on good terms with this word?

What other words have been used together?

A person of average intelligence can immediately make connections from common nouns and verbs.

where did you hear

what reminds you? What is the connection? When was the last time it was used in conversation?

What is your experience related to that?

When I hear familiar words

Various memories are revived

A good writer, a good orator, knows when to use certain words, words that the average mind associates with certain things and evokes certain memories.

That's how you can create a world around words.

What is the power of words?

Whether it's a mother's lullaby, a politician's speech, a love letter from a loved one, a complaint against someone, or a protest call.

Anger, sadness, happiness, surprise, togetherness, alienation, everything in the world, every feeling in the world, every emotion and reaction means nothing until it's put into words, before you tell it to others.

Words are not thoughts, just as the brick itself is not a house.

but the house is made of bricks

If you only have a few bricks, you'll be building a small house.

The richer the vocabulary, the clearer the thoughts and the more clearly they are communicated.

I hear a lot these days, especially from young people, and they say, "You know what I mean, right?"

no i have no idea

"You know what I mean, right?" I'm running out of words.

Everything is changing so fast these days, so conversations have to be fast.

But sadly, this speed comes at the cost of language depth.

The faster you speak, the faster everything becomes, and the faster you speak, the faster you communicate.

In other words, I couldn't think of the other person and became self-righteous.

You become unable to articulate your feelings, thoughts and feelings in a detailed and clear way.

Words, as long as they exist, do more than just express meaning.

It's also a conveyor belt for languages ​​and vocabulary.

Language is an expression of culture, it is an expression of tradition and heritage, it is an expression of cultural richness accumulated over generations, all of which is passed down through language.

If you deprive someone of their language, you cut them off from their culture and history.

That's what's happening to us right now.

In this way language is a very powerful thing.

words are very powerful

But words themselves are neither good nor bad.

Once you develop a love of words and understand their power, you will realize that everything in the world happens through words.

Without language, there would be nothing to distinguish us from animals, although of course we are animals too.

The only difference is that we can pass on our experiences, our learnings, our knowledge to the next generation through our language.

We don't live by our instincts alone. Our knowledge and experience, accumulated over generations, is passed on to the next generation.

Words are the means

Without language, our dominance over other species would gradually disappear.

We have progressed because we have language.

If we didn't have language, we wouldn't be in this world we have now.

It would have remained the same as it was when humans first appeared.

So what does language mean?

Words!

So cherish your words

love words

be a good friend

listen carefully to the words

to speak consciously

thank you!

(Applause) (Shah Rukh) Mr. Javed, thank you very much for joining us today and for your wonderful story.

I've known Mr. Javed since I came to Mumbai about 25 years ago.

Javed: I was very young then.

(Shah Rukh) You are still very young.

I have received a lot of teachings, values ​​and a lot from Mr. Javed.

Let's introduce a little event

During the recording of a movie, Mr. Javed got angry.

When ignorant people like us intervene and say things like, "Try using this word," they sometimes get angry.

The title of the movie is "Kuch Kuch Hota Hai" (something is happening)

I didn't like it at all

At one point, he was very angry with us young men—even now, to this person, we are young men—and he retorted, "My heart is agitated and I can't sleep.

What should I do? something's going on

Do you want something silly like this? ”

In fact, every word in the song was spewed out by an angry Mr. Javed.

The song is a big hit, so even if Mr. Javed speaks out in anger,

it turns into a golden word

that's his talent

(Cheers) (Javed) What you just said is very true.

When I heard the title, "Kuch Kuch Hota Hai," I was shocked.

I felt that I lacked dignity.

(Laughter) So, honestly, I regret leaving such a blockbuster because of the title.

The title is the reason why I left the work.

Later, it became a bit embarrassing, and even Shah Rukh regretted it.

So we decided to put the past behind us and work together on other projects.

That work is "Even if tomorrow never comes"

I told Shah Rukh, "Everything else is fine, but you owe me two things.

That's two Kuch's." (Laughter)

"So write one song and give me two of them back."

That's why the song I wrote specifically is "Kuch to hua hai, kuch ho gaya hai."

(Applause) Now you've paid your debt.

(Shah Rukh) Everyone, give a big round of applause to Mr. Javed Akhtar.

(applause)

Today, I want to tell you about swimming in the world's northernmost Arctic.

I can't speak to that without my late father

my father is a good talker

He was someone who could tell stories as if the listener was there.

When I was a little girl, one of the things she used to tell me was about Britain's first nuclear test.

My father was there and witnessed the moment of the explosion.

There was a huge bang and a flash of light that hit his eyes, and he had to cover his eyes with his hands to protect them.

He said the light was so intense that his fingers looked like they had an X-ray.

Seeing an atomic bomb explode firsthand had a profound effect on my father.

Speaking of vacations, when I was a kid, they took me to national parks.

He tried to teach me the importance of protecting the world and the fragility of the earth.

He also told me the story of a great explorer.

My father, who is a history buff, also told me stories about Robert Scott reaching the South Pole and Edmund Hillary climbing Mount Everest.

So, ever since I was six years old, I've dreamed of going to the polar circle.

I really wanted to go to the North Pole

There was something in the North Pole that attracted me.

Sometimes dreams take time to come true

But seven years ago, I was able to go to the North Pole for the first time.

It's so beautiful that I've been going to the Arctic for the last seven years.

it's my favorite place

But in just seven short years, the North Pole has changed indescribably.

I've seen polar bears walking on very thin ice looking for food.

I once swam in front of a glacier that had receded a lot.

It's also true that every year we go to the North Pole, we're getting less and less sea ice.

I wanted to let the world know what was going on in the Arctic.

In the two years before the Arctic swim, 23 percent of the Arctic sea ice had melted.

I wanted the world leaders to really understand what was going on.

So I decided to take a mind-altering swim on top of a world that was supposedly frozen but was rapidly thawing.

The message is climate change is real, take action now.

I had to hit

Swimming in the North Pole is something you wouldn't normally do.

I think it's easy to understand by comparison, but the water temperature in a normal indoor pool is 27 degrees.

The water temperature in the English Channel this morning was 18 degrees.

The Titanic passengers were thrown into seawater that was only 5 degrees Celsius.

The freezing point of fresh water is 0 degrees

The water temperature in the Arctic is minus 1.7 degrees

it's fucking cold

(Audience: laughter) (Applause) Excuse me, but there's no other way.

(Audience: laughter) I had to get a team to help me put this plan into action.

We have assembled a team of 29 people from 10 countries.

Swimming is sometimes thought of as an individual sport where you just jump into the sea and start swimming.

it was the exact opposite for me

I spent a lot of time training, swimming many times in icy water.

The most important thing was to train my mind to be ready for whatever happened.

I also did image training.

Imagine from when you start swimming until you finish swimming

The taste of seawater in your mouth

I imagined a coach yelling, "Go ahead! Don't slow down!"

So in my head, I've swam the North Pole hundreds of times.

After a year of training, I was ready.

I was confident enough to swim

I was put on an icebreaker with five team members heading to the North Pole.

On the fourth day, I decided to try swimming for five minutes.

I'd never swam in -1.7 degrees Celsius water before, because it's practically impossible to replicate that in training.

I stopped the ship first.

I got out on the ice, put on my swimming suit, and jumped into the ocean.

I had a feeling that I had never felt before

I couldn't breathe and gasped

I was hyperventilating and soon lost the feeling in my hands.

The strange thing is that the water is freezing cold, but it feels like it's on fire.

I swam hard for five minutes

out of the water

crawled out of the ice

When I took off my goggles and looked at my hands, I was shocked. My fingers were swollen and looked like sausages.

It was so swollen I couldn't hold my hand.

The human body contains a lot of water, so when water freezes, it expands.

That's why the cells in my finger had frozen and swelled.

It ruptured more, so it was in excruciating pain.

I hurried back to the ship and took a hot shower.

I remember standing under the pouring water trying to unfreeze my fingers.

And I was thinking that in two days I would be swimming in the North Pole.

I was planning to swim 1 km in the Arctic Ocean in 20 minutes.

The dream I had with my father since I was a child seemed to disappear

The possibility of swimming the North Pole was zero

When I got out of the shower, I realized my fingers were numb.

Swimming requires tactile sensation, because you're trying to grab the water and pull it toward you to swim.

When I woke up the next morning, I was so depressed that all I could think about was Ranoff Fiennes.

he is a british adventurer

I spent years trying to reach the North Pole on skis.

he accidentally fell through the ice into the sea

I was in the water for only three minutes, and although I was able to crawl out on my own in just three minutes,

My fingers got so badly frostbitten that I had to go back to England.

When I went to the local hospital, they said there was no way I could save my finger, so I had to amputate it.

it is said that

So he decided to go to his tool shed and get out a saw and cut it himself.

I thought, if three minutes did it for him, five minutes later the feeling in my fingers was back, but what would happen if I swam for 20 minutes?

I'm sure I'm going to lose a few fingers

I didn't even want to think about the worst

We sailed through the ice floes to the North Pole.

My best friend, David, came up to me as I was lost in thought and said, "I've known you since you were 18.

Because I know, deep down in my heart, I know this is going to work

I've seen your training

I know why I take this challenge

This swimming has a very important meaning

It's a very pivotal moment in history, and you're about to take that iconic swim to the world's leaders' notice.

I'll keep watching over you, so you'll have the courage to jump into the water."

My best friend, who knows me well, said that to me, and it gave me a lot of courage.

As we continued sailing and reached the North Pole,

We stopped the ship, just as the scientists had predicted.

There were many parts where the ice melted and the sea surface was visible.

I went back to my cabin and put on my swimming suit.

A chest monitor was put on to measure core temperature and heart rate.

walked on ice

I remember when I looked deep inside the ice, there was a big white block of ice and the water was pitch black.

It was the first time I saw such black water.

Water depth is 4,200 meters

Don't look left or right, just move forward

I told myself

It's short, but here's a video from that time.

We've just left port.

This world is gray everywhere you look, and it feels very cold.

i saw a polar bear

so mysterious

It's a parent and child It's a moving sight

If you think it could go extinct in 30 or 40 years,

very scary

We've finally made it to the North Pole, how much you've dreamed of it after years of training and planning and preparation.

In a few hours you'll be swimming

I'm a little worried and my heart is full

are you ready

10 seconds until entering the water

get me the goggles

take your shoes

Luis Well done!

You made it!

unbelievable

You've braved the ocean currents and done it!

(Applause) Thank you very much.

(Applause) Thank you very much.

Encore!

(audience: laughter) Last words: it took me four months to get back the feel of my hands.

but it was worth it

Very few people really know what's going on in the Arctic.

What can be done about climate change

People ask me, there are three things we can do.

One is to break this problem down to a manageable level.

Just like you saw different national flags in the video

Those flags represent the countries of our teammates.

Similarly, when it comes to climate change, every country has something to cut.

United Kingdom United States Japan South Africa Congo

we are all in the same boat

The second thing we have to do is look back at how much we've grown in such a short amount of time.

I remember when we talked about climate change a few years ago, they told me behind the scenes that climate change doesn't exist.

I recently gave a series of talks to the youngest children, as young as 10, in poor neighborhoods in South Africa.

Four or five kids sharing a desk, and even in really poor circumstances, they had a pretty good grasp on climate change.

believe in ourselves

now is the time

It's been a long and smooth road so far

I think the most important thing is to imagine the future as it is, and ask the most fundamental questions.

“What kind of world do we want to live in? What decisions must we make now to ensure that we all live in a sustainable world?”

thank you very much everyone

(applause)

If you look closely, your hands are far from smooth.

There are mountains, valleys, folds, grooves, and lots of places to hide, perfect for the virus to stick to.

If you touch your face with this, you can get the virus.

There are two incredibly simple ways to prevent this: soap and water and hand sanitizer.

Which one is better?

The coronavirus that causes COVID-19 is one of many viruses whose protective outer layer is made of a lipid bilayer.

Lipids are pin-shaped molecules with heads that attract water and tails that repel water.

So in a watery environment, the lipids naturally form a shell like this, with the head facing out and the tail facing inward.

The action of water causes the lipids to stick together loosely. This is called the hydrophobic effect.

With the help of this outer structure, the viral molecular machinery can penetrate the cell membrane and hijack the cell.

But this structure has thousands of weak points, and with the right molecule, we can crack open the virus.

this is where the soap comes in

A drop of soapy water from any brand of soap contains trillions of molecules called amphiphiles, which are similar to biological lipids.

The tail, like biological lipids, repels water and competes for space with the lipids that make up the viral shell.

But there are enough differences to break the regularity of the viral membrane, and the whole virus breaks down.

The amphiphiles then surround molecules such as viral RNA and proteins to form bubbles.

Let's pour water over here and wash away the whole foam.

In the case of hand sanitizer, it works more like an earthquake than a pry with a crowbar.

Surrounding the coronavirus with water strengthens the bonds inside the cell membrane due to hydrophobic effects.

This hydrophobic effect also serves to anchor the large proteins that make up the projections of coronaviruses, keeping them in a form that can be used to invade cells.

Viruses remain stable when dried in the air.

Let's soak it in a high concentration of alcohol, ethanol or isopropanol, which is found in most hand sanitizers.

This eliminates the hydrophobic effect and leaves room for the molecules to move around.

The overall effect is like an earthquake after removing all the nails and mortar from your house.

The cell's membrane crumbles down, and the protein on the protrusion shatters.

Either way, the process of actually destroying the virus happens in just a second or two.

But doctors recommend washing your hands for at least 20 seconds because the surface of your hands has a complex texture.

Soaps and sanitizers need to reach every nook and cranny of your hands, from your palms to your fingertips, backs of your hands, and between your fingers, so you can properly protect yourself.

Additionally, during a coronavirus outbreak, doctors recommend washing your hands with soap and water as often as possible.

Both soap and water and hand sanitizer are effective at killing viruses, but soap and water have two advantages. First, they wash away dirt that may be hiding virus particles.

More importantly, it's easier to simply wrap your hands completely in soap and water for 20 seconds.

Of course, when you're out and about, hand sanitizer is more convenient.

If you don't have a sink, apply hand sanitizer as thoroughly as possible and rub your hands together until they are dry.

Unfortunately, billions of people do not have access to clean drinking water, which is always a big problem, but especially during an outbreak.

Researchers and advocacy groups are working to provide solutions to these communities.

One example of this is a device that uses salt, water, and car batteries.

Now, people recommend using soap and water as much as possible to protect against coronavirus, but is this optimal during any virus outbreak?

not necessarily

The rhinovirus, which causes many of the common colds, has a geometric protein structure called a capsid, which corresponds to the fatty membrane.

The capsid has few weak points that the soap's amphiphiles can pry open, so it takes longer for the soap to take effect.

But some of the surface-coating proteins are vulnerable to the destabilizing effects of hand sanitizers.

For viruses like this, hand sanitizer is more effective, and even better if you wash your hands afterwards to remove any residue.

The best way to know what to use for any outbreak is to do what is best in all things disease: follow the advice of a certified medical professional.

(Joan Blaze) Do you have friends with different political views?

what would you like to talk about together?

I'm a progressive, I live in a progressive town, and 15 years ago I didn't have a single conservative friend.

Now I have various friends, one of whom is John.

(John Gable) I'm not a progressive

I'm Republican, I was born in a Republican family, I grew up in the conservative South, and I've worked in political support for the Republican Party locally and nationally.

I've been in the tech industry for the last 24 years, so I live in a very progressive neighborhood.

So I have many progressive friends, and Joan is one of them.

JJ: I was born in Berkeley, California, a college town famous for being progressive.

still live here

In 1998, six months after Monica Lewinsky and Clinton's impeachment, I co-founded MoveOn.org with a one-line petition: "Congress should immediately reprimand the president and shift the conversation to the most pressing issues facing the nation."

This was actually a very compelling petition in many ways.

Whether you love Clinton or hate it, we could agree that the best thing for the nation is to draw the line.

As the leader of MoveOn, I've seen the polarization grow

So I thought to myself, "Why is my thinking so different from the rest of the country?"

So in 2005, when I got the chance to interact with grassroots leaders with diverse political views, I jumped at the opportunity without hesitation.

I've made friends with a lot of people I've never had the chance to talk to before.

It also includes the leadership of the Christian Coalition, so if MoveOn is left-wing, the group is considered right-wing.

This allowed me to lobby for net neutrality in the United States Congress with a friend who is one of the leaders of the Christian Coalition.

that's amazing

aroused a lot of interest

This activity was truly an eye-opening experience.

And I thought, how can so many people really interact with people who think differently? and

CA: I was born in Oneida, Tennessee, on the border of Stearns, a small mining town in Kentucky.

I lived there for the first few years of my life before moving to another small town, Frankfort, Kentucky.

I mean, I grew up in rural America, conservative at heart.

Stearns and Berkeley are a little different.

(Laughter) In the '90s, I moved to the progressive western part of the world to work in the tech industry, working at Microsoft and Netscape.

I also became the chief product manager for Netscape Navigator, the first widely used web browser.

In the early days of the Internet, we were driven by a vision that if we could communicate with different people and different ways of thinking from all over the world, we would be able to make better decisions and value each other because of the beautiful diversity that exists in the world.

In fact, I said in a speech 20 years ago that it probably won't work, that we're just going to discriminate against each other in different ways.

Now what happened?

It's not like we woke up one day and wanted to hate each other more.

The result was

There was too much noise, too many people, too many ideas, so we use technology to filter it out.

What then?

Only ideas with which we already agree remain.

General ideas also remain, people who think like you think like you remain.

Sounds like a good thing, right?

But that's not the case. There are two terrible things that happen when you have this narrow view of the world.

First, you start to put too much trust in your own ideas.

Then you become more and more intolerant of people who are different from you.

Don't you remember?

Is this what modern America and the modern world are like?

The good news is that technology is changing, and it can change for the better.

That's why I started AllSides.com, to create technologies and services that will free us from the filter bubble.

First of all, we created a technology that identifies user biases, and by lining up different ways of thinking, we can free ourselves from the news media filter bubble.

Then I met Joan

CA: I met John in a suburb of Washington, D.C., with a group that had a bipartisan vision of building bridges to restore community ties.

We believe that each other's differences can be strengths, and that different values ​​can complement each other, so we can overcome the urge to fight and respect everyone's values ​​without giving up our own.

During my pleasant walks with John, I learned about his job of popping the filter bubble.

it was awesome and powerful

Living in separate storylines is not a good thing.

If we don't share facts, we can't have dialogue, we can't work together to solve problems.

JJ: What I want you to remember today is that if Joan Blaze invites you for a walk, you should go.

(Laughter) I'm sure it will change.

In order to break free from filter bubbles, we need to consider not only information filter bubbles, but also relationship and social filter bubbles.

Humans aren't as smart as they think they are

It's not just about making decisions based on reason.

It's just a matter of using reason to justify what you want to justify emotionally, intuitively, or with your head.

We're more like the fearless cowboy Captain Kirk or the passionate idealist Dr. McCoy than the Vulcan Spock.

If you like the new Star Trek cast, this is it.

(laughs) (Joan) Don't forget the strong women!

(John) Strong women.

(Joan) that's fine

We are both Star Trek fans.

You can't help but love such an optimistic future.

(John) It's very important to have a great future.

It's also very important to understand what the problem is.

action must also be taken

What should I do?

it's actually not that hard

We can bring diversity into our lives, not just information, but the diversity of relationships.

Diversity -- Diversity in the truest sense. Race and gender are important, but not only...

There's age diversity, young and old, rural and urban, liberals and conservatives, as well as Democrats and Republicans in the United States.

Joan next to me is a great example of someone breaking free from their own filter bubble and living a life of diversity.

JJ: Let me ask you, how many of you have had relationships broken or destroyed because of differences in religion, politics, or whatever?

please raise your hand

yes

I've heard from many of the people I've spoken to this year that their relationships have been strained over this process.

I've seen many people hold back tears and talk about their estranged family members.

The Living Room Conversation is an attempt to heal political and personal differences.

It's a simple dialogue. Two people with different mindsets invite two friends each to have a constructive dialogue. Everyone follows a simple set of rules: be curious, listen, be respectful, take turns speaking -- all of this you learn in kindergarten, right?

it's very easy

So by the time you talk about a pre-determined topic, you'll have a certain feeling in your head: "I might really like this person."

It's human nature, and we often listen to people we care about.

Then we can reflect on the story and maybe take the next step.

This is an act of listening, not a debate.

it has a lot of power

Talking to people with different points of view in your own living room is an incredible adventure.

You'll rediscover that you can respect and love people who are different from you.

very powerful experience

(John) So what are you guys curious about?

(Joan) What are you dying to talk about?

(John) Let's talk about it

all together

(Joan) Yeah

(Laughter) (Applause) (both) Thank you.

Now, what I'm going to talk about, collaborative creative invention, is the same thing that the other three people talked about, but I want to clarify what I mean by creative invention, also called creative collaboration, by looking at it from a different perspective -- the role of users and consumers.

Let's start with a simple question: who invented the mountain bike?

In conventional economic theory, you would think of it as a big company with a big research lab starting a new business, but it's not a big company.

Or you might think of a genius who put together and developed bicycle parts in his own garage.

Mountain bikes were actually invented by young people in California, and they weren't interested in racing bikes like your brothers were riding because they were too flashy, so your dad uses them.

I wasn't satisfied with a heavy bike with a big handle

So we took a frame from a big bike, a derailleur from a racing bike, brakes from a bike, and put them together.

This was the first mountain bike called a "clunker."

It's a product invented by my fellow cyclists in California.

Eventually, an importer of bicycle parts decided to sell it as a product and turn it into a business, and then other companies came in, and maybe 10 or 15 years later, big bike companies took notice.

Thirty years later, mountain bike sales, including accessories, account for 65% of the U.S. bicycle market.

will be $58 billion

The mountain bike was invented by the consumer, because the mainstream of the bike industry didn't see this opportunity or the motivation to invent a new product.

There's one thing Yokai and I disagree about: he wants the Internet to enable more people to collaborate and invent.

But it's only when passionate, knowledgeable, motivated, professional-level consumers have the tools and are connected by the Internet that the new flower of collaborative invention has blossomed.

We need some kind of new form of organization, or organization, as Jimmy said. Can we organize without organization?

Today, organizations are not always necessary even when performing complex tasks such as software development in collaboration.

And that's the challenge in thinking about how to increase creativity.

It's not that the conventional way of thinking has disappeared, but even in companies and government agencies, creative inventions are the work of the weird guys who show up at these meetings with their baseball caps upside down. Famous universities, forests, and waterfront laboratories.

Strange people come up with great inventions in strange places Inventions are carried in pipelines and delivered to consumers

The only consumer choice is whether or not to accept

this is the worldly understanding

The policies that emerge from this understanding are the same for governments and large corporations.

Securing a special person or place

Creating a special research zone and gathering creative people

Deliver more inventions to consumers

This idea is getting more and more wrong

No, it was different from the beginning. Creative invention comes from collaboration, and dialogue is important.

The reason it's getting more and more wrong is because ideas flow backwards.

Consumers generate more advanced ideas than experts

Why?

For one thing, it's often the case that we don't know what a radical invention that affects a lot of technology and a lot of people is going to do.

The greatest rewards for invention actually come when the purpose of the invention is not visible.

When a revolutionary innovation is born, you don't know what the invention can be used for

The history of the telephone is one of them, and it has progressed in an unpredictable way.

The first wired telephone was, to its inventor, a device for listening to live music in West End theaters.

When cell phone companies invented SMS, they didn't know what it could be used for, and this technology got into the hands of users, and teenagers invented how to use it.

The more innovative an invention is, the less certain the prospects are. Unless you try it, you won't know what it will do for you.

Until now, the system related to patents and inventions was based on the assumption that inventors knew the value of their inventions.

Inventors now don't know in advance the value of their inventions.

Gradually come into view while using inventions in collaboration with users

We tend to think of inventions as something that someone comes up with in an instant.

In fact, most inventions are the result of accumulation and collaboration, and Wikipedia evolved over time.

Another reason users are important is that they are the ones who make the greatest inventions.

If you want to find great new ideas, there's no point in looking in mainstream industries or big companies.

If you look at large organizations, you can see why.

Let's say you work for a big company

If you want to climb the ladder of success

Can you speak like this in a board meeting? ``It's a great idea. It's a new field and it's targeting new customers.

No, I have to say, "It's a great improvement -- it's an existing product, it's an existing distribution network, it's an idea for an existing customer, and it's definitely profitable for the next three years."

Large companies rely on past successes like this.

You can't jump into new markets because you're steeped in conservativeness, and new markets are developed by passionate users.

Let me give you a good example: Who in the music industry came up with this 30 years ago, "Let's make new music - oppressed blacks in the ghetto - to express their dissatisfaction with the world in music - even though the masses may not like it at first -"

I'm sure it will sell eventually.”

(smile)

What now? User made a wrap

We recorded the song ourselves and distributed it ourselves

Thirty years later, rap became the mainstream of popular music.It didn't come from a big company.

The third point is to start with a professional amateur.

It was a slogan for my colleagues at the think tank DEMOS in London.

It could be any field, software, astronomy, natural sciences, a wide range of entertainment and culture, kite surfing, and so on.

I'll do it if I feel like it in my spare time

It's a hobby, but I'm serious about it. I'm learning skills and investing time.

Globalization has made many instruments very cheap.

Knowledgeable and educated consumers can connect and work together

Consumption is a way to express creativity.

I'm interested in this kind of creative consumption because I can't express myself at work.

I don't feel like I'm doing meaningful work, so I want to do something else

It's a big organizational challenge that has a big impact on people's lives.

Let's take astronomy as an example, as Yokai said.

Twenty or thirty years ago, only professional astronomers could see the universe with large telescopes.

The Jodrell Bank Telescope in northern England surprised me when I was a kid, but it was so large that it was transported by train when the moon rocket was launched.

it was so huge

Now there are six amateur astronomers with access to the Internet, the Dobsonian telescope, which is free and available to everyone, but with the simplest sensors that have been developed in the last decade, they can do what Jodrellbank did 30 years ago.

In astronomy, the creative force of users is growing rapidly.

Consumers can also be producers

What does this mean from an organizational perspective?

So let's divide the world into two groups.

One is the old, traditional organizational model of special people, special places, patented, one-sided distribution of goods to passive consumers.

On the other hand, please imagine open sources such as Wikipedia and Linux.

This one is open and this one is closed

new and old

One thing that's for sure, as Mr. Yokai said, is that there's a conflict going on between these two forms of organization.

Our existence is threatened, so we'll do whatever we can to prevent your group from succeeding.

I see the copyright and digital rights debate as an uphill battle to quell these new groups.

Patents and copyrights are totally corrupt.

Rather than encouraging invention, rather than organizing the dissemination of knowledge, large corporations impede invention by creating patent barriers in these systems.

I'll give you two examples

Let's say you start a venture and say, "I have a great idea-

I've invented an absolutely amazing program - much better than Microsoft Outlook."

Who would fund your business competing with Microsoft Outlook?

This is why only open source businesses can compete with Microsoft.

In fact, the big debate is whether open source and consumer-driven inventions can be sustained and developed, because they're the only competitors that can beat monopolies.

Counterattacks from experts will be stronger

To the experts in this closed world, whether they're academics, programmers, doctors, journalists, and I used to be a journalist, I tell them, "Don't trust your layman's opinion."

When I was a reporter for the Financial Times 20 years ago, my heart would pound if someone was reading an article.

Peek over your shoulder on the subway to see if you're reading my article

Most of the time I only read stock prices, and when the newspaper with my article is on the floor, I'm like, "What the hell are these idiots--"

Don't read my wonderful article,'

There are only two places that allow reader participation.

The other is the editorial column.

there were only these two

The scary thing is that readers now want to be reporters and publishers.

I wish you only read our articles

But it's not that I want to be a journalist. Journalists themselves don't seem to get it, but bloggers just want to spread the word.

Like Jimmy said, I just want to argue and talk

I would like to participate in the exchange of information

So there are more creative agents.

this is a big fight

But there's also another big move from the open side to the closed side.

There are two crucial challenges for the future of the open side.

One issue is whether we can rely on volunteers.

If this movement is important, then shouldn't we really need to support the mechanisms that make the money flow and organize?

Setting up a Red Cross is a great idea, but can it be organized entirely by volunteers?

What about public policies and financial flows?

For example, what role can the BBC play?

What is the role of public policy?

The last thing I want you to know is that the closed side of us is moving towards the open side.

So it's not just a conflict between two groups, but maybe our future lies between those two groups.

New organizational models will emerge that mix the two.

It's not black or white like Microsoft and Linux, it's a gray world in between.

This gray organizational model is very powerful, and those who understand it will be very successful.

Finally, let me give you a concrete example.

I was in Shanghai, five years ago in what used to be a rice paddy business district, one of the 2,500 skyscrapers built in the last decade, with a young man named Timothy Chen.

came to eat

Timothy started his internet business in 2000.

I decided to focus on my computer games and decided to leave the internet.

He runs China's largest computer game company called "Shengda".

9,000 servers spread across China with 250 million subscribers

4 million people are playing games at any given time

We have only 500 staff to provide this service.

how on earth

Can 500 people handle 250 million people?

does not provide service

We have a platform of rules and tools, we organize our interactions with our users, we organize our actions.

The game itself is created by the users themselves.

It creates a certain sense of unity with the company, and the effect is enormous.

This is how it works: when you start a game, you create your own character and grow through the game.

If a credit card goes bad or something goes wrong, the characters disappear.

you have two options

One is to recreate the characters from scratch, but the history is gone.

this is $100

The other is to fly to Shanghai, line up in a big office and re-register, which costs $600-700, but can bring back the history of the characters.

Every morning, there are 600 people lining up outside this office to re-enroll their characters, an example of a company built on providing users with tools and places they can share.

It's not open source, but it's very powerful.

Those involved in government work face big challenges.

In the case of a game company, if 1 million people play games, and 1% of them become developers who provide ideas, 10,000 people can be secured.

Similarly, in the case of British education, if 1% of students cooperate with the education provider,

Sufficient human resources to support education can be secured

1% of patients with national insurance may be involved in health services.

Under pressure to cut costs, this customer-involved model is picking up strongly because it multiplies the people who provide the service many times over.

We can do that because it's manufactured by users and designed by consumers.

Thank you

Today I'm going to talk about other people's heart problems.

What I want to talk about is not a well-known question in the realm of philosophy: "How do we know if another person has a mind?"

So it's not like, "You have a heart, but everyone else is a humanoid robot."

It's a matter of philosophy.For today's purposes,I know many of you have hearts and I don't care about that.

Second, there's a problem that's closer to us as parents, teachers, spouses, and novelists: "Why is it so hard to know what other people want and believe?"

Or to put it more simply, "Why is it so hard to change other people's wants and beliefs?"

The novelist expresses this well

Like Philip Roth: "And what are we to do about these other people's affairs?

We are all powerless to envision the other person's inner thoughts and hidden intentions."

So, as a teacher, as a spouse, it's a problem that I face every day.

But as a scientist, I'm interested in other issues about other people's minds, and that's what I'm going to talk to you about today.

The question is, "Why is it so easy to know other people's minds?"

I'm going to start with the video, but if you look at a snapshot of a complete stranger without any prior knowledge, you can still guess what this woman is thinking, and the same is true for this man.

In other words, the crux of the problem is the machine that we use to think about other people's minds, our brain, which is made up of brain cells that are also found in other animals, monkeys, mice, sea cucumbers.

But when you combine those brain cells into a specific network, you get the ability to write Romeo and Juliet.

Or as Alan Greenspan puts it: "I know you think you got what I said, but I don't know if you realize what I said wasn't what I meant."

(Laughter) So in my field of cognitive neuroscience, I'm going to test each of these ideas one by one.

And we're trying to understand how these simple units, these simple messages, can be put together in networks of time and space to give us the amazing human capacity to think about the mind.

I'm going to talk to you about three things today.

the whole thing is too big

(1) for the first step in finding specific areas of the brain for thinking about other people's thoughts,

(2) Observations of the slow development of systems learning to handle this difficult task,

(3) And finally, about the fact that individual differences in judging others can be explained by differences in the brain system.

The first thing I want to talk about is that part of the human brain is capable of thinking about other people's thoughts.

Here is a picture of that part

It's called the "right temporoparietal junction" (RTPJ)

It's located just behind your right ear

That's the realm you use when I show you a picture, when you read "Romeo and Juliet," or when you try to understand Alan Greenspan.

Not used when solving other logic problems

That's RTPJ

And this diagram shows the average activity in a typical adult population.

I mean MIT students.

(Laughter) The second thing I want to talk about this brain system is that human adults are very good at understanding other people's thoughts, but not always.

It takes a child a long time to reach this system

I'll tell you a little bit about that long process.

The first thing I'll show you is between the ages of 3 and 5, when children understand that other people may have different beliefs than they do.

First, here's a five-year-old doing a standard task called the "wrong thinking task."

Video: This is the first pirate, his name is Ivan.

Do you know what pirates like?

I love cheese sandwiches

Child: Cheese I like cheese too!

RS: Yes, Ivan has this cheese sandwich and says, "Yummy, yummy!

I love cheese sandwiches."

Ivan puts his sandwich on top of this treasure chest.

And say, "I need a drink for lunch."

So Ivan goes to get a drink

While Ivan was out, the wind picked up and the sandwich fell on the grass.

there's another pirate coming

my name is joshua

Joshua likes cheese sandwiches too

Joshua also has a sandwich and says, "Yummy, yummy, I love cheese sandwiches."

And he puts his sandwich on top of this treasure chest

Child: So this is his

RS: That's exactly what Joshua said.

Child: Ivan's is on the ground.

RS: Yes, that's right.

Child: He doesn't know which one is him

RS: Yeah, so Joshua's gonna go get a drink too.

Then Ivan comes home and says, "I want a sandwich."

So the question is: Which sandwich would Ivan take?

Kid: I think I'll take this one

RS: So you think Ivan will take this? ok let's see

That's right, you're right, Ivan took this one.

So a five-year-old clearly understands that other people can have the wrong idea and what the consequences of their actions will be.

Now, let me show you what happens with the same problem with a three-year-old.

Video: RS: Ivan says "I want a cheese sandwich"

Which sandwich do you think he'll take?

I think you'll take that one, let's see

Ivan's here.

He says "I want a cheese sandwich"

and i took this

Oh my god why did you take this one?

Child: his is falling

RS: So three-year-olds behave differently in two ways.

First, Ivan expects him to take the real sandwich.

Second, when he sees Ivan take the sandwich where it was originally placed, and he explains that he is taking it because he put it there, the 3-year-old comes up with another explanation.

That's why Ivan says he's trying to get another sandwich.

Of course, development doesn't stop at the age of 5.

The process of learning to think about other people's thinking is ongoing, so we're going to take it up a notch, and now ask children not just about their behavioral expectations, but about their ethical judgments.

First, let me show you about the three-year-old.

Video: RS: Ivan took Joshua's sandwich, so it's disrespectful, isn't it?

child: yes

RS: Is it bad because Ivan took Joshua's sandwich?

child: yes

RS: As a three-year-old, you could say that Ivan thinks it's disrespectful that Ivan took Joshua's sandwich because he didn't want to eat his own dirty sandwich.

But now I'm going to show you a five-year-old

A five-year-old knows perfectly well why Ivan took Joshua's sandwich.

Video: RS: Ivan shouldn't be so mean to take Joshua's sandwich, right?

Also here: Hmm, ok

RS: And it's not until you're seven that you see more adult reactions.

Video: RS: Is there a problem because Ivan took Joshua's sandwich?

Child: No, because the wind is bad

RS: He says he changed the sandwich because of the bad wind.

(Laughter) In our lab, we're putting children through brain scanners to see what's going on in their brains as they develop the ability to think about other people's thoughts.

First, it turns out that in children, this RTPJ is also used when thinking about other people's thoughts.

but not the same as in adults

In adults, as I said, this part of the brain is completely specialized. It does nothing but think about other people's thoughts.

And if you look at eight to 11-year-olds, even in early adolescence, they still don't have the brains of adults.

So, throughout childhood and into adolescence, our cognitive systems -- both our ability to think about other people's minds and the brain systems that support them -- are developing slowly and continuously.

But of course, as you can see, even in adulthood, people differ in their ability to think about other people's minds, how much they use it, and how accurately they do it.

So what I want to know is, can differences in this part of the brain explain differences in the ability of adults to think about what other people think?

So, I tried to do an adult version of the pirate problem that I had done to children.

i want to do that now

Grace and a friend are on a tour of a chemical plant and have a coffee break.

Grace's friend wants sugar in her coffee

Grace goes to make coffee and finds white powder in a container next to her coffee, and it's sugar.

But the label says "Lethal Poison," and Grace thinks the powder is poison.

put it in my friend's coffee

my friend drinks it but nothing

How many people here can forgive Grace for putting flour in her coffee?

Okay, okay. (Laughter) So in this case, we're asking how much Grace should be blamed for what you call "attempted injury."

I'll compare that to another case, but here the situation is the same.

So the white powder is sugar, but the difference is what Grace thinks.

Now she thinks the powder is sugar

And of course, if Grace thinks the powder is sugar and puts it in her friend's coffee, she can't be blamed.

On the other hand, if she thinks it's poison and it's actually sugar, people think she deserves the blame, even though the actual events are exactly the same.

On the contrary, she is more to blame in this case of "attempted injury" than in yet another case, an "accident."

In "Accident," Grace thinks the powder is sugar because it says "sugar" on the side of the coffee maker, but it's actually poisonous.

So if the powder was poisoned and a friend drank coffee and died, people say Grace shouldn't be so much to blame because she simply thought the powder was sugar than in another case where Grace thought the powder was poison but it turned out to be nothing.

But people disagree somewhat about just how much she should be blamed in the case of an "accident."

Some think she deserves more blame, others don't.

So I'm going to show you what's going on in the human brain when we're making decisions like this.

The diagram shows, from left to right, the level of activity in the RTPJ, and from top to bottom, how much Grace is to blame.

As you can see, on the left side, the RTPJ is very weak and doesn't pay much attention to her innocent beliefs, so I'm saying she should take more blame for the accident.

On the other hand, on the right, RTPJ is very active, and people are paying much more attention to her innocent beliefs, claiming that she was less responsible for the accident.

That's all well and good, but could we try to disrupt the functioning of this part of the brain and change people's ethical judgments?

And such tools do exist.

