the opposite

My mother tongue is Italian, but beauty is called bello.

"belleza" in Spanish

"kalos" in Greek

If you add "agathos" to this, you get "beautiful and good."

"beautiful" in any word doesn't just mean beautiful

It also means "good"

True beauty is when the invisible interacts with the visible and appears on the surface.

This isn't just a phenomenon that happens in art and nature.

Science, human curiosity, solidarity -- it's true in areas like these, and that's why we say, "This person is beautiful," "He's a beautiful person," and so on.

Beauty like this has the power to transform people into better people by giving them a special light in their eyes to see beauty.

Building for beauty transforms the environment of our cities into more livable places.

And better cities produce better citizens.

This beauty, this universal beauty, this is one of the few things that can change the world.

Take my word for it This beauty will save the world

Working one by one, we will surely achieve

thank you

(applause)

my grandfather was a shoemaker

At the time, he was making custom shoes.

But I never met my grandfather

grandfather died in the holocaust

I inherited my grandfather's love of craftsmanship, which is now rare.

As we all know, the Industrial Revolution brought great progress to humankind, but it also killed off the wonderful skills my grandfather loved, and caused the decline of craftsmanship.

But the technology of 3D printing is changing a lot, and this is where it all started, and this is the very first 3D printed part.

Shortly before TED started

It was printed in 1983 by 3D printing technology developer Chuck Hull.

But the big idea I want to talk to you about today is that 3D printing isn't thrusting us into the future at once, but rather that it's ushering us into a new era of localized, distributed manufacturing, in the traditions of our ancestors, and based on digital manufacturing technology.

what is this good for

Everyone knows their shoe size

But do any of you know how wide your nose is or how far your temples are?

Is anyone there?

Wouldn't it be amazing if we could do this? You can have glasses that fit you better than ever before, and you don't have to adjust the hinges, and they don't break.

But the advent of 3D printing hints at our far future.

When I first met Amanda, she could already stand and walk a little, but she was paralyzed from the waist down.

It was a beautiful robot suit, made by Exobionics, but with no regard for her body.

Not made to order

So she asked me to be more feminine, more elegant, lighter, like a good tailor, so I decided to digitally measure her.

I actually measured it, and it turned out to be a great suit.

The amazing thing I learned from Amanda is that a lot of people who look at 3D printers see 3D printers as an alternative to traditional methods.

Amanda thought, this gave me a chance to get my body back in shape and accept who I really am.

Now she doesn't just stand still

(Laughter) (Applause)

that's not all

3D printers have transformed medical devices into personalized devices, from new, beautiful, form-fitting, breathable spinal braces to millions of artificial teeth and even beautiful prosthetic limbs for people who have lost their limbs.

And right here, without wires, you can have orthodontics and dental restorations with clear mouthpieces.

Millions of in-the-ear hearing aids have already been 3D printed.

These devices are helping millions of people.

In total knee replacement surgery, we can 3D print artificial joints and surgical guides that are measured from personal data.

G.E. is using 3D printing technology to create the next generation aircraft engine, called LEAP, which will improve fuel efficiency by about 15 percent and save airlines about $14 million.

Good news for G.E.

Good for passengers and good for the environment.

And even better, this technology is no longer just for the rich.

Space exploration startup Planetary Resources will launch its first spacecraft later this year.

It's a tiny fraction of NASA's spacecraft, and it costs even less, has less than a dozen moving parts, and will be launched into space by the end of the year.

Google is also working on one very bold project: a modular cell phone called Ara.

What makes this possible is a new, high-speed 3D printer that is ready to work, ready to use, and ready to build into a machine.

It's like the moon landing done by a 3D printer.

What about food?

What if you could make something incredibly delicious in an instant? For example, what if you could eat this lovely TED teddy bear?

What if your experience could change? For example, what if all the absinthe you see over there was made with a 3D printer?

What if we could add different ingredients, colors, and flavors to each flavor, and create something close to us that wasn't just delicious but that guaranteed nutrition for us?

That's how I discovered one of the greatest values ​​of 3D printers.

3D printers unlock complexity

This printer, regardless of whether it's the most basic shape or the most complex shape, it conveys the design to the molding method to the so-called printer head.

A lot of people think 3D printers are the end of manufacturing.

But I believe that if we take this opportunity to entrust the technology of the future to the younger generation, it will create a wealth of employment opportunities in the long term, and that will enable everyone to become an expert maker and manufacturer.

this will be a new tool

Not everyone knows how to use CAD (Computer Aided Design), so that's why we're developing haptic technology, a sensory device that allows you to touch and feel your designs, just like you're playing with digital clay.

That's when we've developed a useful tool: a 3D scanner that can 3D print instantly. It makes it easier to create things.

So a lot of people ask me, are we going to have a 3D printer in every home?

that's a stupid question

The correct answer is: How will 3D printers change lives?

In other words, which rooms in our home would look good with something 3D printed?

In fact, everything you see here has been 3D printed, and these shoes are from a fashion show in Amsterdam.

These aren't the shoes my grandfather made.

It's a testament to his passion rooted in his hometown.

My grandfather couldn't see Nike's 3D-printed sole spikes used in the recent Super Bowl, and my dad couldn't see me standing in my 3D-printed hybrid shoes.

My father also died three years ago.

But Chuck Hull, who invented it, is here today, and thanks to him, and thanks to his inventions, I can say that I am a shoemaker, standing in these shoes, proud of my past, and building my future.

thank you

(applause)

Puzzles and Magic —

Everybody thinks they're separate fields -- I work in two fields, but I think they're the same thing.

I'm a magician, and I write crosswords for the New York Times, which means I combine two of the most manic hobbies in the world.

The reason I think magic and puzzles are the same is that they both work on a very important force that drives us: the urge to solve mysteries.

Humans try to solve mysteries and find order in chaos.

i am exactly

I've been solving mysteries

In high school, I had epic Scrabble battles in the cafeteria, and I didn't really talk to girls.

You can't start a conversation with, "Hey, did you know prestidigitation is 20 points in Scrabble?"

But it was around that time that I realized that puzzles and illusions had something in common.

When you're playing a crossword or watching magic -- you're trying to solve a mystery. The goal is to find order in chaos. Chaos is a black-and-white crossword square, a bag of Scrabble pieces, or a shuffle of cards.

So today I'm a crossword writer -- 23 points -- and I'm an illusion designer, creating chaos.

Let's test your mystery-solving skills

By the way, according to one study, solving mysteries is as fundamental to humans as food and sleep.

Born to solve mysteries

In a UCLA study, newborns still in the hospital showed this pattern: "X, X, X."

Then change the pattern to "triangle square"

We know that when we follow the gaze of babies, even on the first day of life, they notice and respond to disorder.

This is a point worth noting

From babies to the elderly, everyone is connected by the urge to solve mysteries. I even found an Instagram photo of pop star Katy Perry doing a crossword while drinking her morning coffee.

nice!

(Laughter) Now, solving riddles exists in every culture.

The crossword puzzle was invented in America, and this year marks the 100th anniversary of the first appearance of the crossword in the New York World.

But other cultures also have their own unique puzzles.

The tangrams that came over from China test our ability to make shapes out of disjointed pieces.

From chaos to order

this is order

This is order...

I like it again

Now

This puzzle was invented in England in the 18th century — how about a jigsaw puzzle?

Creating order out of chaos, right?

As you can see, we're always solving mysteries.

trying to decipher the world

this is an eternal quest

It's like the quest that Cervantes wrote in "Don Quixote," by the way, which is the etymology of quixotry, the highest Scrabble word score of 365 points.

Anyway, "Don Quixote" is an important work.

Have you read it?

How many people are nodding

really?

Raise your hand if you've read "Don Quixote"

everyone seems smart

Have you ever read through Don Quixote?

Well, I need some smart people to help me. I'm going to use the help of one of you to show how the urge to solve mysteries is so deeply ingrained that humans are designed to solve mysteries.

Now···

Everyone suddenly averted their eyes

Is it OK? Name is? It's Gwen

No, I didn't read your mind, I saw your name tag

Gwen here please give her a warm round of applause

After you

(Applause) Are you excited?

Did you know that your name is 8 points in Scrabble?

Now stand there

Now, Gwen, before we begin, I'd like to clarify that inside this envelope is part of the puzzle, and I won't go near it.

Here are the animals on the farm.

Owls, horses, donkeys — chickens, cows, sheep, right?

(Gwen) It's blue. (David Kwon) It's blue, it's blue.

There are also silver, red, green, yellow markers. So next, pretend like you're a five-year-old and color the picture. One color at a time, please.

I'm sure it will be fun

i am here

so that you can't see where you're painting

don't start yet

I'm closing my eyes here

So Gwen are you okay?

Pick up just one marker and color the "horse"

Paint the "horse" — color it big and big, and with a free stroke, it's okay if it overlaps the line.

ok then

Please put the cap on the marker and place it on the table.

Now take the next marker from the container, remove the cap, and color the "donkey".

paint it big

nice put the cap on the table

Take the next marker, take the cap off, it's fun, isn't it?

to "owl"

please color

Put the cap on, take the next marker and color the "chicken"

OK

paint it big

Take the next marker and paint "cow"

OK

Fill it up, put the cap on and go to the table, then take the next marker

Is there? then i'll look at them

Have you forgotten? oh you forgot purple

well this is fine

generally it will work

Okay, Gwen, next I'll give you this envelope.

Don't open it yet I'll write down the color you chose so it's easy to understand

First the horse is blue, the owl is yellow, the cow is silver, the donkey is red, and the green? It's a chicken

chicken is green

Now it's time to draw conclusions. Let's take a look at what's inside the envelope.

Open the envelope, take out the paper, and hand it over. Let's see if it's the same color you chose.

looks like the same

A blue horse, a red donkey — a yellow owl, a green chicken, a silver cow — and you forgot purple, so the sheep are blank.

Great, Gwen, great. (Applause) Here it is.

Well, everyone How did this happen?

How did you do it? Was Gwen's brain designed to solve mysteries and decipher the hidden message?

here's a puzzle for you

Is there order in the chaos I have created?

let's take a proper look

Remember this puzzle I showed you?

What kind of picture did you make? yes blue horse

it will be more interesting

When I showed you the tangram, there was a green chicken.

It is my favorite

And then you also experimented with the silver ox.

Katy Perry had her morning coffee in a yellow owl cup.

Katie thanks for taking the picture

oh yeah there was one more

You painted the donkey red, didn't you?

Raise your hand, everyone. Have you ever read through "Don Quixote"?

Who read "Donkey" Hote and "red"? (laughter) wait a minute

there is more

Gwen I was pretty sure you would pick this color, so I made another guess and put it in a place I can never erase, and it's here.

Ladies and gentlemen, here is today's New York Times.

The date is today, March 18, 2014

I also put some under the seats in the front row.

Look for it, it's hidden under the chair

Take out your newspaper, open the literature section, there will be a crossword, and today's crossword was made by me.

there is a name above

Gwen

let's show it on the screen

Now let's look at another piece of the puzzle.

If you look at horizontal key 1, the first letter is "C" for "corrupt," and the letter immediately below it is "O" for "outfielder." So if you read the first letter of the horizontal key vertically, it means blue horse -- yellow owl -- silver cow -- red donkey green chicken.

(Applause) Isn't that amazing?

It's the New York Times

wait a minute

Gwen — I forgot the purple marker so you couldn't paint the sheep, right?

If you read further, from the 25th of the vertical key, it says, "By the way, the sheep may be blank."