It's called "Transcranial Magnetic Stimulation" or TMS

It's a tool that sends magnetic pulses through the skull into small areas of the brain, which can temporarily paralyze the function of neurons in those areas.

Let me show you in a demo

First, let me show you that this is a magnetic pulse.

put a quarter coin on the machine

The machine is on when you hear a click

The same pulse is applied to my brain, in the area that controls my hand.

It's a magnetic pulse, not a physical force.

Video: Woman: OK? RS: ok

The magnetic pulse is causing my hand to move slightly involuntarily because of the magnetic pulse I gave my brain.

And that same magnetic pulse was applied to the RTPJ to see if it affected human ethical judgment.

What I'm showing you is the ethical judgment of man in the normal state, shown earlier.

So we're going to look at whether a person's ethical judgment changes after giving the RTPJ a magnetic pulse.

The first thing to notice is that the overall result is the same.

The ethical judgment when there is no problem is the same She shouldn't be blamed for anything

But in the case of "attempted injury," where Grace thought it was poison but turned out to be sugar, people are more on the "okay", less blaming side when it comes to adding powder to their coffee.

And in the case of an "accident," where she thinks it's sugar, but it's actually poison, and she kills people, people say it's less okay, more to blame.

So what I'm telling you today is that people are actually pretty well prepared to think about what other people think.

We have special brain regions that allow us to think for ourselves about what others think.

It takes time to develop and develops slowly during childhood and early adolescence.

And even after becoming an adult, the difference in this part is the source of the difference in the way of thinking when evaluating others among adults.

Finally, returning to the words of the novel, Philip Roth concludes by saying: "Life is not about seeing people right.

Misunderstanding people is life

You get more and more misunderstood, then you think about it again, and then you get misunderstood again."

Thank you very much

(Applause) Chris Anderson: When you started talking about using magnetic pulses to change moral judgments, it felt dangerous.

(Laughter) No, you didn't get a call from the Pentagon, for example.

Rebecca Sacks: No

I mean, the call is coming, but I didn't pick it up.

(laughs) CA: Are you really calling me? (RS: silently nods)

I mean, seriously, do you stay awake in the middle of the night wondering where this job is going to end up?

I mean, you're a wonderful person, of course, but I'm afraid that someone will use this knowledge one day in the future to do something that worries people here, even if it's not in a torture chamber.

RS: Yes, that's what I'm worried about.

So I would like to say a few words about TMS.

You won't get TMS unnoticed

In other words, it is not something that can be done secretly.

Even making small changes like this is very difficult.

The changes I've shown here are impressive to me because they are indicative of brain function, but the actual magnitude of the impact on ethical decisions is small.

Furthermore, what has changed is not the ethical judgment of what the subject will do when he or she chooses to act.

What has changed is the ability to judge the actions of others

So, rather than studying criminal trial defendants, we're studying jurors.

CA: Will your research lead to recommendations for education, especially for the next generation to make more equitable ethical decisions?

RS: That's the ideal hope.

This kind of research on specific functions of brain function is completely new.

Until recently, all we knew about the brain was what we could do in other animals, and we could do it in animal models.

How does the brain see, how does it control the body, how does it hear and feel, etc.

The study of understanding the unique functions of the human brain, such as language learning, abstraction, and thinking about other people's thoughts, is a completely new study.

We don't yet know what the consequences of understanding such things will be.

CA: Last question, there's this thing called the hard problem of consciousness that a lot of people are wondering about.

In layman's terms, why does the brain work?

But why should one feel something?

Why is the organ that senses necessary for action?

you are a great neuroscientist

I mean, do you think it's possible that you, or someone like you, could bring about some sort of paradigm shift during your career that would allow you to understand the seemingly insoluble problems?

RS: I hope it does, but it probably won't.

CA: Why?

Because otherwise it wouldn't be called a "hard problem" of consciousness.

(Laughter) CA: Great answer. Thank you very much, Rebecca Sachs, that was great.

(applause)

Over 3,000 years ago, flowers from ancient Egyptian medical texts began to appear as medicines.

Even across the Mediterranean, the ancient Minoans seem to have found ways to use this plant for its intoxicating effects.

Both ancient civilizations were aware of the fact that the substance in question, opium, extracted from the poppy seed, could produce a sense of well-being and relieve pain.

Opium has been used ever since, but it wasn't until the 19th century that one of its compounds, morphine, was identified and isolated for medical use.

Morphine, codeine, and other substances made directly from the poppy are called "opiates."

In the 20th century, pharmaceutical companies produced a flurry of synthetic opiate analogues: heroin, hydrocodone, oxycodone, fentanyl.

Whether synthetic or derived from opium, these compounds are collectively known as "opioids."

Opioids, whether synthetic or natural, legal or illicit, are highly effective analgesics, but they are also highly addictive.

In the 1980s and '90s, pharmaceutical companies began to heavily market opioid pain relievers, but deliberately understated their addictive potential to the medical community and the general public.

Prescriptions for opioid analgesics have skyrocketed, opioid addiction is on the rise, and the crisis continues today.

To understand why opioids are so addictive, it's helpful to look at how the first and repeated doses affect the human body, and what happens when you stop taking them long term.

Each of these drugs has slightly different chemistries, but they all bind to opioid receptors in the brain and act on the body's opioid system.

Endorphins in the body also bind to these receptors, dampening pain signals, but opioid drugs bind stronger and longer.

It can deal with much more intense pain than endorphins.

And opioid receptors influence everything from mood to physical function.

So these functions, along with the avidity and durability of opioids, make their effects more pronounced and broader than the body's own signaling molecules.

When opioid drugs bind to opioid receptors, they trigger the release of dopamine, which is associated with feelings of pleasure and may be responsible for the euphoria characteristic of opioid euphoria.

At the same time, opioids suppress the release of noradrenaline, which affects sleeplessness, breathing, digestion, and blood pressure.

Taking therapeutic doses of opioids reduces norepinephrine and causes side effects like constipation.

High doses of opioids can slow heart rate and breathing to dangerously low levels, leading to unconsciousness and even death.

Over time, the body begins to develop a tolerance to opioids.

And the number of opioid receptors may decrease or become less responsive.

To get the same dopamine release and mood boost you have to keep taking higher doses of opioids -- the beginning of a cycle that leads to physical dependence and addiction.

The more opioids you take to compensate for your tolerance, the lower your norepinephrine levels, which can affect basic bodily functions.

The body compensates for detecting lesser amounts of noradrenaline by increasing the number of noradrenaline receptors.

This increased sensitivity to norepinephrine allows the body to continue functioning normally, but it actually makes it dependent on opioids to maintain this new balance.

When people who are physically dependent on opioids stop taking them abruptly, that balance is thrown off course.

Noradrenaline levels rise within 1 day of stopping opioid use

However, it takes time for the extra noradrenergic receptors created in the body to be removed.

This means that there are periods when the body is sensitive to noradrenaline.This means there are periods when the body is sensitive to noradrenaline.

This hypersensitivity causes withdrawal symptoms such as muscle aches, abdominal pain, fever and vomiting.

Temporarily, opioid withdrawal can be surprisingly debilitating.

In severe cases of withdrawal, you may experience violent vomiting for days, sometimes weeks.

People addicted to opioids no longer use drugs to get high, but rather to keep them from feeling sick.

Many people are at risk of losing their paychecks, even their jobs, and having no one to care for them during withdrawal.

If you later retake opioids, your risk of overdose could be significantly increased, because the doses that were normal during periods of high tolerance can now be fatal.

Since 1980, accidental deaths from opioid overdoses have increased exponentially in the United States, and opioid addiction has exploded around the world.

Prescribing opioid analgesics is becoming more tightly regulated, but overdoses and addictions are still on the rise, especially among young people.

Many of the early cases of addiction were middle-aged and older people who became addicted to pain relievers prescribed to them or given to them by friends and family.

Today, young people often get prescription opioids as well, but switch to heroin or cheaper and more readily available illicit synthetic opioids.

Besides tighter regulation of opioid analgesics, what can be done to reverse the rise in addiction and overdose?

So far, a drug called naloxone is the best way to prevent an overdose.

Naloxone binds to opioid receptors but does not activate them

It blocks other opioids from binding to their receptors and may even block opioids from their receptors to reverse an overdose.

Opioid addiction is rarely an isolated disease, and in many cases, people with opioid addiction also suffer from mental illness.

Treatment for opioid addiction includes inpatient and outpatient programs that combine medication, medical services, and psychotherapy.

But many of these programs are very expensive, creating long waits for more affordable options.

Also, complete detoxification from opioids is often required before starting treatment.

People who are at risk of losing their jobs or housing during the withdrawal period cannot enter the withdrawal period or stay in an institution for several months.

Opioid maintenance programs aim to address some of these issues and combine pharmacological and behavioral therapy to eradicate opioid abuse.

Drugs used to avoid withdrawal in opioid maintenance programs bind to opioid receptors, but unlike painkillers, heroin and other commonly abused opioids, they are not psychotropic.

The main opioid maintenance drugs available today are methadone and buprenorphine, but doctors require special exemptions to prescribe these drugs — even though no special training or certification is required to prescribe opioid analgesics.

Buprenorphine is so scarce, even the black market is booming.

We still have a long way to go in the fight against opioid addiction, but there are a wealth of resources to improve our understanding of treatment options.

If you or someone you know is struggling with opioid addiction in the United States, please contact the helpline operated by the Department of Health and Human Services at 800-662-4357. More than 14,000 substance abuse treatment facilities in the United States are searchable in our database at www.hhs.gov/opioids.

On the day Seven Monkeys, the Sun God rises, and a rosy sheen slowly spreads across his fingers, blending softly with the smoke that rises from Tenoctitlan's many hearths.

Shokuoutli, a midwife, had a difficult choice to make.

From the wet season to the dry season, we are at a critical transition of the season.

During the summer the gods have given the people maize, but the fertile time of summer is passing away.

Today is a day of festivals. This festival marks the transition from the summer season, when the gods give food to people, to the winter season, when people give back to the gods.

Shokoutri is indebted to her patron deity, the female warrior god Teteoinan, who is the centerpiece of the festival.

The war waged by Teteoinan is both a women's battle of childbirth and a men's battle involving the enemies of Tenochtitlan.

You must keep the goddess satisfied or bad luck will come your way

Shokuoutri has to attend the festival today, but there are patients who could go into labor at any moment.

Shokoutli decided to check on the patient first.

Pregnant women aren't pushing themselves too hard, chewing gum, or lifting heavy weights.

her family is taking good care of her

Of course Shokoutri has some time to honor the goddess.

She left her apprentice and headed for the center of town.

Along the way, I saw women cleaning the streets and hanging gourds in preparation for the festival.

We finally made it to the Great Pyramid

There are two temples at the summit, the northern temple that enshrines the rain god in summer and the southern temple that enshrines the war god in winter.

On the autumnal equinox, the sun rises between the two temples.

The ritual begins with a mock battle between the midwife and other doctors.

Shokuouturi teams throw balls made of notchiri, marigolds, reeds, and moss with all their heart.

teased someone mocked someone

But then a girl ran to deliver a message to Shokoutri.

her patient is in labor

she rushes home

The grandmothers in the family have already gathered, and their experience is invaluable in case something happens.

She prepares her most important tool, her fingers, while being honored with prayers.

Then, in order to deliver the baby, the patient is given Siwapatri, the steam bath is massaged into the pregnant woman, and the belly is rubbed with tobacco.

In a short prayer to Teteoinan, she urges her patients to behave like warriors.

The grandmothers cried out for joy as a strong baby girl was delivered into their waiting arms.

She took a few drops of water from the jade bowl, breathed on it, and placed it on the baby's little tongue.

She called the baby a precious emerald, a little warrior, and told her that the Lord and Lady of the Nine Skies had brought the baby to life and sent it into a world full of burdens and anguish.

And she turns to her new mother and praises her for acting like an eagle warrior or a jaguar warrior.

By the time she finished giving birth, it was already late at night and the flames had died down.

Shokuoutri piles up the remaining hot charcoal in the center of the hearth and kindles it in an attempt to keep the charcoal burning.

Lay your baby in a mesh basket with his head facing the fireplace.

In this way, it warms the center of the "soul" inside the body called Tonari, which is vital for health and well-being.

It's almost midnight, and if Shokuoutri hurries back to the temple, she'll be there in time for the climax of the festival.

She made her way to the center of town, where a priest is carrying a woman on her back to the top of a pyramid.

This woman is beheaded to welcome the new season and offer it to the gods, symbolizing the harvesting of corn in the fields.

This woman is then reincarnated as the goddess Teteoinnan and presides over the enlistment of new warriors.

It's a tough economy, TEDsters, it's really tough.

So, to cheer you up, I'd like to share with you some of the most obscure, but huge financial success stories of the last 20 years.

In its own way, it has achieved a feat comparable to that of Microsoft and Google.

We are responding calmly to the current recession.

It's about "organized crime"

Organized crime has been around for a very long time, right? It would be wise to say so, indeed

But in the last 20 years, organized crime has grown to unprecedented heights, and now accounts for about 15 percent of global GDP.

It's the "global shadow economy," otherwise known as the "McMafia."

What caused such extreme growth in international crime?

Of course, globalization, technology, telecommunications, etc., but I'll talk about that later.

But first, let's go back to this event in the past: the fall of communism.

It's the most important event in post-war Eastern Europe.

i will tell you everything

This incident meant a lot to me personally.

I started smuggling books beyond the Iron Curtain to Eastern European pro-democracy groups, like Solidarity in Poland, when I was a teenager.

Then I started writing about Eastern Europe and eventually became the BBC's chief Eastern Europe correspondent in 1989.

So when 425 million people finally won the right to choose their own government, I was ecstatic, but I was also worried about some of the more unruly things lurking behind the walls.

For example, it wasn't long before bloody nationalism rose to the fore in Yugoslavia.

And amidst the turmoil and revelry, it took me some time to realize that the same people who wielded power in Eastern Europe before 1989 continued to do so after the Revolution.

There were people who were clearly like this.

But other, unexpected people also played a decisive role in what happened in Eastern Europe.

These are the people. Do you remember?

They were gold medalists in weightlifting and wrestling every four years.They were the great celebrities of the communist world.They lived a luxurious lifestyle.

He had a big apartment in the middle of the city, easy, casual sex, and the freedom to travel west, which was a big luxury at the time.

You might be surprised, but they played a crucial role in the rise of Eastern European economies.

In my favorite way, they were the midwives of capitalism.

Here are the weightlifters after the 1989 metamorphosis.

In Bulgaria -- and this picture was taken in Bulgaria -- when communism collapsed in Eastern Europe, it wasn't just communism that collapsed, but the state itself.

So the police didn't work

the judiciary did not work properly

So what did New World businessmen in Eastern Europe do to ensure their contracts were honored?

So they turned to what sociologists call "private law enforcement agencies."

In other words, what we call the mafia.

And in Bulgaria, the mafia quickly became associated with 14,000 personnel who were expelled from various security services between 1989 and 1991.

At a time when the country is collapsing and the economy is rapidly going downhill, the last people you want in the labor market are probably 14,000 people whose main skills are surveillance, smuggling, underground organization, and murder.

But that's what happened in Eastern Europe.

In the 1990s, most of my work was covering the horrific conflicts in Yugoslavia.

And what I realized was that the people who were committing atrocities, the paramilitary groups, were actually members of an organized crime syndicate.

And I came to believe that behind the violence was a sinister criminal enterprise.

So I made up my mind to travel the world to investigate the global underworld, talking to police officers, talking to victims, talking to consumers of illicit goods and services.

Above all, I decided to talk to the gang members themselves.

The Balkans were the perfect place to start

why? Of course, law and order were broken there.

What I learned from the beginning of my investigation was that the Balkans had become a transit point for illegal goods and services from all over the world.

Heroin, cocaine, trafficking women and precious metals

where do they go?

The EU countries, which are harvesting the benefits of globalization, are poised to become the richest consumer market in history, which will ultimately consist of 500 million people.

And a very small fraction of that 500 million people are using their spare time and their surplus money to dangle fifty euros in their noses, sleep with prostitutes, and hire illegal migrant workers.

Globalizing organized crime looks like any other business.

We have production zones, places like Afghanistan and Colombia.

We have distribution zones like Mexico and the Balkans.

And then, of course, the EU with its consumption zones, Japan, and of course the United States.

Production and distribution zones tend to be in developing countries, where they are often threatened with brutal violence and bloodshed.

Take Mexico for example

Over the last 18 months, 6,000 people have been murdered as a direct result of cocaine trading.

But what about the Democratic Republic of the Congo?

5 million people have died in Congo since 1998

It's not the conflict you see in the newspapers, yet it's the biggest conflict on the planet since World War II.

Why? Because mafiosi around the world are colluding with local paramilitaries to try to control the plentiful mineral supplies of the land.

In 2000, 80 percent of the world's coltan was sourced from mass murder sites east of the Democratic Republic of the Congo.

Coltan is in almost every cell phone, every laptop, and gaming machine.

Congolese military commanders sold these to the mafia in exchange for weapons, and the mafia sold them on the western market.

It is this Western consumer appetite that is the primary driver of transnational organized crime.

Now I'm going to show you my friends at work smuggling unpaid cigarettes that the Italian police just happened to capture.

Cigarettes fresh from the factory are very cheap

The EU puts the world's highest tax on it

So if you can smuggle this into the EU, the profit is very high, and I'm going to show you what kind of wealth these groups have.

This ship costs 1 million euros new.

The fastest vehicle in European waters

For seven years, starting in 1994, 20 such ships crossed the Adriatic Sea every night from Montenegro to Italy.

The UK alone lost eight billion dollars in revenue as a result of this deal.

Instead, the money went directly to fund the war in Yugoslavia, watering the pockets of unscrupulous individuals.

When the deal started, the Italian police only had two boats with the same speed.

And most importantly, you only catch these guys when they run out of gas.

These gangs often took women on board ships to be turned into prostitutes. If the police intervened, the gangs would throw the women into the sea, forcing the police to save them from drowning instead of chasing the bad guys.

You've seen how many ships it takes to catch one of these bad guys.

The answer is 6 ships

And twenty of these ships came across the Adriatic every night.

What are they going to do with the money they raise?

And that's where globalization comes in, because it's not just the liberalization of international trade.

liberalization of international financial markets

No, how much easier money laundering has become

The last 20 years have been a big deal for dirty money making.

In the 1990s, the world's financial hubs were competing for business, and there was simply no way to prevent money laundering.

Many legitimate banks were also willing to accept deposits from very dubious sources without question.

But at the heart of this is a network of offshore banks

They're at the center of the money laundering procession, and if you want to do something about illegal tax evasion, international organized crime, money laundering, you have to get rid of them.

The good news is that at least there is someone in the White House who will continue to speak out against this corrupt entity.

And if you're interested in what I think is necessary for a new legislative body, effective legislation, take a look at Bernie Madoff, who's going to spend the rest of his life in prison.

Bernie Madoff stole $65 billion

So he put himself side by side with the top gangsters of the Colombian cartels and the Russian crime syndicate, but he did it for decades in the middle of Wall Street, without any crackdown.

How many more Madoffs are there on Wall Street and in the City of London laundering money from the common man?

Actually there are many

Let's do an introductory class on international crime

Drugs. This is the second photo of the marijuana plantation from this morning.

But this was filmed in central British Columbia.

It's one of the tens of thousands of home gardens in British Columbia.

And that's how this deal secured five percent of the region's GDP.

Inspector Brian Cantera of the Royal Canadian Mobile Police (RCMP) took me deep into a warehouse east of Vancouver to see what is routinely seized by the RCMP, of course, from smugglers who bring the goods south to the United States, where there is a greedy market for "Canadian buds" goods sold as organic and well received in California.

(Laughter) (Applause) Even the police admit that it doesn't affect the profits of major exporters at all.

Since globalization began, the world drug market has expanded enormously.

But resources for police mobility have not expanded as well.

But this may all change, because something very strange is happening.

The United Nations realized this year, or rather last month, that Canada had become a key location for the production and distribution of ecstasy and other synthetic drugs.

Interestingly, the market share of heroin and cocaine is declining as the pharmacological effects of synthetic narcotic pills become more effective.

Synthetic drugs are changing the game, which is shifting drug production from the developing world to the Western world.

When it became a trend, it outstripped the capabilities of the police in the West.

I believe that the anti-drug policy that we have had for the last 40 years is long overdue for a rethink.

and recession

Organized crime already seems well prepared for a recession.

It's the most opportunistic industry in the world, so it makes sense.

I can't put a limit on it

There are, of course, two business risks. One is being arrested by law enforcement, which they don't care about at all, and the other is getting a bullet in the head by competing with another group.

they have shifted the way they do business

In a recession, customers are less likely to take drugs or go to prostitutes than they used to.

So they've made big forays into financial crime and organized crime, and they've made inroads into two areas in particular: counterfeiting and cybercrime.

and frighteningly successful

Introducing Mr. Pringle

rather than senor pringle

This is a kit introduced to me by a Brazilian cybercriminal.

We sat in the car on Paulista Avenue in São Paulo.

In less than five minutes on my laptop, I broke the security system of a big Brazilian bank.

it's not that hard

What's fascinating about cybercrime is that it doesn't really have much to do with technology.

The key is the so-called “social engineering”

In technical terms, it happens every minute.

You won't believe how easy it is to trick other people into doing things with their computers that are outside their interests.

Soon cybercriminals will learn the easiest way to do this successfully. Of course, sex and affection are the easiest ways to get close to people's wallets.

You may remember the "I love you" virus, one of the most widespread viruses in the world to date.

When I first received the I Love You virus, I was very lucky because the original sender was my ex-boyfriend.

She had all sorts of sentiments and feelings towards me at that time, but there was no love involved.

(Laughter) So when I saw this in my inbox, I immediately threw it in the trash, thus avoiding a nasty infection.

So you have to be careful about cybercrime.

All I know about the internet is that it helps these guys.

This is a mosquito that carries the malaria parasite, which infects red blood cells when the mosquito eats the free food that we provide.

Artesunate is a highly effective drug that kills malaria parasites early in infection

But over the past year or so, researchers in Cambodia have discovered that this parasite is developing resistance.

They fear that the reason for this resistance is that people in Cambodia are buying the drug online because they can't afford it on the regular commodity market.

Such distribution drugs contain very little of the actual drug

That's why the malaria parasite is becoming resistant.

I say this because I want you to know that organized crime affects every area of ​​our lives.

You don't have to sleep with prostitutes or do drugs to be associated with organized crime.

they hack into our bank accounts

It affects our communications and our pension funds.

They affect our food and our government.

It's not about Palermo or New York Sicilians anymore.

Gangsters in the 21st century have no romance

It's a huge industry that creates instability and violence wherever it goes.

It's a major economic force and we must take it very seriously.

It's an honor to be here to talk to you.

thank you very much

(applause)

A mountain that separates two lakes

A room covered in bridal satin from ceiling to floor

giant snuffbox lid

At first glance, it seems unrelated, but it's actually in the mind of a sperm whale, the whale from Herman Melville's "Moby Dick."

On the surface, it's about Captain Ahab's revenge on the white whale, Moby Dick, who once ripped off his leg.

In this book, you'll find pirates, typhoons, chasing dramas, and giant squids, but it's not just your typical sailor adventure.

It explores all themes, not just recounting life on a whaling ship, but also portraying human history and natural history in a mood that is at once hilarious, tragic, humorous, and dire.

The narrator who invites us to these expeditions is an ordinary sailor named Ishmael.

The story begins, "A damp inside November, a whirlwind pattern."

But when he befriends Queequeg, a native of the South Pacific islands, and joins the crew of Ahab's Pequod, Ishmael becomes more than just a character, he's a knowledgeable guide to the reader.

Ahab seeks revenge, but his best friend, Starbuck, dissuades him. Ishmael takes us on a journey to find our own purpose—"the universe and beyond."

Melville, like Ishmael, was a restless and curious person.As a young man, he worked as a sailor, and his arduous voyages around the world taught him the unusual.

In 1851, he published Moby Dick, at a time when whaling was at its peak in America.

Nantucket, from which the Pequod set sail, was the epicenter of a bloody, gold-swept global industry that decimated the world's whale population.

Unusually for his time, Melville exposes the sad side of the industry, sometimes even standing in the eyes of whales, and pondering how terrifying the gigantic shadow of a ship must be to the whales that swim beneath it.

The author's real-life experiences of whaling are well represented in his vivid description of Ishmael, which is repeated over and over again.

In one chapter, the skin of a whale's penis becomes protective clothing for sailors.

The chapter with the plain title "The Tank and the Bucket" is one of the most rewarding chapters in this book.

A tangled whaling rope evokes witty thoughts about the perils that haunt all mankind.

He talks about all fields of learning - zoology, gastronomy, jurisprudence, economics, mythology, and the teachings of various religions and traditional cultures.

I'm challenging not only the subject but also the new writing style.

The monologue in Captain Ahab's battle with Moby Dick is in Shakespeareian style: "I'll jump on you, you whale that destroys everything, but you can't beat me. I'll fight you to the very end, and I'll stab you through the heart of hell. Out of hatred, in my last breath, I'll spit on you." sometimes we sue together

African and Spanish sailors insult each other, Tahitians say they miss their homeland, Chinese and Portuguese sailors say they want to dance, A boy predicts disaster.

In another chapter, Ishmael sings an epic tale of the whale oil transfer, when the ship rolls and rolls in the midnight sea, and the barrels inside the ship roll and roll like landslides.

This book covers a wide variety of subjects, so everyone can find something of value in it.

You'll find religious and political allegory, questions about human existence, social satire, economic analysis, and even depictions of American imperialism, industrial relations, and racial conflict.

Like Ishmael searching for meaning and Captain Ahab chasing a white whale, it depicts human existence through conflicting ideas: optimism and anxiety, curiosity and fear, whatever it may be to explore.

Through the long story Moby Dick, Melville plunges readers into the unknown, taking them on a journey to explore "the elusive illusion of life."

General discussion of architecture often focuses only on the end result of the building.

Is London's newest tower a cucumber, a sausage or a sex toy?

So we thought, could we invent a format that could tell the story behind the project, so that we could combine photographs, drawings and words to tell the story of the building?

But it turned out that we didn't have to invent it, because it already existed in the form of cartoons.

We basically decided to use the comic book format to tell the story behind the scenes of how the project is adapting and evolving on the fly.

It speaks through events, disruptions and opportunities in the real world.

The comic book is "Yes is More." This book is an evolution of the ideas of our heroes.

This is Mies van der Rohe's "Less is More"

he sparked the modernist revolution

Then came the postmodern backlash: Robert Venturi said, "Less is bore."

And after him, Philip Johnson -- (Laughter) he said, "I'm a whore," and that's kind of a misogyny, or an openness to new ideas.

More recently, Obama launched the optimism "Yes we can!" amidst the global financial crisis.

What we want to say in "Yes is More" is to question how the avant-garde in architecture is always defined as the negative of what it opposes.

The epitome of a radical architect is an angry young man rebelling against the establishment.

Or the image of an ununderstood genius who is dissatisfied with the world that doesn't fit his way of thinking

We're more interested in EVOLUTION than in REVOLUTION, the idea of ​​gradual evolution by adaptively adapting to changes in the world.

In fact, I think the person who best describes our design process is Darwin.

His famous evolutionary tree is like a diagram that describes how we work.

The project evolves through a series of design meetings

A huge number of ideas are generated at each meeting.

Only the best ideas survive

And through the architectural selection process, some models are chosen to be very beautiful, while others are chosen to be very functional.

By crossing them, a variant child is born

And after all these generations of design meetings, we arrive at a design.

A literal example of this is our library and hotel project in Copenhagen.

The design process was very grueling, and it was like a struggle for survival, but gradually the idea developed: the idea of ​​a rational tower that blends in with the surrounding city. It's a Scandinavian version of the Spanish Steps in Rome.

Darwin describes more than just the evolution of a single idea

As you can see, subspecies can branch out.

It's often a great idea in design meetings.

Some things don't fit in the current context

But for other customers in other cultures, it might fit perfectly.

That's why we don't discard any ideas

Offices are like reservoirs of architectural biodiversity.

Because it may come in handy

Now, in this lightning-fast story, what I want to do is tell how two projects evolved to adapt and evolve on the fly to the world's contingencies.

The first story begins when I went to Shanghai last year for the competition for the Danish pavilion at the 2010 Shanghai World Expo.

There I met Haibao

He's the Expo's mascot.

It looked exactly like the building we designed for a hotel in northern Sweden.

When I submitted the design to the competition, I thought it was a really cool plan, but it didn't look very Swedish.

The Swedish judge didn't think so either, so we lost.

But then I met a Chinese businessman who saw the design and said, "Wow, that's the Chinese character for 'person'."

just in case i checked

At the same time, we were invited to participate in the International Creative Industry Week in Shanghai.

Thinking that this is a rare opportunity, hire a feng shui master

We expanded the building to three times the size of China and went to China.

(Laughter) I called it "People's Building."

Two of our interpreters looking intently at the architectural model.

It was on the front page of the newspaper, and the mayor of Shanghai, Chen Liangyu, came to see it.

we explained the project

Shanghai is the city with the most skyscrapers in the world, but to him it's like he's lost his roots.

He said that "People's Building" might bridge the gap between China's ancient wisdom and China's progressive future.

Of course, we told them that we were of the same opinion.

(Laughter) (Applause) Unfortunately, Mr. Chen is currently in prison for corruption.

(Laughter) But Kaiho is very relatable because he actually uses kanji for "person."

He was chosen as the mascot because the Expo's theme is "Better City, Better Life."

and environmentally friendly

Being eco-friendly is kind of like neo-Protestantism, where you have to suffer and do good.

Avoid long hot showers

It's more than just a vacation on an airplane

I'm slowly starting to think that sustainable living is less interesting than normal life.

So we thought it would be interesting to focus on examples of how sustainable cities can improve quality of life.

I also thought, can we show you something that connects Denmark with China?

One of the largest countries in the world, one of the smallest

Dragon is the symbol of China

Denmark's national anthem bird is the swan

(Laughter) China has many great poets, but in China's public schools, they teach three fairy tales by Antu students, Andersen in our country.

This means that 1.3 billion people all grew up with the Naked King, the Little Match Girl, and the Little Mermaid.

It's almost as if pieces of Danish culture were merged with Chinese culture.

The most famous tourist attraction in China is the Great Wall of China.

The Great Wall of China is the only man-made object visible from the moon

Denmark's most famous tourist attraction is The Little Mermaid

Difficult to see even with a canal tour

(Laughter) These are the differences between the two cities.

Copenhagen, Shanghai Modern, European

But when I looked at the development of Shanghai, I found that 30 years ago, the streets of Shanghai were full of bicycles and no cars, just like this.

This is how it looks today

Bicycles were banned in many places

Meanwhile, Copenhagen is expanding its bike lanes.

1 in 3 commute by bike

There is also a free service called City Bike You can rent a bike in Copenhagen

So I thought, why not reintroduce the bicycle to China?

Donate 1000 bicycles to Shanghai

When people come to the Expo, they come to the Danish pavilion first, and then they go around the other pavilions on Danish bicycles.

Both Shanghai and Copenhagen are port cities, but the water in Copenhagen is clean enough to swim in.

One of the first projects we worked on was the Copenhagen harbor bathing area, where the public space continues into the water.

Expos often feature a lot of state-funded propaganda images and statements, but without the real experience.

we're not talking about bicycles

I want you to try

Instead of talking about water, we ship a million liters of harbor water from Copenhagen to Shanghai, where any brave Chinese can jump in and feel the beauty firsthand.

Some might object that bringing water from Copenhagen to China is not sustainable.

But a cargo ship full of cargo goes from China to Denmark and comes back empty.

Load water to stabilize the ship

So you can hitchhike for free

I'm going to put a real mermaid princess in the middle of this harbor bathing area.

real mermaid real water real bike

When the Little Mermaid is on the road, we invite a Chinese artist to present a reinterpretation of The Little Mermaid.

The pavilion building is like an exhibition hall and a bicycle loop.

If you go to the exhibition hall, you can see the mermaid princess and the pool

As you stroll around, you'll find a bicycle on the roof, and you can jump on it and go straight to the other exhibition halls.

I actually won this competition, so I had an exhibition in China to explain the project.

Amazingly, from China's state censorship, one of our display boards has been modified.

The first correction was that Taiwan was missing from China's map.

I'm going to add that because it's a very serious political issue in China.

The second part is the contrast between the swan and the dragon, but the Chinese authorities said, "Propose a change to the panda."

(Laughter) (Applause) Meanwhile, in Denmark, the People's Party objected to the idea of ​​moving a national monument.

Attempted to pass a bill banning the transfer of the Little Mermaid

For the first time, I was summoned to speak in Parliament.

It was pretty funny, because from nine to eleven in the morning they were arguing about how many billions of kroner should be put in to save the Danish economy.

At eleven o'clock stop discussing such trivial matters

From 11:00 to 1:00 there is a heated debate over whether to send the Little Mermaid to China.

(Laughter) (Applause) As a result, from May to December next year, if you want to see The Little Mermaid, don't come to Copenhagen. She'll be in Shanghai.

If you come to Copenhagen, you'll see an exhibit by Chinese artist Ai Weiwei instead.

However, if the Chinese government intervenes—

(Laughter) The second story starts at my house.

this is my apartment

This is the view from our apartment, the view from our client's triangular balcony, which they call DiCaprio's balcony.

That's what makes a vertical backyard like this, and on a nice summer day, you can get to know every vertical neighbor within a 10-meter radius.

The building looks like a distorted square block

The zigzag arrangement ensures that each room has a view of the landscape rather than another apartment in front of it.

Until recently, this was the view from my apartment, until our client bought the land next door.

He was going to build an apartment next to a parking structure.

We thought, instead of building a traditional stack of rooms facing a boring parking lot, what if we built an apartment building where every room is a penthouse?

Copenhagen is completely flat, so if you want a scenic south-facing slope, you'll have to build it yourself.

And I carved the shape of the building a little bit so that it doesn't block the view from my apartment.

(Laughter) Basically, the parking lot is located at the base of the apartment building, in a shaded area.

And then there's the upper level apartment in the sunshine, which is in a crowded urban area and offers a great suburban lifestyle with a garden overlooking the city.

this is the first architectural model

This is an aerial photograph from last summer

The apartment covers the parking lot

Access via sloping elevator

It's actually a product used in Switzerland, because Swiss nature needs a gradient elevator.

(Laughter) This is the exterior of the parking lot.

I realized that by changing the size of the holes, I could turn the entire exterior wall into a giant natural ventilating raster image.

We called the project "Mountains," so we commissioned a Japanese Himalayan photographer to take some beautiful shots of Mount Everest, transforming the entire wall into a 3,000-square-meter work of art.

(Applause) When you go back to the parking lot and enter the hallway, it's like traveling in a parallel world from a space of cars and colors to an urban oasis facing south.

The apartment is wood grain and the outer wall is also wooden.

Beyond that is a green garden like this

The rain drops that fall on this "mountain" accumulate.

And an automatic irrigation system will transform a garden landscape like this in a year or two into a verdant landscape like the ruins of a Cambodian temple.

"Mountain" is the first example of what we call architectural alchemy.

This idea isn't gold, but it's a mix of traditional ingredients, like a regular apartment or a parking lot, and adds value, in this case, instead of people choosing between living in a garden or living in the city.

can have both

Architects are hard to schedule

I can't just say, "Let's build an eco-friendly city in Central Asia."

Opportunities, events, and circumstances in the world force us to constantly adapt.

As a final example, as recently as last summer, I won a competition to design a Nordic national bank.

This is the president of the bank when he could still smile.

(Laughter) It's in the heart of the capital, and we were excited by this opportunity.

Unfortunately, it was the National Bank of Iceland.

At the same time, I received a visit from an Azerbaijani minister.

When I showed him that "mountain," he was very intrigued by the idea of ​​building a mountain out of this building, because Azerbaijan is known as the Alps of Central Asia.

I was asked if I could create a city plan on an island near the capital that would recreate the silhouettes of seven of Azerbaijan's most beautiful mountains.

we accepted the request

I would like to show you a short video that I made.

We often make short videos

Soundtracks always cause arguments, but in this case the choice was pretty easy.

Baku is basically a crescent-shaped bay overlooking our planned island, Zira, similar to the iconography on their national flag.

Our main idea is to model some of Azerbaijan's most beautiful mountainous landscapes and transform them into habitable cities and architectural structures.

Arrange those mountains into islands that surround a central green valley like Central Park.

And the interesting thing is that the island is now a desert, with no vegetation.

No water, no energy, no resources

In fact, we designed the entire island as a single ecosystem, using wind power to power the desalination plant and using the thermal properties of the water to heat and cool the building.

And all surplus freshwater and wastewater is filtered organically into the surrounding terrain, gradually transforming the desert island into a green, lush landscape.

Urban development usually costs nature, but in this case it creates nature.

And buildings don't just conjure images of mountains, they actually act as mountains.

they block the wind

store solar energy

accumulate water

So this actually turns the whole island into an ecosystem.

We recently presented a master plan and it was approved.

And this summer, we'll start working on the blueprints for the first two mountains, which will be the first carbon-neutral island in Central Asia.

(Applause) In closing,

I hope you have seen how Copenhagen's "Mountain" evolved into Azerbaijan's "Seven Peaks".

With a little bit of luck and a little more evolution, in 10 years we might have five mountains on Mars.

thank you

(applause)

A new virus spreads quickly

To limit the spread of infection, researchers must first collect data on infected people.

To do that, there are two tests that are important: one to see if you're currently infected, and the second to see if you've been infected.

So how do these tests work?

A PCR test, or polymerase chain reaction test, is a test that targets the genetic material of a virus in your body to determine if you're currently infected.

But sometimes this genetic material is present in such trace amounts that it cannot be detected in reality.

That's where PCR testing comes in. It's widely used to amplify genetic information into observable amounts.

To develop a PCR test for an unknown virus, researchers first sequence the genetic material or genome to find regions that are unique to the virus.

PCR testing targets these regions

A PCR test starts with the collection of a sample. For hepatitis virus, the sample is taken from the blood. For poliovirus, the sample is taken from feces.

The specimen is sent to a laboratory to be tested for the presence of the viral genome.

Genetic information is embedded in DNA and RNA

For example, the human papillomavirus carries information in its DNA, SARS-CoV-2, which causes COVID-19, carries information in its RNA.