(Laughter) (Applause) Hold on, there's one more piece to the puzzle.

Gwen, I'm so glad you chose the color. If you look at the first letter of the word you chose, it's "CHAOS" meaning "chaos" -- "ORDER" meaning "order."

chaos and order

Humans find order in chaos

So folks, next time -- in your day-to-day life, at work, or on a Sunday morning at breakfast, when you're opening up the New York Times and solving a puzzle, remember, we're all made to solve mysteries.

thank you

(applause)

A woman today looked at the color of my skin and said, puzzled, that you can speak "right" English, which means you don't have to worry about your pronunciation or language because I'm "right." "Dad, this is a very real problem," I say. When I'm in the neighborhood, I switch my English. When my friends ask me, "How are you doing lately?" So who decides "correct English"?

English is an ever-changing language with many different ways of speaking it. Informal English might sound illiterate, but even Americans who speak "correct" English sound like idiots to British people. If my mother teased me and said, "You go too far in that store," I would reply, "Mom, your English is against the rules." Because you don't use "madd" before the present participle. I don't speak to you fluently But don't judge me by my words or think I'm too ignorant to teach Because I can speak three languages ​​One for each of my home, school and friends I'm a trilingual I sometimes make my words coherent and suddenly I switch languages ​​to avoid boredom And sometimes I argue in two languages ​​When I'm using different languages ​​in the classroom and sometimes get the words mixed up I feel like I'm cooking in the toilet My language is already stolen But please don't let me tell you your history because my history was destroyed by you. English is spoken by people who are already fed up with Western-centric ideals. I speak mixed English because my language has been lost in history. Don't think I'm a bank robber or say your hair is crazy I'm tired of the ridiculous racial inequalities Your hair is not going to help you How can our way of speaking your language be seen as inferior like so much has been taken from us Let's not be confused Let's not be hesitant I'm not suggesting ignorance I wanted you to know that I can diversify your customer market. "Cheers" And of course "Hello" 'Cause I'm "Right" Thank you

(applause)

23 years ago, when I was 19, I shot and killed a man.

I was a young drug dealer with a hot temper and a semi-auto.

But my story doesn't end there

That's really where it all started, and the next 23 years have been a story of gratitude, apology, and redemption.

It's not happening in the way you might imagine or think.

They came into my life in a way that was particularly surprising to me.

Like many of you, I was a honors-listed student, and I was a honors-listed student whose dream was to become a doctor.

But after my parents split and divorced, everything went wrong.

what actually happened is pretty simple

When I was 17, I was shot three times on the corner of my block in Detroit.

A friend rushed me to the hospital

The doctor pulled the bullet out, stitched up the wound, and sent me right back to where I had been shot.

During this painful experience, there was no one to hold me, listen to me, tell me I was okay.

No one told me that every day I was terrified, paranoid, and overreacted to being shot.

No one told me that I would pull the trigger

14 months later, at 2 a.m., I shot and killed someone.

When I went to jail, I was full of hate, angry and hurt.

I'm running away from responsibility

From parents to the social system, they pushed responsibility.

I justified my judgment when I shot, because where I grew up, it's better to be the shooter than to be the one being shot.

In my cold cell, I felt hopeless, loveless and abandoned.

I felt that no one cared about me, and I reacted to this confinement with hostility.

And I got more and more addicted to the depth of the trouble

He ran a black market shop, ran a loan shark, and sold drugs illegally brought to prison.

In fact, back then I was, according to the guards at the Michigan Correctional Facility, "the worst of the worst."

These activities sent me to solitary confinement for seven and a half years during my imprisonment.

Solitary confinement, in my opinion, is the most inhumane and barbaric place a person can enter, and I entered it.

One day, while I was walking around the prison, a guard came and brought me a letter.

After reading some letters, I came across a letter with my son's clumsy handwriting.

Every letter I received from my son Every letter I received from my son was a ray of light in the darkest place in the world.

And that day, when I opened that letter, I found him in capital letters, "You asked my mother why she was in prison for murder."

He says, "Dad, don't kill him."

"Jesus is watching, pray to him"

I wasn't religious then, and I'm not religious now, but I sensed something deep in his words.

It made me think about my life in ways I'd never thought before.

For the first time in my life, I thought about the fact that my son would see me as a murderer.

As I sat on my bed, I was reminded of a passage I had read in Plato, which Socrates said in his Apology, "A life unexamined is not worth living."

That was the starting point of a life change.

But it wasn't easy

One thing I've noticed, and this is part of the transformation, is that there are four key things.

First, I had a wonderful teacher.

Now how do you think you're going to find a good teacher in prison?

But in my case, some of my mentors who were on death row were some of the best people I've ever met in my life, because they forced me to take an honest look at my life and challenge my decision-making.

the second is literature

Before I went to prison, I had no idea there were so many great black poets and writers and philosophers.

the third is family

For 19 years, my father stood by me with absolute confidence. He believed I could turn my life around. He believed I could turn my life around.

I also met an amazing woman who is the mother of my now two-year-old son Sekou. She taught me how to love myself in a healthy way.

Last is writing

After receiving that son's letter, I began journaling about my childhood and my experiences in prison, and it opened my heart to redemption.

Early in my sentence, I received a letter from one of the victim's relatives, and in the letter she said she had forgiven me because she realized that I was a young child and had been abused, and that I had undergone some hardships and just made a series of bad decisions.

For the first time in my life, I felt open to forgiving myself.

After that experience, one thing happened to me: I started thinking about the people I was incarcerated with, and how much I wanted to share this experience.

And I started talking to them about our experiences, and I started talking to them about our experiences, and I was devastated that they, too, came from abusive environments.

That's when I decided that if the time came to release me from prison, I would put all my energy into changing this status quo.

In 2010, I walked outside a prison for the first time in 20 years.

Imagine when the Flintstones appeared in one episode of The Jetsons.

my life was just like that

It was my first exposure to the internet, to social media, to talking cars like KITT from "Knight Rider."

But the thing that captivated me the most was the technology of the telephone.

When I was incarcerated, a car phone was so big that it took two people to carry it.

So imagine me holding my first Blackberry and learning how to email.

And people around me didn't realize what I didn't know, they were using abbreviations. LOL, OMG, LMAO, until one day I finally got it. During an email exchange with a friend, I asked him something, and he replied, "K."

When I reply "What is K?"

"K is OK" came back

In my head, "What the hell is K?"

So when I returned the question

"K=OK" came back

So I said, "FU." (Laughter) And he said, "Why are you cursing me?"

I replied "LOL FU" which stands for Finally Understand (laughs)

It stands for Finally Understand. (Laughter) And fast forward three years, and I was doing pretty well.

I was a fellow at the MIT Media Lab, worked for an amazing company called BMe, and taught at the University of Michigan, but I was conflicted by the fact that not many people had the opportunity to do this after they reintegrated into society.

I've had the good fortune to work with some amazing people who help people reintegrate, and one of them is my friend Calvin Evans.

He spent 24 years in prison for a crime he didn't commit.

I am 45 years old and currently in college.

One of the things we talked about was three things that were important to my life transition.

I admit to hurting others

I had to admit that I was hurt too.

The second is an apology.

I needed to apologize to the victims.

It was important to do the right thing, even if there was no chance of acceptance.

I also had to apologize to myself

The third is compensation.

Redemption, for me, was coming back into the community and facing the young people who were on the same path as me, and it was also facing myself.

One thing I've discovered from my experience in prison is that most people who are incarcerated can be saved, and in fact, 90% of those who are incarcerated will eventually rejoin society, and we have a role to play in determining who will rejoin society.

My hope now is that we take a more empathetic approach to mass incarceration. Let's not say, "Lock it and throw it away."

My life is unique, but it doesn't have to be.

Anyone can change, if we create the space for it.

So I want you to envision a world where people aren't held captive by their pasts, where their wrongdoings and mistakes don't decide everything for the rest of their lives.

I believe that we can all create such a world, and I hope you can too.

thank you

(applause)

Today I'm going to talk about the sequel to "An Inconvenient Fact."

Once again, we need to talk about the "inconvenient facts," facts that people are concerned about, but don't feel like talking about.

Somebody has to lead, so I decided to do it.

If global warming scares you, wait until you learn about "small warming."

I'm going to talk to you today about a little warming.

An important health message. Blogging can be bad for your health, especially for men.

This warning is officially issued by the government

Blogs Affect Posture Let's start with Posture

This is how a non-blogging woman sits This is how a blogging woman sits

(Laughter) This is the natural position of a seated man, squatting down for ventilation.

(Laughter) And here's a standing man, and I think that's what prompted Chris to bring me to a session about lateral thinking.

This is the sitting position of a blogging man, who naturally sits with his legs wider than a woman to work on a computer for greater comfort.

They end up in a slightly awkward position to balance the computer on their laps, which causes extreme heat between the man's thighs, and this is a small warming problem.

(Laughter) This is a serious newspaper. It's an English newspaper. It's very serious.

This is a no joke study, underlined should be read by everyone.

And be careful, your genes are at stake.

Will computer geeks become an endangered species?

It's a fact that countries with high laptop penetration have a lower population growth rate than countries with low laptop penetration.

(Applause) Global warming is interesting.

(Laughter) But let's be calm.

There are five simple steps to deal with this. First, there's natural ventilation, your body's breathing.

should be dressed appropriately and kept cool

Please pay attention to how you sit. This is not good.

Can I get a minute and a half from Chris? I have a video to show you

(Applause) Great, this is the correct way to sit.

Another advantage of radio that I discovered yesterday is

You don't need processing equipment, and you have advanced protection laws, and I'd like to thank Philips for their help later.

It's a study done in 1986, but it's still going strong.

The temperature in the scrotum affects the temperature inside the testicles, which is lowered by epilation.

By the way, I have to admit that my English is bad.

Like medium and media, the plural is probably scrotal

digital scrotum digital media

Last year I finally realized I had a scrotum to be proud of.

(Laughter) This research is being done by the U.S. government, and it shows that our tax dollars are being spent on your behalf.

VIDEO: Men: Philips body grooms have a sleek ergonomic design that makes removing unwanted hair safe and easy.

And everyone's "pees" these days have smooth backs, well-groomed shoulders, and apparently your "pees" have grown about 2 cm.

Yoshi Vardy: This is one of the most popular toxic commercials that aired last year, known as The Magic 2cm.

This is how they advertise This is... I didn't mess with this This is the original

Laptops can solve the population explosion problem, and if they don't, they have a few other uses.

Or if TED invites me next time, let's make the next talk "Why you shouldn't put your phone in your pocket."

And these are the words of young people

(Applause) Let me show you how I don't just preach, I do.

(Laughter) It's four o'clock in the morning.

(Laughter) This picture is no good.

(Applause) So I've got a mini TEDPrize for you, the Phillips Bodygroom, and the first one is for the leader.

(Applause.) Do any of you feel threatened by the need?

(laughs) What about women? What about women? Thank you for your attention

(applause)

I'm a professor of computer science and engineering at Carnegie Mellon University, and I'm working on usability privacy protection and security.

We hear a lot about passwords

A lot of people are frustrated with passwords, when it's hard enough just to come up with one really good password that they can remember and that no one else can come up with.

What if you have accounts on a hundred different systems, and you have to have different passwords on each system?

It's very much

Carnegie Mellon University used to make it easy to remember passwords, they used to make it easy to remember passwords.

Until 2009, the requirement for passwords was to have passwords with at least one character.