Before we can start the PCR, we need to reverse transcribe the viral RNA -- if it exists -- into a complementary strand of DNA.

then start the PCR

If a virus is present in the specimen, specific regions of genetic information are identified by complementary primers and enzymatically replicated.

A single strand of DNA is amplified to hundreds of millions of strands and detected by targeting it with a fluorescent probe.

If the PCR test detects the fluorescent dye, the sample is said to be positive, and the patient is known to be infected.

Immunoassays, on the other hand, use the memory of viruses held by the immune system to test for past infections.

Immunoassays measure virus-specific antibodies produced by the immune system during an infection.

Antibodies are a special class of proteins that identify and attack foreign substances, such as viruses.

Immunoassays detect the most abundant IgG antibodies and the first IgM antibodies produced in response to new infections.

The presence of IgM antibodies indicates recent infection, but it takes more than a week to produce detectable amounts of antibodies, so it is not a reliable way to diagnose current infection.

IgG antibodies, on the other hand, stay in the body long after infection, and the presence of these antibodies indicates that the person has already been infected and recovered.

Before the immunoassay, the healthcare worker draws the patient's blood

And this specimen is then brought into contact with the target virus.

If the patient has actually had a virus in the past, virus-specific antibodies in the specimen will bind to that virus.

If the specimen is positive, there will be a color change, meaning the patient has a history of infection.

Immunoassays are particularly useful for retrospective diagnosis in people who were infected but did not get tested.

Also, people who have acquired immunity to the virus have great potential, as their plasma may be useful in treating people who are currently fighting the virus.

PCR and immunoassays continue to improve, becoming more accurate and efficient.

For example, a newly developed all-in-one PCR machine can deliver test results within an hour.

Digital PCR, a technology for absolute quantification of target DNA, is expected to further improve accuracy.

Immunoassays, on the other hand, are a difficult technology to develop quickly, but researchers in Singapore developed an assay for SARS-CoV-2 before COVID-19 was declared a pandemic.

These tests play an important role together with the scientists who develop them and the medical professionals who use them.

If we act quickly, we can save millions of lives.

What are the invisible things?

there's more than you think

Everything that is truly important, except material things, is invisible.

I can see things, but I can't see problems

I recently read a funny article in the Guardian that said, "Marriage problems arose when the husband was murdered by his wife in 1965."

(Laughter) There's a story behind it that you can't see.

(Laughter) You can see stars and planets, but you can't see the forces that separate them or the forces that attract them.

Both people and objects can only see the skin and the outside.

you can't look inside

It is not easy to know the motives of people's actions

The closer you get to anything, the more it disappears

In fact, if you look very closely at the basic structure of matter, there's nothing there.

Electrons fade away, and all that's left is energy, but we can't see energy.

All important things are invisible

It's a little silly Let's talk invisible

I will try to visualize the story in my head.

It's about a member of the British House of Commons named Jeffery Dickins.

The late Senator Dickins was at a patronage party.

But the indescribably ugly woman follows him closely to every table with a smile on her face.

(Laughter) I couldn't escape.

A few days later, I got a letter from a party patron who had a lot of respect for him and wanted a signed photo.

After the name was written (horse face)

(Laughter) "I misunderstood," he thought.

"She knew how unsightly she was and dared to show it off.

Let's attach something to the photo and give it to you."

he bought a picture frame

On the photo, in beautiful handwriting, I wrote, "Thank you, Congressman Jeffrey Dickins, to the Horse Face."

After mailing the letter, my secretary said, "Did you see that lady's letter?

I wrote (horse face) to remember her."

(Laughter) I think he wanted to disappear.

(Laughter) Part of what makes the invisible interesting is that if you can't see it, you can't understand it.

Gravity is one of those things you can't see and don't understand.

It's the least understood and weakest of the four fundamental forces.

no one knows what it's like

Scientist Isaac Newton believed that Christ came to earth to exert gravity.

That is the purpose of Christ—

He was smart, but that might not be the case.

(Laughter) Consciousness -- even when I see your face

I don't know what you're thinking

I can't believe we can't read each other's minds

We can touch each other and lick each other if we get close enough

It's a strange thing that we can't read each other's minds

In the Middle East, they say, there is a religion called Sufi, which is said to be the origin of all religions, and all its teachers have telepathic abilities.

Their main purpose is to send a strong signal that telepathy doesn't exist.

We've been led by our Sufi masters to believe that telepathy doesn't exist.

Research into artificial intelligence, or consciousness, has been slow. We don't know how consciousness works.

Artificial intelligence researchers can't create artificial intelligence, let alone artificial idiots.

(Laughter) The laws of physics are invisible, eternal, ubiquitous and universal.

Anyone come to mind?

Interesting, as you can imagine, I'm a non-materialist.

and found an interesting new word

i am a skeptic

Unless you define what "God" really is, I refuse to argue whether God exists.

(Laughter) Another invisible thing is the human genome.

This is becoming more and more puzzling. Twenty years ago, when scientists started studying the genome, it was thought that humans had about 100,000 genes.

As geneticists know, that number is revised downward each year.

It is now believed that the human genome contains only 20,000 genes.

It's unbelievable, because rice has 38,000 genes.

Did you know that potatoes have 48 chromosomes?

Two more than humans, the same as gorillas.

(Laughter) You can't see these things, but they're really funny.

(Laughter) I've always wondered about the stars in the daytime.

the universe disappears

The more light you have, the less you can see

Time - no one can see the time

I don't know if you know, but there are many physicists today who argue that time doesn't actually exist, because it's inconvenient for physics calculations.

If you ignore the time, the calculation will be fine

we can't see the future

And I can't see the past except in my memories

This is one of the funniest moments from the past. A few days ago, my son asked me, "Do you remember me when I was two?"

I said, "Oh," and he said, "Why don't I remember?"

that's strange? They can't remember things from a few years ago. Good for psychoanalysts, otherwise they're out of work.

Everything that makes you money happens before you're three years old.

I can't see the connection between the soul and the real world

It's also amazing, as you probably know, like in skin, cells are constantly renewing.

It means the skin is falling off, the hair and nails are growing.

Every cell in the body is replaced at some point

Taste every 10 days

The liver and other organs take a little longer, and the marrow takes a few years.

Seven years from now, none of the cells that are there today will be left.

Who are we?

What are we? What kind of body is this body in which the heart dwells?

Now atoms, again from the wavelength of light

so small you can't see it

You can't even see the gas

"Gas" in 1600

The word was coined by a Dutch scientist named Van Helmond.

It's said to be the most well-known word that the coiner knows.

Banmermont also coined the word "braas" to mean "planetary radiation."

unfortunately not popular

(Laughter) It was pretty good.

(Laughter) And there's a lot more -- light.

You can't see light, you can't see light in the darkness of a vacuum, and you can't see it.

Weirdly, I can't see the light, but I can only see what the light hits

It's strange that we can't see darkness as well as light.

I can't see electricity

you know electricity

don't let anyone tell you

(Laughter) You probably think that when you turn on a light, electrons travel down wires at the speed of light.

Electrons travel down the slow wire at the speed of honey.

(Laughter) There are about 100 billion galaxies in the universe.

100,000,000,000 - 5 are visible to the naked eye

Only 5 out of 100 billion galaxies! On top of that, if you don't have good eyesight, one thing is hard to see.

the other is radio waves

In 1887, Heinrich Hertz discovered radio waves and named them "radio" (radiation) because they radiate.

Someone asked Hearts, "What can you do with this?

how to use ”

Hurts said, "I don't even know

Someday someone will find a use for it."

Of course, Hertz's discovery became radio today.

Anyway, the most important things we can't see are the things we don't know.

how much we don't know

Thomas Edison said, "We know only 1/10,000 of the world."

So, in conclusion, you probably want to know the last thing you can't see.

that's the "point"

(Laughter) (Applause) Interestingly, points, by definition, are dimensionless like electrons.

Anyway, the point of this speech is that there are only two important questions.

"Why are we here?" and "What should we do?"

For reference, here are the words of two great philosophers of the 20th century: a mathematician and engineer, and the other a poet.

The first is Ludwig Wittgenstajan "I don't know why we are here

I'm sure it's not for fun."

(Laughter) I'm a very optimistic person.

(Laughter) And finally, one of my favorite poets, WH Auden, said, "We're here to help others. Why are they here?

I have no idea."

(Laughter) (Applause)

In the 16th century, the Flemish physician Andreas Vesalius described a method of prolonging the life of breathing-impaired animals by inserting a tube into the windpipe to pump air into the lungs.

In 1555, this remedy was not very well received.

But today, Vesalius' paper is recognized as the first description of the ventilator, a very important medical procedure in modern medicine.

To understand the value of a ventilator, you have to understand how the respiratory system works.

We breathe by contracting the diaphragm and expanding the chest cavity.

This draws in air and causes the alveoli to expand, and there are millions of air sacs inside the lungs.

These little balloons are surrounded by blood-filled capillaries.

This blood absorbs oxygen from the expanded alveoli and leaves carbon dioxide.

Carbon dioxide is exhaled along with oxygen and other gases when the diaphragm relaxes.

This process happens automatically when the respiratory system is working normally.

But the respiratory system can be blocked in many different situations.

Sleep apnea stops the muscles of the diaphragm from contracting.

Asthma can cause inflammation of the airways that block oxygen.

And pneumonia, often caused by bacterial or viral infections, attacks the alveoli themselves.

Invading pathogens destroy lung cells, trigger an immune response that can lead to the development of fatal inflammation, and pleural effusion.

In these situations, the lungs cannot function normally.

But a ventilator replaces this process, getting oxygen into the body when the respiratory system isn't working.

These machines carry oxygen-rich air around constricted airways so that damaged lungs can diffuse more oxygen.

There are two main ways that a ventilator works: by pushing air into the patient's lungs with positive pressure ventilation, or by drawing air into the patient's lungs with negative pressure ventilation.

At the end of the 19th century, negative pressure ventilation was widely used as a ventilator technology, because it was close to natural breathing and evenly distributed air to the lungs.

To do this, the doctor wrapped a wooden box or a closed room around the patient's body and sealed it off.

Air is sucked out of the enclosed space, reducing the pressure and allowing the patient's chest cavity to expand more easily.

In 1928, doctors developed a movable metal instrument with a pump powered by an electric motor.

This machine, known as the Iron Lung, became a staple in hospitals throughout the mid-20th century.

But this, even the most compact negative pressure design, severely restricted patient movement and prevented caregiver access.

So in the 1960s, hospitals moved to positive pressure ventilation.

Mild cases can be treated non-invasively

A face mask is placed over the mouth and nose and filled with compressed air to force air into the patient's airways.

But in severe cases, we need a device that takes over the entire breathing process.

A tube is inserted into the patient's organ to pump air directly into the lungs, with valves and bifurcated pipes creating a circulatory shape for inhalation and exhalation.

Modern ventilators have built-in computer systems that can monitor a patient's breathing and regulate airflow.

These machines are not used as standard treatment, but rather as a last resort.

Heavy sedation is required to withstand the influx of compressed air, and repeated ventilator use can lead to long-term lung damage.

But in extreme situations, ventilators can be a matter of life and death.

And situations like the COVID-19 pandemic show that this is more essential than we imagine.

Because current models are large, expensive, require extensive training to operate, and most hospitals have few.

Under normal circumstances this might be sufficient, but in emergency situations the limited respirators are not well taken care of.

The world desperately needs cheaper, more portable ventilators, and ways to rapidly produce and distribute this life-saving technology.

Let's think about this situation that is unfortunately happening around us.

A few months ago, a highly contagious and potentially deadly respiratory virus infected humans for the first time.

And then the virus spread faster than public health measures could contain it.

It's now been declared a pandemic by the World Health Organization (WHO), which means the virus is spreading all over the world.

The death toll starts to rise and everyone asks, when will the pandemic end?

The WHO will declare the pandemic over when infections are largely contained and the rate of new infections drops significantly around the world.

But when that will be depends on what governments do next.

Governments have three main options: let it spread all at once, delay it and wait for a vaccine, or coordinate and destroy it.

One strategy is widely accepted as the best, but it may not be what you think.

The first option is for governments and communities to do nothing to contain the spread of the disease, but instead let people get infected as quickly as possible.

With no time to study the virus, doctors have little knowledge of how to save patients, and hospitals are quickly reaching capacity.

Millions to hundreds of millions will die either from the virus or from the medical collapse.

Eventually, the vast majority of people either get infected and die, or they boost their immune response and survive.

At this point herd immunity is established and the virus can no longer find new hosts.

So after a pandemic starts, it disappears within a short period of time.

But there are ways to achieve herd immunity without paying that many lives.

Let's go back in time to the moment the WHO declared a pandemic.

Now governments and communities around the world are slowing the spread of the virus so that research institutions have time to create a vaccine.

Critical time-buying strategies include extensive testing to identify infected people, and measures such as quarantining and "physical distancing" of infected people and those who have been in contact with them.

Even with these measures, the virus spreads slowly, claiming hundreds of thousands of lives.

Some cities have brought the outbreak under control and returned to normal economic activity, only to see a resurgence of the epidemic.

Within a few years, a global effort would make one or more vaccines widely available, hopefully free.

At 40% to 90% of the population getting vaccinated -- the exact number varies by virus -- herd immunity is established and the pandemic is over.

Let's go back in time and think about the third and final strategy, which is co-ordinated destruction.

This strategy is to contain the spread of the virus everywhere at the same time, a combination of quarantine, physical distancing, social distancing and movement restrictions.

The key is to synchronize the responses.

In a typical pandemic, when one country peaks, another country may see its first confirmed cases.

It's not just the jurisdictional leaders reacting to what's going on out there, but everyone should think, in this case, that the world is a huge interconnected machine.

If we work together properly, we can end the pandemic in just a few months, and with less loss of life.

But unless the virus is completely wiped out, which is highly unlikely, it risks reaching pandemic levels again.

Factors such as animals carrying viruses may undermine our best efforts.

So which strategy is best for the virus that causes this deadly respiratory infection?

A burst method of infection would be an ad hoc, global catastrophe, and might not work at all if people were to reinfect.

Destroying the virus through cooperation alone is tempting because of the speed at which it disappears, but it's only possible with true, but almost impossible, international cooperation.

That's why the best collaboration of the world's nations to develop a vaccine is generally seen as the winner -- the slow but sure and proven option in this battle.

Even if the pandemic ostensibly ends before a vaccine is ready, vaccines will continue to protect people because the virus can recur from season to season.

And while it may take years to complete, the disruption to most people's lives doesn't necessarily last all that long.

Breakthrough solutions in treating and preventing symptoms could make the virus so much less dangerous that extreme containment measures may not be necessary.

cheer up the pandemic will definitely end

The impact may be long-lasting, but it's not all bad. The breakthrough solutions, social programs and programs we've created could be used for everyone's benefit.

If we can be inspired by our successes and learn lessons from our failures, we will be able to contain the next pandemic that may come, and our grandchildren will never even know there is a new virus.

People don't just see with their eyes, they see with their brains

Imagination is what the brain sees

You're probably familiar with the imagery that imagination paints, because everyone imagines it.

But there are also hallucinations.

hallucinations are something completely different

not our creation

can't suppress

Hallucinations appear from the outside and are difficult to distinguish from reality

I'm going to tell you about that hallucination.

I got a call a few months ago from the nursing home where I work.

A woman in her 90s is hallucinating, so she might have gone insane, or she's old enough to have a stroke or Alzheimer's.

So she asked me to come see her, this is Granny Rosalie.

when you go to see a doctor

It was clear that she was sane.

I didn't know this beforehand, but she was blind. She went blind five years ago due to age-related macular degeneration.

I started having hallucinations a few days ago.

When asked, "What do you see?"

“People in oriental clothes are going up and down the stairs

A man looking at me and smiling with big teeth sticking out from the sides of his mouth

I can see animals

White building, it's snowing

I see a horse with a snow plow harness

And then one night the scene changed

cats and dogs come

stop when approaching

and change again

Many children going up and down the stairs

Like an oriental dress, dressed in bright pinks and blues.”

Before those people appear, you may have hallucinations where pink and blue squares spread across the floor and rise up to the ceiling.

When asked, "Does it feel like a dream?"

"No, it's like a movie, not a dream

It's colored and has movement

But there is no sound like a silent movie.”

It's a rather boring movie

“People in oriental clothes are limited in their movements because they only go up and down.”

(Laughter) I'm a woman with a sense of humor.

Even though I know it's an illusion

I was scared 'cause I've never had a hallucination in my 95 years of life.

The hallucinations seem to come and go, even though they are unrelated to her thoughts, feelings and actions.

I can't control it, she's hallucinating

None of the people or places looked familiar, and neither people nor animals seemed to notice her.

she didn't understand the situation

i was worried i was going crazy

I examined carefully

Cheerful old lady, no abnormalities, good physical condition

I don't take drugs that cause hallucinations.

just being blind

So I said, "I know

There are special visual hallucinations – caused by reduced vision or blindness.”

"This is a condition first described by a man named Charles Bonnet in the 18th century.

you have charlebonnet syndrome

The brain and the mind are normal, it's Charles Bonnet Syndrome."

She was relieved to hear that, relieved that it wasn't a serious problem, and rather curious.

“Who is Charles Bonnet?

Did he see hallucinations too? " and

"Tell all the nurses that I have Charles Bonnet Syndrome."

(Laughs) “Neither crazy nor stupid, just Charles Bonnet Syndrome.”

I did what she said

this is a common case

I work mainly in old age homes.

Elderly people are the target, and many people with hearing and visual impairments

Approximately 10% of deaf people can hear musical hallucinations

About 10% of visually impaired people see hallucinations

It's not totally blind, it includes partially sighted.

Moving back to the 18th century, this hallucination was

It was his grandfather, not Charles Bonnet.

grandfather was an old judge

undergoing cataract surgery

my eyesight was pretty bad

In 1759, he told his grandson of his hallucinations.

The first thing he talked about was a floating handkerchief.

Large format with 4 orange circles on a blue background

my grandfather recognized it as a hallucination

Because there are no handkerchiefs floating in the air

And I saw a big wheel floating in the air

But sometimes I wasn't sure if it was a hallucination or not, because the hallucinations were in harmony with the things around me.

One day, when my granddaughter was visiting, she asked me, "Who's the handsome young man?"

“Well, Grandfather, there is no such person.”

Then the men disappeared

It's common in hallucinations, it pops up and pops out.

does not appear and disappear gradually

rather suddenly

Charles Bonnet's grandfather saw hundreds of figures, shapes and landscapes.

I saw a man in a bathrobe smoking a pipe, and it was himself.

That's all I remember

One day, when I was walking through the streets of Paris, I saw a real scaffolding at a construction site.

When I got home, it was turned into a 15 cm miniature and was sitting on my desk in my study.

Repeated viewing of an image is called repetitive viewing.

I explained to Rosalie what was happening to Charles Bonnet's grandfather and to Rosalie. When you lose your sight, the visual part of your brain gets overactive because there's no information going into it, and it acts spontaneously.

start hallucinating

sometimes very complicated

Another patient's experience: The woman was partially sighted and what she saw was troublesome.

One time she saw a man in a striped shirt in a restaurant.

The man turned to her and separated into six people and started walking towards her.

And then the six of us quickly reverted to one.

One time, she was in a car driven by her husband, and the road split in four, and she felt it split in four.

I also saw a moving hallucination

a lot of it was car related

Sometimes she could see a teenage boy sitting on the hood

It clings to cars and moves gracefully around every turn.

And when the car stopped, the boy soared 30 meters straight up and disappeared.

Some patients had hallucinations like this.

The woman had no problems with her eyes, but she had problems with the visual part of her brain, a small tumor in the occipital cortex.

Above all, she saw animated images.

The animation is see-through and takes up half the field of view, like a screen.

I often saw Kermit the Frog

(Laughter) I don't watch Sesame Street, but she argues, "Why? I don't know why Kermit is there.

I want to know the Freudian meaning Why Kermit?

It doesn't make any sense"

Even if I can stand anime

Both she and Rosalie were troubled by persistent images and facial hallucinations, often seeing deformed faces with giant teeth and eyes.

she was scared

what happened to them

As a doctor, it's my job to identify symptoms and reassure patients, especially when it comes to telling them they're not crazy.

As I said earlier, 10% of blind people have this condition.

But they report symptoms because they're afraid that less than 1% of them will be thought to be mentally ill.

Even if you go to the hospital, you will be misdiagnosed - it is possible

The concept of hallucinations, in particular, is often seen as insane.

But psychotic hallucinations are quite different.

In the case of psychopathic visual or auditory hallucinations, they are called out to them, they are blamed.

tempted, insulted, ridiculed

get caught up

Charlebonnet syndrome goes unheard

It's like watching a movie that has nothing to do with you, that's how it's perceived.

There's a rare case of temporal lobe epilepsy, which can make you feel like you're going back in time or going back to a place you've been to before.

standing at an intersection

smells like roasted chestnuts

You can feel the sound of the car with your five senses.

I was waiting for her-

I will never forget that Tuesday night in 1982

Temporal lobe hallucinations involve all the senses: they're sensible, they're familiar, they're specific in place and time, they're coherent and theatrical.

Charlebonnet is quite different

There are different levels of Charlebonnet syndrome, including hallucinations of geometric patterns, the pink and blue squares that Rosalie saw, and very detailed hallucinations of people, especially faces.

A deformed face is most common in Charlebonnet syndrome.

The second most common is anime

What is the meaning of this

Interestingly, in the past few years, we've been able to use fMRI to image brain function during hallucinations, and we've identified that different visual parts of the brain are actually activated during hallucinations.

When simple geometric patterns appear, the primary visual cortex is activated.

The brain perceives borders and patterns in this area.

You don't create images in your primary visual cortex

The higher visual cortex interacts with the temporal lobe to create images.

In particular, part of the temporal lobe is called the fusiform gyrus.

If the fusiform gyrus is damaged, we may not be able to recognize faces.

But when the fusiform gyrus is working abnormally, you can have facial hallucinations, and that's what happened to my patients.

In front of this gyrus, there's an area that envisions teeth and eyes, and when you see giant tooth-eye hallucinations, that part of the gyrus is active.

Another part of the brain becomes active when watching cartoons.

I watch and draw anime, and I am active when hallucinations occur

It's peculiar and interesting

Other parts of the brain are specifically associated with recognizing buildings and landscapes and hallucinating.

Around 1970, we discovered that there are certain cells in the brain, not just certain parts of it.

Around 1970, facial cells were discovered.

Hundreds of cell types have now been discovered, very unique cells.

So maybe there aren't just car cells, but Aston Martin cells.

(Laughter) I saw an Aston Martin this morning, and I wanted to talk to you.

it should already be there somewhere

(Laughter) This level, called the inferior temporal cortex, only processes visual images and fragments.

It's the higher realms where the other senses come in, and they're related to memory and emotion.

Charles Bonnet syndrome does not reach this level.

In the inferior temporal cortex, thousands and millions of images and piecemeal fabrications occur in areas that are neurally encoded in specific cells and small clusters of cells.

Normally, all of this is part of a unified stream of perception and imagination that humans are unaware of.

Only if you are visually impaired will this process be interrupted.

And instead of having normal perception, the inferior temporal cortex is receiving chaotic, spasmodic stimuli and emissions from its visual cells.

And suddenly I see faces and cars

I can see many things

My mind tries to organize it, it tries to be consistent, but it doesn't work perfectly.

When this hallucination was first published, it was thought that it could be interpreted like a dream.

But the patient says, "I don't know these people, I can't relate."

"Kermit means nothing to me"

It's no use thinking about it like it's a dream

Here's my story

The point is, this hallucination is common.

Think of the number of blind people in the world

There must be hundreds of thousands of blind people with these hallucinations, but I'm too scared to tell them.

So these facts need to be known more for patients, for doctors, for the public.

And finally, I think this is very interesting and valuable information for gaining insight into how the brain works.

250 years ago, Charles Bonnet pondered these hallucinations and wondered how the brain's machinery could create a dramatization of the mind.

Now, 250 years later, I think we're beginning to find out the truth.

Thank you very much

(Applause) Great, thank you very much.

He was very insightful and had empathy for his patients.

Have you had such an experience yourself?

I thought you would ask

(laughs) I watch a lot.

Actually, I am also visually impaired.

One eye is blind and the other is not doing well.

I can see illusions of geometric patterns

i can't see the other

Do you feel uneasy?

because you know what's going on

It's better than tinnitus, though I ignore tinnitus

Hallucinations sometimes intrigue me, so I draw a lot in my notebook.

We also used fMRI to look at the function of the visual cortex.

Hexagons and intricate patterns can also be seen in ocular migraines, but I wonder if this is normal, and I'm curious if the cave paintings and decorative designs were inspired by hallucinations.

It was a very interesting and valuable lecture.

thank you very much

thank you

(applause)

The colors of the sunset that spread out on the canvas radiate colors like flames

At first glance, it may seem esoteric and abstract.

But if you look closely, you can see canna flowers with delicate stems and fresh, velvety petal texture.

This method of transforming natural subjects into abstract, geometric forms is common in the work of revolutionary American painter and sculptor Georgia O'Keeffe.

But the mysterious power behind this method of transformation is as elusive as her own.

Born in Wisconsin in 1887, O'Keeffe spent his childhood painting the wildflowers he picked and the fruits he arranged.

When he was 17, he moved to Chicago and enrolled in the prestigious Art Institute of Chicago.

The instructors' guiding principle was to follow the example of the great European painters, and to reproduce what they saw with their eyes in their paintings.

O'Keeffe found this solo meticulous pursuit fun, but he wasn't really drawn to it.

After moving to New York, she became drawn to the clean lines, striking compositions and bright colors of Japanese paintings.

Eventually, O'Keeffe met a mentor who inspired him to create and put his interest into practice.

Unlike his previous teachers, Arthur Wesley Dow instructed his students to focus on more abstract representations of light, shape and color.

Dow's teachings are evident in O'Keeffe's first series of abstract paintings.

In a series of charcoal paintings, there are many undulating lines, bold shadows and billowing clouds.

As if rebelling against being easily put into a mold, these works allude to certain natural subjects, but never draw them as they are.

Early Cubist European painters incorporated linear and geometric shapes to represent external subjects abstractly.

But in O'Keeffe's case, he embraced the shapes and rhythms of natural subjects as a way to capture his inner feelings.

These innovations laid the groundwork for an art movement called American Modernism.

While there is no set style that defines modernist painting, the common desire of the movement's proponents was to challenge the traditional realism that dominated art education at the time.

Beginning in the late 1910s, Modernist painting explores the American psyche with its many geometric shapes and bold colors.

Although O'Keeffe devoted himself to these innovations, he was reluctant to show others his new creations.

But when a friend sent a charcoal drawing of O'Keeffe to art dealer Alfred Stieglitz, he was fascinated by it.

In 1916 Stieglitz held her solo exhibition in New York.

This led to O'Keeffe becoming a popular painter, and the two became close and married in 1924.

Even after marriage, O'Keeffe's loneliness persisted.

I traveled extensively, taught painting, and spent months in seclusion working on paintings.

Whether exploring the rugged canyons of Texas, the tranquil forests of South Carolina or the sun-white deserts of New Mexico, O'Keeffe's creative process was always ritualistic and scrutinized.

We paid close attention to detail and spent hours mixing paints to get the perfect color.

Once I had the perfect color tone, I wrote it down on a handmade color card and the collection continued to grow.

O'Keeffe also experimented with perspective to celebrate subject matter that is often overlooked.

"The Ram's Head and Hollyhock" depicts a weather-beaten skull and delicate flowers overlooking the hills far below.

This large skull casts a shadow over the landscape, making both the skeleton and the mountains stand out in a new and ominous light.

The public was captivated by her unique perspective and secretive demeanor.

Particularly admired were a series of large floral paintings, including fiery poppies and ethereal calla flowers.

At the time, Stieglitz and other critics became obsessed with Freudian mentality, eventually saying that O'Keeffe's paintings were associated with female genitalia.

But O'Keeffe denied such an interpretation.

She expressed anger at the masculine gaze that dominated the art world, arguing that her work should be rewarded for evoking the emotions of the natural world.

In his later years, O'Keeffe moved to New Mexico, where he found his favorite quiet place to create.

Even as his eyesight began to decline in his 70s, he continued to express the mystery of landscapes in new three-dimensional mediums.

O'Keeffe continued to create throughout her life until her death at the age of 98, and is remembered as "the mother of American modernism." Over the decades, her work continues to radiate intense energy and O'Keeffe's mystique.

where do you go from here how should i do I can't get over this question Crawling through the rubbish Inside the crushed pieces of us Tormented by the thought of "could have been" Pain and suffering Replays Repetition There's only a makeshift life They say Time heals everything But what's this wretched emptiness? There's no end in between Do you just wait until it's over? There's nothing here anymore Nothing to change the signs Until I follow up I'm shut off from the world Shattered platitudes With a crushed and swollen face Being watched from a thousand miles away All I want is a single nothing miracle I've been completely reborn And now I'm more suspicious People say time will heal everything But what's this wretched emptiness? There's no end in between Do you just wait until it's over? Sitting here frozen? Gone long before that Lifeless and dusty Lying in piles of old magazines Lit by fluorescent lights All we could be All we could be In this one life They say Time heals all But what is this miserable emptiness? There's no end in between Do you just wait until it's over? while holding back? while holding back? wait till it's over? (applause)

you all worry

(Laughter) I started this play because I was worried.

worried about what we think of the vagina

I was more worried about not thinking about the vagina

Worried about my vagina

I needed other vaginal content and culture and companionship

Too many dark and secrets about the vagina

Like the Bermuda Triangle, nobody reports

(Laughter) First of all, it's not easy to even know your own vagina.

Time goes by without a woman looking at her vagina

A career woman I interviewed said she didn't have time to look at vaginas.

She said, "It takes a day to see the vagina"

(Laughter) “You have to lie on your back in front of a life-size mirror, even with perfect posture and perfect lighting.

my shadow is formed

Raise your head, round your back and you're exhausted."

she was busy and didn't have time

So I decided to talk about the vagina

It started as an informal interview and evolved into a vaginal monologue.

Talked to over 200 women Elderly women

young woman married woman lesbian single woman

Company Officer University Professor Actress Prostitute

African American Women Asian American Women Native American Women Caucasian Women Jewish Women

Everyone was a little shy and slow at first

I can't stop once I start talking

Women love to talk about their vaginas

Because I've never been asked that question before.

(Laughter) Let's start with the word vagina.

Sounds like an infectious disease or a medical device at best

“Nurse, hurry up and get a vagina.”

(laughs) No matter how many times I say vagina

I never hear the right words

It's weird and not sexy at all

To avoid using obscene words, if you say "stroking your vagina" during sex, it's all over

(Laughter) I'm also worried about how the vagina is called.

In Great Neck, New York, the nickname is "cat"

One woman was told by her mother, "Don't wear anything in your pajamas.

I have to expose the cat to the wind.”

(Laughter) Pookie in Westchester, Twat in New Jersey

Powder Box Deli Air Pookie Poochie Poopie Pupparoo Puni Nana Pade Pachechiki Pau Peesh

(Laughs) Todi Didi Nishi Dignity Coochie Nocher Cooter Rabbi Gladys Sigleman Va Wei Hoarspot Nappy Dugout Mango Gooley Powderbox Mimi in Miami Split Knish in Philadelphia Shumandi in the Bronx

(Laughter) I'm worried about my vagina.

The vagina monologue begins like this

It all started with a conversation with a woman

We were talking about menopause, and the conversation shifted to her vagina, which is a natural progression when it comes to menopause.

I was surprised when she said her vagina was dry and dead.

So I made a friend of the vagina question

She said more amazing things Another woman said more amazing things And I realized that every woman has an amazing vagina story I was dragged down the vagina road

(Laughter) My work is still going on.

If, when I was young, I knew that in the future, while shopping, people would say, "You're the one with a vagina!"

I don't know if that was the goal of my life.

(Laughter) But I want to talk a little bit about the relationship between happiness and the wonderful vaginal journey that began eight years ago.

Before I started this play, I didn't believe in the existence of happiness.

I thought only fools were happy

When I became a Buddhist 14 years ago, I was told that the goal of my practice was to be happy, and I said, "How can I be happy in this world of pain and suffering?"

I mistook it for corruption and selfishness

The Vagina Monologue and this trip gave me a little understanding of what happiness is.

I would like to talk about three essences

One is to look at what's in front of you and talk about it.

It's obvious that the vagina is the center of the body and the world, but no one talks about it.

Second, I realized that by telling the story of the vagina, there is a way to open doors and improve the world.

Happiness comes from the heart

And the third is a law of happiness that I've recently discovered. Eight years ago, a movement called the "V-Wave" began.

If you question this wave, if you try to stop it, if you try to turn around, your neck will hurt, but if you ride the wave and surrender yourself

We can move forward, the inevitable, the fundamental, the honest flow.

In particular, I started this play as a narrative.

presented in front of an audience

At first, at every show, women lined up to tell me something.

I thought you were here to tell them about their wonderful sex lives and their love of vaginas.

it wasn't like that

They came to tell us about their experience of being raped, their experience of being beaten, their experience of being gang-raped in a parking lot, their experience of being raped by their uncle.

I wanted to stop the vaginal monologue, photographing the terrifying sight

I felt like a war photographer who didn't intervene.

So in 1997, women are being oppressed -

Think about what you can do with this information

After much thought and research, I came to the United Nations' recent announcement that one in three women in the world will be beaten or raped in their lifetime.

Essentially, it refers to the woman who holds the earth together.

So in 1997, a group of inspiring women got together to talk about theater and how we could use our energy to prevent the abuse of women.

And in the New York theater, with big name actresses like Susan Sarandon, Glenn Close and Whoopi Goldberg, she caused this wave and energy.

In less than five years, amazing things started happening.

A woman said, "I want to bring this wave and energy to colleges," and she spread this play in colleges, and she said, "Let's put this on once a year and raise money to stop the violence against women that is spreading all over the world."

A year later, it spread to 50 universities.

Six years later, it spread all over the world.

I learned two things: Violence against women is terrible, it exists all over the world.

I had the chance to go to a place that was under the Taliban regime, I put on my burqa and it was called the Afghan Women's Revolutionary Association.

Together with a great organization, how local women have all their rights

I've seen first hand how they're deprived, deprived of education, deprived of employment opportunities, not even allowed to eat ice cream.

Eating ice cream is illegal under the Taliban regime.

I met a woman who was actually flogged for eating vanilla ice cream.

I was taken to a secret ice cream shop in a small town, went into a back room, sat down, the curtains were closed and ice cream was served to the women.

I took off my burqa and ate ice cream

I don't think I ever understood how rare and precious joy can be for a woman.

On this trip I went to Islamabad and met women whose faces had been melted.

A week ago, I was in Juarez, Mexico, and I saw a woman's bones washed up in a parking lot, abandoned next to a coke bottle.

I went to colleges all over the country and met girls who were drugged and raped on dates.

I've seen too much violence

But what I've found in watching that kind of violence is that facing the reality in front of you can help you get rid of your depression and lack of self-esteem.

Because before I started Vagina Monologue, 80% of my consciousness wasn't accepting what was happening in this reality.

What happened during these wonderful trips was that in every place in the world we traveled, we met new people.

Just as there are various creatures in the sea

As I thought about being in the company of these amazing people on this panel, I realized that the vagina fits all categories.

(Laughter) One of the things I've seen is that these people are the new paradigm. Good news doesn't make the news, it doesn't make it to the press.

In the last six years, I've traveled to about 45 countries in small villages, towns and cities, and in every one I've met people I've come to call "vagina warriors."

A Vagina Warrior is a woman who has witnessed or experienced unbelievable violence, or a man who has an understanding of the vagina, and rather than using rifles, weapons of mass destruction, or machetes, those who hold violence in their bodies, experience grief, and dedicate their lives to preventing the same from happening to others.

I've met women like this all over the world, and by conveying information, stories get inside you, and one of the interesting things about being at TED is that

I live in my body and no longer in my head

there is stimulation here

It's a fun way to use your brain. I've been very confused for the past two days. (Laughter) Because the V world is inside the human body.

These people exist in the physical world.

I think the real importance lies in the synchronization of the body and the mind, where any disconnection divides will and purpose.

When the body and head are connected, the two are usually joined together.

I want to tell you about three women, vaginal warriors I've met who have changed my nature and my understanding of human beings. One of them is Marsha Lopez.

This is the woman I met in Guatemala.

At 14, she was married and was regularly beaten by her husband.

I was addicted to the relationship and I didn't have the money to get out of it.

I entered my sister into the "Stop Rape" contest in New York because I thought if I made it to the finals, I could take her to New York.

She's in New York until the finals.

At that point, we had a V-Day in a stadium that was usually filled with men, and 18,000 people stood to their feet and said, "Yes, vaginas!" It was an incredible transformation.

Masha, who was there, decided to go back home, leave her husband, and take V-Day to Guatemala.

She was 21 when I went to Guatemala

She sold out the Guatemalan National Theater

She wore a short red dress and high heels and said on the platform, "I'm Marsha.

I was beaten and almost killed by my husband for five years.

I broke up with my husband, you can do it too"

The 2,000 people at the venue went wild

There is a woman named Esther Chavez whom I met in Juarez, Mexico.

The 72-year-old is an accountant in Mexico City.

I was thinking of retiring

She went to Juarez to care for her sick aunt, and while she was there, she learned what happened to the women who were killed or disappeared in Juarez.

she quit her job and moved to juarez

I started writing a record of a missing woman.

300 women disappeared because of skin color and poverty

No response to the disappearance, no arrests.

She started writing about it and opened a center called a friend's house.

It took six years to make the world aware of the existence of violence.

7,000 people gathered in the streets of Juarez, which was a miracle because of the insecurity.

Locals who usually don't go out to the streets stood in tears watching people from all over the world gather in the streets.

For me, a woman named Agnes

typical of the vagina warrior

I met her three years ago in Kenya when she was ten years old.

Against her will, she had her clitoris removed, determined that this practice should not continue in the community.

When she grew up, she made an anatomical sculpture of half a woman's body.

She walked through Kenya's Rift Valley, carrying vaginas and replacement vaginas, teaching parents and children the difference between a healthy vagina and an excised one.

She walked the Rift Valley for eight years, sleeping out in the dust, nomads.

She created the new convention that girls can come of age without being mutilated.

Three years ago, when I told her that we wanted to work together,

I said, "If you have a jeep, you can move faster."

(Laughter) So I gave her a Jeep, and she had a Jeep that year.

Saved 4,500 girls from mutilation

When asked, "What else can I do?"