It's easy, but the university changed this and announced a new policy at the end of 2009. The new policy required passwords to be at least eight characters long, contain uppercase and lowercase letters, contain numbers and symbols, not use the same character more than three times, and be a non-dictionary word.

Now, when this new policy went into effect, my colleagues, my friends, a lot of people came up to me and said, "This really doesn't work.

Why are you doing this, can't you stop? ”

and i said

"You didn't ask me."

But I was intrigued, so I decided to go and ask the person in charge of computer systems why they decided to introduce this new policy, and they told me that the university had joined the consortium, and one of the conditions for membership was to strengthen the passwords to meet the new requirements, which was that the password had a large amount of entropy.

Now, entropy is a confusing word. It's basically a measure of how strong a password's security is.

But the problem is that there is no standard for measuring entropy.

The National Institute of Standards and Technology (NIST) has a set of rules-of-thumb guidelines for measuring entropy, but they're not specific.

In fact, the report said, "Unfortunately, we don't have much data on passwords that were chosen under certain rules.

NIST would like to have more data on which passwords users actually choose, but system administrators are understandably reluctant to release password data to others."

This is the problem, but our research group saw it as an opportunity.

“I see, there is a need for good quality password data.

Perhaps we can collect data and raise the bar in this field."

So the first thing we did was buy chocolate bars, walk around campus, talk to students and faculty, and ask them for information about their passwords.

Of course, we don't say, "Tell me your password."

i just asked about the password

How long? Does it include numbers?

Contains symbols?

Did you find it annoying that you had to create a new password last week?

So we got results from 470 students, faculty, and staff, and we got results from 470 students, faculty, and staff, and we found that the new policy was actually perceived as annoying.

Most people understood that they shouldn't write down their passwords, and only 13% of the people surveyed did so, but worryingly, 80% said they reused their passwords.

In fact, this is more dangerous than writing your password down, because it makes it easier for hackers to attack.

So if you really need it, write it down and don't reuse it.

We also discovered something interesting about the symbols used in passwords.

There are 32 symbols available in CMU, but as you can see, most people use a very limited set of symbols, so in practice you don't really get much password strength from using symbols.

This was a really interesting study. We got data from 470 people, which is not a lot of data when you look at the world as a whole, so I started looking where I could find additional password data.

And it turns out that there are a lot of people out there who steal passwords, and they often publish stolen passwords on the Internet.

From there we were able to access the stolen passwords.

But they're not ideal for research, because we don't know where these passwords came from or under what policy they were created.

So we wanted more proven data.

So what we could do was get people to make passwords for research, let people make passwords for research.

So I used a service called Amazon Mechanical Turk.This is a service where you post a small job that can be done in units of one minute, several minutes, one hour, pay 1￠10￠, a few dollars, and have the task performed.The reward is paid through Amazon.

We created a password that followed the rules, paid about 50 cents to have them complete the survey, and then we paid them again and had them come back two days later, log in with the password we created, and complete another survey.

Now, I've collected 5,000 passwords, and I've had passwords generated under several different policies.

It was a very easy policy, which some people call Basic 8, and the rule was to create passwords that were at least eight characters long.

One person was given a very esoteric policy, which is very similar to the CMU's policy: it must be at least eight characters long, contain uppercase letters, lowercase letters, numbers and symbols, and must pass a dictionary check.

One policy that we've tried, after so many studies, is called Basic 16, and the only condition that must be met is a minimum of 16 characters.

So we got 5,000 passwords, and we got a lot more detailed information.

Again, we found that passwords used only a few kinds of symbols.

We also wanted to know how secure the passwords we created were, but as you know, we don't have good metrics to measure password performance.

So I decided to measure how long it would take to crack a password using the cracking tools that hackers use, or using information obtained from research materials, or using information obtained from research materials.

So let me tell you a little bit about how hackers crack passwords. They steal password files, called hashes, where all passwords are encrypted.

A stupid hacker tries every password in turn.

Start with AAAAA, try AAAAB next, and this process can take a ton of time to come up with a password that someone might actually be using.

Smart hackers, on the other hand, do smarter things.

They go through a list of stolen passwords to see what they say are popular passwords, and they guess them first.

You start by guessing "password," then you guess "I love you," "monkey," "12345678," etc., because there are passwords that everyone is likely to have.

In fact some of you are probably using these passwords

Now, when we ran the test you described on 5,000 passwords we collected to check the strength of our security, we found that longer passwords are indeed more secure, and complex passwords are also more secure.

However, survey data shows that people are frustrated by complex passwords, and that longer passwords are easier to use and, in some cases, more secure than complex passwords.

This means that it might be better to just ask people to create long passwords rather than asking them to include symbols, numbers, or other complex things in their passwords.

But here's the problem: some people used long passwords that weren't very secure.

Because you can make a long password that a hacker can easily guess.

It's not enough just to be long

We need some extra conditions. One of the things that we're doing right now is researching what extra conditions we can add to create strong passwords that are easy to remember and easy to type.

Another way to create strong passwords is with a password meter.

here are some examples

You may have seen these on the internet when creating passwords

We decided to investigate whether these password meters actually worked.

Does the meter help you create strong passwords, and if so, which meter is better?

We tested a variety of password meters, different sizes, shapes, different words next to the meter, and even a dancing rabbit meter.

The better the password, the faster the rabbit dances.

this was pretty funny

Investigations have shown that the password meter is working.

(Laughter) Most password meters work. The dancing rabbit meter worked. But the most effective password meter is one that forces you to try to think of a password until the meter says OK. It forces you to try to think of a password.

The meter is giving the OK too early, and it would have been a better password if it had been set to wait a little longer before giving the OK sign.

Another way to make a good password is to use a pass 'phrase' instead of a pass 'word'

Here's an xkcd comic from two years ago. The comic is recommending using a passphrase, and if you look at the second line, the comic is saying, "correct horse battery staple" is a very secure passphrase and very easy to remember.

in fact you already know, he says

So we decided to research if this was true.

In fact, everyone who told me that I was doing password research, in fact, everyone who told me that I was doing password research, all pointed to this cartoon.

"Oh, have you seen the xkcd cartoon?

Correct answer horse battery stapler

So I researched how it really happened So I researched how it really happened

The study again used the mechanical Turk and let the computer choose random words for the passphrase.

The reason for this is that humans are bad at choosing random words.

When you ask people to do this, they choose words that aren't so random.

we tried several different conditions

One, we had the computer pick out a common English word from the dictionary, a phrase like this: "try there three come."

We saw this, and we said, "Well, this doesn't seem very memorable."

So we tried to use words from specific parts of speech, like noun-verb-adjective-noun.

something like a sentence

A passphrase like "plan builds sure power" or "end determines red drug"

These seemed easy to remember and seemed a little more popular with people.

We wanted to compare these to passwords, so we let the computer choose random passwords.

Then we decided to try something called pronounceable passwords.

A computer picks a random syllable and assembles it into something pronounceable, like "tufritive" or "vadasabi."

make it easy to pronounce

These are random passwords generated by a computer.

What I found in this research, surprisingly, is that passphrases aren't all that good.

People weren't much better at remembering passphrases than random passwords, because passphrases are long and slow to type, and you make mistakes when you type them.

So it wasn't a passphrase win.

xkcd fans sorry

On the other hand, we found that pronounceable passwords worked surprisingly well, so we decided to do a little more research to see if we could make this method even more functional.

One of the problems with some of the studies that we've done is that one of the problems with some of the studies that we've done is that all of these studies used mechanical Turk, and all of these studies used mechanical Turk, not the actual password.

It's either mechanical turk made or computer made for research purposes.

We wanted to know if the general public would actually do the same with real passwords.

So we asked the information security office at Carnegie Mellon if they could look into everyone's passwords at school.

As expected, they were a little hesitant to show us, but we managed to work with them to put together a system where we put 25,000 passwords into a locked computer in a locked room, cut off from the Internet, and had them run code we wrote to crack the passwords.

they censored our code

ran the code

So we don't actually see anyone's password.

I got some interesting results from my research, which I think will be very interesting for the Tepper students behind me.

Passwords created by computer science students were found to be 1.8 times more secure than business students.

We also got a lot of very interesting demographic information.

Another interesting thing we found was that when we compared the passwords created with Mechanical Turk to the passwords created by Carnegie Mellon, they were very similar, which helped validate the research method and showed that collecting passwords using Mechanical Turk was a legitimate method for research.

this was good news

Now, I'd like to finish by telling you about last year when I took a research leave in the art department at my university.

One of the things I did was make a lot of quilts, and I made this quilt here.

It's called a "security blanket"

(Laughter) This quilt contains the 1,000 most common passwords stolen from the RockYou site.

And password size is proportional to how often it appears in stolen datasets.

I created a word cloud of these words, and I reviewed all 1,000 words and sorted them into roughly thematic categories.

Sometimes it was hard to tell which category they belonged to, and I color-coded them.

These are some of the difficult examples

For example "justin"

Is this the user's name, boyfriend or son's name?

You may be a fan of Justin Bieber

or "princess"

Is it a nickname?

Are you a fan of Disney princesses?

maybe it's a cat name

"Iloveyou" was common in many languages

love is in the password

If you look carefully, you can also see the use of vulgar language, but it's interesting to note that there are far more love words in passwords than hate.

And animals, many animal names are used, and "monkey" is the most common animal and ranks 14th among the most popular passwords overall.

I found this very interesting, and I wondered, "Why are monkeys so popular?"

So for my final study, I decided to look for people who put "monkey" in their passwords and ask them why they put monkeys in their passwords.

And what we found -- so far, we've found 17 people who appear to have used the word "monkey" -- about a third of them named their pets "monkeys," about a third said they named their pets "monkeys," or had friends who were nicknamed "monkeys," and about another third said they liked monkeys and thought they were cute.

he is really cute

After all, when we create passwords, we choose something that's very easy to type, a common pattern, something that's weak, like the word "password" or something that associates with an account name.

Or, think of something that makes us happy, and create a password based on that.

These passwords are easy to remember and fun to type, but they're also easy to crack.

So a lot of the TED Talks are very moving and make us think about nice and happy things, but when you're creating passwords, try to think of other things.

thank you

(applause)

If you've noticed, a lot of books that have been published lately are about thinking about and imagining the perceptions and emotions of dogs.

Do dogs think and feel, and if so, how do they do it?

So today, in a limited amount of time, I'd like to take a lot of guesswork and introduce you to two dogs who have literally followed the command to "talk to me."

Here's the first dog. He's pondering some aspect of his relationship with his master, and it's titled "A Dog's Thoughts on its Master."

"I may look younger, but I'm getting older faster than my husband.

People say that one dog year is equivalent to seven human years.

Whatever the numbers, I will one day overtake my master's age and lead the way. When the time comes when my master realizes this, like a walk in the woods, I will be sweeter than any of my shadows in the snow or on the meadow."

(Applause) Thank you.

The next dog speaks to us as a ghost.The spirit of the dog has returned to this world to see its master again.

"I'm the dog you euthanized With what you call the Needle of Oblivion I'm back to teach you one simple thing I've always hated you."

(Laughter) "Every time I licked your face, I thought I'd rip your nose off.

When I saw you wipe your body with a towel, I thought of jumping on you and biting off your genitals.

I didn't like the way you moved It's a lack of animal character - sitting in a chair eating with a napkin on your lap and a knife in your hand

I thought about running away, but I was too weak to do it.I was made to learn tricks like sitting down and clinging to my feet.The thing that hurt me the most was being forced to "shake hands" even though I didn't have hands.