He said, "If I get money, I can save these girls by building a shelter for them."

I'd like to tell you a story from my childhood because it's related to happiness and Agnes.

I grew up in a privileged, upper-middle-class environment in a white society, full of symbols of the perfect, wonderful life.

Everyone was supposed to be happy there, but my life was in hell, my alcoholic father

I was beaten and raped

As a child, I always fantasized about someone coming to my aid.

Create a character named Mr. Alligator

When things got worse, I called him and told him it was time to come pick me up.

I packed my little bag and waited for Mr. Alligator.

Mr. Alligator never came, but I believed that someday someone would come to my aid, so the thought of Mr. Alligator actually keeping me sane and holding on.

More than 40 years later, when I went to the opening of a new hideaway for women in Kenya,

Agnes was preparing for the ceremony, so we had to wait a few days.

When she first tried to stop female genital mutilation, she was ostracized, vilified, and the whole community turned against her.

But she kept pledging herself to become a Vagina Warrior and to change the customs, and persevered.

In Maasai culture, goats and cows are considered the most valuable.

In the Rift Valley, it rivals the Benz.

Two days before the hideout opened, two people each brought her a goat, and she said, "I knew one day there would be an end to female genital mutilation in Africa."

So when we arrived, there were hundreds of girls in hand-made dresses in red, the color of Masai and V-Day, and they greeted us, and then they said,

Singing the end of female genital mutilation - guided me down the trail with a song I wrote.

The African sun was shining, the dust was dancing, the girls were dancing, and it was a wonderful day.

In that moment, after 47 years, I thought Mr. Alligator had finally arrived.

He took the time to show up in an unexpected way, because when you bring into the world what we want most, the wounds heal.

What I've learned over the last eight years of my vaginal journey is something very simple: that happiness can be found in action, in speaking the truth, in expressing who you really are, and in revealing what you crave.

And I'm glad that I gained valuable knowledge and experience, and I'm grateful that I was able to talk to you all.

Thank you very much

(applause)

I'm Jonathan Zittrain

I want to try to be optimistic this morning, and I want to explain why I'm hopeful about the future of the Internet, given the current state of affairs.

There seems to be less hope now than there used to be

people are less kind

I'm losing trust in people. As an example, let's do a little test.

How many of you have ever hitchhiked?

There are a lot of them. So who has hitchhiked in the last 10 years?

What's changed?

It's not because public transportation has gotten better, right?

One way of looking at it is that the world is going downhill and going in the wrong direction.

But I want to use three examples to show that the trendline is going the other way, and that the Internet is powering it.

The first example is the Internet itself.

These three are the founders of the internet

They were classmates who attended the same high school outside of Los Angeles in the 1960s.

There are French clubs and debate clubs.

They were a "Let's Build a Global Network" club, and it worked really well.

This photo was taken for Newsweek's 25th anniversary issue of the Internet.

As you can see, they were basically weirdos.

They had one big limitation and one big freedom in devising a global network.

The limitation is that they had no money

They didn't really have the money to invest in a physical network.

they have nothing

But they had an amazing degree of freedom, they didn't have to make money from it.

The Internet has never had a business plan.

No CEO, no company responsible for building

Instead, it was a group of people trying to build something interesting together.

That spirit made network architecture unlike any digital network before or since.

It was so weird that people even said they didn't know if the Internet would work.

Even in 1992, IBM was saying that it was impossible to build a corporate network using the Internet Protocol.

Even among Internet engineers today, the Internet itself is a pilot project with no results yet.

(Laughter) That's why people say that if there's a mascot for internet technology, it's the bumblebee.

A carpenter bee's body is too large for its wing length to fly.

For some reason, carpenter bees can fly

The good news is that with a lot of government money, about three years ago, we finally figured out how bees fly.

(Laughter) It's a very difficult story, but apparently -- it's because they move their wings so fast.

(Laughter) So how has the architecture that powers the Internet changed?

We don't act like shipping companies to move data from one place to another.

closer to the audience

(Laughter) Think of yourself as part of the network. You're watching some sport. You're sitting in a seat like this, and someone orders a beer, and it's handed to you in the aisle.

You carry the beer to its destination at the risk of staining your trousers as your neighbor's duty.

no one pays for that

It's just the efforts of those sitting next to you

And this is also how packets move across the Internet. Sometimes they are relayed 25 or 30 times. There are no contractual or legal obligations on the organizations passing the data between them, either to the sender or to the receiver.

Of course, it's difficult to specify a destination while in the audience.

It takes a lot of trust, but you can't just say, "Please come to Pensacola."

The internet needs addresses and instructions

In fact, it turns out that there is no overall map on the Internet.

It's like everyone's sitting in a theater, but there's a fog, and you can only see the people closest to you.

So how do you know who is where?

You tell the person on your right what you see on your left, and you do the same thing in the opposite direction.

Keep doing this over and over, and you'll get a rough idea of ​​where things are.

This is how Internet addressing and routing works

It's a system that relies on kindness and trust, and it's very sensitive and vulnerable.

It's rare, but one lie with one beehive can cause a lot of chaos.

For example, last year, the government of Pakistan asked the country's Internet service providers to block Pakistani citizens from watching YouTube.

I had a video that the government didn't like, and I wanted to make sure I blocked it.

This is common, and governments everywhere are blocking, filtering, and censoring content on the Internet.

An ISP chose an unusual method to block subscribers from watching

And all of a sudden, I started saying, in the way that I answer questions on the internet, I suddenly started telling people, as if they suddenly realized I was YouTube.

"That's right, I'm YouTube"

As a result, the subscriber's packet destined for YouTube stays on, mistaking this ISP as the destination, and the ISP throws it away without looking at the content, achieving the purpose of the block.

But it didn't end there

This announcement was sent one step further and spread.

If you look at this postmortem, you'll see that the first point was YouTube.

At the next point in time, the false announcement will be made

And within two minutes, it was going viral, and YouTube was being blocked all over the world.

I'm in Oxford, England, and when I try to watch YouTube, Packet goes to Pakistan and never comes back.

please think about it

This is the world's most popular site by the world's most powerful company. YouTube and Google have no privileges in this regard.

Yet somehow the problem was solved two hours later.

what happened?

Look to NANOG for clues

It's the North American Network Operators Group, where people, even though it's sunny outside, are holed up in windowless rooms, looking at their terminals, reading emails and messages, just like this in isometric font, and talking about networking.

Among them are mid-level employees of ISPs around the world.

One of them sent a message like this: "Looks like some weirdo has appeared YouTube has been hijacked!

This ain't no drill it's not like the youtube engineers messed up

Something is happening in Pakistan

And they work together to solve this problem

So this is like fire

The bad news is there's no fire brigade.

The good news is that people will show up out of nowhere, put out the fire, and ask for no money or praise

(Applause) I was wondering what the right model was for this form of stranger geek kindness.

(Batman's silhouette against the background of the Bat-Signal - Laughter) When the signal is given, people will come to help.

This model is everywhere if you look for it.

Second example Wikipedia

A guy named Jimbo (Jimmy Wales) showed up in 2001 and said, "I've got a good idea! If you start with seven articles and let anyone edit anything at any time, you've got a great encyclopedia!"

What do you think?" Indeed, it's the stupidest idea ever.

(Laughter) In fact, Wikipedia is such a stupid idea that Jimbo himself didn't even think about it.

Jimbo was thinking about Nupedia

This was going to be quite conventional, and he would pay generously, and with that money he'd get people to write articles.

The wiki was kind of a back room that was introduced later so that other people could write revisions.

It grew to occupy the whole project.

Today, Wikipedia is so popular that it's even showing up on Chinese restaurant menus.

(Menu with names of dishes such as "Stir-fried wikipedia") (laughs) I'm not making it up.

(Laughter) I can explain this to you, but for now-

Let's just say that Wikipedia says it's stir-fried with chili peppers.

(laughs) But Wikipedia doesn't just work.

What's going on here?

A lot of people are sitting in their rooms on a sunny day staring at the admin bulletin board, which itself is a Wikipedia page that anyone can edit.

Any problems will be reported here

What is recorded here is "history as a series of terrible things."

Number 1 reads "Severely biased editing by user Andyvphil"

sorry if Andyvphil was here

You don't hold your opponent's shoulder

Next, "Anon will cancel and attack"

I like "It's a long story"

(Laughter) There are more people checking this page and trying to solve problems than there are problems on this page.

That's what keeps Wikipedia afloat

Wikipedia is always 45 minutes before it collapses.

There's a spambot out there trying to turn every article into an ad for Rolex.

(Laughter) It's protected by this thin geek line of defense.

They don't do it because it's their job, it's because they have a mission.

They care about what's important, and that's what drives them to action.

They've even created a group called the Anti-Troll Squad, and they've been cleaning the pages under the slogan "Courtesy, Maturity, Responsibility."

I wonder, if there was a huge Star Trek gathering or something on the weekend, who would watch it?

(Laughter) What you're seeing here is... (Laughter) The phenomenon you're seeing here reminds me of what the traffic engineer Hans Mondermann discovered in Holland, and we're seeing it here in South Kensington, too, that when we remove the external rules and signals, we create a safer environment in which people can function and interact more humanly with each other.

because people feel responsible for their actions

Wikipedia uses this principle

Some of you may remember The Star Wars Kid, a video of a poor teenage boy wielding a golf ball picker like a lightsaber.

This video was published on the Internet without his permission or knowledge.

It spread quickly and became very popular.

I was so ashamed of myself

As an encyclopedia, Wikipedia has an entry for Star Wars Kid.

Each entry on Wikipedia has a discussion page, and Wikipedians had a thorough discussion about whether or not their names should be included in the article.

I know there are opinions on both sides.

this is just a part of it

Despite some controversy, they ultimately decided not to use their real names, even though most of the mainstream media did.

they didn't think it was right

Good intentions

There's still a warning at the top of the Star Wars Kid page about not writing your name.

If you post it, it will be deleted immediately. Even those who disagreed with that decision respected it and acted to protect it, because they believe in something greater than their own opinion.

As a lawyer, let me tell you, they're creating laws and precedent-binding principles and things like that in the way they operate.

This is not just about Wikipedia

Also found on various blogs

This is the cover of Business Week magazine in 2005.

Wow! Blogs can change your business!

I know this looks silly

All sorts of crazy projects going on

This is my favorite blog CatsThatLookLikeHitler.com

(Laughter) People who say their cats look like Hitler post pictures.

(Laughter) Okay, number four. Imagine coming home every day and seeing that greet you.

(Laughter) The same thing is being done with humans.

This is a site of failed portraits

There is this "An idyllic meadow with a log fence

Isn't that an animal carcass in the back?"

(Laughter) "That's an animal carcass, no matter how you look at it."

This kind of thing is lined up all the time

But here it is - image removed at owner's request

Yes, it was removed at the owner's request.

The person being satirized here sent an email to the person who runs this site, and it wasn't legal threats, it wasn't for money, it was just, "Can you take that down?"

"Oh that's fine"

I think we can build an online architecture that makes those human demands much easier. What we want to do here is make sure that the data we encounter, even though it's something we click and paste and copy and transfer, actually represents our emotions and our efforts and our influence, and we can make ethical decisions about how to treat it.

I think it will extend to the real world as well.

In a world of more censorship, with cameras everywhere and online, to a picture of me wearing clothes that said, "I don't want my photos published."

Technology can let the person who took the picture know that they want to be contacted before it's published.

The person who takes the picture can decide how to respect it.

In the real world, I've seen that kind of filtering done in Pakistan.

And we have the means to create a system like this where people can report the filtering they encounter.

It's no longer "I don't know, but I can't go, let's go elsewhere," and suddenly there's a collective consciousness of what's being blocked and censored where on the network.

Let's talk about technology mimicking organisms mimicking technology, or vice versa.

Researchers at New York University built a little cardboard robot with a smiling face on it.

says

I released this on the streets of Manhattan

(Laughter) Everything is funded these days.

And what's pictured here is the path that 43 people helped to redirect this unbendable robot from one end of Washington Square Park to the other.

This leads to a third example, hitchhiking.

I don't think hitchhiking is dead

Why? Craigslist has a carpool message board

If this had been called a hitchhiking board, it would have been quiet.

But this is a carpool board, which is actually the same thing.

Why is everyone going to see this place?

i don't know maybe they

(Laughter) No, the real answer is that once you change your perspective, if you move away from old ideas about projects that were once good but somehow fell apart, as Craigslist shows, human kindness and sharing can come alive again.

And this is highlighted by things like CouchSurfing.org.

CouchSurfing has finally brought the two together: people who want to go far away and sleep on strangers' couches for free, and people who want strangers far away to sleep on their own couch for free.

great idea

This bee certainly flew

It's amazing how much couchsurfing is successful

If you're wondering, there have never been any incidents involving CouchSurfing.

We have a reputation system, and you're evaluating yourself after you've couchsurfed, so there may be some selection bias.

(Laughter) So what I'm trying to say is that the Internet is not just a pile of information.

It's a verb, not a noun

And if you keep going and listen carefully, you'll realize that the information is telling you something.

It tells us what we heard yesterday Demosthenes tells us.

Let's say "Let's march"

Thank you very much. (Applause)

Good morning, as a fastidious Eastern European, I would like to express my pessimistic opinion, please bear with me.

I'm from Belarus, the former Soviet Union, and as some of you know, it's not exactly what you'd call a liberal democratic paradise.

So I've always been interested in how technology can regenerate -- liberate dictatorships.

After college, full of ideals, I decided to work for an NGO, which was trying to use new media to promote democratization and media innovation in the former Soviet Union.

But what surprised me was that dictatorships don't fall so easily.

Some governments, unwavering in their online rebellion, became more repressive.

My ideals were shattered so spectacularly that I decided to quit my job at an NGO to study how the Internet is holding back democracy.

Now, this kind of perspective isn't very common, and it might be a concept that's unfamiliar to some of you in this room.

It's also not common for many political leaders, especially American politicians, who may find the new media to be a more effective tool than the use of force.

In other words, the new media will bring democracy to troubled regions after political turmoil.

By 2009, the idea had spread to England, so Gordon Brown is one of those politicians.

But there are pitfalls to this logic, and that's why I'm arguing this way.

If you think about it, the focus of this logic is physical cost.

Cyber ​​dreamers would say that, like fax machines and photocopiers in the '80s, blogs and social networks fundamentally changed the physical cost of protests, and that people were bound to protest.

In other words, the traditional way of thinking is that if you create enough national connections and give them the tools to do so, democracy will come.

But frankly, I don't agree with this argument, partly because three American presidents have never come to an agreement.

(Laughter) But not only that, but the underlying logic, which I call iPod liberalism, assumes that every Iranian or Chinese who loves an iPod will also be passionate about democracy.

Again, I think this is a mistake.

A more serious blind spot is that this logic -- the iPod, not the bomb -- would be a good title for a new Thomas Friedman movie.

(Laughter) Isn't that a good thing?

An even bigger blind spot is that the actual use of the technology is confused with the intended use.

If you think that the new media of the Internet can stop the genocide, look back at the situation in Rwanda and you'll be wrong, because two radio stations in the '90s were the ones that fueled the racial hatred in the first place.

Now, back to the Internet, what's really happening is that governments themselves are using cyberspace for propaganda.

I call it Spinternet

Spin is a portmanteau of information manipulation and the internet.

Governments like Russia, China, and Iran hire and train bloggers to leave ideological comments and to post ideological masses that touch on sensitive political issues.

Why would you do that?

Why get involved in cyberspace?

In my opinion, I don't really think censorship on the internet makes much sense.

Even if critical content appears on a blog and can be quickly removed, the same content will spread to thousands of other blogs.

So the more you interfere, the more censored content will hide and spread, and the cat-and-mouse game will never stop.

If you really want to regulate dissident content, you can manipulate the information and blame the person who wrote it, say he's a CIA agent.

this is very common

Let me give you an example that happened in China.

In February of 2009, there was this "get away from the cat" incident.

For those of you who don't know, let me briefly explain

A 24-year-old man died in prison

Police say a man died after hitting his head against a wall while playing hide-and-seek in China, or "run away from the cat." Many Chinese bloggers don't believe this.

left critical comments

QQ.com, a popular Chinese website, received 35,000 comments in the immediate aftermath of the incident.

So the Chinese government did something very clever.

Instead of wiping these comments down, they called out to the bloggers themselves.

"Would you like to become an Internet investigator?"

We got 500 applicants, and four of them went around the prison and blogged about it.

A few days later, the case vanished from public opinion.

The incident would have remained online for weeks.

Interestingly, this phenomenon is exactly what's happening in cyberspace in authoritarian states.

Political scientists call it "consultative authoritarianism," where the government itself invites critical forces to interact online.

We tend to think that this will undermine dictatorships, but it actually makes them stronger.

Why

Let me give you a few reasons why consultative authoritarianism is good for dictators.

it's really simple

Most dictatorships operate in an information vacuum.

We don't have the data to identify any threats to the regime.

It's good for citizens to go online and exchange information and data on blogs and wikis, because otherwise low-level government officials would continue to hide what's going on in their country.

When you think about it like this, it's great that blogs and wikis provide information.

And it's also good for governments to involve the public in political decisions, because if policies fail, they can share responsibility.

The government said, ``But you listened to what you said - you consulted before you voted.''

"For those of you who blogged-

I have a responsibility."

Finally, I would like to say that the purpose of cooperative authoritarianism is to increase the legitimacy of governments at home and abroad.

Soliciting them into public debates and making them participate in political decision-making can also benefit governments.

Then you can bring up the national debate and say, "We're setting up a forum for the national debate, so this is democracy, isn't it?"

To give you an example, a region in Russia is engaging its citizens in debates about policy through 2020.

Residents will be able to discuss online what kind of regional policies they want to implement by 2020.

Well, if you've been to Russia, you know that they didn't even have plans for the next month.

So, no matter how many ideas people have for 2020, nothing will change, because at the end of the day, dictators run politics.

Let's take the example of Iran. You know about the Twitter revolution, but if you look closely, you'll find that a lot of networks, blogs, Twitter, Facebook, etc. were censored.

So it slowed down the dissemination of information, but it also gave access to political activists, but their access is good for authoritarian states.

Because it's easy to collect information.

It used to take weeks to identify how to contact dissidents,

Now if you look at Facebook, you'll know it right away.

The KGB used to torture people for information.

I can do it online now

(Laughter) The thing that cyber dreamers miss most is the people who grew up with the Internet.

I've heard of cyber activism, that the internet encourages political participation.

We don't hear much about cyberhedonism, it's about people becoming politically passive.

I wonder why? It's because they think the Internet is going to take more and more young people out onto the streets, when the reality is that people who are addicted to the Internet are locking themselves in their rooms and downloading porn.

I don't like it very much

While there are people who have left the internet and are protesting on the streets of Tehran, twice as many people are fighting in the world of online games.

This is the reality, and it's not a bad thing, because it's true that the Internet is empowering young people, and it's playing a completely different social role.

One study shows how young people are using the internet: Chinese teens, for example, are three times as likely as American teens to say the internet helps their sex life.

Although they have these social roles, they don't seem to be conducive to political participation.

So what I'd like to advocate is a hierarchy of needs for the cyber environment, kind of like Maslow's hierarchy of needs.

What I'm trying to say is that even if rural Russian towns get online, it's not human rights activism like Human Rights Watch that keeps people online.

It could be porn or Sex and the City or funny cat videos.

Well this is an idea

What can we do?

I think we should not rely on the number of iPods per capita and think of other ways. We need to strengthen academics, dissident NGOs and civil society organizations.

Because the spinnernets and consultative authoritarianism that have been rife to date could overwhelm those powers.

So don't settle for fancy thinking, and start doing something more effective.

thank you

(applause)

Hello everyone

I'm stuck at home I'm sure many of you are too

And what we're all beginning to realize is that our relationships with ourselves, with other people, with the space we're in, can profoundly influence our identity and sense of purpose.

things have changed dramatically

There's a sense of distance like never before

But what if I told you that we can reconnect by finding our way from our hearts to our hands? Let us help you fine-tune your mind through embracing that idea and doing it, so that you can enjoy this new reality and explore it with passion, imagination and hope.

All you need is a simple pen

To help you understand that, let me tell you from my background.

Growing up on a council housing estate in southeast London, I was an outsider.

I was the eldest of six children, and the rest of them were all British-looking, fair-haired, blue-eyed, pretty kids.

Among them was me, half-Nigerian with brown skin and an afro.

What happens when you start to look different, feel differently, think differently in many ways than everyone and everything around you?

How can we find a way out of a dark and lonely place that is racist and homophobic?

there is a pen

I started painting

As you can see, I have a pen here, and it knows where it's going.

I've mastered the art of chasing it

The first thing I did was follow the line drawn by the pen, and pull myself out of a society that only told me, "You can't do it."

I put my trust in the pen, and it took me to Central Saint Martins, a prestigious art school, where I graduated with honors.

But then I realized that there was no place for me in London, because, believe it or not, Britain is a country that is still rooted in a class system that works.

There was no chance for a working-class gay young black female artist like me.

So I left London and moved to Japan, where no one asked me where I was from.

I was just one of those "gaijin," which is ironic because that's the word for "stranger."

I threw myself into the Japanese culture, where craftsmanship and crafts are valued and people have refined their skills for generations.

Japanese culture is so masterful of the use of time and space that artists are truly free to create.

So I found a place where I didn't feel angry.

I didn't get treated unfairly in Tokyo.

I was no longer able to create because of anger and heartache.

I had to be brave and create from a different perspective.

And the wonderful tools I found were more than lines on paper.

What I found was something that connects your head to your heart, your hands to everything around you.

A new way to see the world

I found connections in the corner and solutions to problems I didn't even know existed.

I feel like I've come to see the world and all the blank spaces.

Just by looking at it, the feeling of fear is gone

It's like my pen has become a flashlight, and although there are still unknowns, I no longer feel scared.

After living in Japan for five years and working intensively on my work, I felt inspired to seek new challenges.

What I aimed for was New York, a city where artists would want to live at least once, right?

I moved to the best city in the world where I felt completely invisible.

It was around this time that I began to ask myself, "Who am I?"

As I woke up in the morning and started my day, I meditated and asked:

With that question in mind, I continued to draw.

chased the line

Let the line guide you

The process of picking up a pen that's available to everyone, allowing myself to let go of all my thoughts, fears and anxieties, letting go of everything that keeps me from being who I am, has become my way of being free.

When I arrived in New York, I decided that I didn't want to be bound by the rules of the art world.

keep acting like a stranger

I kept drawing

Curiosity became the ink in my pen and I kept diving deeper and deeper.

Eventually, I began to create a space of my own, strong and confident, a space of my own.

At first it was my room

And it was in the New York Times, and all of a sudden, the world that I had created was in the spotlight.

Since then, I've been collaborating with some of the best artists, organizations and places, starting with a big vision in Times Square and interviewing dozens of dancers for the New York City Ballet's Artist Series.

Based on the words and stories they told me, I created over 30 drawings and works that filled the walls, windows and floors of the promenade.

I've long wanted to create a space for meditation and poetry.

And in 2019, I got an opportunity to do just that, at the request of the Governors Island Trust.

I was given the perfect canvas, a building that was once a military church.

Introducing the "May Room"

The line drawings on the exterior walls of the building are inspired by the island's history, and when you walk in, take off your shoes and go up, you'll find yourself drawn into a labyrinth.

seduced by a feeling of serenity

Then you'll see the words written on the wall

"May You Be Discreet"

"May you rest in peace at night"

"May the trees be protected"

It is a word that wishes a lot of "I hope I can do it"

These words seem to emerge from the viewer, or they seem to rain down on the viewer.

I let the lines of my painting become like words and unfold like life.

And when the silence came, I found connections by talking, and shoved the pain by asking questions.

I learned to make my own rules by drawing.

I learned to open my eyes and see not only what was there, but what could be.

When systems are broken, we can create new systems that work for everyone, not just a select few.

Through painting, I learned how to fully engage with the world.

And what I've come to realize from the language of lines is that it's not about being seen that counts, it's about the gift of seeing that we give to others, and true freedom is the ability to see.

Not literally. Vision is just one way we see things.

What I'm talking about is experiencing the world itself, and that's perhaps even more important in these difficult times.

It was Shantel Martin

i draw

I want you to pick up a pen and see where you can get there.

(music)

thank you

Two years ago, I was on the TED stage in Arusha, Tanzania.

I briefly talked about my most proud invention.

A simple device that changed my life

Before that, I had never left my home in Malawi.

never used a computer

I never saw the internet

I was so nervous on stage that day.

I couldn't come up with English and I wanted to throw up

(Laughter) It was the first time I'd ever been surrounded by so many azung, white people.

(Laughter) There's something I didn't tell you last time.

I feel sunny now

I would like to talk about that today

i have 7 siblings

I'm the only man

This is me when I was little with my dad

Before I realized the wonders of science, I was just an ordinary farmer in a poor farmer's country.

I was growing corn like everyone else.

One year our destinies changed dramatically

In 2001 there was a terrible famine.

Within five months, all Malawians started starving to death.

my family ate only once at night

If we share Nshima with everyone, it will be only 3 mouthfuls.

Nothing remains in the body even after eating

I'm emaciated

To go to secondary school in Malawi, you have to pay tuition.

Starvation forced me to drop out of school

I looked at my father, I looked at the parched fields

there was an unacceptable future

I was happy to be in school, so I was motivated to do whatever I could to get an education.

and went to the library

I read science books, especially physics books.

I couldn't read English very well

I used diagrams and pictures to learn the words that were written around the diagrams.

I got a working knowledge of windmills from a book

The book said that windmills can draw water and generate electricity.

If you can pump water, you can irrigate it, which is a defense against starvation, which was plagued at the time.

So I decided to build my own windmill

But I didn't have any materials, so I went to the junkyard and collected materials.

A lot of people, including my mother, said I was crazy.

(Laughter) I found radiator fans, buffers, and PVC pipe.

Using bicycle wheels and an old bicycle dynamo, I built a device.

At first there was only one light,

I've installed up to 4 of them. I've also attached switches.

Another device pumps water for irrigation

People started lining up in front of my house (Laughter) to charge their phones.

(Applause) We couldn't get rid of it.

(Laughter) And the reporters came, and that got through to the bloggers, which led to a call from this place called TED.

I had never seen an airplane before

never stayed in a hotel

That's why English didn't come out on stage in Arusha, and what I said was something like, "I tried and I made it."

I have something to say to all the Africans in need and all the poor, even if you're chasing your dreams like I am.

God bless you

one day you will see this on the internet

believe in yourself i want to say

don't give up no matter what happens

thank you

(applause)

Now, 90 percent of my photo production isn't actually taking pictures.

We send out mail, survey, make phone calls, and prepare to reach out to subjects ranging from Hamas leaders in Gaza to hibernating black bears in caves in West Virginia.

Oddly enough, the most eye-catching rejection letter I've ever received was from Walt Disney World, a company that seems unlikely to cause any problems.

Here are some highlights: "Especially in this age of rampant violence, it is my personal feeling that it is very important to protect the magic spell cast on the theme park visitors, and that this spell is also very important for ushering you into a wonderful fantasy world that will steal your heart."

Photography threatens fantasy

I didn't want to invite the camera in, because photography confronts the fabrication, the illusion, the superstition, and reveals what the truth is.

Every image has multiple truths hidden in it, depending on the photographer's intentions, the audience, and the context in which it's published.

In the five years since 9/11, at a time when the American media and government were searching across our borders for hidden and unknown places, and especially for weapons of mass destruction, I looked at home at home to what is essential to America's founding, mythology, and everyday life.

I wanted to confront the self-imposed and existing limits of citizens, and confront what separates the privileged right to know from the ordinary citizen's right to know.

Whether you look back at American history or look at world history, it was a critical time when citizens felt they didn't have accurate information.

I wanted to see the heart of it with my own eyes, but my weapon was photography.

Photography changes your perspective, and what we've learned is that no insider is a complete savvy insider.

And an outsider can never get to the heart of the matter.

I have put together some photos from this series

It's titled "The American Index -- Hidden Unknown Places --" and it's about 70 images.

Let's introduce some of them

This is a nuclear waste storage facility in Hanford, Washington, where more than 1,900 stainless steel containers of nuclear waste are submerged in pure water.

Getting too close to an unprotected capsule will kill you instantly.

In it, I found a piece that looked exactly like the shape of the United States of America, and here's a picture of it.

I won't show you today, but I spend a lot of time writing.

So we're building two pillars.

Every photo is accompanied by very detailed text with facts.

And what I'm most interested in is the invisible space between the text and the photo.

Photography, by and large, is nothing more than a floating world of abstractions, multiple truths and imaginations.

The text plays a role in anchoring this firmly to the real world.

Today, I'm just going to read a summary of that passage.

This is a cryopreservation unit that holds the bodies of the wife and mother of Robert Ettinger, who pioneered human freezing technology, in hopes that someday, when science and technology advanced, they would be brought back to life in good health.

This is a 21-year-old Palestinian woman undergoing hymenoplasty.

It's a surgical procedure that restores the hymen to its virgin state so that you can keep the custom of marrying as a virgin.

It's basically a ruptured hymen that is re-stretched so that it bleeds when you have sex to make it look like you've lost your virginity.

This is the room where the jury deliberates, with the jury trial advisers on the other side of the one-way mirror.

After a mock trial, we observe jurors deliberating, and we advise our clients on better judicial strategies to ensure they get the verdict they want.

This will cost you $60,000

This is a room in the U.S. Customs and Border Protection, the contraband storage room at John F. Kennedy International Airport.

The table is laden with items confiscated over the course of 48 hours from people entering the United States.

There's a pig's head, there's an African bamboo rat.

When you shoot, you don't just record what's there.

Sometimes I add my hands arbitrarily

This time, I decided to try to mimic early still life paintings, and spent a lot of time dealing with smells and confiscated items.

This is an exhibit that hangs on the wall of the CIA, in the Old Main Building in Langley, Virginia.

The CIA has a long history of engaging in cultural diplomacy, both covertly and ostensibly.

We can speculate that their demands for art included opposing Soviet communism and promoting pro-American thinking and aesthetics.

There's one art form that I doubt has caught the attention of the CIA, and it's Abstract Expressionism.

This is a forensic anthropology research facility, six acres of land with about 75 corpses at any given time, used by forensic anthropologists and researchers interested in observing the state of decomposition of corpses.

And the boy's corpse in this photo is a recreation of the murder scene.

This is a fully federally funded legal cannabis plant for scientific research in the United States.

Growing marijuana for research

There's so much chaos in this piece that it confuses you, and you can't find any rules for arranging the pieces.

This is an undersea communications cable that spans the bottom of the Atlantic between North America and Europe.

With 60 million simultaneous conversations, many government agencies and technology companies have these obvious vulnerabilities.

It's so funny, because you can easily cut off an entire conversation.

It looks as if it was taken 30 or 40 years ago, and given that it's still in the Cold War era, it's only natural that it hasn't progressed.

This is the Braille version of Playboy.

(Laughter) And this is a branch of the Library of Congress, which offers the services of the National Library free of charge to the blind, and the number of readers determines which books are published in Braille.

"Playboy" is always on top

(Laughter) Surprisingly, there are no pictures, only text.

(Laughter) This is a bird quarantine facility, where every bird that comes into the mainland United States is quarantined for 30 days and tested for disease, for adventitious Newcastle disease, for bird flu.

Here's a video of a new explosive being tested in a warhead.

The Air Weapons Center at Eglin Air Force Base in Florida is responsible for deploying and validating air-dropped weapons made in the United States.

It was shot on government-issued 72mm film.

The red dot in the middle is the mark of the government-issued film.

All of the white tigers in North America are the result of selective inbreeding -- mothers and sons, fathers and daughters, sisters and brothers, etc. -- in order to create the genes that make a successful white tiger.

If I had white hair, blue eyes, and a pink nose, it would sell.

Many white tigers born have no salable traits and are killed as soon as they are born.

It's a very violent act that little is known about.

Of course, white tigers entertain people in many ways.

This Kenny grew from birth to adulthood

He died later, but he was mentally retarded and suffered from severe bone abnormalities.

Now let's move on to a lighter subject, which is in the private collection of George Lucas.

It's "Death Star"

Orientation is not wrong

In "Star Wars Revenge of the Jedi," it was shown in the opposite direction.

that's because you flipped the negative

You can see the brass photo-etched details and the patterned acrylic surface.

In the story of the movie, the "Death Star" was a deep-space battlefield of the Galactic Empire, capable of destroying planets and civilizations, but it actually measured 60 centimeters by 120 centimeters.

(Laughter) It was set up at Fort Campbell in Kentucky.

It is a facility for military training in urban areas.

The structure of the city has been recreated to practice urban warfare, and this is one of the buildings in the city.

It was called "The World Church of God"

It's supposed to be a common place to gather for worship.

After I took this picture, the military built a wall around the church to recreate the mosques of Afghanistan and Iraq.

So I worked with a guy named Mehta Vihar, who makes simulators for military tactical training.

Putting a wall around the church, putting people, vehicles and explosion sites made for military video games.

Composite to the previous photo

This is the live HIV virus that Harvard Medical School is using in collaboration with the U.S. government for research into sterilizing immunity.

Alfra is an Arabic-language television station supported by the U.S. government that broadcasts news and information to more than 22 countries in the Arab world.

Broadcast without commercials for 24 hours

But it's illegal to broadcast it in the United States.

In 2004, we launched a channel called Alfra Iraq, which mainly broadcasts events in Iraq to Iraq.

Now let me introduce you to another project.

The title is "Innocent People"

For the men in this picture, photography was a fictional world.

Photographs do not act as a proof of truth, and in these cases they encourage hoaxes.

I traveled all over the United States photographing men and women who were wrongly convicted of violent crimes they weren't really involved in.

I explored the power of photography to obscure truth from fiction, and its effect on memory, with serious and even fatal consequences.

The number one reason the men in the photo were convicted was because they misread facial features.

Victims and witnesses identify suspects through images presented by police.

But when you look at sketches, Polaroids, headshots, face-to-face, eyewitness accounts can change.

Let's introduce a case study

I showed a woman who was a rape victim some pictures to see if there was a thug.

She saw one picture and thought they looked alike, but she wasn't sure.

A few days later, they showed me some other photos, all of which were new, but I mixed in the ones I was interested in before.

And she confidently identifies the culprit, because even if she had actual memories, the photographs would overwrite her memories.

Photographs are tools in the criminal justice system that turn innocent citizens into criminals.

We filmed Frederick Day at "the place where the alibi was" where he was seen by 13 people at the same time as the crime.

He was convicted by an all-white jury of rape, kidnapping, and car theft.

Sentenced to life in prison and now serving 10 years

A DNA test found Frederick innocent and implicated another man who had been in prison.

But the woman said she wouldn't press charges because police showed her a photo of Frederick that permanently changed her memory.

Charles Fine was found guilty of kidnapping, raping, and killing a girl on her way to school.

Served 18 years after being sentenced to death

We filmed him at the scene of the crime, Snake River, Idaho.

I photographed people who were wrongfully convicted in a particularly important location.

Where you were arrested, where you were mistaken for another person, where you had an alibi, etc.

And this is the crime scene, a place I've never been to but that has completely changed my life.

By photographing in these locations, I hope to highlight the vague relationship between truth and fiction that can be seen in both his life and his photography.

Calvin Washington is accused of committing capital punishment murder.

After being sentenced to life in prison, he served 13 years in Waco, Texas.

Larry Mays was filmed at the scene of his arrest, in this room in Gary, Indiana, where he hid from the police by hiding between two mattresses.

Sentenced to 80 years in prison for rape and robbery, served 18 years.

The victim didn't believe Larry was the culprit after seeing the two suspects face-to-face, but when he showed them side-by-side photos a few days later, he determined that he was the culprit.

Larry Youngblood has served eight years in Arizona after being sentenced to 10 1/2 years in prison for kidnapping a 10-year-old boy at a carnival and making repeated homosexual acts.

I filmed him where his alibi was.

Ron Williamson served 11 years after being sentenced to death after being found guilty of raping and killing a female bartender at a club.

Just before he was convicted, he was set to join the Oakland Athletics as a professional player, so I shot him at the ballpark.

The person who testified for the prosecution in Ron's trial was actually the perpetrator.

Ronald Jones served eight years after being sentenced to death for the rape and murder of a 28-year-old woman.

We filmed in Chicago, where the arrest was made.

William Gregory was charged with rape and trespassing.

Sentenced to 70 years in prison, served seven years in Kentucky.

Timothy Durham was filmed at the location of his alibi, where there were 11 witnesses to the time of the crime.

It's the result of being misidentified by an 11-year-old victim.

Troy Webb was filmed at a crime scene in Virginia.

He served seven years after being sentenced to 47 years in prison for committing rape, kidnapping and robbery.

From a jumbled pile of Tony's photos, the victim picked one that seemed to be the perpetrator, but said he was too old.

Police found a photo of Troy Webb when he was about four years younger, and a few days later, after putting it in a stack of photos, they identified him as the culprit.

Finally, I'll show you a photo of my face.

Distortion is everywhere, and it reminds us that our eyes can be easily fooled.

Thank you very much

(applause)

Clearly we are living in a moment of crisis.

The financial markets have failed us, and the aid system has probably failed us, but I am optimistically confident that we are living in an exciting moment.

Because the technology presented here

Because I feel the talent, the resources, the skills, and the passion to make a difference in the world.

Our president sees himself as a global citizen, advocating that there is no longer a single superpower and a different way of engaging with the world.

By definition, each and every one of you here is a soul of the planet, a citizen of the planet.

Working on the front lines, I've seen the best and worst of what people do to each other.

I've seen incredible potential in ordinary individuals who are nothing special, regardless of where they live or work.

There's a lot of debate today about how to get people out of poverty and free up their energy.

While some say that the aid system is broken and that aid should stop,

On the other hand, there are those who say that insufficient aid is the problem.

I will tell you how to show respect to both sides

it's called permissive capital

Aid critics point to the $500 billion spent on Africa since 1970 and ask: Did that aid result in environmental degradation, extreme poverty and widespread corruption?

They use Mobutu as a metaphor

The policy prescription is to make governments more accountable, focus on capital markets, invest and lean.

The other person who says they need more money

He says the wealthy have received a lot of aid money as government bailouts have been implemented, and little relief has come to their poor compatriots.

They give examples of aid successes: eradicating smallpox, distributing tens of millions of malaria bed nets and antiretroviral drugs.

both are right

The problem is that neither listens to the other

Even worse, they don't listen to the poor.

After 25 years of tackling poverty and innovation, it's true that no one on this planet is more market-oriented than the low-income.

Every day, they have to navigate the marketplace, making tons of small decisions to survive in society, yet one serious health problem can affect families and sometimes drag them back into poverty for generations.

So we need both markets and aid.

The tolerance capital that works in between seeks to benefit from both.

That money will be invested in entrepreneurs who are familiar with their communities, who don't see low-income people as recipients of aid and who make decisions about their lives themselves, customers, consumers, who serve as customers and provide solutions like water, housing, healthcare, alternative energy.

Tolerant capital gives entrepreneurs time to experiment, using the market as their research engine of choice, and requires a long-term perspective and significant risk tolerance, given the large social impact but not the expected market returns.

Recognizing the limitations of the market, generosity capital extends the benefits of the global economy to inclusive and intelligent support.

There are three reasons why entrepreneurs need permissive capital

First, in the markets they work in, people typically make between one and three dollars a day and make all decisions within that income level.

Second, the places where they work have absolutely no infrastructure, no roads, no reliable electricity, and corruption is rampant.

The third is that markets are often created there.

Even if it's the first time we've brought clean water to a rural village, it's brand new.

And what low-income people have experienced -- lots of broken promises, lots of quacks, occasional drugs -- it takes a lot of time and a lot of patience to build trust.

It is also necessary to have links with many administrative aids.

Not only building business models and systems that low-income people can use in a sustainable way, but connecting these businesses to other markets, governments and businesses -- it takes real partnerships to get business off the ground.

Hear about an innovation called trickle irrigation.

In 2002, I met an amazing Indian entrepreneur named Amitabha Sadangi, who worked with the poorest farmers for 20 years.

He complained that the aid market was completely ignorant of low-income farmers as a whole, despite the fact that India's 200 million farmers alone earn less than a dollar a day.

The Indian government subsidized what the government thought was a necessity for big farms, not what farmers actually needed.

At the same time, Amitaba had become obsessed with drip irrigation technology invented in Israel.

by drawing a small amount of water directly onto the stem of the plant.

Turned a stretch of desert into emerald green farmland

But this market wasn't for low-income farmers either, and these systems were too expensive, and the equipment was too big for their land.

The average small village farmer works on less than 2 acres of land.

So Amitabha decided to innovate and redesigned the facility from the perspective of poor farmers, because for many years he listened to what farmers needed, not what they should have.

he followed three basic principles

The first is downsizing

The fine-grain irrigation system has to be sized so that the farmer risks only a quarter of an acre, because even if you have two acres, it's too risky to put everything into it.

Second, it must be easily affordable.

In other words, if the risk of a quarter acre wasn't offset by one harvest, they wouldn't risk it.

And third, according to Amitaba, it must be infinitely scalable.

This means that the profit from the first quarter of an acre can be used by farmers to buy more.

To date, Amitabha's organization, IDE India, has sold these systems to more than 300,000 farmers and has seen their yields and incomes multiply by an average of several times.This didn't happen overnight.

In fact, looking back, no individual investor, working in the very risky sector of agriculture, would take the risk of launching a new technology into the sub-dollar-a-day income class market, known as the most risk-averse people on the planet.

So we needed a grant, and he spent a lot of money researching, experimenting, failing, innovating, trying again.

And then when you have a prototype, and you have a better understanding of how to sell it to farmers, then tolerance capital can step in.

We helped him build a profit-based company that used the knowledge he gained at IDE to start judging by sales and exports, and where other types of capital were available.

Second, we're going to export this trickle irrigation system to see if it's available in other countries.

I met Dr. Sono Kangalani from Pakistan

Just getting permission to transfer technology for the poor from India to Pakistan also took patience. Over time, we were able to start a business with Dr. Sono, who runs a large community development organization in one of the remotest and poorest areas of the Thar Desert.

The company is just getting started, but we assume the impact will be huge.

Drip irrigation is not the only innovation

Various attempts can be seen around the world

The AtoZ Textile Factory in Arusha, Tanzania, worked with us, UNICEF and the Global Fund to create a factory that employs 7,000 people, most of them women.

20 million lifesaving mosquito nets will be produced there for Africans.

Life Spring Hospital is a joint venture between Acumen and the Government of India to provide low-income women with affordable, high-quality medical services. It's been a huge success, building a new hospital every 35 days.

1298 Ambulance has rebuilt Bombay's devastated ambulance service industry, using Google Earth technology and a sliding scale pricing system to make it universally accessible, free from any form of corruption, and to strictly enforce public will.

We were one of the first to the scene of the terrorist attacks in November, and we're now partnering with the government to scale our business.

They are one of India's largest and most powerful ambulance companies, having signed four contracts with the government to produce 100 ambulances.

business expansion is important

These entrepreneurs continue to grow, numbering in the hundreds of thousands, and I've spoken to at least 250,000 in total.

but clearly not enough

That's where the idea of ​​collaboration becomes important.

Whether it finds innovation that has access to capital markets, governments themselves, or partnerships with companies, there are opportunities to create great innovations.

President Obama understands that

He recently authorized the Social Innovation Fund to figure out what kind of business would be possible in America and how to build it.

So I propose the creation of a global innovation fund, so that we can find and support entrepreneurs with real innovation that can be used not only locally, but also in the developed world.

Invest in administrative assistance as well as financial assistance

We measure that return both financially and socially.

When we think of new approaches to aid, we can't help but talk about Pakistan.

Our relationship with that country was precarious, and in all fairness, the United States was not always a reliable partner.

But again, we are in a moment when something great is about to happen.

And with the concept of the Global Innovation Fund, we can now get government buy-in, but not directly in government, not in international experts, but in established entrepreneurs and civil society leaders who are already launching amazing innovations that reach everyone across the country.

People like Rashani Zafar, who have opened one of the country's largest microfinance banks and have become role models of real life for women, both nationally and internationally.

And Tasneen Siddiqi, who developed a method called incremental housing, moved 40,000 slum dwellers into safe and affordable housing complexes.

Educational institutions like DIL and Civic Foundations are building schools across the country.

It's no exaggeration to say that these civic groups and social entrepreneurs are building a real alternative to the Taliban regime.

I've been serving Pakistan for over seven years now, and anyone who's worked there can attest to the fact that Pakistanis are incredibly hard workers, and they have a strong desire for advancement.

President Kennedy said, "Whoever makes peaceful revolution impossible makes violent revolution inevitable."

i think the truth is the opposite

Those social leaders who can find real innovation that translates into opportunities for the 70 percent of Pakistanis who earn less than $2 a day offer a truly promising pathway.

And as we think about how we can help Pakistan, we need to strengthen the justice system and greater stability, while at the same time developing these leaders who can serve as role models for the rest of the world.

When I visited Pakistan, I asked Dr. Sono if I wanted to go see trickle irrigation in the Thar Desert.

When we left Karachi before dawn

It was about 46 degrees (115 degrees F)

Eight hours of driving in the heat, on a lunar surface with very little color, exhausted and not much conversation.

At the end of my trip, I finally saw a thin yellow line on the horizon.

Come closer and it becomes clear what it is

It was a field of sunflowers that grew about two meters in the desert.

Technology changed the life of one of the poorest farmers on the planet.

His name is Raja He had sweet, sparkly brown eyes and warm, expressive hands that reminded me of my father.

Every year during the dry season, he would take his 12 children and 50 grandchildren and spend two days migrating across the desert to a commercial farm for 50 cents a day.

because I grew sunflowers

With the money he earns, he can make it through this year.

And for the first time in three generations, his children are going to school.

I asked him if he would send his daughter to school as well as his son.

He said -- "Of course

I don't want them to be discriminated against anymore."

When we think about solutions to poverty, we cannot ignore the basic dignity of the individual.

Because after all, dignity is more important to the human psyche than wealth.

I'm glad that many entrepreneurs who innovate in various sectors recognize the importance of dignity. People want freedom, choice and opportunity.

Because that's where dignity really begins

Martin Luther King said, "Love without power is lethargic and sentimental, and power without love is reckless and cruel."

Our generation has seen both approaches tried and failed many times.

But I think we're also the first generation brave enough to embrace both love and power.

As we move forward, all we need to do is dream and imagine that we can truly build a global economy that includes everyone, and finally, by extension, the fundamental theorem that humans were created equal applies to everyone on earth.

Now is the time to innovate across sectors and find new solutions.

I can only speak from my own experience, but I've run the Acumen Fund for eight years and seen the power of generous capital.

Not only does it inspire innovation and risk-taking, but it's actually built a system that has created more than 25,000 jobs and delivered tens of millions of services and products to the poorest people on the planet.

I can

But many other innovations also work.

So no matter what department you work in, whatever job you're doing, put yourself in the shoes of the person you're helping, and how can you come up with a solution instead of what we think they need.

start by thinking

There is a world out there with open arms

It leads to a life of generosity and trust with a sense of integrity and patience.

This is exactly the trait that has been passed down through generations in both men and women.

there's a lot we can do

Remember the desert sunflower

thank you

(applause)

Steroids, which are notorious for their use in sports,

It's also found in inhalers, creams to treat rashes and eczema, and injections to relieve inflammation.

The steroids in these drugs are not meant to build muscle.

In fact, they're all based on yet another steroid, which is produced naturally in our bodies and is essential to life.

Objectively, the reason there are so many different steroids is that the term refers to substances with a common molecular structure rather than substances with common bodily effects.

Although steroids can be natural or synthetic, the molecular structure is common to all steroids and is based on a four-ring structure consisting of 17 carbon atoms arranged in three six-membered rings and one five-membered ring.

A molecule must have this configuration to be a steroid, but many molecules have side chains, and additional atoms can dramatically affect the function of the molecule.

The name steroid comes from the lipid molecule cholesterol.

In fact, our bodies make steroids out of cholesterol.

Being cholesterol-based, which is a lipid, means that the steroid can cross the lipid-containing cell membrane and enter the cell.

Within cells, steroids directly affect gene expression and protein synthesis.

Many other types of signaling molecules differ from steroids in that they cannot penetrate cell membranes and must travel through more complex pathways from outside the cell to exert their effects.

This is why steroids can take effect faster than other molecules.

Now, back to steroids as anti-inflammatory agents, they're all based on a natural steroid called cortisol.

Cortisol is the body's primary stress signal and has a very wide range of functions.

When we experience a stressor — whether it's a fight with a friend, a bear, an infection or low blood sugar — our brain responds by sending a signal from the hypothalamus to the pituitary gland.

In addition, the pituitary gland sends signals to the adrenal glands.

The adrenal glands produce cortisol and release some all the time.

When it receives a signal from the pituitary gland, it releases a flood of cortisol, driving the body to produce more glucose for energy and impairing functions not immediately related to survival, such as digestion, leading to a "fight-or-flight-freeze" response.

This is beneficial in the short term, but over the long term it can lead to unwanted side effects such as insomnia and depressed mood.

Cortisol also interacts in a complex way with the immune system - depending on the situation, it can boost or decrease certain immune functions.

In the process of fighting infections, the immune system often triggers inflammation.

Cortisol suppresses the immune system from causing inflammation, which is also beneficial in the short term.

Too much cortisol can have detrimental effects, such as impairing the immune system's ability to regenerate bone marrow and lymph nodes.

Cortisol suppresses the signal that causes the adrenal glands to release more cortisol to prevent long-term high cortisol levels. Cortisol suppresses the signal that causes the adrenal glands to release more cortisol.

Corticosteroids act on cortisol's effects on the immune system to fight allergic reactions, rashes and asthma.

These are all forms of inflammation

Many synthetic steroids have a common basic mechanism - they stop the hyperactive immune response that causes inflammation in addition to the actions of cortisol in the body.

These corticosteroids can burrow into cells and suppress gene expression of inflammatory signals to turn off "fire alarms."

Steroids in inhalers and creams only affect the affected organs, such as the skin and lungs.

Intravenous and oral steroids are used to treat chronic autoimmune diseases such as systemic lupus erythematosus and inflammatory bowel disease, and have systemic effects.

In these diseases, the body's immune system attacks its own cells, a process similar to recurrent asthma attacks and rashes.

Continuous administration of low-dose steroids can keep this deviant immune response under control, but long-term administration can have adverse psychological and physiological consequences, and high-dose steroids are reserved for emergencies and relapses.

An asthma attack, a rash from a rash, or inflammatory bowel disease may seem unrelated, but they all have one thing in common: an immune response that does more harm than good.

Corticosteroids can't build massive muscles, but they can be your body's best defense.

Are we living in a world without borders?

Please look at this map before answering the question

According to modern political maps, there are over 200 countries in the world today.

There will never be another country in history

Many of you will object

this would be a better map

Let's call it the TED Republic

The TED Republic has no borders, it's just connected and disconnected spaces.

Most of you live in one of these 40 dots that make up 90 percent of the global economy.

But today's story is about people who make up 90 percent of the world's population who never leave where they were born.

For them, peoples, nations, borders, borders are huge and sometimes violent.

At TED, we're trying to unlock the big scientific mysteries, the mysteries of the universe.

There is one fundamental unsolved problem here, and that is basic political geography.

how should we rearrange the world

This is important because border conflicts have deep implications for the global military industry.

Border disputes hinder the progress we want to make.

So we really need to understand how people, money, power, religion, culture and technology are all working together to change the world map.

That way, we can anticipate change and steer it in a more constructive direction.

So let's take a look at some past, present, and never-before-seen maps to get a feel for where we're headed.

First, the world in 1945.

In 1945 there were exactly 100 countries in the world

After World War II, Europe was devastated, but it still had large colonies abroad: French West Africa, British East Africa, South Asia, and so on.

And then the late '40s passed, the '50s, the '60s, the '70s, the '80s, and the wave of decolonization came.

Over 50 new nations were born

Can you see Africa fragmenting?

India Pakistan Bangladesh Southeast Asian countries were born

and the end of the cold war

The Cold War ended and the dissolution of the Soviet Union began.

New countries arose in Eastern Europe, the former Yugoslav Republics, the Balkans and the Stan countries of Central Asia.

there are now 200 countries in the world

Sovereign, independent nations occupy the entire globe.

Does it mean that if someone gains, someone loses?

So let's turn our attention to the most strategic region in the world, eastern Eurasia.

As you can see on this map, Russia is still the largest country in the world.

And as you know, China has the largest population.

and the two countries share a long border

What you don't see on this map is that most of Russia's 150 million people are concentrated in the western part of the world, closer to Europe.

Only 30 million people live in the East.

In fact, the World Bank predicts that Russia's population will continue to decline, to about 120 million.

Soviet leaders like Stalin Khrushchev forcibly sent Russians to the Far East, where there were forced labor camps and nuclear power plant sites.

But as oil prices rose, the Russian government invested in infrastructure to connect East and West.

But it had an unintended effect on the redistribution of Russia's population, as those who had migrated to the east, against their wishes, returned to the west using the completed trains and roads.

As a result, the Russian Far East has a population of just 6 million, despite being twice as large as India.

So let's see what's going on in this area.

Let's start from Mongolia. Mongolia is called Maingol.

why the hell

Chinese companies are based in Maingol, owning most of the copper and zinc gold mines, and shipping the resources to mainland China.

China is not conquering Mongolia

i am buying

Colonies were meant to be conquered, and today nations are meant to be bought.

So let's look at Siberia by this law.

When you think of Siberia, most of you think of a cold, desolate, inhabitable land.

But in reality, the rise in temperature caused by global warming suddenly created vast fields of wheat, and an agricultural industry in Siberia, and grain production.

who consumes these grains

On the other side of the Amur River, in China's Heilongjiang and Harbin provinces, there are over 100 million people.

That's more than the entire population of Russia

And every year, 600,000 people migrate across the river north into this desolate region.

they build their own market clinics

We're taking over the forestry industry and shipping timber east to China.

Again, just like the Mongols, China isn't conquering Russia, it's borrowing it.

This is what I call Chinese globalization.

And here's a map of the area as it will look in 10, 20 years.

But actually, this is 700 years old.

This is a map of the Yuan Dynasty, ruled by Genghis Khan's grandson, Kublai Khan.

So history doesn't necessarily repeat itself, it rhymes.

This is just one example of what is happening in this area.

I'll say it again: Chinese-style globalization.

Globalization has all the potential to upend the way we view geopolitics.

In the history of East Asia, in fact, rather than the concept of nations and borders,

There is a strong imperial and hierarchical orientation, and the Chinese and Japanese are good examples of this.

Let's go back to China

Let's take a look at how China is reshaping the structure of control in the Far East.

Start with a global hub

Remember the 40 dots on this black map, which represent the hubs of the global economy.

East Asia today has more global hubs than any other region in the world.

Tokyo Seoul Beijing Shanghai Hong Kong Singapore Sydney

Global capital is gathered and sorted.

Every year, millions of dollars are poured into the region, much of it in China.

and there is trade

What these vectors and arrows point to is a stronger trade relationship between China and the rest of the region.

In particular, the number one targets are Japan, South Korea, and Australia, countries that have strong allies with the United States.

For example, Australia relies mostly on China for its iron ore and natural gas exports.

For poorer countries, China lowers its tariffs, and Laos and Cambodia make their goods cheaper and more dependent on exporting to China.

And now, as many of you have read in the news, China is expected to be the engine of growth and economic recovery, not just in Asia, but in the world as a whole.

Free and quasi-free trade zones emerging in Asia today boast greater trade volumes than the entire Pacific Rim.

China is the backbone of the regional economy.

Another pillar of this strategy is diplomacy

China has military agreements with many countries in the region

It also serves as a hub for diplomatic institutions, such as the East Asian Community.

Some of these organizations don't even have the United States.

There is a non-aggression pact between these countries, and if a conflict were to arise between China and the United States, most of them, including America's allies South Korea and Australia, have pledged not to join the conflict.

Another pillar of China's strategy is demographic, like Russia's.

China is sending business people, nannies, students, Chinese teachers to the Asian region, assimilating with the people of those countries and increasing the number of people who control the economy.

Already, people of Chinese descent are the driving force behind the country's economies in Malaysia, Thailand and Indonesia.

Chinese pride is recurring locally.

For example, Singapore used to ban Chinese language education.

We currently recommend

What do you see when you look at all this

Think back to before World War II, when Japan had the concept of an Imperial Japanese Co-Prosperity Sphere.

What is emerging today might be called the Greater China Co-Prosperity Sphere.

So, no matter how the lines on the map may denote nations and borders, what's really happening in the Far East is the expansion of cultural spheres, which are fluid and imperialistic.

And it's happening without fire.

What's happening in the Middle East is quite different, where borders left over from European colonial times are still a destabilizing factor.

Can we think of borders differently in this region?

Which line should we focus on on the map?

What I want to show you here is how nations are built every day.

Let's start with Iraq

It's been six years since the United States invaded Iraq, and Iraq looks more like a country on the map than in reality.

Oil used to have the power to hold Iraq together as a nation, but now oil is the single greatest source of national division.

The reason is Kurdistan

Kurdistan has been fighting for independence for 3,000 years, and now they finally have a chance to get it.

These are pipeline routes out of Kurdistan, an oil-rich region.

And if you go to Kurdistan today, you'll see a militia called the Kurdish Peshmerga attacking the Sunnis of Iraq.

but what are they protecting

Is it a border on a map?

no pipeline

If the Kurds can control the pipeline, they can form their own nation.

Should we be shaken by the division that will happen in Iraq?

no

Iraq is the second largest oil producer in the world, after Saudi Arabia.

And we have a chance to solve a 3,000-year-old oil conflict.

Please understand that Kurdistan is landlocked

I have no choice but to behave

Because the only way to profit from oil is to export it through Turkey, Syria, other countries, and Iraq itself.

Because we need to maintain friendly relations with these countries.

Now let's turn to the long-running conflicts in the region.

Of course it's Palestine

Mapping Palestine was exceptional because there are two Palestines and Israel.

Thirty years of White House diplomacy have brought no peace.

So what exactly do you need? I think the solution to this problem is infrastructure.

Billions of dollars are spent on infrastructure today.

These two arrows connect the West Bank and the Gaza Strip with commuter rail and other lifelines.

If the Gaza Strip had a functional port and was connected to the West Bank, it would revitalize the Palestinian state and the Palestinian economy.

I believe this will bring peace to this conflict.

The lesson from the situation in Kurdistan and Palestine is that independence without infrastructure doesn't last.

So if the instability of these conflicts ceased and we turned our attention to lines on the map other than borders, what would this region look like?

In fact, the last time the region was in that state was a century ago, during the Ottoman Empire.

This is the Hijaz Railway

The Hijaz Railway ran from Istanbul through Damascus to Medina.

The Hijaz Railway even had a branch line to Haifa Haifa is an Israeli city on the Mediterranean Sea

But today the Hijaz Railway is in ruins.

If we could rebuild these curves on this map -- the infrastructure across the straight lines of our borders -- I believe the Middle East would be a much more peaceful region.

Now let's look at yet another part of the world, the countries of Central Asia "stan" in the former Soviet Union.

The borders of these countries were originally established by Stalin's decrees.

He deliberately made these countries unreasonable.

By mixing the peoples together, Stalin was able to divide and control them.

Fortunately, many of these countries' oil and gas resources were discovered after the collapse of the Soviet Union.

Perhaps some of you have the words "oil, oil, oil" running through your head.

Why the hell am I talking about oil

The way we think about oil is very different now than it used to be.

It used to be how we controlled other people's oil.

Today the oil is theirs and they can use it for their purposes.

It's as important to them today as it was to the settlers and the imperialists.

Here are some of the pipeline projections and possible routes and scenarios that will be on the map in the coming decades.

was the main

For many countries in this world, pipelines are their ticket to participating in the global economy, and having pipelines means more than borders that have no inherent loyalty.

Take Azerbaijan for example

Azerbaijan was a forgotten country in the corner of the Caucasus, but now has established itself as a western frontier with the Baku-Tbilisi-Ceyhan pipeline to Turkey.

And Turkmenistan, which many people think is a frozen and economically powerless country.

Now it's helping to supply Europe with natural gas across the Caspian Sea, and potentially the Turkmenistan-Afghanistan-Pakistan-India pipeline as well.

And Kazakhstan, which previously had no name

Known as Southern Siberia during the Soviet Union

But now many people see Kazakhstan as an emerging geopolitical player, and why?

And that's because Kazakhstan is calculatingly building a pipeline across the Caspian Sea, which runs north to Russia and east to China.

The more pipelines we have, the more silk roads we have to replace colonial warfare.

colonial warfare shows one country dominating another

The Silk Road represents the independence and mutual trust of nations.

More pipelines means more Silk Roads, and less colonial competition for dominance in the 21st century.

So let's take a look at the only region that really has no borders, and how it makes it more competitive.

Europe of course

The EU started out as a coal and steel community of six countries, with the original goal of peacefully rebuilding Germany.

It eventually spread to 12 countries, and the 12 stars on the EU flag represent these countries.

The EU is now a currency bloc, forming the most powerful trading bloc in the world.

On average, the number of EU member states has increased by one each year since the end of the Cold War.

In fact, one day many countries joined at the same time.

15 new countries joined the EU in 2004

And now, the peaceful community that so many people envision now exists, with 450 million people in 27 countries.

So what's next? What about the future of the EU?

Regions highlighted in light blue rely on the EU for at least two-thirds or more of their trade and investment.

What does this mean? The rise of trade and investment is a testament to Europe's doing what it says it will.

These regions themselves are within the EU's sphere of influence, even if they're not part of it.

Take the Balkans, for example, countries like Croatia, Serbia, Bosnia, which are not yet members of the European Union.

But the German ICE train will take you very close to Albania.

Bosnia already uses the euro, and it will be Bosnia's only currency in the future.

Take a look around Europe like North Africa

On average, every year or two, a new oil and gas pipeline opens across the Mediterranean floor, linking North Africa with Europe.

While Europe's dependence on Russia for energy resources has decreased, many people in North Africa today no longer consider their region part of the Middle East.

So I think French President Sarkozy is right to talk about the Mediterranean Alliance.

Now let's look at Türkiye and the Caucasus.

I already mentioned Azerbaijan

The Turkish-Caucasian corridor has become a conduit for 20% of Europe's energy supply.

So should Turkey be a member of the EU?

I don't think so. Rather, Turkey is already part of the European-Turkish superpower.

So what happens next? Where in the world will borders change and new nations will be born?

South Central Asia Southwest Asia is a good candidate for that.

Eight years after the United States invaded Afghanistan, the situation remains volatile.

Pakistan and Afghanistan remain fragile, and neither constructively solves the problem of Pashtun nationalism.

This flag flutters in the hearts of 20 million Pashtuns, who live across the border between Afghanistan and Pakistan.

Let's not ignore the rebellion taking place a little further south, in Baluchistan. Two weeks ago, Baluchi rebels attacked a Pakistani military post. Here's the flag they flew.

The demise of former colonies around the world is accelerating, and I expect to see more changes like this on the map as countries become more fragmented.

Of course don't forget Africa

Africa has 53 countries, separated by many questionable straight lines.

If you look across Africa, there are definitely more tribal boundaries.

Let's take a look at Sudan, the second largest country in Africa

Sudan has three civil wars: the Darfur genocide as you know it, the eastern civil war and the southern civil war.

Southern Sudan is scheduled to hold a referendum in 2011, and the result is likely to be in favor of independence.

Let's turn our attention to the Arctic

A great race for energy resources is underway on the Arctic seafloor.

Who will win this race Canada Russia America

Greenland is actually

A few weeks ago, 60,000 people in Greenland voted for independence from Denmark.

So Denmark will shrink at once.

What are the lessons to be learned from these

geopolitics is a discipline free from sentimentality

It's constantly transforming and changing the world, just like the weather.

And like the relationship between us and ecosystems, we're constantly looking at how we can rearrange the world to keep it in balance.

now we fear change on the map

civil war death toll worried about learning the name of a new country

But I think the inertia of existing borders is worse and more violent.

The question is how do we change the borders and what lines do we focus on?

We should focus on the lines that cross borders, the lines of infrastructure.

Then the borderless world you want will come true.

thank you

(applause)

thx! thx!

i am 45 years old

Can't you see? Thank you. (Laughter) I'm 45 and I've never consciously held hands with my lover in public.

I'm 45, and I've never held hands with my partner in public, casually, comfortably, without hesitation.

How many of you can imagine what this means, because it's a small thing to hold hands with your lover in public.

And it wasn't that he didn't like it, it was just that he wasn't comfortable with it.

Like many gay people, when I was younger, I struggled with being gay.

I hated being unusual.

I didn't want to be the unknown.

I was taught that it was embarrassing and a joke.

When I finally understood and accepted who I was, I never wanted to be anything other than myself!

I am deeply and truly delighted to be gay!

(Applause) It suits me! (Laughter) Sounds like a specialty. (Laughter) But I still envy straight people every day, because that personal, small, intimate expression of affection has never been mine.

Everyday I see young straight couples strolling in the park and casually holding hands, it makes me jealous!

When I see a teenage couple at a bus stop, and she leans against him, holding hands, and two hands warmly in his jacket pockets, I get jealous of this teenage couple!

Sometimes when a man unwittingly puts his hands and arms around his girlfriend to protect her and she intertwines her fingers, I get jealous!

An elderly woman on Grafton Street, motioning to get her husband's attention to something through the window, without thinking, the husband holding his wife's hand, looking into the window, standing and discussing something that caught his attention - all the while casually holding hands, I'm jealous of this!

Because when gay people hold hands in public, the first thing that comes to mind is risk.

When gay people walk with their arms crossed or put their hands around their boyfriend's waist, the first thing they do is think about the consequences of that.

I look around and think about where I am, who's around me, whether it's late at night, what kind of area it is.

Bored teenagers hanging around looking for fun?

Are there men hanging out outside the pub?

If you think it's okay, it might be okay, so I'll hold your hand, but the problem is that those linked hands aren't casual anymore.

It's a well thought out and cared for hand.

But we still hold hands and try to act normal and casual like everyone else - but we're really different!

because we always have our eyes on the front just in case

Even if they see a group of men coming, they might just be silent and defiant and hold hands!

But the small, intimate movements between two people in love are no longer small and intimate.

It becomes a defiant political act, and it's ruined.

But you're probably thinking, "Well, I had a lot of fun looking around at the garden store, so I don't have a garden."

(Laughter) And then I think, just one word, "homo," or being stared at with my mouth open, can turn this fun afternoon into the worst afternoon I don't want to remember.

And if you find yourself in a place where you think,

No one should react strangely to this small gesture."

For example, let's say you're walking through a high-end department store.

Still people see

Even if they thought, "It's nice to see a gay couple holding hands in public."

But that doesn't change the fact that I've been seen. I don't want to be seen, because I hate that this small, intimate, personal and human act is now becoming a claim!

Like Schrödinger's cat, small and personal acts can be transformed by mere observation.

We live in a homophobic world, and you might think that small, small things like holding hands in public are just trivial, and you're right!

it's really just a small thing

But it's the many little things that make us human, and the many little things that LGBT people have to put up with every day, when other people don't.

The reason we have to put up with so much is to be safe and not ridiculed.

And patience is taken for granted. I'm just saying that I'm grateful that I live in a country where you can't be imprisoned or executed for being gay.

We're so used to making those little tweaks every day that even we don't realize it, it's become a part of our lives.

We've absorbed this ever-present malice, and if we complain, we're told there's no reason to complain, "You must be lucky that you don't live in Uganda, right?"

Yes yes I'm lucky I'm not in Uganda, but that's not enough!

This is not a game or competition where the most unlucky person wins the right to complain while others have to put up with it or keep their mouths shut.

This society is homophobic!

Homophobia is rampant

There are too many to overflow

After 30 years of putting up with it, when you're 45 -- 30 years of absorbing a little bit of disrespect, threats, ridicule -- and sometimes even worse, you can't take it anymore.

I'm tired of holding back

I don't want to read any more articles by some straight person saying why I'm inferior in some way.

I'm tired of being told from the pulpit by people who don't even know me that there's something inherently wrong with me.

I'm tired of the scribbled graffiti -- I'm tired of people mocking things as "gay."

I've had enough of walking past drunks on Saturday nights hoping they wouldn't notice me, and I'm tired of people spending their time, energy and talents campaigning against calls to treat us like any other citizen.

(Applause) I'm 45 and I'm tired of being patient.

Of course, no one would be better off not harboring animosity toward gay people, or animosity towards gay couples, but I can live with a little bit of personal, private homophobia that some people have.

For example, it's okay for Mary, who lives in Wicklow, to turn on the TV every now and then and see Graham Norton and think, "He seems nice, but he doesn't have to look so gay."

(Laughter) That's fine.

I can endure Mary, who doesn't know gay people except the hairdresser who works at the hair salon she goes to once a month.

(Laughter) Mary, who only knows about gay people and what it's like to be in a relationship, in school, in church, in daytime dramas.

I can stand her

You can sit on the sofa with Mary and watch the daytime drama together.

You could have a cup of tea with Mary and discuss why she's a little uncomfortable with gay dating. I hope Mary changes her mind.

I want her to meet more gay people and see that we're just as normal and nice as everyone else -- or as bad as everyone else.

And I want Mary to change her mind, not just for others, but for herself, because gay people can do as much good in Mary's life as anyone else.

Of course, we can help you with the interior design, too!

(Laughter) But my personal animosity towards gays and gay relationships is a very different thing from the homophobia that I see in public.

Homophobia is an attitude that treats LGBT people as different or inferior.

It's an attitude that stereotypes gay people and doesn't respect their relationship.

This kind of homophobia is unacceptable and gay people should speak up when they see it, because they have the right to do so!

Of course, many people object to the very word "homophobia."

I'm against the "phobia" part.

"I'm not afraid of you guys," they'll say

(Laughter) I'm not saying that homophobic people are afraid of Cher's album -- (Laughter) they're afraid.

What they fear is what the world will look like if we treat gays, lesbians, bisexuals like everyone else.

They fear that they will not be able to adapt to this brave and equal new world.

Of course, this fear is irrational, because the world never changes.

Kids want ice cream, dogs want a ball, the tide is high and parallel parking will remain difficult.

(Laughter) The most outspoken homophobes know long ago that they lost out on debates about whether homosexual intercourse should be decriminalized and other forward-thinking debates for gay people.

Today, outspoken homophobic people flock to the same-sex marriage debate, and this is quite the spectacle, because they know they can't just say why they're against it.

So they somehow try to come up with other reasons to argue for same-sex marriage.

Gay people are trying to destroy the institution of marriage, gay couples are supposed to roam orphanages looking for babies to fit their new IKEA sofas.

(Laughter) There are so many other things, like allowing gay people to get married that would destroy society, but my favorite is the old claim that the dictionary definition of "marriage" is the union of a man and a woman, so same-sex marriage can't be "marriage."

This is a really dumb claim that takes words and dictionaries, and it's not about same-sex marriage.

(Applause) Of course, another reason for homophobia is -- grab the necklace tight, I'm telling you straight, it's gay sex, especially sex between gay men.

The poor lesbian was caught in a barrage of homophobia.

The real reason people hate it is anal sex. They call it sodomy or anal sex, and they think that's what we all do.

Spending all day having anal sex is fueling the imagination.

So obsessed with that idea that they actually reduce us to a sexual act, whether we do it or not, that we're not normal, we don't have the hopes, the aspirations, the ambitions, the emotions that other people have - a walking sexual act.

Earlier this year, I was invited to participate in the St. Pat's for All parade in Queens, New York.

This was a really cool grassroots event in Queens that started as a protest against gay groups being banned from marching in Manhattan's famous St. Patrick's Day Parade.

The Manhattan parade is open to anyone of Irish descent, including Irish police officers, firefighters, soccer players, Irish community groups, volleyball teams, and book clubs.

Any person of Irish descent is allowed to march in the parade--except gay Irish, because as far as the organizers of this parade know, gays are nothing but walking sex, and they wouldn't mind being initiated into anal sex in a parade.

I've seen a short documentary about one of the leaders of the parade organization, and they're called the Hibernian Friendship Society, which is sort of like the Catholic version of the Orange Order.

As I watched them live together, I imagined that if I asked him questions about the lives they'd lived together, he would remember the first time we met, the nervousness of our first date, how proud I was to see her walk down the aisle in the wedding dress she'd decided so hard on.

I imagined that if I asked, I'd probably remember the time I got the call to say my wife was in the delivery room and rushed over, or the time my wife, who was well past her due date, hugged me and laughed as I said I'd jump on the trampoline until the baby came out.

I'm sure you remember other things, like how my youngest broke his arm and cried all the way to the hospital, or how he couldn't sleep alone in bed when his wife wasn't feeling well, and returned to the hospital in the middle of the night, knowing he wouldn't be allowed to see her at this hour.

I'm sure he remembers all this and much more.

It's these little things that make the relationship and what makes us human.

Seeing him, I immediately imagined that

But when he looks at me, he doesn't think that way.

gay people aren't seen that way

To him, we're just sex, and parades don't need sex.

I'm 45 and tired of being patient

so i can't stand it anymore

I'm 45 and I've decided not to hold back, because I don't have that kind of energy left.

enduring is exhausting

I'm 45 and I've decided to put up with it because I don't have the patience anymore.

I am 45 years old! I was born six months before the Stonewall riots, and it's been 45 years since then, so you'll know that despite my looks, I'm just a normal human just like you!

I'm 45 and I don't question anymore I exist as a human being!

Thank you for your time!

(Applause) Thank you! thank you!

(applause)

Today, I want to talk a little bit about what happens when we move from design as such to the idea of ​​design thinking.

This is an old photo, but it's the first project I worked on, maybe 25 years ago.

This is a woodworking machine or something, and my task was to make it a little more modern and a little easier to use.

At that time, I thought I did a good job.

However, the company soon went bankrupt.

This is the second project I have been involved in, a fax machine.

I gave this new technology a cool look

But again, after 18 months, the product was discontinued.

And now this technology itself is disappearing.

I'm a slow learner, but what I've come to realize is that maybe it wasn't all that important that the design was asking me to make things look better, or make things just a little bit easier to use, or a little easier to sell.

We focused on design, or we focused on one product, and we made incremental improvements, but they didn't make much of an impact.

But I think this small view of design is a relatively recent phenomenon, and it actually emerged in the late 20th century, when design began to be used as a tool for consumerism.

When we talk about design today, especially when we read it in the popular mass media, we often talk about products like this.

Sounds interesting, right? You'll want it, right?

Does that matter? so much isn't it

But it wasn't like this all the time.

My suggestion is that if we change the way we think about design, and instead of focusing on the object itself, we can focus on the design thinking method, and the results will be much more impactful.

This man, Isambard Kingdom Brunel, designed many great things in the 19th century, including the Clifton Suspension Bridge in Bristol and the Thames Tunnel in Rosa Height.

Both are great designs and actually very innovative as well.

His great designs are running right here in Oxford.

Yes, it's the Great Western Railway.

As a kid, I grew up around here, and I loved biking along the tracks while waiting for the express train to roar past.

As Turner puts it in "Rain, Steam, and Velocity."

What Brunel wanted his passengers to experience was an experience of floating through the countryside.

This is a story from the 19th century

To achieve that, we had to have the flattest slope ever, which meant a long bridge over the ravine, this one over Maidenhead on the Thames, and a long tunnel, like the Box Tunnel in Wiltshire.

He didn't stop there. Attempts to design the best rail journey never ended

He came up with an integrated transportation system where passengers board trains in London and then ship to New York.

It's a journey from London to New York

This is the steamship Great Western that he built to accomplish the second half of his epic journey.

Brunel was doing this 100 years before the design profession was born, but I think he used design thinking to solve problems and innovate to change the world.

Design thinking begins with what Roger Martin, a professor at the University of Toronto Business School, calls integrative thinking.

It's the ability to take advantage of conflicting ideas and constraints to find new solutions.

In design, it's about balancing desired human needs with technical feasibility and economic viability.

With innovations like the Great Western, we've stretched that equilibrium to its absolute limits.

Somehow we ended up like this from this state

So the person who used to think about systems that would change the world has turned into a cleric in a black turtleneck and designer glasses, working on small things.

As our society becomes more industrialized, the field of design becomes more specialized, more focused on smaller disciplines, where design means beauty, image fashion.

I am not criticizing this here.

I'm one of those clerics, and as you can see, I have the designer glasses here.

you see

But I think maybe design is starting to get big again.