Sure, I was thrilled to be shown a walking leash, but that's because you can smell things you've never touched.

You won't believe it, but there's no reason to lie. I hated cars and rubber toys. I hated your friends. I hated your relatives even more.

The metal tag on my collar was popping and I was going crazy

You always stroked places that didn't feel good."

(Laughter) "All I wanted from you was food and water.

When you slept I watched you breathe while the moon rose in the sky

Tilt your head back and hold back howling, it's painful

No more collars, no more yellow raincoats, no more monogrammed sweaters, no more stupid lawns in your yard, that's all I want to tell you about where I am now, you know, you're glad you're here, but we all read and write here, dogs write poetry, cats and other animals write prose."

thank you

(applause)

This graph represents the economic history of human civilization.

[Trends in global GDP per capita over the past 200,000 years] Not much has changed, has it?

For most of human history, almost everyone lived on the equivalent of a dollar a day, and not much has changed.

But then something amazing happened, the scientific revolution, then the industrial revolution.

So what you've seen, the basically flat graph changes to something like this.

What this graph means is that we're living in a new phase of human history when it comes to the power to change the world, and I don't think ethical understanding has caught up to this fact yet.

The scientific and industrial revolutions have completely changed our understanding of the world and our ability to effect change.

What we need is an ethical change that will enable us to think about how to use our vast resources to improve the world.

Over the past decade, my colleagues and I have developed a philosophy and research program called "Effective Altruism."

Trying to deal with the radical changes in the world, trying to answer this with evidence and careful reasoning: How can we do the greatest good?

First of all, there are a lot of questions that need to be addressed in order to tackle this problem: whether we do good deeds through philanthropy or through our work and political activism -- what programs should we focus on and who should we work with?

But what I want to talk about here is what I think is the most fundamental problem.

Of all the problems facing the world, what should we focus on and try to solve first?

Let me give you a framework for thinking about this problem, and it's very simple.

High priority problems are bigger, easier to solve, and more overlooked.

Bigger is better because once the problem is solved, the return is greater.

The easier the solution, the better, because it takes less time and less money to solve the problem.

And the subtle point is that from the point of view of "diminishing returns," the overlooked, untouched problem is better.

The more resources that have already been spent solving problems, the harder it is to generate further progress.

The framework that I'm going to talk to you about today will help you make the world's top priorities your own.

We in the effective altruism research community have converged on three ethical issues that score significantly higher in this framework and that we consider to be by far the most important.

The first is global health.

this is very likely to be resolved

We have an impressive track record on global health issues.

Mortality from measles, malaria and diarrheal diseases has dropped by more than 70 percent.

eradicated smallpox in 1980

We estimate that this saved over 60 million lives.

That's more lives than we could have saved if we achieved world peace in the same time period.

Our best estimate at the moment is that a bed net coated with a long-lasting insecticide that can be purchased for just a few thousand dollars can save a life.

this is an amazing opportunity

The second key priority is factory farming.

very overlooked

50 billion terrestrial animals are fed each year, most of them factory-fed with horrific suffering.

Such animals are among the most oppressed creatures on the planet, and in many cases, a few cents per animal can significantly improve their living conditions.

it's very overlooked

There are 3,000 times more animals in factory farms than rescue dogs and cats, yet factory farm animals receive only 1/50th the amount of charitable support that dogs and cats receive.

additional resources in this area would have a transformative impact.

The third area, which I would like to focus on the most, is the category of human existential threats, such as nuclear war or global epidemics, risks that could bring civilization to a permanent standstill, or even lead to the extinction of humanity if we make one wrong move.

Let me explain why this is preferred in this framework

The first is its scale.

If there is a catastrophe that truly affects the survival of mankind, how terrible will it be?

All seven billion people on the planet will probably die out, and that includes you, everyone you know, and everyone you love.

A tragedy of unimaginable scale

And even worse, it means that the future possibilities for humanity will be limited, but I believe that humanity has enormous potential.

Humans have been around for about 200,000 years, but if you continue to live as a typical mammalian species, your lifespan is about 2 million years.

If I were to translate human history into life, I'd be about 10 years old now.

Furthermore, humans are not typical mammals.

If we act carefully, there's no reason why we're going extinct in just two million years.

Earth will be habitable for another 500 million years

And one day if we go to other planets, we'll be able to sustain civilizations for billions more years.

I think the future is going to be very big, but is it getting better?

Is humanity worth living?

Every once in a while you hear things get worse, but I think in the long run things get dramatically better.

For example, this is the evolution of life expectancy.

Percentage of population not living in extreme poverty

Number of countries where homosexuality is legal

Changes in the number of democratized countries

When we look to the future, we will be even better

We'll be richer, and we'll be able to solve a lot of problems that we can't handle right now.

If this graph shows human progress in terms of overall human prosperity, here's what we expect future progress to look like.

it's massive

Here's an example of that, a world where no one lives in extreme poverty.

A world where everyone could have a better life than the richest man today.

A world where we can discover the laws of nature that govern the world we live in.

Maybe we'll discover entirely new forms of art, new music that we don't yet understand.

They're just a few thousand years away

Looking beyond, I can't even imagine the heights that human achievement might reach.

The future can be so grand and so wonderful, but is there a way to lose this value?

Unfortunately there is

The past two centuries have brought about tremendous technological progress, and at the same time the threat of global nuclear war and the possibility of extreme climate change.

We should expect to see the same pattern as we look forward into the century to come.

dramatically powerful technology will emerge

Synthetic biology may allow us to create viruses with unprecedented transmissibility and lethality.

Geoengineering may be able to dramatically change the Earth's climate.

Artificial intelligence may be able to create intelligent agents with capabilities beyond those of humans.

But it's not so much about which threats are most likely to materialize, it's about how low the odds are, given the magnitude of the impact.