And it comes from applying design thinking to new kinds of problems -- global warming, education, health care, security, water quality improvement.

It's this re-emergence of design thinking that we're tackling with all sorts of new problems, and we're discovering that the basic ideas are practical.

I'd like to talk to you about some of that in the next few minutes.

The first is that design is centered around people.

It may integrate with technology and economics, but it starts with what humans need and will need.

How can we make life easier and more enjoyable?

How can technology be practical and easy to use? It is a question such as

But it's more than just ergonomics and putting buttons in the right place.

A lot of the time, it starts with understanding the culture and its context and goes before where ideas come from.

When the team was working on a new vision screening program in India, they first tried to understand what the aspirations and motivations of schoolchildren were, in order to determine what role the children would play when testing their parents.

Conversion Sound has developed high quality, very affordable hearing aids for the developing world.

In developed countries, only highly trained professionals can make these hearing aid adjustments.

However, in countries such as India, there are not even such specialists in the first place.

So this team wanted to involve patients and community health workers in India, and see if this PDA and its applications could replace the experts in diagnosing and fitting ears.

Instead of starting with technology, the team started with people and culture.

When people's needs are the starting point, design thinking immediately seeks to learn by making.

You don't think about what to build, you build to think.

This is where prototypes accelerate the innovation process, because you can't really understand the pros and cons of an idea until you see it work in real life.

The sooner you do that, the faster the idea evolves.

The Aravind Eye Hospital in India has been widely talked about and written about.

It provides health care to the poor, the very poor who are unable to pay, by subsidizing the revenues from those who can afford it.

The system there is very efficient and very innovative.

When I visited a few years ago, what impressed me was their willingness to quickly prototype their ideas early on.

This is their manufacturing plant, which is one of the big cost savings.

They manufacture their own intraocular lenses here

It is used as a replacement for the lens damaged by cataracts.

We were able to achieve this breakthrough because of the idea that emphasizes prototyping.

Because they went from $200 a pair of lenses to a whopping $4 a pair.

Instead of building a nice new factory, they used the basement of a hospital facility as a factory.

Instead of introducing large-scale machines used in developed countries, we have realized prototypes using low-cost CAD/CAM.

They became the largest lens manufacturer in the developing world and recently moved into their own factory.

So by starting with what we really need and prototyping and accelerating the process, it also raises some questions about where we want to go.

Rather than having consumption as the primary goal, design thinking is finding potential in participatory. The shift from passive consumer-producer relationships to active human engagement makes a lot of sense, and is at the same time highly productive and beneficial.

Let me take the idea that Laurie Sutherland was talking about, and if I were to expand just a little bit on the notion that the invisible is more valuable than the visible, the design of participatory systems in which value is created and valued in many ways beyond just money is going to be a big theme, not just in design, but in our economy as a whole.

When William Beveridge wrote his famous article in 1942, he created a British welfare system in which all citizens were active participants in the good of society.

When he wrote his third report, he admitted that he had failed, and that he had created a society of welfare consumers.

And Hilary Cottum, Charlie Ledbetter and Hugo Manassey of Paraciple have embraced participatory thinking with a manifesto called Beveridge 4.0, a proposal for a framework for social security reform.

In one of their projects, Southwark Circle, a small team of designers worked with residents of Southwark, South London, to create a new membership organization to help the elderly with household chores.

After refining and developing the design with 150 seniors and their families, the service launched earlier this year.

We can take this participatory way of thinking to its logical conclusion, and say that design has the most impact when it leaves the hands of the designer and is in the hands of the general public.

Nurses and health care workers at Kaiser Permanente, an American healthcare organization, were studying the challenges of improving the patient experience, with particular attention to how information was exchanged and shift rotation.

Through observational research programs, they brainstormed new solutions and quickly worked on prototypes, and they created a whole new way of handing off work shifts.

They changed from the conventional method of discussing the patient's condition and needs at the nurse's station to a system that uses simple software to take over the situation in the patient's room.

This system has reduced the average eye-off time from a patient from 40 minutes to 12 minutes.

As a result, both patient's sense of security and nurse's satisfaction increased.

And when this comes to every nurse on every ward in the 40 hospitals in this system, it's had a tremendous effect.

And this case is just one of thousands of hospitals in the medical field.

These were the basic ideas in design thinking, and these were some examples of projects where those ideas were successfully applied.

But I want to go back to Brunel here and talk about the relevance of why this is happening now and why design thinking can be a useful tool.

That relevance is "change"

In times of change, we need new alternatives and new ways of thinking.

And Brunel was at the height of the Industrial Revolution, where all lifestyles and economies were being reinvented.

The Brunel-era industrial system has now gone so far that it's part of many of today's problems.

But we are in the midst of massive change

That change asks fundamental questions about our society: how we stay healthy, how we govern ourselves, how we educate, how we keep ourselves safe.

In this time of change, we need new alternatives as our current solutions are slowly becoming unusable.

So why design thinking?

because it gives us new ways of dealing with problems

Instead of staying in the traditional convergent approach of choosing the best of the available options, design thinking takes a divergent approach, allowing us to explore new options, new solutions and ways of thinking that have never existed before.

But there's one important step before we get to that divergent process.

that is what is the problem we are trying to solve

What is a design brief?

Brunel would have asked, "How can I get on the train from London to New York?"

So what are the questions we must ask

There are some questions we have to think about today.

One is that we're working with the Acumen Foundation, a project supported by the Bill Melinda Foundation.

The challenge is how can people in the poorest countries get access to safe water, and at the same time, how can we bring innovation to local water providers?

Instead of having a bunch of American designers come up with new ideas that may or may not be suitable, we decided to take a more open, collaborative and participatory approach.

We've teamed up with designers, investment experts and 11 water organizations in India.

Through the workshops they created, they created innovative new products, services, and business models.

We hosted a contest and funded five of those organizations to develop their ideas.

And they iterated over and over again to develop the idea.

And IDEO and Acumen worked with them for several weeks to help design new social marketing campaigns, community outreach strategies, business models, new water tanks and water carts.

These ideas will hit the market soon

A similar process is underway with several NGOs in East Africa.

For me, this project shows how different things can be from the little things I was working on at the beginning of my career.

By focusing on people's needs, by using prototypes to develop ideas, by adapting the processes designers have used, and by encouraging community participation, we can tackle bigger and more interesting problems.

Like Brunel, we can make a big impact by focusing on systems.

Here's one of the cases we're working on.

What I'm more interested in is what this community thinks we can do.

What should we apply design thinking to?

If you have any good ideas feel free to post them on Twitter

Hashtag is "#CBDQ"

Some time ago the list looked like this

Of course, you can also find questions that interest you by searching with this hashtag.

I believe that design thinking can drive change, it can inspire new ideas and innovation, and it can have an impact that goes beyond the stylish products of today.

In order to achieve this, it is important for us to have a broader perspective of design, like Brunel, rather than shutting ourselves in the shell of professionals.

The first step is to ask the right questions

thank you

(applause)

I've been frustrated for the last few years, and this is after I realized something, as a historian of religion, that "compassion" is at the core of the teachings of major religions.

No single religion has developed this golden rule in its own way.

Sometimes in affirmative phrases, "Do unto others what you would like them to do unto you."

And just as important is the negative phrasing of this: "Don't do to others what you don't want them to do to you."

Get in touch with your heart Remember what you feel hurts And don't do it to others under any circumstances

People talk about the importance of caring, not just because it sounds good, but because it works.

What people have found is that following the Golden Rule is what Confucius called "practicing every day." It's not about doing good for one day and returning to a life full of greed and ego. Instead, it's about transcending your ego by putting yourself at the center of the world instead of putting yourself at the center of the world.

It is said that you will see things called "God," "Enlightenment," "Rama," and "Tao."

This goes beyond the "ego-tethered things" we know so well.

But this state of affairs is rarely reached, and this was the core of the religious way of life.

There are a few wonderful exceptions, but when religious people and religious leaders get together, they usually start debating esoteric doctrines, exchanging hateful words, denouncing homosexuality, and so on.

often people don't want to be compassionate

Sometimes I get the feeling that when I'm speaking at a religious gathering, I get a rebellious look on my face, and people just want to be right.

That thought defeats the original purpose.

Why am I so grateful to TED now?

They were so kind to bring me out of my book-bound studies into the 21st century and gave me the opportunity to speak to a much larger audience than I could have imagined.

I think this issue is urgent

I believe that if we don't spread the practice of the Golden Rule globally, if we don't take care of whoever we are, wherever we are, as if we were ourselves, then we won't be able to pass the world on to future generations.

What we should do now is to create a society where people all over the world can coexist peacefully.

Religion should be a major contributor, but is instead seen as a source of trouble.

And the "Golden Rule" isn't just for religious people.

It's the source of all morality. It's the imaginative power of empathy that enables us to put ourselves in someone else's shoes.

now we have a choice

Will you strengthen the self-righteousness and intolerance of the heart of faith, or will you go back to the roots? To the days of Rabbi Hillel, the sage of pre-Christian times. Hillel was asked by a pagan, "Can you recite the teachings of Judaism while standing on one leg?"

That's all there is to teaching, the rest is just commentary."

The sages and early priests declared, "Any interpretation that increases hatred and arrogance is imitation."

we need to restore this spirit

Waiting won't change it, because compassion is fleeting and tends to fade away.

We'll make it happen, and we'll make it happen with this modern method that TED took.

I am very encouraged by the reaction of the sponsors.

In Singapore, they are campaigning to promote the "Golden Rule" to heal the societal rifts that have widened in recent years, and members of the government parliament want it to become a policy.

In Malaysia, art exhibitions are being held, and famous artists are taking young people to tell them that compassion is at the heart of all art.

Across Europe, Muslim groups are hosting discussions about compassion in Islam and other religions.

But these are just the beginning, we mustn't stop here.

Teaching about religion, this is what has gone wrong, we have always believed in arcane teachings

Religious education should always lead to action.

I will keep this in mind until I die.

And I want to continue to do two things with my colleagues: to communicate and cultivate compassion.

The reason we need education is because we lack compassion.

Many people think that compassion means feeling sorry for others.

But you can't understand compassion just by thinking about it.

you have to act

And I want the media to get involved too, because the media is so effective at breaking down the stereotypes that divide people.

The same is true for educators.

I want young people to feel the energy and challenge that comes from living with compassion.

And I want you to know that compassion requires not just sentimentality, but a keen intellect.

What I want to explore with scholars is the theme of compassion in themselves and in their people's traditions.

And most of all, I want to develop a sensitivity to unkind words. With this Charter of Compassion, people of all beliefs and backgrounds will feel entitled to speak out against derogatory remarks and unkind speech, whether it's against religious, political, or business leaders.

we can change the world we have the power

It never occurred to me to put this charter online.

Because I was a resident of an old world of parochial experts locked in their rooms discussing esoteric problems.

And then TED showed me a new way of thinking about and communicating ideas.

That's the beauty of TED

If all the experts in this room come together, we might change the world.

Of course, sometimes insurmountable problems may arise.

Now, I'd like to end with a quote from a novelist from Oxford, England, whom I rarely quote, Mr. C.S. Lewis.

One passage has stuck in my mind since I first read it when I was a student.

It's a passage from his book "Four Loves"

He describes "sensual love" when two people are looking into each other's eyes and are attracted to each other.

They say that friendship can be distinguished when two people stand side by side, shoulder to shoulder, looking at the same goal.

We don't necessarily have to be lovers, but we can be friends.

I'm sure

During the discussions at Vivey, I felt strongly that when people of different faiths come together, work together, and work towards a common goal, differences can be overcome.

learn friendship

And we learn to live together and get to know each other.

thank you

(applause)

According to the theory of human social development, we are now living in the fourth stage of technological progress, the information age.

Connectivity through digital technology is a modern miracle.

You could say that it broke down the barriers of time and space that separated people and created the conditions for an era in which information and ideas can be freely shared.

But is what has been achieved with these digital technologies really all that is possible?

I don't think so. Today I'm going to talk about how digital technology can take us to greater heights.

As a practicing surgeon, I want to share with you the reality that there are five billion people in the world who do not have access to surgical care.

5 billion people

This 70 percent of the world's population, according to the WHO's Lancet Commission, does not have access to even simple surgery when needed.

Let's take a look at Sierra Leone. According to the latest survey, there are only 10 qualified surgeons in this country of 6 million people.

That means 1 surgeon in 600,000.

It's a pretty staggering number, but we don't have to look far.

A new study suggests that we'll need 100,000 more surgeons by 2030 just to keep up with routine surgery here in the United States.

We can't meet this number in our current state.

This is a global issue that concerns me as a surgeon.

Because I've seen people's lives ruined because they don't have access to safe, affordable health care.

Patients who need surgery but don't have a surgeon to see them are forced to make a difficult choice: wait, go far, or not have surgery.

What should I do?

Now you have the tools to solve it: your smartphone, your tablet, your computer.

From my point of view, digital communication technology is more than just shopping online or staying up to date on social media.

It has the power to solve some of the key problems people face, like access to surgery.

I'm going to give you an example of how that's possible.

The history of surgery is replete with examples of technological breakthroughs that solved the challenges faced by surgeons at the time.

Hundreds of years back, advances in microbiology led to the development of antiseptic techniques that greatly contributed to postoperative survival of patients.

Hundreds of years later, a technique called keyhole surgery, or arthroscopic surgery, was developed that, combined with imaging technology and precision instruments, made surgery much less invasive.

And more recently, as I'm sure you've all heard, is robotic surgery, where robotics has brought to surgery the same ultra-precision that modern automated machines have, capable of performing microscopic surgeries with precision that surpasses that of the human hand.

But there's another thing that robotic surgery brings to the table: the idea of ​​the surgeon not being at the patient's side to treat the patient.

this is called telesurgery

It's up to us to make these solutions cost-effective and scalable to help anyone anywhere in the world.

What if I told you that you don't actually need a multimillion-dollar robot to provide telesurgery?

All you need is a phone or a tablet or a computer, the Internet, a confident collaborator on the other side, and the magic secret ingredient: augmented reality collaboration software.

Using augmented reality collaboration software, expert surgeons can virtually transport themselves to any point of care using their cellphone, tablet or computer, interacting visually as if they were there, guiding the local surgeon from start to finish, and taking the surgery step by step.

enough explanation

let's see it in action

I'm going to put you in touch with Dr. Mark Tompkins, an orthopedic surgeon at the University of Minnesota.

He does arthroscopic surgery -- keyhole surgery on his knee -- and I'd like to add that this patient has consented to the surgery being streamed.

And for the sake of time, I'll only show you the first step, which is to mark the affected area and identify the anatomical landmarks.

Mr. Tompkins, can you hear me?

(Tompkins) Good morning Nadine

Nadine: Everyone at TED is greeting you.

(Audience) Hi

Nadine: Well, Mr. Tompkins, let's get started.

Let's start by making an incision on either side of the patellar tendon.

If you make an incision here and here, it should go inside your knee.

(Tompkins) Alright, I'm going in.

(Nadine) Good

It's inside the joint

Let's take a look at the meniscus

(Thompson) Right

Nadine: I have a small tear in my meniscus, but other than that, everything seems fine.

Could you please move where you pointed? Let's take a look at the cruciate ligament.

The anterior cruciate ligament is normal and fine.

Here's the small meniscal tear you saw earlier, but the synovial fluid seems to be fine.

Okay, Mr. Tompkins, thank you for your time.

please continue

good bye

(Applause) I hope this simple demonstration has shown you just how powerful technology can be.

Also, I hope you can see that I didn't use anything special, just a computer and a webcam.

We're used to using digital technology to communicate with voice, text and video, but augmented reality allows us to do even more.

Allows people to interact virtually as if they were meeting in person

Being able to draw and demonstrate and use gestures to show what you want to do is much more powerful than just verbalizing it.

And it's also a great educational tool, because people learn better through direct experience.

How will this change the world?

At my teaching and research hospital, we're using it to support skin cancer surgeries and trauma care at local general hospitals.

This allows patients to receive treatment locally.

It reduces travel time, makes it easier to get to the hospital, and saves money.

We've started using it for nurse wound care and outpatient care.

A great recent example is helping with kidney cancer surgery.

Let's take a look at the video

I feel a little sick, but please forgive me

(Doctor 1) Could you show me again?

(Doctor 2) So far, this is the top part, the outside of the tumor.

(Doctor 1) Yes

(Doctor 2) It's three centimeters deep. It should be three centimeters here.

(Doctor 1) Yes

(Doctor 2) We need to remove it completely with time to spare.

(Doctor 1) I'll show you what you think.

Nadine: This technology is also being used on a global scale. One of the most heartwarming stories I remember was in Trujillo, north of Lima, Peru, where this technology was used to operate for cleft lip and cleft palate in poor children without health insurance.

In one of the hospitals in this town, there was a lone surgeon desperately treating patients, Dr. Soraya.

Dr. Soraya struggled with the number of patients he had to see and the lack of training he had for this operation.

With the help of a charitable organization, we were able to connect her with a specialist in California who could guide, train, and mentor her step-by-step using this technology.

After a few months, I was able to perform 30% more surgeries and had fewer complications.

Dr. Soraya's team is now confident enough to perform this procedure successfully on its own.

I remember one mother saying, "This technology put a smile on my daughter's face."

I think this is the power of this technology.

The great thing is that you can break down the boundaries.

overcome all technical difficulties

connecting people and making healthcare accessible to everyone

Wi-Fi and mobile technology are developing rapidly, and should help expand the geographic reach of surgery.

It's also used in conflict zones where it's too dangerous for specialists to go.

In this day and age, when there are more mobile phones than people, we can expand medical care to every corner of the world.

Of course, we still have a long way to go before we can reach five billion people with surgical care, and there are still many people who don't have access to the internet.

But things are rapidly moving in the right direction.

Change is here

Our team is expanding its reach around the world, and we're beginning to see the potential of this technology.

Through digital technology, through the everyday devices we take for granted, through the devices of the future, we can truly create miracles.

thank you

(applause)

i have a very difficult problem

i am a spectroscopist

You have to talk about astronomy without showing a single picture of a nebula or a galaxy.

because my job is spectroscopy

I have never dealt with photography

But let me convince you that spectroscopy can change the world.

Spectroscopy could possibly answer the question: "Is anyone there?"

are we the only ones? SETI (Search for Extraterrestrial Civilizations)

The study of spectroscopy is not that interesting

One of my colleagues in Bulgaria, Naviana Markova, has been studying this curve for 20 years.

He has published 42 papers on this subject.

Can you imagine? Every day, every night, for 20 years, observing and thinking about the same stars I can't believe it

But we're crazy and that's what we do

(Laughter) I'm not that extreme.

It's been eight months since I started working on this curve.

Because I found very little asymmetry in the spectrum of this planet's host star.

And I think, hmm, this star has Lithium-6, and that could be evidence that this star swallowed a planet.

Because fragile isotopes like lithium-6 can't exist in the atmospheres of solar-type stars.

But it does exist on planets and asteroids

So if the star swallows a planet or a large amount of asteroids, we might find isotopes of lithium-6 in the atmosphere.

That's why I've been studying the lithium emission lines of this star for over eight months.

In fact, it's amazing, and I've been getting calls from reporters all over the place asking, "Have you seen a planet swallowed by a star?"

Because if you have a telescope, you're an astronomer, and if you're an astronomer, you're looking through a telescope.

And you might have seen a planet swallowed by a star

So I say: "I'm sorry

This is what I see

(Laughter) I can't believe it.

I'm sure few people knew what I was talking about.

Because this is the proof that the planet is swallowed by the star

it's amazing

As a matter of fact, it was Pink Floyd who already knew about the power of spectroscopes in 1973.

(Laughter) They say you can pick any color you want out of the spectrum.

All you need is money and time to build your own spectrometer

This is the highest resolution and most accurate spectroscope on Earth, called HARPS, and it's used to detect sound waves in the atmospheres of extrasolar planets and stars.

How do you get the spectrum?

I'm sure you learned in school that it basically breaks down white light into many different colors.

And if you have an object that's hot enough to melt, it's producing what's called a continuous spectrum.

Hot gases emit only emission lines, not continuous spectra

If you put a cold gas in front of a hot object, you get what's called an absorption line, and with that

We can identify chemical elements in cold objects. Cold gases absorb light at exactly that frequency.

Now, what can we do with spectral lines?

You can find out the radial velocity of objects in space.

And we can learn the chemical composition and physical constants of stars, galaxies, and nebulae.

Stars are the simplest objects

At its core, thermonuclear fusion is taking place, producing various chemical elements.

and cold air

If you ask me, it's "cold"

That is about 3000 to 5000 degrees

My colleague, an infrared astronomer, says that anything around minus 200 degrees is cold.

It's all relative.

5000 degrees is too cold for me

(Laughter) This is the spectrum of the Sun, 24,000 spectral lines, 15 percent of which are still unidentified.

It's amazing, we're in the 21st century, and we still don't really understand the spectrum of the Sun.

Sometimes very small, weak spectral lines are used to study the composition of chemical elements in the atmosphere.

For example, the gold absorption line you see here is the only absorption line in the Sun's spectrum.

We use this weak line to study the composition of gold in the Sun's atmosphere.

this is still a work in progress

We're also looking at osmium, which is a similarly weak feature.

It's a heavy element produced in a thermonuclear explosion of a supernova.

Osmium is only produced there

By comparing the proportions of osmium in stars that host planets, we're trying to understand why there are so many of these elements.

Perhaps the supernova explosion itself triggered the formation of stars and planets.

It may be that

The other day, my colleague at Berkeley, Gibor Basri, emailed me a very interesting spectrum and said: "Can you take a look at this?"

For the next two weeks, I couldn't sleep because I saw an enormous amount of oxygen and other matter in the star's spectrum.

Never seen anything like this in the galaxy

I couldn't believe it. The only possible conclusion for this event is that it's evidence of a supernova explosion in that system that polluted the star's atmosphere.

After the explosion, a black hole formed in the binary star system, which we know has about five times the mass of our Sun.

This was considered the first evidence that black holes form from supernova explosions.

A colleague was comparing the chemical composition of stars in different galaxies and discovered an alien star in our galaxy.

It's amazing how much we can learn just by looking at the chemical composition of a star.

One of the stars in the spectrum is from another galaxy.

We know that galaxies can interfere with each other.

At that time, I will catch the opponent's star

You've heard of solar flares

We were surprised to discover a "superflare" that is tens of billions of times more powerful than what we see on the Sun.

Found it in the binary star system FH Leo in our galaxy.

Later, we looked at the spectral lines to see if there was anything unusual about the object.

everything was fine

Just like the sun Age was normal and everything else was normal

so this is a mystery

still remains a mystery superflare

6-7 similar cases have been reported in the literature

So let's move on, we want to understand the chemical evolution of the universe.

It's very complicated, and I'm not trying to get you to understand it here.

(Laughter) Rather, I want to show you how complicated the whole process of creating chemical elements is.

There are two pathways: giant stars and dwarf stars that produce and recycle cosmic matter and chemical elements.

If you keep doing that for 14 billion years, you'll end up with this chart, which is a very important chart that shows the chemical elemental composition ratios of solar-type stars and the interstellar medium.

So it's really hard to find an object that has ten times more sulfur than silicon and five times more calcium than oxygen.

And if you do find it, it means it has something to do with SETI, because nature can't do it.

The Doppler effect is very important from a basic physics point of view.

It means that the frequency of a moving object changes.

The Doppler effect is being used to discover extrasolar planets

The accuracy required to find a Jupiter-like planet around a Sun-like star is about 28.4 meters per second.

We need about 9 centimeters per second to find a terrestrial planet.

These will be possible in future spectrometers

I myself am involved in the development of a high-resolution, next-generation spectroscope called CODEX for the 42-meter E-ELT telescope.

And that's what gives us the tools to find terrestrial planets around sun-like stars.

It's an amazing tool called astro-seismology, which can detect sound waves in a star's atmosphere.

This is what Alpha Centauri sounds like

We can detect sound waves in the atmosphere of a sun-like star.

It has frequencies in the sub-audible range that nobody knows about yet.

Back to the most important question: "Is anyone there?"

It has to do with the extent of planetary crustal movement and volcanic activity.

The relationship between life and radionuclides is direct.

There can be no life without geological and volcanic activity.

We know that most of the geothermal energy comes from the decay of uranium, thorium, potassium, etc.

So how do you rate it? If a planet is depleted of these elements, the planet is geologically "dead" and devoid of life.

On the other hand, if there were too much uranium, potassium, thorium, etc., there would be no life.

Because can you imagine everything boiling?

Too much energy on the planet

Now, we've measured the amount of thorium in one of the stars that have extrasolar planets.

The rules of the game are the same There are very few features

I'm trying to measure a curve like this to detect thorium.

very difficult difficult

you have to convince yourself first

Then convince your colleagues

And then you have to convince the whole world that you've found this thing in the atmosphere of a star with a planet somewhere 100 parsecs away.

very difficult

But if you want to know about life on extrasolar planets, you have to do this.

Because we need to know how much radioactive material is in that system.

One way to find out about aliens is to listen for signals with radio telescopes.

See if you can find something interesting, and that's what SETI does, and it's been doing it for years.

The most promising one is looking for biomarkers.

This is the spectrum of the Earth, the spectrum of the Earth's light, a very clear signal.

This sloping area, called the red edge, indicates the area with vegetation.

It's amazing that you can see plant growth from the optical spectrum.

Imagine applying it to another planet.

Recently, very recently, in the last six to eight months, we've found water, methane, and carbon dioxide in the spectra of extrasolar planets.

It's amazing, this is the power of spectroscopy.

We can discover and study the chemical composition of planets far from our solar system.

To see if the prerequisites for life are there, we need to detect oxygen or ozone.

Cosmic miracles can be related to SETI

Suppose there's some amazing object, some unexplainable phenomenon, and you're stuck and say, "No, physics can't explain it."

So you mention SETI and say, "Hmm, someone must be doing something."

Using the known laws of physics, as Frank Drake pointed out and Shklowski said many years ago.

If we find a strange chemical element in the spectrum of a planet-bearing star, it could be a sign of a civilization, and they too might want to send out a signal.

They actually want to make their presence known in the spectral lines of this star.

may use other methods

One example is technetium, a radioactive element with a decay time of 4.2 million years.

If you suddenly find technetium in a sun-like star, you can be sure that someone released it into the atmosphere, because that can't happen in nature.

We're reviewing the spectra of about 300 stars with exoplanets.

I've been doing this project since 2000, and it's a very big project.

I study hard

In doing so, we find interesting cases and candidates that cannot yet be explained.

And we hope to see them in the near future.

So the original question: "Are we alone?"

The answer will not come from UFOs

You won't get it from the radio signal either.

These spectral lines give the answer

It shows the presence of nitrogen oxides, oxygen and ozone as obvious signs of life in the spectrum of terrestrial planets.

If, one day, 15 or 20 years from now

If we find a spectrum like this, we can be sure that there is life on that star.

Within five years, we'll discover a planet orbiting a Sun-like star about the same distance from the Sun as Earth.

it takes about 5 years

After that, over the next 10 or 15 years, space projects will have spectra of terrestrial planets like the ones I showed you earlier.

And if we find nitrogen oxides and oxygen, we have the perfect E.T.

Thank you very much

(applause)

I run a design company in New York

Every seven years, I take a year off from work and use that time to experiment, things I wouldn't be able to do while working.

You won't receive any work from customers for the year.

will be closed completely

As you can imagine, it's been a very fun and fulfilling year.

I originally started the company in New York to combine my love of music and design into one business.

I've designed music videos and packaging designs for famous musicians and many others.

And I've found that, like anything else, I'm very adaptable when it comes to things that interest me.

But it gets boring over time

This means that in our case, the designs are inevitably similar.

It is a design in which the centerpiece of the glass is punched out of a book.

Perfume packaging uses a similar idea, using die-cutting.

So I decided to take a year off.

And in general, we modern people spend the first 25 years of our lives learning, and the next 40 years working.

And he devotes the last 15 years of his life to retirement,

I thought it would be nice to do something like this: 15 years after retirement should be divided into 10 years, and 5 years should be distributed among working people.

(Applause) It's certainly more fun this way.

But what I think is even more important is that what we do during this time will be useful to the company and to society as a whole, which is more meaningful than just taking care of one or two grandchildren in retirement.

Jonathan Hyde, who gave a TED talk two years ago, defined work as three stages.

I thought that's right

"I work for work and for money"

on thursday already looking forward to the weekend

A state in which hobbies are considered necessary to maintain balance

"For my career" would be more aggressive

Does it make sense to work so hard? sometimes i think

On the other hand, the third, "because it's my vocation," is probably working even if there's no financial reward.

I'm not particularly religious, but I wanted something essential.

I spent my first long vacation in New York City.

Seeking a slightly different environment for the second time

Europe and the United States, which I know so well, didn't appeal to me so much, so I decided to go to Asia.

Sri Lanka and Bali were the most beautiful landscapes in Asia.

Sri Lanka was still in the midst of a civil war, so I chose Bali.

It is a very attractive country where traditional crafts are thriving.

When I arrived in Bali in September of 2008, I immediately set to work.

Bali itself is an inspiration

The first thing I started doing on the ground was typography with mosquito coils, because mosquito coils were everywhere.

After that, I had to somehow get my revenge on the stray dogs, who were roaming around my house and attacking me during my morning walks.

So I made a T-shirt with 99 dogs as a motif.

I designed all dogs on t-shirts

It's a little bit of retaliation, and I put a message that's kind of hostile to me. (Laughter) "Too many dogs, not enough recipes."

(Laughter) Right before I left New York, I decided to redecorate my office.

leave everything to the contractor

i think i don't have to do anything

just looking for furniture

But in the end, the furniture I really like is too expensive to reach

What was within the budget was not good enough

So I decided to make furniture in Bali.

As you can see, this is also a stray dog ​​motif

not completely finished yet

And by the time this lamp was finished (Laughter), I wasn't so hateful of dogs.

(Laughter) And then I did the coffee table.

We named it Be Here Now

330 compasses embedded

I also had them make a special espresso cup with a magnet inside so that the compass would move like crazy and always point at the cup.

This is a very demanding chair.

I also started meditation for the first time in my life in Bali.

I know how boring it is to hear other people's happy stories.

keep it short

I also bought a book from the TED Book Club by Danny Gilbert, the TED speaker you all know so well.

I haven't read it for four years, and I only read it during my long recharge vacation.

The good news is that he was actually writing this book while on vacation.

Several other people have had success using long vacations.

Ferran Adria is considered by many to be the world's best chef, and his restaurant, El Bulli, is north of Barcelona.

Open 7 months out of the year

We will be closed for the remaining five months, and all the kitchen staff will participate in making prototypes.

Recent achievements are also impressive.

We can serve 8,000 customers throughout the year.

But there are 2.2 million requests for reservations.

Taking a year off every seven years means you're charging 12.5 percent of the time.

If you look at companies that have been more successful than mine, for example, 3M, since the 1930s, has given every engineer in their company 15 percent of their free time to do research.

I'm getting really good results

This is where the product called scotch tape came from, and Art Frye, who originally worked at 3M, also invented sticky notes in his free time.

Google famously gives software engineers 20% free time to work on personal projects.

Have any of you actually taken a long recharge vacation?

About 5% of all

If someone with long vacation experience was sitting nearby

ask how it was

In my experience, the most helpful thing you can do to help you figure out what you want to do next is to talk to other experienced people around you.

When I decided to take a long recharge vacation, I wrote it on my schedule

I found a way to talk to as many people as I could, so I wouldn't be shy about it later.

(Laughter) The beginning of my first vacation was pretty miserable.

You shouldn't have a plan. I thought empty time was good for generating ideas.

I didn't have a plan, so I was swayed by trivial requests. I turned down the job, but other requests.

For example, when exchanging emails with Japanese design magazines,

I became my intern

(Laughter) So I quickly made a list of my interests, prioritized them, allocated my time, and created a kind of schedule that I would have made in grade school.

For example, Monday morning 8:00-9:00: Writing a story 9:00-10:00: Thinking about the future

This didn't work, but...

But it was actually a pretty good way to start my first long vacation.

What did you get?

Design is familiar again

and had a good time

In the long run, it actually paid off economically.

Because the design could be improved and the price could be raised

Perhaps most importantly, everything I did in the seven years after my first long vacation came from what I thought in one year.

I'm going to show you some of the projects I've done in the last seven years after this long vacation.

One of the things I've been thinking about all along is the overestimation of standardization.

The one-size-fits-all approach only applies to very few businesses, and most don't.

Logo commissioned by Casa de Musica, a concert venue designed by Rem Koolhaas in Porto, Portugal.

I wanted to create a logo that didn't use a building as a motif, but it didn't go as planned.

Because I noticed the overlapping implications that Rem Koolhaas explained to the city of Porto.

Later, in my own way, I understood it by translating it from the concept of architecture to the concept of the logo.

After realizing that the building itself is a logo

I have a lot more freedom to think

I covered it with a mask and looked at everything, including the basement, from all angles: west, north, south, east, top and bottom.

In order to be particular about colors, I had an acquaintance make a special software.It is a logo creation software.

It's connected to a scanner

Put in some image, for example this Beethoven

The software instantly creates the Beethoven logo for Casa de Musica

It's actually really helpful when designing a Beethoven poster, because the color of the logo and the poster are exactly the same.

Because it always matches the image

Zappa's music has its own logo

Every performer, including Philip Glass, Lou Reed, and The Chemical Brothers, will have their own Casa de Musica logo.

The president of the Casa de Musica and the conductor do the same, and they have a special logo on their business cards.

Casa de Musica has a full-fledged private orchestra

Uses an easy-to-understand logo

A private tour bus

There's also a small contemporary orchestra of 12 people, remixing their own group names.

One thing that's useful is that you can use the template of the logo to create an advertisement.

And this Donna Toni poster, Chopin, Mozart La Monte Young, and so on.

making typography using molds

You can make it grow on your body

Create posters for family-friendly events in the main venue, late-night parties in the basement, weekly programs, and educational activities.

The second thing I realized was that up until then, everything I was involved in or represented in design was for publicity, and that was okay with me.

I have no objection to the sale

My parents also had sales as their main business.

But after all, why spend so much time learning to design and only use it for advertising? I thought

I'm sure there are other ways to use

From there came a series of works

I'm sure some of you have seen

When I gave a talk "Things I've Learned In My Life So Far" before, I introduced some of them.

I'm going to show you just two today.

This is a wall made of bananas of different maturity levels, and it's opening day in New York City.

It says, "Confidence brings good results."

After a week it looks like this

2 weeks later and 3 weeks 4 weeks 5 weeks

The word "confidence" seems to reappear, but it doesn't appear clearly.

This photo was sent to me by someone who saw the exhibition.

(Laughter) And then the city of Amsterdam asked me to do something in the city square.

I made a work by using the stone slabs as squares.

I got 250,000 coins of different shades from the central bank.

They range from brand new shiny and medium to very old and dark.

With the help of 100 volunteers, we spent a week creating letters with floral patterns, saying, "Persistence lowers quality of life, but improves quality of work."

The aim, of course, is to add value to the text, and to ask the audience, "Should I pick up as many coins as I can, or should I just leave it as is?"

it was confusing

Over the course of a week of working with 100 volunteers, many of the residents around the square began to gather and liked the work.

So it was finally done, and that night, when a man brought in a big plastic bag and collected as many coins as he could carry, one of the residents called.

The city of Amsterdam police looked at the situation with sheer prudence and tried to protect the work.

I then swept up all the coins and took them to police headquarters for safekeeping.

(Laughter) You can see it, the police are sweeping over here.

It's the police. They're taking all the coins.

Eight hours after completion, this is the only thing left in the square.

(Laughter) In Bali, I did the first part of a much bigger project.

a movie about happiness

This is the title of the movie I asked the nearby pig.

was not so graceful

I had a goose do it this time. I was hoping for something more sophisticated.

a little too much

too much decoration

The atelier was close to the monkey forest

The monkey there looked so happy

I asked the monkey

It was good, but there were some places that were difficult to read.

After all, if you don't do it yourself, you can only expect a certain result

I will be working on this film for the next two years.

it will take a while

You might think that making a movie about happiness doesn't make much sense.

In that case, you can always meet this person.

Video: (laughs) Happy to be alive

happy to be alive happy to be alive

thank you

(applause)

(Hank Willis Thomas) I'm Deborah's son.

(Laughter) (Deborah Willis) And I'm Hank's mother.

HANK: I've introduced myself like this many times, so I've created a piece of work for the two of us based on this.

The title is "Sometimes I See Me in You", and it tells the story of the symbiotic relationship that has developed over the years of living and working together.

Because wherever we go, together or separately, this name will be with us.

I've been following in my mother's footsteps since before I was born, and I don't yet know how to get out of that situation.

It gets harder as you get older

no, it gets really hard

(Laughter) But I learned a lot from my mother, most of all, that love trumps everything.

My mother taught me that love is an action, not a feeling

Love is a way of life, an act, a way of hearing, a way of seeing

Deborah: And on the subject of love, photographers are looking for love while they're taking pictures.

searching hard to find love

Growing up in North Philadelphia, surrounded by family and friends who loved photography, they all used their family's cameras to tell stories about their lives, their joyful lives and what it meant to raise a family in North Philadelphia.

There, I spent most of my life searching for photographs that made me think about black love, black joy, and family life.

It's important to think about what the verb "act of love above all" means.

CA: Sometimes I wonder if my interest in seeing things is genetic, because I, like my mother, have loved photography since before I can remember.

Sometimes I think -- apart from my mother and my mother's mother, photography and photography were my first love.

I feel bad for my father, but he goes around saying that I'm a show-off, so it can't be helped.

I remember when I went to my grandma's house, she hid all her albums Because I was afraid to ask her, "Who's in this picture?"

“Who is this person for my grandmother? What is my relationship with her? How old is the grandmother in this photo?

why black and white

Was the world black and white before I was born? "and

(Deborah) It's funny, just thinking about the world in black and white

I grew up in a hair salon in upstate Philadelphia, and at my mother's hair salon, I was looking at Ebony magazine, and I found a photo that told a story that didn't make it into the daily news, but would appear in a family album.

I wanted my family albums to be something energetic for me—a way to tell a story.One day in the Philadelphia Public Library, I came across a book called The Sweet Flypaper of Life by Roy DeCarava and Langston Hughes.

When I was a seven-year-old girl, I was fascinated by the two words in the title, "flypaper" and "sweet." But at the age of seven, I wondered if I could tell my own story while looking at Roy DeCarava's beautiful photographs.

The act of looking at things changed my life

(Hank) My friend Chris Johnson says that all photographers and artists are basically trying to answer one question, and that question might be, "Why can't other people see our beauty, and what can we do to make them see our world the way I do?"

Deborah: When I was studying at an art school, a male professor told me -- and it could have been -- that I was taking a place out of good guys.

He tried to crush my dreams of becoming a photographer.

You tried to humiliate me in front of a class full of male photographers.

I said I shouldn't be out of place because I'm a woman, and I even said that all you can do is have a baby, if it weren't for you, a good man could have sat in your seat.

The shock of this experience has silenced me.

But I was determined to use my camera to prove to my professor that I was worthy of being in this class.

But now I look back and think, "Why should I prove it to him?"

I needed to prove to myself that I had a camera and that I could make an impact in the world of photography.

I love photography and no one can stop me from taking pictures.

(Hank) At that point my appearance

Deborah: Yes, I got pregnant the year I graduated.

yes he is right

I gave birth to you I brushed off the sexist slurs my professors threw at me I grabbed my camera and filmed every day Preparing for graduate school with my bulging belly as the subject

At the same time, I thought that black photographers were missing from the history books of photography, and I was also looking for ways to tell stories.

Then I found Gordon Parks' book, A Choice of Weapons, which is also his autobiography.

I took a picture and made an image, put away the pancake of pictures of my bulging belly, and your presence inspired me to make a new piece, and the words I wrote on that piece were, "Woman who steals the good man's place" -- "You took the good man's place."

(Applause) (Hank) Thank you, Mom.

This mother has this son

I grew up in a house full of photographs

We have photos all over the house, and my mom turned the kitchen into a darkroom.

And in those pictures, it's not just the pictures my mother took, it's not the pictures of my family,

Pictures of people we don't know Some pictures were taken by people we don't know, men and women we don't know

thank you mom

(laughs) I have my timing.

(laughs) Did you see my mother poking me?

(Laughter) Trying to dictate and manipulate

I grew up in a house full of photographs

(Applause) Not only pictures of men and women I know, but pictures of people I don't know. What I learned in school made it clear to me that the rest of us didn't know them.

It took me a while to find out what she was working on, but over time I figured it out.

My mother published this book when I was nine years old, The Negro Photographers, 1840-1940: Biography and Bibliography.

What amazes me when I think about it is that in 1840, African Americans were taking photographs.

If you think about what this means, it was 20, 30 years before the end of slavery, when people were trying to learn to read, and they were trying to learn math.

Can you think of anything other than love that drove them to photography?

My mother followed this book with the next book, Black Photographers, 1940-1988, and that book was followed by the next book, the next book, the next book, the next book, the next book, the next book, the next book, the next book, the next book, the next book.

(Applause) Over the course of my life, my mother has edited and published dozens of books and curated dozens of exhibitions on every continent, not just black photographers, but all of them starting with the curiosity of a black girl from northern Philadelphia.

Deborah: We discovered that black photographers had stories to tell, and we needed to listen to them.

And what I found, for example, was the black photographer Augustus Washington, the author of this beautiful daguerreotype photograph of the McGill family in the early 1840s and 1850s.

The stories of black photographers were different, and there were many different ways to tell the lives of black people during the time of slavery, but they were about family life, about beauty, about the lives of people in the community.

I didn't know how to tie these stories together, but I knew that educators should know these stories.

(Hank) That's where I became my mother's first student.

Reluctantly, involuntarily - by some invisible cues - I decided to pick up a camera and thought I should take a picture of myself, a picture of the past as seen from the past, the present as seen from the present.

What I thought was a way to use photography to tell the story of how what's going on outside the camera affects what's in the photograph.

The truth is always in the hands of the people who actually create the images, and it's up to us to figure out where to cut it.

I thought I could use the material my mother collected as a starting point to express what I saw in society. What I tried to do was to think about how we could use historical imagery to talk about the past as it still exists, and how we could all talk about the ongoing struggles for human rights and equality in the form of photographic sculpture, video -- installations and paintings.

In doing such work, one work has the strongest influence

It continues to be the source of my growth

It's based on this photo by Ernest Withers, who captured a 1968 march by the Memphis cleaning workers, where men and women collectively asserted their human rights.

They had signs that said, "I'm human." But what surprised me was that growing up, the words I heard were not, "I'm human," but "I'm a man of power."

I wanted to explore that, so I decided to remix this sentence in as many different ways as possible. The first line is a timeline of American history, and the last is a poem that goes, "I'm a strong man, who's a strong man? You're a strong man, you're a great man.

I am human I have many I have I do not

I am i am i am amen

(Deborah) Wow funny

(Applause) What we learn from this experience is that the two most powerful words in the English language are "I am."

And each of us has the power to love others.

thank you

(applause)

my longest trip ever

it was 2002

I'm only 19

At that time, for the first time in my life, I got on a plane and went abroad for the first time, from Rwanda.

I traveled thousands of kilometers to chase my dreams

It's been my dream since childhood

The dream was to become an architect

that was not possible in my country at the time

there was no architecture school

So when I got a scholarship to study in China, I left my life and my family behind and moved to Shanghai.

it was a wonderful time

China is in the midst of a massive construction boom

My new hometown, Shanghai, was transformed in a short period of time into a city of skyscrapers.

China was changing

Sending out a new image of development through a world-class project

Modern, technologically advanced buildings were literally everywhere.

But behind the scenes, the exploitation of so many migrant workers and the mass displacement of thousands of people made these projects possible.

This rapid development is also a major source of environmental pollution, which continues to haunt China today.

Then in 2010, I returned to Rwanda.

The development patterns we saw there were similar to those in China.

Rwanda was, and still is, experiencing population growth and economic growth.

The pressures on cities, infrastructure and building construction are peaking, resulting in a massive construction boom.

This is happening all over the African continent, and here's why.

By 2050, Africa's population will double to 2.5 billion.

At that time, Africa's population will be about the size of today's China and India combined.

The infrastructure and buildings required to accommodate such a large number of people would be unprecedented in human history.

We estimate that by 2050 we will have to build 700 million homes, more than 300,000 schools and nearly 100,000 medical facilities.

let's put it in plain language

Every day for the next 35 years, we will have to build 7 medical facilities, 25 schools and nearly 60,000 houses.

How do you build all this?

Will it follow the model of unsustainable architecture and construction that I have seen in China?

Or can Africa create its own model for sustainable and equitable development?

i believe i can

I know an African who has already started

Take, for example, the work of Nigerian architect Kunle Adeyemi in the slums of large coastal cities.

Places like Makoko in Lagos where hundreds of thousands of people live in temporary housing on stilts over water, without government infrastructure or services.

It's a community at great risk of rising sea levels and climate change.

Yet the people who live here are examples of great wisdom and the will to survive.

Kunle's team built a prototype school that could withstand rising sea levels.

This is Makoko School

This prototype is a structure that floats on the surface of the water, and can be applied to the essential infrastructure of this community, such as clinics, housing, and markets.

This is an ingenious solution that will allow communities to live safely above water in Lagos.

he is francis kerre

I am active in my home country of Burkina Faso.

The project designed by Kele's team uses traditional architectural methods.

Kele's team worked with the community to develop a prototype school, and the whole community built it together in every project in the country's villages as well.

The children carried the stones for the foundation, the women carried the water for the bricks, and together they pounded the clay floor.

Working with the community, Kele's team has created a project that works better, with good lighting and good ventilation.

It's both appropriate for this particular environment and really beautiful.

For the past seven years, I've been working as an architect in the MASS design group.

A design company that started in Rwanda.

We are working in several countries in Africa, and we are committed to a more equitable and sustainable model of architectural practice, and Malawi is one such country.

It has beautiful remote landscapes, high mountains and fertile valleys.

On the one hand, it's one of the countries with the worst maternal mortality rates in the world.

Pregnant women in Malawi either give birth at home or have to walk a long way to the nearest clinic.

1 in 36 of these mothers will die during childbirth.

In Malawi, I designed Kasungu Pregnant Women's Waiting Village with a team from the MASS Design Group.

This is where women come six weeks before their due date.

This is where you get antenatal care and training in nutrition and family planning.

At the same time, they form a community with other pregnant women and their families.

The design of the Kasungu Maternity Waiting Village is built using very simple materials and techniques, borrowing molds unique to Malawian villages.

The blocks we used were made from the soil on this site.

This reduces the building's carbon footprint, but first and foremost, it provides a safe and dignified space for pregnant women.

These examples demonstrate the power and agency of architecture and design to tackle complex problems.

But more importantly, we can build models of effective solutions for our communities.

But three cases are not enough.

300 more cases wouldn't be enough.

The entire African community of architects and designers needs to lead the way with thousands more examples.

In May of this year, in Kigali, we held a symposium on African architecture, and invited many of the leading African designers and architecture educators from across the continent.

we had one thing in common

All of them went to foreign schools, outside of Africa.

this has to change

If we're going to create our own solutions, if we're not trying to turn Kigali into Beijing, and Lagos into Shenzhen, we need a community that fosters the design confidence of the next generation of African architects and designers.

(Applause) Last September, we launched the African Design Center and started building that community.

Hosted 11 trainees from across the African continent

This is a 20-month design and architecture training program.

Here they are learning to tackle big challenges like urbanization and climate change like Kunle and his team.

Like Kele and his team, we work with communities to create innovative architectural solutions and processes.

As we've done in the MASS design group over the last few years, they're learning to understand the health benefits of better buildings.

The best moments of this fellowship are the projects they actually design and build.

This is Ruhehe Elementary School, a project they designed.

They lived together in a community, they understood the challenges, and they discovered opportunities, such as using walls made of local volcanic stone to turn the entire campus into a space for play and active learning.

They also assessed the environmental conditions and developed a roof system that maximized sunlight and had good acoustics.

Construction of Ruhehe Primary School will begin this year.

(Applause) And in the coming months, the African Design Center trainees will build hand in hand with the community of Ruhehe.

When I asked the trainees what they wanted to do after their studies at the African Design Center, Tsepo, who is from South Africa, answered that he wanted to introduce this new way of building in his home country, so he plans to open his own practice in Johannesburg.

Zani wants to increase opportunities for women to become engineers.

Before joining the African Design Center, she helped launch an organization to close the gender gap in engineering in Nairobi, and she wants to spread this movement across Africa and, ultimately, around the world.

Moses is from South Sudan, the newest country in the world, and he wants to create the first technical school to teach people how to build with their native materials.

Moses needed determination to become an architect.

Civil wars in his home country interrupted his architectural education several times.

When I applied to the African Design Center, I heard gunshots in the background of my phone interview.

But even in the midst of civil war, he continued to believe that architecture was one way in which communities could be reunited.

I can't help but be impressed by this trainee's belief that good architecture will influence how Africa will be built in the future.

Africa's unprecedented growth cannot be overlooked.

Imagine the African cities of the future, not sprawling slums, but the most resilient and most socially inclusive places on the planet.

it is achievable

we have the talent to make it a reality

But the road to preparing that talent for the challenges of the future is, as it was for me, too long.

For the next generation of African creative leaders, we must make that journey shorter and more efficient.

But most importantly -- I can't stress this enough -- we must empower them to develop design confidence and to create solutions that are truly African and globally inspiring.

thank you

(applause)

I am excited to be here to speak to you.

I'm going to show you something that's just come out of the lab, and it's great that you'll be the first to see this in person. It's going to really change the way people interact with computers.

Here's a rear-projection drafting table that's about 36 inches wide.

Equipped with multi-touch sensors Kiosk terminals and

A typical touch sensor on an interactive whiteboard can only see one point at a time.

This can capture multiple points at the same time

You can use both hands Move your fingers at the same time You can use all 10 fingers if you want

like this

Multi-touch sensors are nothing new

People like Bill Buxton were working on it in the '80s.

My approach is to make high resolution, low cost, and more importantly, make it scalable.

So the technology itself, apart from the new accessibility, isn't very exciting.

What's interesting here is what you can do with it and what kind of interfaces you can build on top of it.

For example this is the lava lamp app

As you can see, you can use both hands to grab and clump together.

Can be heated by hand Can be torn off using two fingers

Totally intuitive No instructions required It's like the interface is gone

This was originally a kind of screensaver made by one of my doctoral students, Ilya Rosenberg, and putting it on this made it really interesting.

The nice thing about multi-touch sensors is that you can use many fingers, but it also means that you can have multiple users.

Chris can work on one side and I can work on another side at the same time.

I can imagine a new kind of sculpting tool that you can heat up so that it can change shape, and when it cools down it will harden in a certain way.

Google's lobby is likely to have something like this (laughs)

Now I'm going to show you a slightly more practical example, which is loading now.

This is a photographer's lightbox app

Again, you can use both hands to operate and move the photo

And the best part is that you can use two fingers to grab a photo and quickly stretch it.

You can easily pan, enlarge, and rotate

You can do it with both hands, or you can do it with just the index fingers of both hands.

You can do the same by grabbing the canvas itself

You can do it at the same time.

Again the interface is missing

No manual, works as intended

Especially if you have never touched a computer

I don't think it's a good idea to have a whole new generation of people using a standard mouse and windows in an activity like a $100 laptop.

I think this is how we should interact with computers going forward. (Applause)

Of course you can also bring out the keyboard

move around the screen

It's a regular keyboard, but you can resize it to fit your hand.

In this day and age, there's no reason people should adapt to physical devices.

That will only lead to bad things like repetitive stress disorder.

Today, with advanced technology, interfaces should be more personalized.

There's very little currently being done to improve the way we interact with interfaces in this direction.

This keyboard probably isn't the right way

Imagine how this kind of technology might develop in the future, where your keyboard moves with your hand movements and intelligently decides which key you're trying to hit.

Don't you think this is nice?

(Audience: What lab are you in?)

I am a researcher at New York University

This is another app where you can make little balls like this.

Record your finger movements, and of course you can use all your fingers.

As you can see, it's pressure sensitive.

Again, you can use two-finger gestures to quickly zoom, like the hand tool or the magnifying glass tool.

You don't have to switch, you can create at different scales simultaneously.

Make a big one over here, quickly go back and make a small one

This is going to be very important when you're trying to do things like data visualization, for example, we all really enjoyed Hans Rosling's talk.

He emphasized something that I had been thinking about for a long time.

I think graphics and visualization and interfaces can improve, and I think the biggest one is good interfaces that allow you to think big and drill down into your data.

Let's take a look at another app

This is what NASA made at WorldWind

I'm sure you all know Google Earth, and this is the open source version of it.

There is a plugin that can read various data that NASA has collected over the years

A two-finger gesture lets you zoom in seamlessly.

It's like there's no interface, anyone can use it, it works the way you think it does.

It's nice to be able to switch the type of data view

NASA is really cool

So here's a hyperspectral image that's been colored, so you can see the vegetation.

What makes this map app great?

It's not just 2D, but 3D, again using the multi-touch interface.

Gestures like this allow you to tilt and look, as opposed to just 2D panning and movement.

This is a gesture that we developed, where you put two fingers together to set the tilt axis and tilt up and down.

It's just something that came to my mind on the spot. It may not be the best way to do it, but with an interface like this, you can do interesting things like this.

I lose track of time when I'm playing (laughs).

This is the last thing I'm going to show you, but you can think of a lot of ways to entertain yourself with this.

I'm particularly interested in apps for creation

This app is simple Draw a curve

When closed, it looks like a character

The interesting thing about this is that if you set the control points

Being able to use both fingers at the same time

you will understand

It's like a puppet, drawing with a lot of fingers... it uses a lot of mathematics under the hood to control the mesh and make it move accordingly.

This technique of manipulating meshes with multiple control points is actually state-of-the-art technology.

Announced at last year's SIGGRAPH

This is an example of one of my favorite studies, using the power of computers to make things behave intuitively and in ways that people would expect them to do.

Multi-touch operation is currently very actively researched in the field of human interfaces.

This is what many people do, not just me.

I'm sure there will be more and more people working on this kind of technology, and I look forward to speaking with you over the next few days about how it can be applied in your field.

(Applause)

how to feed a city

This is one of the big problems of our time.

But it's also an issue that isn't considered much.

If you go to a store, a restaurant, or an hour later, into the break room of this theater, you'll take it for granted that food will magically come to you from nowhere and be prepared for us.

But when you think about how much food is produced, how it's transported, how it's sold, how it's bought, how it's cooked, how it's eaten, how much food is thrown away every day for a city the size of London, and it's happening in every city on earth, it's amazing that cities don't run out of food.

Where we live, we take it for granted, but we forget that we are animals, that we must eat, and that we are no different from our ancestors long ago in being dependent on the natural world.

And as more and more people lived in cities, the natural world turned into more and more amazing landscapes, like this soybean field in the state of Mato Grosso, Brazil, to feed us.

It's an amazing sight, but few people actually see it

And what's more, this landscape is becoming more than just a source of food.

More and more people moved to cities, they ate meat, and as a result, one-third of the world's annual crop is not fed to us humans, but to livestock.

If you raise livestock and eat them, you'll need three times as much grain, or ten times as much grain, as you would eat them directly, and that's not an efficient way to feed.

And this problem is getting bigger and bigger

By 2050, twice as many people are expected to live in cities.

And there's another prediction that we're going to double the amount of meat and dairy we consume.

Meat consumption and urban living are on the rise as two sides of the same coin.

That's about to create a very big problem.

By 2050, we will have to feed 6 billion people meat.

This is a big problem, and if we don't do something about it, it's likely to get out of hand.

Nineteen million hectares of rainforest are lost each year to make way for new crops.

But at the same time, we're losing the same amount of arable land to salt damage and erosion.

We are also greedy for fossil fuels.

Today, in the Western world, you have to use 10 calories of fuel to produce 1 calorie of food.

And it's food that's been produced at a very high cost, and we don't take good care of it.

Half of the food produced in the United States is wasted

And as a result of this long-term process, we can't even adequately distribute food on this planet.

Billions of people are obese and billions of people are hungry

What could be so unreasonable

And it's horrifying to think that right now, 80 percent of the world's food trade is controlled by just five multinational corporations.

As urbanization increases, diets around the world become westernized.

Looking to the future, this food supply is precarious.

why did this happen

I have to think more about what to do

Let's start by answering a relatively simple question. We believe that this process began about 10,000 years ago in the ancient Middle East, in what is known as the Fertile Crescent.

This region is shaped like a crescent moon.

It is also fertile land.

In this region, about 10,000 years ago, two extraordinary inventions, agriculture and urban life, were born in the same region at about the same time.

It's no coincidence that agriculture and cities are interconnected and need each other.

It wasn't until cereals were discovered by our distant ancestors that food production became sufficient, both in quantity and in security, to support a settled life.

And this sedentary life is about people becoming more densely populated.

Surrounded by agricultural land for food production, and a huge temple complex in the center, an example of which is this Ulu, which was, in fact, an efficient, religious, centralized food distribution center.

Because the temple planned the harvest, harvested the grain, offered it to God, and gave the people the grain that God did not eat.

You can think of it this way, that life in these cities was completely dominated, both mentally and physically, by the grains and harvests that underpinned people's livelihoods.

This applies to any city

But of course, not all cities were this small.

Famous cities include Rome, which had a population of one million in the first century AD.

How did a city like this get food?

The answer lies in what I call the "ancient food mile."

Originally, Rome had access to the sea, so food could be brought in from great distances.

In the ancient world, there was no other way to secure food. It was difficult to transport food using land roads. Roads were not built.

As you know, food is perishable.

In other words, Rome fought an effective war, fighting Carthage and Egypt, trying to gain access to its grain stores.

What this means is that empire expansion was some kind of very long, endless military shopping march.

(Laughter) In fact, let me tell you about one of my favorite facts. Rome was importing oysters from Britain at one point in time.

Rome expanded into the frontiers to satisfy its appetite.

But interestingly, there's also something else going on in the pre-industrial world.

If you look at a 17th-century map of London, you can see that grain came from the River Thames along the bottom of the map.

Because of this, the grain market is located in the southern part of the city.

And from these markets, roads lead to Cheapside, which was the main market, which was also the grain market.

If you look closely at the names of these streets, Bread Street, you can tell from the name what was transported on this street 300 years ago.

Of course, the same goes for fish.

Fish, of course, were brought from the river as well.

Billingsgate is, of course, the famous London fish market, which operated at this location until the mid-1980s.

it's pretty amazing that

Even when everyone walked outside with cellphones the size of bricks, the harbor smelled of fish.

This is another facet of urban food: once a city has established where the food is coming from, it's very unlikely that it will move.

With meat, the situation is quite different, because animals could move into cities on their own.

As a result, meat for London came from the northwest, from Scotland and Wales.

As we moved into the northwest of the city, Smithfield became London's most famous meat market, right here.

Chicken arrived in the northeast from East Anglia and elsewhere.

You look like a weather forecaster, anyway.

And when they got to the eastern end of Cheapside, they were put on the market there, so this place is called Poultry.

And like any other city, if it was built before the industrial revolution, you can use a map to track where the food came from.

Food can tell us how a city was physically formed, but we can also get a lot of clues by looking at street names.

Friday Street used to be the place to go fish on Fridays.

The name has the image of being full of food.

Because the streets and public places were the only places where food could be bought and sold.

If you look at a photograph of Smithfield in 1830, you realize how hard it was to live in a city like this and not worry about where your food came from.

Because, even if you try to eat lunch on Sunday, there is a high possibility that the lunch will have been chirping outside the window until about three days ago.

It was clearly an organic city, and this city was part of an organic cycle.

Ten years later, everything has changed

This is a picture of the 1840 Grade Western Railroad.

As you can see, early passengers included pigs and sheep.

All of a sudden, these animals weren't roaming into the market on their own.

Visually and mentally, it became processed far away, somewhere in the countryside.

Can now be transported to cities by train after being processed

this changed everything

First of all, it's because of this possibility that cities can grow to any size and any shape, regardless of where they are.

Until then, cities were limited by terrain, and had to rely on very difficult physical means to supply food.

But suddenly, I was completely freed from the limitations of terrain.

If you look at this map of London, you can see that it's been 90 years since the trains started running, and the food supply is no longer a problem. We've gone from a small point where it was enough for animals to move on their own, to a big magnificence.

This was just the beginning. Then came the train, then the car, and that process came to an end.

Finally, the time has come for the city to be completely liberated, to completely lose its tangible connection with nature.

And in a city like this, there's no smell, there's no mess, there's no people in the end, because who would want to walk in a landscape like this?

In fact, people started using their cars to get food, and they would drive somewhere in the suburbs, buy a week's worth of groceries, go home, and think, what am I going to make out of this?

This is exactly the moment when our relationship with food and with cities changed forever.

There's food, once the center of society in cities, even on the fringes.

Buying and selling food was a social event.

But now I don't see the other person's face anymore

We used to cook, but now you can just add water, add a few eggs and you can make things like cakes.

I don't smell it to know if it's edible

just look at the label on the package

disrespect and distrust of food

without trust and afraid of food

I don't value it and throw it away

One of the most ironic things about the modern food system is that doing what was promised to be easier has made what was easy difficult.

The fact that we can build cities anywhere, anywhere has taken us away from our most important relationship, our relationship with nature.

And it forced us to rely on the only system that could bring us food, and we all know that it's an unsustainable system.

so what should i do

this is not a new problem

500 years ago, Thomas More asked himself

This is the frontispiece of the book "Utopia"

Utopia was a collection of semi-independent city-states, in layman's terms, walking from one city to another in a day's time, and everyone was into farming, growing vegetables in their backyards, eating together in the area, and so on.

But here you might think that food is a fundamental hierarchy principle in utopia, even if More didn't put it that way.

There is another "utopia" Ebenezer Howard's "Garden City"

In the same vein as More, there are several semi-independent city-states, with small cities surrounded by farmland, and the cities are connected by railroads.

Again, food may be the ordering principle in Howard's vision.

Garden City was built, but it had nothing to do with Howard's vision.

And here's the problem with this utopian idea: Utopia is a fantasy.

Utopia is a word that Thomas More used with a certain purpose.

It's kind of a joke, and it has two meanings, derived from Greek.

wonderful places and places that don't exist

It's ideal, it's imaginary, and that's why you can't have it.

As a conceptual tool, I think utopia is not very useful as a conceptual tool for thinking about the deep problems of human life.

So I thought of something else, Sitopia, an ancient Greek word, 'sitos' means food, 'topos' means place.

We already live in Sitopia

We live in a world shaped by food, and if we recognize that, food can also be a very powerful tool -- a conceptual tool, a design tool -- one that can reshape the world.

What would Sitopia look like if we did

i think it might look like this

I used this slide because I liked the look of the dog.

In any case, this is -- (Laughter) food is at the center of our lives, it's at the center of our home life, and it's celebrated.

This is where food should be in our society.

But without people like this picture, this scene wouldn't exist.

it doesn't matter if it's a man

These are the people who think about food, they think, they plan, they can stare at a pile of vegetables, and they sort them out.

People like this have to exist, we're part of the network.

Without people like this, a place like this wouldn't exist.

I chose this photo because it was a man buying vegetables.

Network markets where food is locally produced

it's everyday and alive

become part of social life in the city

Without it, we wouldn't have a place like this, where the food is grown locally, which is also part of the landscape, and where the food isn't a zero-sum commodity, where the food would be sucked into some pitfall and disappear.

there is a cow

It's steaming humus

all things put together

It's also a community project, and I recently went to Toronto.

We have a greenhouse where the kids are taught all about food and grow their own.

It's a plant named Kevin, or it could be Kevin's, which one?

Anyway, projects like these that try to reconnect us with nature are extremely important.

So Sitopia is a way of looking at things for me.

It's a basic realization that Sitopia is already everywhere.

And then there's the question of how to connect them to use food as a way of looking at things.

If we can do that, we can stop thinking of cities as gigantic metropolitans that don't produce.

We're going to see the city this way, as part of a productive, organic foundation within which the city is necessarily part and symbiotically bound.

But that's not a big picture, of course, because we no longer need to produce food this way.

We have to think more about permaculture, and that's why I think this image shows what we think we should do.

It's a renewed awareness of how food shapes our lives.

I think the best images are from 650 years ago.

Ambrogio Lorenzetti's "Allegory of Good Government"

It depicts the relationship between the city and the countryside.

This message is clear

If the city thinks of the countryside, the countryside thinks of the city too.

Now the question I want to ask is, what would happen if Ambrogio Lorenzetti painted this painting today?

What does good government look like today?

I think this is an urgent matter

It is a question that must be raised, and that question must be answered.

We understand that food makes a person.

We should also understand that food makes the world.

If we embrace this way of thinking, we can turn food into a tool to improve the world.

thank you

(applause)

We're talking about the "how" here.

How, in fact, can we create world-shaking innovation?

Introduce a short episode

it was a little over a year ago

It's actually this day, but does anyone remember what happened on this special day?

It's February 3, 2008

Do you remember who you are? It's February 3, 2008. It's the Super Bowl.

I heard it over there. Yes, it was Super Bowl day.

Here's why that day was so important: When my colleagues John King, Haley Fisher-Wright, and I researched the various Super Bowl parties, we found that it was like board meetings of groups across America.

I was talking about something of national importance.

"How about this year's Budweiser commercial?"

"How does nacho taste?" "Which one wins?"

But we were also talking about, "Which candidate is better?"

Hillary Clinton was expected to be the Democratic presidential nominee on February 3rd.

There was also a survey result that eventually became president

But from what we've heard, groups across America seem to be narrowing down their candidates.

So what is a group? A group is much more than a team, and it's a group of 20 to 150 people.

There is a lot of work going on within these groups.

It's not just about work, it's about forming a society within a group, and important things happen.

So we took the organizers of the Super Bowl party as representatives of the groups, took a survey, and emailed the results to the editorial offices of 40 newspapers.

February 4th, just before the primaries started, we put it on our website.

"People we surveyed think Obama will win."

Now, the reason I know this is because I've spent the last 10 years studying groups, especially groups that form naturally.

everyone is part of the group

Those of you who walked around between lectures would have met and chatted with your peers.

A lot of them were doing what they wanted to do as a leader.

That's what a good group leader does.

Now here is the point

For example, let's take this crowd at a USC football game, and if you zoom in to see each individual with a supersatellite camera, you'll see that it's actually not one big crowd, but a bunch of smaller crowds.

But from a distance, it looks like a single group.

This is how people form groups.

It's always been that way and it won't be the same

People are designed to form groups, just as fish swim and birds fly.

now the trouble

Not all groups are the same, it varies by culture.

As a result derived from

everyone belongs to a group

Can you work with your group to progress through the stages of the group? I've divided the stages into five stages, and I've named the highest one Stage 5.

Let's start with what is called Stage 1

is the lowest stage

I don't want this

It's an image that I'm hesitant to project on a screen,

need to learn from here

Stage 1 members (worst life) do terrible things (worst life)

I'm a Virginia Tech shooter.

Stage 1 groups systematically separate people from the functioning group and bring together like-minded people.

Stage one is really gang culture, it's prison culture.

You will rarely be involved in Stage 1

But I'd like to point out that as a member of society, we have to be involved in Stage 1 as well.

don't abandon people

let's move on

As you'll notice, stage one is, so to speak, "life sucks."

In my recently published book, The Three Laws of Performance, my colleague Steve Zaffron and I argued that people do what they see in the world.

If you view life as the worst, you will unconsciously behave that way.

bare desperate hostility

They are willing to attack others to survive.

By the way, my birthday is approaching and my driver's license is expiring.

As for how it relates to this story, you'll soon run into a group of people called Stage 2 (my life sucks).

(Laughter) I'm not saying that you can find Stage 2 culture in every driver's licensing center around the country.

No, but if you go to the center near your house in a few days, you'll find yourself in the waiting line yelling, "So many idiots are still alive."

(Laughter) I think the people who work here are dumb.

i'm not saying

I'm questioning a culture that makes people stupid

Stage 2 culture is found everywhere, even in the best organizations in the world.

found throughout society

You can find them in organizations that everyone raves about as being the best in their ranks.

And here's the point: What if you put your thoughts out there like this, "My life sucks.

I wish I had the chance to go to TEDxUSC, but I can't go.

What do you think you're accomplishing by saying this?

What kind of innovation?

Will there be any action that will change the world?

would be virtually zero

So let's move on to Stage 3, and I'm sure many of you are close to this.

Many people enter stage 3

stop the car and stay here

Stage 3 is "I'm the best, but the people around me are different"

(laughs) I'm the best.

Imagine "I'm the best, but everyone's different"

A room full of people saying, "Compete with everyone and be the best"

It's a group of people who communicate and talk like that.

It sounds like a joke when you say, "Three doctors go to a bar."

3 doctors came in the elevator

I was collecting data for a book, and I happened to be there.

One says, "There's a paper in the New England Journal of Medicine." One says, "There's a paper in the New England Journal of Medicine."

One responds, "I didn't know. That's great. Congratulations."

Another doctor said with a wry smile, "While you were busy with research." He was condescending.

And the third doctor, with the same wry smile, said, "You're busy with research, you're busy with first-aid surgery. Surgery will eventually stop being human. It may not even be needed in the first place. I used to run a residency program. This is the future of medicine."

While smiling and praising each other

I got off the elevator that had just opened

This is the stage 3 group meeting

You see stories like this where smart, successful people gather.

For example, at a place like TEDxUSC

(Laughter) This is the next big challenge in innovation.

We are about to move from stage 3 to stage 4

watch a short video

It's a company called Zappos in the suburbs of Las Vegas.

The question is, what do you think they value?

It's not Christmas season, but there's a Christmas tree

in the lobby

Employees are volunteering at the advice booth

It's a booth that appears in the "Peanuts" cartoon.

Entering through the entrance hall-

It's a call center. What a decoration.

we were greeted with applause

I don't care if I don't know who you are.

See how it unfolds

How would you decorate your office?

What's important to Zappos people may not be what's important to you.

Fun and creativity are valued

"A little strange" is also mentioned

Don't you think it's a slightly different company?

When we come together and find something that connects us, we become stronger than we are and something important happens.

Groups melt together. What was once a collection of highly motivated but extremely self-centered people becomes a larger entity, a self-aware group.

Stage 4 populations can excel

but it's still not the best

one more stage

Some of you may not know where this is

The catchphrase for Stage 5 is "Life is the best," which may seem a bit contradictory.

This is a picture of the South African Truth and Reconciliation Commission, for which Desmond Tutu was awarded the Nobel Prize.

Think about it, South Africa is a society with terrible atrocities.

People got together and thought only about two values: truth and reconciliation.

No guidance, no one has ever done something like this before.

In a situation where people's values ​​and a higher cause were the only guideposts, this group achieved historic results.

At the time, people feared that South Africa would suffer the same fate as Rwanda: a civil war with no end in sight and constant fighting.

But South Africa was different.

It's a big reason that people like Desmond Tutu created the Stage 5 process, involving thousands and millions of people to make everyone involved.

So that's the conclusion that you can draw from what you've heard so far, as well as the results of our research.

I don't want to talk about stage 1

"Life is the worst" I don't like this

I'm sorry about the way you talk about your local driver's license center.

"Only you are the best" is also not good.

"We are the best" Feels good

But stage 5 is good, right? "Life is the best"

Actually, there are three things that are somewhat uncomfortable.

First, if you read the United States Declaration of Independence carefully, there's a passage that many people care about, and it's about basic human rights.

It's a stage five right, where life is the best, guided by our values, no other standards.

But in reality, a lot of the documentation is written at the Stage 2 level.

"My life sucks because I live under the rule of a tyrant named King George.

We're the best, aren't we? England! ”

Excuse me (laughter) Any other great leaders? Gandhi?

Martin Luther King?

I have no doubt they told people that life was the best.

little happiness and joy

But Martin Luther King's most famous quote was stage three.

It's not "We have a dream", it's "I have a dream"

I did it because most people aren't in stage five.

2% are stage 1

25% say "My life sucks" Stage 2

Forty-eight percent of the working-class cohort of employees say, "I'm the best, but not everyone else."

And every day I struggle, I expect politics

About 22% of the population is in Stage 4.

It is on these values ​​that we can unite.”

2% Only 2% make it to Stage 5

and they change the world

What this tells us is that leaders must be able to speak at all levels in order to reach out to everyone in society.

And don't leave people you meet there

Groups can only understand one level above or below.

So you need the ability to speak to all levels and adapt to it.

Then the leader encourages the people to take the group to the next level.

let me give you an example

I interviewed a man named Frank Jordan, the former mayor of San Francisco, and before that, the chief of the San Francisco Police Department.

He was originally raised in Stage 1

What changed his life The Boys and Girls Club What changed his life The Boys and Girls Club

So this is what happened, and later on, I became mayor of San Francisco.

"Life sucks, I'm full of enemies, but I'll do whatever it takes to survive," I went into the Boys and Girls Club and sat on a chair with my arms crossed and said, "Oh my life sucks.

there are no good guys

I'd be better off if I was into boxing like everyone else I'm still the worst

I don't want to do anything even if I sit here."

actually making progress

People move from Stage 1 to Stage 2 by joining new groups, and they connect over time.

So what about moving from stage 3 to stage 4?

that's exactly what's happening here

Some of the values ​​that TED recognizes, and by acknowledging and connecting with these values, really interesting things are starting to happen.

If you want this experience to be a lasting and precious one, then at tonight's reception, do a little more networking than you normally would.

As well as meeting new people and expanding your acquaintance and influence, try introducing someone you don't know to someone you don't know tonight.

It becomes a three-way relationship.

It's the behavior of those who create groups that change the world.

So that your group grows bigger, you don't just connect with yourself, but connect groups with each other. If you connect people who don't know each other, connect them to something bigger.

increase the value of each group

And there's still a long way to go. Stage 4 is great, but how do we get from stage 4 to stage 5?

And that's the end of today's story, about Gallup.

It's a company that conducts polls.

It's stage 4 We're great Who else?

Other polling companies don't.

Even if NBC announces its findings on the same day as Gallup, Gallup gets more attention, you know.

that's why they're bored

Gallup wanted to change the world, and they ask me,

"Can't we do a survey of what the whole planet thinks, instead of a survey of what people think about Obama vs. McCain, instead of asking what people think about Obama vs. McCain?" ”

And so we figured out how to do the first ever world poll.

It involved Nobel Prize winners in economics who said they had too much time on their hands.

All of a sudden, I pulled out a stack of papers and started thinking, "How do we study people in Sub-Saharan Africa?"

Research into people who don't have access to technology, who speak different languages, who don't even know who speaks it, and that's what we need to be able to do in order to fulfill this important task.

By the way, they actually succeeded.

The first-ever world poll was conducted

Finally, let's summarize

First of all, we all form groups.

I'm in a group here too. Please expand your group circle.

Now the big question is this: what kind of influence does the group you belong to have?

A series of presentations, often speaking on behalf of the groups and collectives to which they belong, about how they changed the world.

As I told you today, ask how people in your group interact.

Encourages you to move forward instead of staying there

Please be able to explain the 5 cultural stages

I am surrounded by people of all stages.

Finally, I have a question for you: "Will your collective change the world?"

thank you

(applause)

I am a writer

I'd like to share a few personal stories about what I call "the danger of a single story."

I grew up on a university campus in Eastern Nigeria

My mom says I started reading when I was two, but I think I was right when I was four.

I was reading British and American children's books.

When I was about seven years old, I started writing stories with crayons, and I would have my mother read them to me. The stories I write are exactly the kind of stories I read. The characters were all blue-eyed, white people.

(laughs) Actually, the sun was blazing.

At that time, I had never been abroad.

It didn't snow, and I was eating mangoes, and the sun was shining, so the weather wasn't an issue.

A character in my book also drank ginger beer a lot, though I didn't know what it was

because the characters were drinking

(Laughter) For years after that, I desperately wanted to try ginger beer.

But that story is for another time

I think this demonstrates the sensitivity and susceptibility of us, especially children, to stories.

All the books I'd read had foreign characters, and I was under the impression that the books had to be about foreign characters and something that I couldn't relate to.

I read a book about Africa and it changed my way of thinking.

There weren't many African books published, and they weren't as readily available as foreign books.

Writers like Chinuwa Achebe and Kamala Rai changed the way I looked at literature.

A curly-haired girl with chocolate skin like me who can't wear a ponytail can be a character.

I started writing what I noticed

Aroused my imagination and opened up a new world -

I loved American and British books, but

It was an unintended consequence that I didn't know that people like me would appear in literature.

Knowing an African author saved me from a single story about what a book is.

I come from a normal Nigerian middle class background

My father is a university professor and my mother

was a director of the company

So it was normal for our family to have live-in helpers, usually from nearby villages.

The year I turned eight, I hired a new boy.

his name is fide

The only thing my mother told me about him was that his family was very poor.

My mother sent him home yams, rice, and our old clothes.

When I left the food, my mother used to say, "Eat it all. There's nothing like Fide's family."

I feel sorry for Fide's family

One Saturday, I visited his village, and his mother showed me a lovely basket of palm leaves that Fide's brother had woven.

i was surprised

It never occurred to him that his family could create something.

All I heard was that they were poor, so I couldn't associate them with anything else.

Poverty was their single story I hold

Years later, when I left the country to attend college in the United States, it got me thinking about this.

i was 19

American roommate surprised

I asked him where I learned English, and when I told him that Nigeria's official language was English, he was confused.

She wanted to hear my "tribal music" and was disappointed when I showed her a Mariah Carey tape.

(Laughter) She assumed that I wouldn't know how to use the stove.

I was taken aback by the fact that you had sympathy for me even before we met.

Her standard view of me as an African was pity.

Her African single story was an African tragedy.

In that single story, there was no way an African could be like her, there was no emotion more complex than pity, and we weren't seen as equals as human beings.

I didn't think of myself as African until I went to America.

Even though I don't know a place like Namibia

When I said Africa in America, I got the attention.

But I've come to terms with this new identity, and I now consider myself African in many ways.

It still haunts me that Africa is considered a country, but two days ago I flew out of Lagos on Virgin Air, which was comfortable, but there was a charity onboard announcement that said, "India, Africa and the rest of the world."

(Laughter) After living in America as an African, I've learned to understand my roommate's reaction.

If I hadn't come from Nigeria, and had gotten my knowledge of Africa from images, my impression would have been of beautiful landscapes, animals, and senseless wars -- people I didn't understand, dying of poverty and AIDS, people who couldn't speak their minds, waiting for the help of a kind white man.

You must have seen Africans the way you saw Fide's family when you were a kid.

I think the African single story comes from Western literature after all.

Here's a quote from John Locke, a London trader who sailed to West Africa in 1561 and wrote an interesting account of his journey.

After describing black Africans as "homeless beasts," he writes, "They are men without heads, with mouths and eyes in their chests."

I laugh every time I read this

Hats off to John Locke's imagination

In short, his writings represent the origins of African lore in the West, sub-Saharan Africa, a place of unrequited darkness, where people are, in the words of the great poet Rudyard Kipling, "half devil, half child."

I began to realize that my roommate must have seen and heard different versions of this single story all his life, and so must the professor who called my novel not "true Africa."

I admit that there are many errors and immaturities in my novels, but I never imagined that they would not live up to what is called true Africa.

I didn't even know what the real Africa meant.

My professor told me that the character I was writing was an educated, middle-class man like him.

drive a car

because he didn't suffer from hunger

It wasn't "true Africa."

But I can't say I'm new to single stories either.

A few years ago, I went to Mexico from America.

At that time, the political climate in America was tense, and there was a debate about immigration.

As is often the case in America, immigration has become synonymous with Mexican.

The story goes on and on about Mexicans abusing the health care system, sneaking across the border, and being arrested at the border.

On my first day in Guadalajara, I watched people go to work, ate tortillas, smoked cigarettes, and had a good time.

I remember being a little surprised at first.

and was overwhelmed with shame

So immersed in the media coverage of Mexicans, I realized that I thought of them as nothing more than miserable immigrants.

I accepted their single story - I was so ashamed of myself

This is how a single story is created, it's shown to people over and over again as a unique one, and it's created.

You can't tell a single story without telling influence.

When I think about the power structures of the world, there's a word from Igbo that I always think of: nkali.

It's a noun that can be paraphrased as "to be greater than others."

Like the world of economics and politics, narratives are defined by the laws of Nkali: how, who told them, when and how much they told, and that depends on influence.

Influence is the ability to not just tell a person's story, but to create a complete and accurate story about that person.

A Palestinian poet said that if you want to get people out, the easiest thing to do is start with "secondly" and tell their story.

If you don't start your story with the British reaching America, but with Native American arrows, you've got a very different story.

If you don't start your story with the colonization of Africa, but with Africa's problems, you have a very different story.

Recently, when I gave a lecture at a university, a student said, "It's a pity that Nigerian men are physically abusive like the father in my book.

I told him that I had read "American Psycho" recently.

(Laughter) (Applause) Clearly a bit of an annoyance.

(Laughter) It never occurred to me that just by reading a novel about a serial killer, that character would be representative of all Americans.

Not because I was smarter than that student, but because of America's cultural and economic influence, I had a lot of stories about America.

I read it as Tyler Updike Steinbeck Gaitskill.

There was no single story in America

A few years ago, when I heard that successful writers had to have had unhappy childhoods, I started thinking about how I could create something horrible that my parents did to me.

(Laughter) But the truth is, I had a childhood full of laughter and love in a close-knit family.

But I also had a grandfather who died in a refugee camp.

A cousin died from inadequate medical care

There was no water in the fire engine, and my best friend died in a plane crash.

I grew up under a repressive military regime that didn't value education, so my parents' salaries weren't paid at times.

So at that time jam disappeared from the table, then margarine disappeared, bread became very expensive, and milk became restricted.

Above all, ubiquitous political fear has invaded our lives.

All of these stories make me who I am today

But to insist on only the negative stories undermines my experience and overlooks the other stories that made me who I am.

Single stories create stereotypes, and the problem with stereotypes isn't that they're unfaithful, they're imperfect.

turns a story into a "only story"

It is true that Africa is a continent full of misfortunes, unfathomable tragedies like the ongoing rape in Congo, depressing facts like 5,000 people applying for one job in Nigeria.

But there are stories that have nothing to do with unhappiness, and it's important to talk about them.

I always feel that it's impossible to get involved in all the stories of a place or a person without being involved in them without making mistakes.

The result of a single story is that it "deprives people of their dignity."

make it difficult for us humans to perceive equality

Emphasize our differences over our similarities

What if, before the trip to Mexico, I had paid attention to the immigration debate from both the American and Mexican sides?

What if my mother had told me that Fide's family was poor but hardworking?

What if there was an African TV station that showed different Africans to the world?

What Nigerian author Chinua Achebe called “narrative balance”

What if you knew Mukta Bakare, a Nigerian roommate who left a bank to start a publishing company in pursuit of his dream?

The conventional wisdom was that Nigerians don't read literature.

Baccarat has a different opinion

The view was that if literature became accessible, people who could read would read it.

Shortly after he published my first book, I was interviewed by a television station in Lagos, and the lady who worked there said, "The novel was very good, but I didn't like the ending.

I want the sequel to be written like this.”

(Laughter) And she kept telling me what to write about in the sequel.

I was not only fascinated, I was impressed.

How could a normal Nigerian, who shouldn't be reading, have a woman like this!

She did her duty not just to read the book, but to tell me what she would write for the sequel.

What if my roommate knew my friend, a TV host who speaks openly about our past wrongdoings?

What if your roommate knew about the heart surgery you had in Lagos last week?

What if she knew contemporary Nigerian music? Jay-Z Felakti Bob Marley Talented people who sing in English Blended Igbo Yoruba Ijo mixing influences from their own grandfathers.

What if your roommate knew a female lawyer who recently challenged a Nigerian court about a ridiculous law that says a woman must have her husband's consent to switch passports?

What if your roommate knew the innovative people who make Nallywood movies despite their technical handicap? Movies are so popular that they're the best example of how Nigerians are consuming a product that they've created themselves.

If you start a business selling extensions - my ambitious hair braider or start your own business

What if your roommate knew about the millions of Nigerians who still have ambitions despite their occasional failures?

When I go home, I am always confronted with the problems of infrastructure and government that are the source of my frustrations with Nigerians, but despite that government, I also find the amazing resilience of healthy people.

I teach writing in Lagos every summer, and it's amazing how many people sign up and want to write.

My publisher and I started a non-profit organization called the Farafina Trust. Our big dream is to build new libraries, renovate old ones, donate books to empty public schools, and open reading and writing institutes for all who want to tell their stories.

The impact of stories is great.

there must be different stories

Stories have been used to plunder and slander, but stories can also empower and humanize.

Stories can shatter human dignity, but they also have the power to repair shattered dignity.

American author Alice Walker has written a book about relatives who moved from the South to the North.

She introduced the relative to a book about life in the South that had ended.

“They read leisurely, listened to me read aloud, and a kind of utopia was restored.”

My message is that when we put aside the single story and realize there is no single story anywhere, we regain a kind of utopia.

thank you

(applause)

I would like to play the game first

If you can see the reality in front of you as it is, you win Okay?

There are two panels with colored circles on them.

There's only one thing that's the same color on both panels.

guess which one it is

Let's choose from three colors: gray, green, and orange.

Raise your hand, it's the easiest question

Hands up, who thinks it's gray?

is that so

who thinks it's green?

Who thinks it's orange?

neatly divided into three

let's see if it's actually

first, orange

(Laughter) Then green.

and here is the gray

(Laughter) You guys are realists looking at this.

(Laughter) You must be surprised.

Almost all living things have developed the ability to sense light.

So seeing colors is one of the simplest functions the brain does.

But even at this basic level, circumstances are everything.

What I want to tell you is not that circumstances are everything, but why they are.

The answer to that question is not just why we see it that way, but who we are as individuals and as a society.

But first we have to ask another question, "What is color for?"

Show more than tell

This is a scene in the jungle, looking at the spectacle created by the amount of reflected light.

Can you see the predator trying to pounce on you?

If you can't see it, it's done

(laughs) Who knows? Nobody is here?

Let's take a look at the spectacle created by the quality of reflected light

I can see it now

Through the spectrum of light reflected by objects, color allows us to distinguish between similarities and differences in appearance.

But that's mathematically impossible in many ways.

because, as Berkeley says

This is because we have access to the physical world only through our sense organs.

The light that enters our eyes is affected by many factors in the outside world, not only the color of the object, but also the color of the lighting and the color of the space between that object and us.

Changing even one of these parameters changes the color of the light entering the eye.

This is a big problem, because there are an infinite number of possible combinations of light sources that produce the same color.

This is what it is

These two are projections of the outside world.

are exactly the same

shape, size and spectral content

As far as the eye can perceive, they are the same

But those two come from completely different sources.

On the right is the shadowed area on the left of an object with a yellow surface, viewed through a pink medium.

On the left is an object with an orange surface that is receiving direct sunlight from the right, viewed through a bluish medium.

It's a completely different thing, but it gives the retina the same information.

And all we get is information to the retina.

If so, can we say that we are seeing?

What I want you to remember in this 18-minute talk is that the information you see is sensory information and it doesn't make sense. It can literally mean anything.

The same is true for most other information.

information has no inherent meaning

What matters is what we do with that information.

So how do we see by learning to see

The brain has evolved a mechanism that finds patterns and relationships in information, and connects those relationships with the meaning and importance of actions as it interacts with the outside world.

You can see this if you think of something that has more cognitive properties, like words.

here is the string try to read

Audience: "Can you read this?"

"I'm not reading this"

"What are you reading?"

BL: "What are you reading?" half the letters are gone

There is no a priori reason why "H" must come between "W" and "A"

But I did. Why?

Because I thought it was useful from the accumulation of past experiences, so I did it again

But I didn't put a letter after the first "T"

why? because it didn't work in the past

so i didn't do it this time

Let me show you how quickly the brain redefines normality, even for the simplest thing: color.

dim the lights

These two desert landscapes are physically identical

they're just inversions of each other

Now look at the dot between green and red.

stare at that point don't look away

Please keep looking there for 30 seconds. It's hard to spend 30 seconds in an 18-minute talk.

(Laughter) But I really want you to know.

- don't look away - this is what's going on in your head

The brain learns that the image on the right is lit by red light and the image on the left is lit by green light.

that's how the brain learns

On cue, look at the point between the two desert landscapes

here you are

(Laughter) Please turn up the lights.

I know from your reaction that the two don't look the same anymore

(Applause) Why? Because the brain keeps seeing information that the image on the right is still under red light and the image on the left is still under green light, and that's the new normal.

This is what it means

You have two identical squares, one with a bright surrounding and the other with a dark surrounding, so the square with the dark surroundings appears lighter than the square with the bright surroundings.

The point is that it's not just light and dark circles that matter.

What meaning they gave to their past actions

I'll show you what

Here is a hallucination that looks exactly the same

It's two identical tiles.

same on the right side

We're going to look at these two scenes again, but nothing inside the tiles changes, except for the implications.

See what happens to your perception

On the left, the two tiles appear to be in perfect contrast, one white and one dark.

But on the right, the two tiles look pretty much the same.

But one has a dark surrounding, and the other has a bright surrounding.

I wonder why? If the tile in the shadow is

Because if it's actually in shadow, and it's delivering the same amount of light to your eye as a tile that's out of shadow, it should be more reflective -- that's the law of physics.

That's why the brightness looks different

On the right side, the information is consistent, and the two tiles are under the same light.

If the same amount of reflected light reaches the eye under the same light, they should both have the same reflection.

so it looks the same brightness

Collecting this information can create very powerful hallucinations.

this is what i made a few years ago

You can see the dark brown tiles on the top and the bright orange tiles on the side.

perceptually it's real

But in physical reality, those two tiles are the same.

There are 4 gray tiles on the left and 7 on the right.

The tiles don't change anything, but if you change other parts,

change in perception

The four blue tiles on the left are actually gray.

The 7 yellow tiles on the right are also actually gray.

y'all are the same

can't believe it? let's look again

What is true of color is also true of the perception of complex behavior.

Here - let's turn this over - there's a diamond

Hold here and rotate

I think it looks like it's rotating in this direction

please keep watching

Move your eyes, blink, close one eye

Suddenly the motion reverses and starts spinning in the opposite direction

did it become? Raise your hand if that happens

Keep blinking, every time you blink you change direction, right?

Which way is it spinning?

how do you know that

The brain doesn't know, because it's equally possible either way.

You go back and forth between two possibilities depending on where you look.

Are humans the only ones who see hallucinations?

wrong

Bumblebees have only 1 million brain cells, 250 times less than the human retina, but they still see hallucinations, a very complex process that even the most advanced computers can't do.

In my lab, we study bumblebees, so we can have complete control over their experiences and see how they affect the structure of their brains, in a box we call the "bee matrix."

There is a beehive and there is a queen bee

It's the big bee in the middle, surrounded by bee larvae and eggs.

between the nest and the feeding ground

come and go through this tube

one bee comes

Can you see the small numbers?

Another one has arrived with a different number.

It's not like I was born that way

take them out and put them to sleep in the fridge

And then they number it with instant glue. (Laughter)

In the experiment, bees get a reward when they go to a blue flower.

It can swoop down on a flower and stick its tongue, called a proboscis, to suck sugar water.

This bee sucks sugar water from a cup about this size, repeats it about three times, and flies away.

Instead of going to the blue flower, it sometimes learns to go to the same place as other bees.

They imitate each other. Bees can count to five and can recognize faces.

a bee came down the stairs

I went back to my hive, found an empty honey jar, and spat it out. This is honey.

(Laughter) Remember -- (Laughter) the bee has to go to the blue flower, but what's going on in the top right corner?

looks like it's heading towards a green flower

Am I wrong?

No it's actually a blue flower

A blue flower with green light

The bees are using color relationships to solve puzzles, just like we do.

Hallucinations are often used, especially in the art world, to "show the helplessness of the senses," as a modern artist puts it.

It's a completely unsatisfying statement

Senses are not unreliable, otherwise we wouldn't exist.

Color tells us something else entirely: the brain didn't evolve to see the world as it is.

Instead, the brain sees the outside world as it has served to see it in the past.

I have evolved to see

Vision is shaped by a constant review of normality.

How can we convince people of the amazing flexibility of their brains, to see the world in a different way?

What I'm doing in my lab is translating light into sound so that you can hear the visual world.

Then you can explore the outside world with your ears.

On the right is David with a camera.

Camera image on the left

You can see the thin line through the image

The line is divided into 32 divisions

An average color is calculated for each

replace that color with sound

David turns and closes his eyes, still trying to find the plate on the ground.

i found it that's awesome

Not only can we build a device for the blind, but we can also explore how we perceive the world around us.

You can also do other things, like add color to the sounds.

I asked the children to draw a picture, and then I wondered what it would sound like if they could hear the words in the picture.

then translate the picture

Here is an example

A 6-year-old is writing music for a 32-piece orchestra.

I hear this sound

I'm a six year old

What this tells us is

It means that no one can be a bystander of nature.

we are not defined by ourselves

It is determined by the surrounding environment and the relationship with the environment, in other words, by the ecology.

Its ecology is relative, historical, and empirical.

tell the last story

What I'm trying to do is celebrate uncertainty

because it can only be understood through uncertainty

If any of you are still convinced, try this.

please turn off the lights

Here - on the left side there's a board with 25 purple holes, and on the right side with 25 yellowish holes.

So let's get started. Place the middle nine under a yellow light, just filter them.

You can see that the light coming out of there has changed.

Light is coming through a yellow filter and a violet filter.

do the same for the left side

Place the middle 9 pieces under the purple light

As you can see, the light coming through the middle nine is exactly the same on the right or left as the other.

Sounds good?

the same physical light

let's remove the cover

Remember, the middle nine are exactly the same.

do they look the same? I can not see

Is this a hallucination?

I'll leave it to your imagination

thank you very much

(applause)

Now, what I'm going to talk about is about the space that men create for themselves. But first, why am I here?

There are two reasons for that. These two, Ford and Ren, are my sons.

When Ford was about three years old, we shared a small room, a very small space.

My office occupied half the bedroom and his bedroom was the other half.

As you can imagine, if you have a writer at home, it can get pretty busy when deadlines are approaching.

So when Ren started growing up, he realized he needed his own space.

There's no more room in the house, so I set my sights on the backyard, and then I built this space with no experience in architecture, and about $3,000, and repurposed stuff.

Everything I needed Quiet

We had plenty of room, and very importantly, we had control.

As I was creating this space, I secretly thought, "There must be other people who have had to create their own spaces."

That's why I started researching

And I discovered that there was a historical precedent.

Hemingway had his own study

Elvis had a few spaces, which is pretty unique considering he lived with his wife and mother in Graceland.

In popular culture, Superman had his Fortress of Solitude, and of course, the Batcave.

So I thought I'd take a trip and see what people are making today.

This is one of the first spaces I found, in Austin, Texas, where I'm from.

From the outside, it's a charming garage like any other.

inside is something completely different

This seemed to me to be a very traditional space.

There are neon lights, concert posters, bars and of course leg lamps to set the mood.

Later I realized that the man's space is not limited to the inside.

He built a bowling alley in his backyard that blends well with timber and artificial turf.

Scoreboard uses waste

This is another outdoor space, a more sophisticated one

A 1923 wooden tug made entirely from Douglas fir.

he completed this all by himself,

Approximately 1000 square feet of living space inside

Now, as soon as I started doing this research, I realized that things weren't quite what I expected: pyramids of beer cans, overcrowded couches, flat-screen televisions.

It's definitely a living space.

It's also a place to work, play, and collect things.

I was just amazed at what I discovered

see this for example

From the outside it's a typical northeastern garage

this is long island new york

Are you a little worried about the round window?

Seen from the inside, it's a reproduction of a 16th-century Japanese tea house.

He imported all the materials from Japan and hired Japanese carpenters to build it according to traditional forms.

No nails or screws used

All seams are hand carved

This is another quintessential Las Vegas suburban landscape

But open one of the garages and you'll find a professional boxing ring.

(Laughter) There's a reason for that.

Created by Wayne McCuller

The man who won the silver medal for Ireland in the 1992 Olympics, he trains in this space, and he trains other people.

Right next to the garage is the trophy room, where you can immerse yourself in your accomplishments, another important aspect of the man's space.

If this space represents its owner's profession, then this definitely represents their passion.

Modeled after the interior of an English sailing ship

A collection of antique sailing ships from the 18th and 19th centuries

Museum quality

I've discovered over 50 spaces on this journey.

Surprisingly, not what I expected

At the same time, I was impressed with how much individuality was expressed and how much effort was put into it.

And I think that's because all the people I've met are passionate about what they do.

they love their profession

We are passionate about our collections and hobbies

So we tried to create these spaces to reflect what we do and who we are.

If you don't have a space of your own yet, you should find one and start doing it.

Thank you very much

(applause)

the invisible essence of things

City of the past City of the future

Here at Oxford, quoting Lewis Carroll, let's look at New York City in the mirror and find out who we really are, or let's go to another world.

In the words of Scott Fitzgerald, "As the moon rose higher, the streets melted away, and I remembered what was once an island, in the bosom of the new world, which fascinated the eyes of a Dutch sailor."

My colleagues and I have been working for 10 years to rediscover this lost world, a project we call the Mannahatta Project.

We're trying to recreate what Henry Hudson saw when he arrived in New York Harbor on the afternoon of September 12th, 1609.

Let's tell the story in Act 3, and an epilogue if we have time

Then Act 1 “Discovered Map”

i'm not from new york

I'm originally from the Sierra Nevada mountains in the west, here in Red Rock Canyon.

Those childhood experiences also made me love landscapes.

By the time I got to graduate school, I was majoring in a new discipline, landscape ecology.

Landscape ecology explores how streams, grasslands, forests and cliffs shape the habitats of plants and animals.

Because of this experience and training, I got a job with the Wildlife Conservation Society, which works to protect wildlife and the environment around the world.

And in the last ten years, I've traveled to more than 40 countries to see jaguars, bears, elephants, tigers, rhinos.

But when the trip is over, I always go back to New York

And on weekends, like other travelers, I climbed up to the Empire State Building observatory, overlooking this landscape and ecosystem, and wondered, "How can I see the flora and fauna habitat from this landscape?

How is a home made for an animal like me? "

I went to Times Square and saw ads of beautiful women and wondered why no one wanted to see the historical figures behind them.

And I would often go to Central Park to see the calm terrain of the park, which contrasted with the rugged buildings of Midtown.

I started reading New York history and geography

I learned that in 1950, New York was the first major city to exceed 10 million people.

I have also seen paintings like this

Dear New Yorkers, this is 125th Street under the West Side Highway.

(Laughter) It used to be a beach, and in this painting, the artist John James Audubon is sitting on a rock.

And it depicts the wooded mountains of Washington Heights and Jeffreys Hook, where the George Washington Bridge now spans.

Also this painting is Greenwich Village circa 1740

They were students at King's College, later Columbia University, sitting on a hill overlooking the valley.

I went to Greenwich Village and looked for this hill, but I didn't see that palm tree either.

What happened to the palm trees?

(Laughter) And as my research progressed, I found a map.

this is the map

It's part of a geographic information system, and you can zoom in.

This isn't Hudson's time, 170 years later, by a British cartographer who occupied New York during the American Revolution.

This is an amazing map, kept in the National Archives at Kew.

3m long and 1m wide

If you zoom in on Lower Manhattan, you can see New York exactly as the Revolutionary War ended.

This is Bowling Green, this is Broadway

city ​​hall park

Up to City Hall Park was the main urban area

And the terrain that can be seen beyond that is a lost form that has disappeared.

This is Collect Pond, which served as a source of water for Native Americans for the first 200 years of New York and for thousands of years before that.

Rispenard Prairie stretches into today's Tribeca, and the beach extends from the Battery to 42nd Street.

This map was created for military purposes

Constructed roads, buildings, and fortifications are depicted.

But they depict hills, swamps, and streams that are of ecological interest beyond military purposes.

This is Richmond Hill and the Minetta River, which once flowed through Greenwich Village.

Gramercy Park wetlands are here

Murray Hill and this is Murray's house in Murray Hill 200 years ago.

This is Times Square. At the end of the Revolutionary War, Times Square had two creeks that converged to form a wetland.

I saw this amazing map in a book

I thought, "If we could locate this map, if we could draw it on the topography of today's cities, we might be able to superimpose it on the blocks of places we know where people work, live, and eat, and then superimpose them on places where people work, live, and eat, and recreate the features of this lost land."

And so we painstakingly completed the positioning, and as a result we were able to draw the city's present-day streets, buildings, squares, and so on, so that we could zoom to the collect pond.

You can digitally display collect ponds and streams, and recreate where they were on the current city terrain.

It's fun to find out what the terrain used to be and what it looks like today.

but i had another idea

If we remove this street, remove the building, remove the square, this is what happens.

If you remove the 18th century features, you can go back in time.

We can extract the basic features of the ecological landscape, which are the ecological essence: hills, streams, basic hydrology, coastlines, beaches.

Then, by overlaying the geological bedrock, the surficial glaciers, and creating a soil classification map for the 17 different soil types defined by the U.S. Soil Conservation Service, and then drawing a digital elevation model that shows the height of the hills, we can calculate the slope of the land.

Appearance can be calculated and displayed

Wind direction and speed in winter You can calculate how the wind blows

This white area on the map is where the winter wind doesn't hit

We collect all Delaware Native population information

I made a map of where they supposedly lived

The red areas on the map are the most sustainable places to live, close to water, close to fishing bays, away from the winter winds.

We know there was a Delaware settlement around Collect Pond.

They also did horticulture and had beautiful gardens where they grew three major crops: corn, beans and gourds.

So we deduced where the garden was.

It is a land that was once connected to the land.

Abandoned land you might think

But it was actually a grassland, a habitat for birds and plants.

The grasslands were connected to the shrublands, which together made up the whole ecosystem.

We know that Manhattan had 55 different ecosystems.

These were neighborhoods, so to speak, with their own characteristics, like Tribeca, the Upper East Side, and Inwood: forests, wetlands, marine communities and beaches.

55 is a pretty big number, because per unit area Manhattan was a richer ecosystem than Yosemite or Yellowstone or Amboseli.

It was a truly amazing landscape that could support extraordinary biodiversity It was a truly amazing landscape that could support extraordinary biodiversity.

Then Act 2 “The Rebuilt Hometown”

We studied fish, frogs, birds, and bees. We found 85 species of fish that live in Manhattan. We wanted to learn how the now-extinct Heath Hen bird, beavers and black bears that lived in every creek, and how indigenous people used the landscape and thought about it.

We tried to represent them, we tried mapping the habitat requirements.

where did they get their food?

What about water? Where do you live?

What about recyclable resources?

For ecologists, these intersections are their habitats.For ordinary people, these intersections are their homes.

It's a notebook for living, so to speak. It's a notebook that can be found in every home. What a beaver needs is "poplars, alder trees, willows nearby, a slow flowing stream." That's the best place for a beaver.

So we started making a list

This is the beaver, and this is the stream, the poplar, the alder tree, the willow.

It's kind of like, something that helps us predict when we'll find a beaver.

Wood turtles need moist grass, insects and a sunny spot.

Bobcat needs a rabbit, a beaver, a place with a cave

And suddenly we realized that a bobcat needs a beaver, and suddenly we realized that a bobcat needs a beaver.

But beavers also have needs, and when you connect those needs, you can create a picture of the ecology of these species.

I also realized that it's possible to start with a beaver expert and know the poplar's needs.

Poplars need fire and dry soil.

You can also know the needs of the wetlands

To create a swamp you need a beaver and a few other things.

You can also talk about sunny places

What does a sunny location need, not just a habitat?

What kind of conditions should be met?

What about fire? Dry soil?

These can be arranged and expressed on a table consisting of a thousand columns and rows.

And you can visualize the data like a social network.

This is a diagram of all the interconnected networks that show the mutual needs of the flora and fauna that inhabited Manhattan, all the way back geologically, temporally and spatially to the core.

It's called the Muir Web, and when you zoom in, it looks like this.

Each point represents a different species or water flow or soil classification.

A thin gray line connects those elements

Those lines create a natural elasticity

It's this structure of all the building blocks that makes nature work.

It's named after the Scottish-American naturalist John Muir, who said, "If you try to pick something by yourself, it's bound by a thousand invisible strings that you can't untie and are connected to everything in the universe."

We laid out the Muir Web on the map

For example, 85th Street, 86th Street, Lexington Avenue, on a block surrounded by Third Avenue, there used to be a stream.

There would have been trees, flowers, lichens, mosses, butterflies, fish in the streams, and birds in the trees.

There might even be a rattlesnake

There were black bears walking around, and there were indigenous people.

I used the data like this

can be found on our website

You can zoom in on any block of Manhattan and see what was there 400 years ago.

The scenery seen like that is the third act.

We used the same tools that Hollywood uses to create the stunning landscapes you see in the movies.

Visualize Third Avenue

First draw the topography of the landscape

It projects the soil, the water, and the landscape onto it.

and draw an ecosystem

Project more species

It's like a live-action shot of the Hudson River from Times Square, waiting for explorer Hudson to arrive.

Thanks to modern technology, we're able to recreate these amazing old terrains.

You can see a 400-year-old landscape from the window of any building in Manhattan.

The view from the East River, looking up at Murray Hill, where the United Nations Headquarters is today.

Overlooking the Hudson River, Manhattan on the left, New Jersey on the right, and the Atlantic Ocean in the background.

This is Times Square, and you can see Beaver Pond, looking east.

Collectpond Rispenado is in the distance

See the fields plowed by the indigenous people

You can also see it in the current urban terrain

For example, in the drama "Law and Order," a lawyer walks down the steps of a New York courthouse, and 400 years ago, there was the lake of Collect Pond.

These videos were produced by my friend and colleague Mark Boyer, who is here today.

Let's all celebrate his wonderful work together

(Applause) The collaboration of science and visualization is a powerful force that allows us to create images that are like looking at both sides of a mirror.

It's been a short time, but you can see that Mannahatta was a special place.

What you see now on the left was once a world that was united based on diversity.

Here was the resilience that modern society needs

But I don't hate this right side either.

In fact, the two worlds seem to me to be reflections of each other, much like Lewis Carroll did in "Through the Looking Glass."

We can compare the two and keep in mind at the same time, because they are the same place, and cities cannot escape nature.

And that's exactly what we're learning about the cities of the near future.

As an epilogue to this story, 400 years from now, we've come to realize that cities are human habitats and meet human needs: our homes, our food, our homes, our recyclable resources, and our significance.

Meaning is a requirement that humans place on habitat

There's a lot of talk about meaning at TED. Technology, art, science, through many different ways, technology, art, science, through many different ways, teaches us what it means to live. So much of that focus, I feel, that we haven't paid enough attention to food, water, and what we need to raise our children.

So what kind of future cities can you envision?

Imagine going to Madison Square Park, bikes instead of cars, big forests and streams instead of sewers and drains?

What if the Upper East Side had green rooftops and streams running through the city, and windmills providing the electricity we needed?

Or imagine that the New York metropolitan area of ​​12 million people today - which in the future will be concentrated in an area that is only 36% of Manhattan - is surrounded by farmland and covered with necessary wetlands?

I think this is the future we need, one that is as diverse and rich and dynamic as Manhattan, but at the same time learning from the sustainability of the past and coexisting with natural ecosystems.

thank you very much

(applause)

There's an old fable about a farmer who lost his horse.

A neighbor comes up and says, "Oh, that's too bad."

And the farmer says, "I don't know if it's good or bad."

A few days later, the horse returns with seven wild horses.

A neighbor comes up and says, "Good job!"

The farmer shrugs his shoulders and says, "I don't know if it's good or bad."

The next day, when the farmer's son goes out on a wild horse, he falls off the horse and breaks his leg.

A neighbor comes up and says, "Oh, you're out of luck."

And the farmer says, "I don't know if it's good or bad."

Eventually, an official comes and goes from house to house looking for young men who can be recruited into the army.

A neighbor comes up and says, "You're lucky!"

And the farmer says, "I don't know if it's good or bad."

I first heard this story 20 years ago, and I've said it to myself 100 times since then.

Even when I didn't get the job I wanted, "I don't know if it's good or bad"

Even when I got the job I wanted, "I don't know if it's good or bad"

This is not a story about looking on the bright side of things, it's not a story about waiting and waiting.

The lesson is that it's all too easy to arbitrarily label situations and give them specific meaning.

But the reality is that things are much more fluid, and things are often just a guess.

This fable warned me that if you cling to the good or bad of things, you won't be able to truly assess the situation.

You'll learn more if you let go of your grip, and you'll move forward with an open mind and curiosity.

But seven years ago, when I had my first child, I completely forgot this lesson.

I really believed that I knew what was good

When it comes to having children, I always thought it would be nice to have a "super baby," an image of an impeccable, super-healthy child who puts on a cloak and flies like a hero into the future.

I took DHA supplements, ate only organic foods, exercised so that I didn't need drugs in labor, and a lot of other things so that my baby would be a super-smart, super-functioning baby.

When my daughter Fiona was born, she weighed 4 pounds, 12 ounces, or 2,150 grams.

My pediatrician told me there could be two reasons why it's so small.

The doctor said, "either the seed was bad or the soil was bad."

Even though I was tired after giving birth, I understood the logic of the doctor, who said that my newborn was a "bad seedling."

Eventually, I learned that my daughter had a very rare chromosomal abnormality, Wolf-Hirschhorn Syndrome.

My daughter has a deletion on chromosome 4.

But she was in good health -- she was alive, with fair newborn skin and black eyes that looked like twirling jewels.

some people can't walk or talk

I didn't have the poise of the peasant in that story.

The situation definitely seemed "bad"

But here's where the fable comes to life. For weeks after my daughter's diagnosis, I was deep in despair, locked in the idea that everything was tragic.

Thankfully, reality is much more fluid, and there was much more to learn.

As I got to know this wondrous child better, the tightly closed tragic story began to unfold.

My daughter actually loves reggae music, and when my husband rocks her little body to the rhythm, she smiles.

Her jewel-black eyes turned into the beautiful, deep blue of Lake Tahoe, and she wanted to stare into other people's eyes with those eyes.

At five months, he still couldn't hold his head like other babies, but he could still make deep eye contact.

A friend said, "I've never seen a baby so observant."

While I think she has a knack for quiet attention, she seemed like a neurologically insensitive child to the therapist who went to our house for Fiona.

This therapist was particularly disappointed that Fiona hadn't rolled over yet, and was told she had to wake up.

One day, she knelt over her daughter's body and held her little shoulders and shook them, saying, "Wake up! Wake up!"

By the time she was a year old, I had several therapists, and they all focused on what was "wrong" with my daughter.

I was delighted to see Fiona start punching the dangling stuffed sheep with her right hand, but my therapist was worried about her left hand.

Fiona doesn't tend to use her left hand very often, and she had her fingers crossed.

The therapist said, "I need a hand splint, and even if it means you're loosing movement in the fingers of your left hand, it should at least make you look normal."

I've noticed a few things over the past year.

Part 1: “Old fables aside, I had a bad therapist.”

(laughs) Part 2: “I have a choice.”

Like in "The Matrix," you could choose between red pills and blue pills.

It's comforting for a therapist to be able to say about a child, "I still don't know if it's 'developmentally retarded' or 'autistic' or 'unusual'."

Of course, this could be a catastrophic path, because at the cellular level, my daughter has a very rare blueprint.

You're made to be different

you're going to live a rare life

So, as an alternative, I decided to let go of the idea that neurological differences, developmental delays, and disabilities were "bad," and let go of the idea that a well-being life would be better.

Let go of the cultural prejudices about what makes a life good or bad and simply watch her life unfold with an open mind and curiosity.

One afternoon she was able to lay on her back on the carpet, arch her back, stick her tongue out of the corner of her mouth, twist her body, and lie on her stomach.

And then I leaned over, and when I lay on my back, I did the same thing again, and I rolled five kilos under the coffee table.

At first I thought my daughter was stuck and couldn't move, but then I realized she was looking at something the whole time and reaching for it, it was a black electrical cord.

My daughter was 1 at the time

Other babies my age are starting to stand and some are even toddlers.

Some people think my daughter's situation is "bad" because she's a one-year-old who can only roll over.

I don't mind that

My child is enjoying the movements he just learned.

I became happy

But it's a baby pulling on electrical cords, so you know, you can't tell if it's good or bad.

(Laughter) Once I let go of my clinging beliefs about what makes a life good or bad, I was able to watch my daughter's life unfold as it was.

It was beautiful, it was complex, it was joyful, it was difficult, it was a form of human experience.

Eventually, our family moved to another state in the United States and found a better therapist.

They don't focus on the bad things about our child

I didn't see being out of the ordinary as a problem to fix.

They recognized my daughter's limitations, but they also saw my daughter's strengths. They accepted me for who I am.

Their goal wasn't to make Fiona as "normal" as possible, but to help her become as independent as possible, whatever it was, so that her daughter could develop her abilities.

But the culture in the world isn't as open-minded about disability.

We call these differences "birth defects" and refer to humans as if they were products made on a factory line.

When I find out that my colleague's baby has Down's syndrome, I look at her with pity.

They praise popular movies about wheelchair users who commit suicide, even though actual wheelchair users say the stereotype is inappropriate and slanderous.

Sometimes medical facilities decide lives that don't deserve to live.

Such is the case with Amilia Rivera, who had the same syndrome as her daughter.

In 2012, a prominent children's hospital in the United States initially denied Amilia a life-saving kidney transplant because, according to the hospital's documents, she was "mentally disabled."

The idea that disability is bad manifests itself in society in this way.

But there's also a surprisingly harmful counter-narrative, the narrative that people with intellectual disabilities are "good," because they teach us something wonderful, because they're angelic, and they're always kind.

You've probably heard tales of disability discrimination by able-bodied people, like calling a boy with Down syndrome "God's special child," or calling a girl with a walker and a vocalizer a little angel.

Stories like this come into my daughter's life, especially at Christmastime, and some people are happy to think that she should wear angel wings and a halo for a show.

This story is told under the assumption that people with disabilities don't have complex human experiences.

Yes, there were times when she looked like an angel, especially when she was a baby, but she grew up to play tricks that other kids do, like, when she was four, she pushed her two-year-old sister.

It's okay for my daughter to annoy people like any other child.

To label someone as "tragic," "angelic," or otherwise good or bad is dehumanizing, depriving us not only of the struggles and complexities of being human, but also of our rights and dignity.

She doesn't exist to teach me or anyone else. But I did learn, number one, "How many mozzarella sticks a 10-kilogram child can eat in a day."

Six years ago, if I had been told that my daughter would be communicating with an iPad app, I might have thought it would be disappointing.

But I still remember the first day I gave Fiona her iPad, loaded with an app that showed 1,000 words with little icons.