Imagine you're on an airplane, and trying to put your mind at ease, the pilot says, "The odds of being in an accident are only 1 in 1,000. Don't worry."

Did you feel safe?

For this reason, I believe that ensuring human survival is one of the most important problems we face today.

So let's keep using this framework

Is this an overlooked issue?

I think the answer is yes, because problems that affect future generations are often overlooked.

I wonder why?

Because the man of the future does not exist in today's market.

I don't have the right to vote

There is no lobbying to speak for the interests of those born in 2300.

They cannot interfere with the decisions we make today.

there is no way to sue

So when you think about it, investment in a lot of issues is still very small: nuclear nonproliferation, geoengineering, biorisk, artificial intelligence security.

The amount that's spent on all of the above is just tens of millions of dollars from charitable foundations each year.

That's a pittance in comparison to the total US philanthropic spending of $390 billion.

The final aspect of this framework is solvability.

i think it is possible

You can contribute by making a donation, or you can contribute through your work or your political activism.

We can financially support organizations that address these risks, such as the Nuclear Threat Initiative, which works to keep nuclear weapons out of volatile situations, the Blue Ribbon Panel, which develops policies to minimize the damage caused by natural and man-made pandemics, and the Center for Human-Compatible AI, which conducts technical research to make artificial intelligence safe and trustworthy systems.

If you participate in politics, you can vote for candidates who care about those risks, and you can support even greater international cooperation.

Also, there are many things you can do through your work.

Of course, we need researchers, we need politicians, we need leaders, but equally importantly, we need accountants, managers and assistants in organizations that work on these issues.

Right now, the effective altruism research program is in its infancy, and there's still a lot we don't know.

But what we've learned so far, through careful reflection, and focusing on the big, solvable, and overlooked problems, can make a huge difference to the world for the next millennia.

thank you

(applause)

His reign marked the beginning of one of the greatest empires in history and the end of the first republic in history.

Was Rome's first emperor a visionary leader who ensured that his civilization would go down in history, or was it a tyrant who destroyed basic values?

Find out in History vs. Augustus

quietly quietly

Is the defendant Gaius Octavianus?

Gaius Julius Caesar Augustus

Wrong person?

no presiding judge

Gaius Octavian was born in 63 BC and his great uncle was Julius Caesar.

When he was adopted as his successor, he changed his name to Gaius Julius Caesar.

In 27 BC, the Senate gave him a new title, "Augustus."

So that means he became the sole authority, the Roman emperor.

Is it bad?

In those days there would have been kings and emperors everywhere

Your Honor, the fact is that the Romans, centuries ago, ousted their kings and established a republic. Government is meant to serve the people, not the ruling family.

It was Octavian who broke this tradition.

Octavian was a paragon of public servants.

At the age of 16, he was elected a priest to oversee the faith.

Together with his great-uncle Caesar, he fought for Rome in Hispania and was responsible for avenging Caesar's assassination after being betrayed by members of the corrupt oligarchic Senate.

Caesar sought power to become king, but at the same time he was dating Cleopatra, Queen of Egypt.

After his death, Octavian joined Marcus Antonius in a civil war that split Rome in half, but he betrayed his comrades to increase his power.

Antonius was stupid

He made a mistake in the Parthian expedition and then plotted to turn the Roman realm into a personal kingdom with Cleopatra.

Isn't that what Caesar was conspiring against?

yes…

Did Octavian prevent Antony from becoming king and then become king himself?

that's right

His delusions of megalomania can be seen in the title he took, "The One with Dignity."

it's a religious title

Augustus did not seek power selfishly.

As the victor of the Civil War and the commander of most of his divisions, it was his mission to restore law and order in Rome, and in doing so win the battles of the other factions.

He didn't rebuild the law - he made it obey himself.

wrong

He restored the prestige of the Senate, guaranteed food for the lesser ranks, and relinquished military control when he resigned as consul.

it's a wrong view

He used his military influence and wealth to manipulate the Senate to his advantage, maintaining his power as a tribunal and defending his right to celebrate military victories.

I have most of the legions, and now I have the state under my control.

Not satisfied with that, he took the office of consul for two more periods to pass it on to his grandchildren.

It's clear that he was trying to establish a dynasty.

What were you going to do with that power?

Judge, thank you for listening.

Augustus' accomplishments are too numerous to enumerate.

We put an end to exploitation by local tax officials by creating a uniform taxation for all regions.

We financed the road network at our own expense and hired couriers, which allowed information and divisions to travel across the country.

Also under Augustus, many of Rome's famous public buildings were built.

Writers of the time praised him almost uniformly.

What if the writers had other choices?

Augustus exiled many people, including Ovid, the greatest Roman poet, for no good reason.

Have you forgotten about the laws that intervene in the private lives of our citizens, punishing adultery, restricting intermarriage, and even imposing penalties on unmarried people?

He wanted discipline for the betterment of the public.

and he succeeded

His legacy speaks for itself: 40 years of national stability, a well-trained army that expanded Rome in all directions, and an administration that was remembered as a model of civic virtue.

What he left behind was a tradition of imperial and military dictatorships that waged endless wars of aggression that would eventually bring the country to its knees.

In all ages, dictators in military uniforms have committed atrocities in the name of the people, the legacy of Emperor Augustus.

The opinion that Augustus was a good emperor and the opinion that he wasn't?

People are accustomed to honoring the achievements and victories of historic leaders.

But to ask whether individuals should have supreme power is to put history itself on trial.

smoking is not good for you

It's not news because the dangers of smoking have been known for decades.

But how does tobacco actually harm you?

Let's take a look at what happens as the components of tobacco are absorbed into the body, and how quitting smoking is good for you.

Every puff of cigarette smoke exposes body tissues to more than 5,000 chemicals.

First, tar, a black, resinous substance, begins to coat the teeth and gums, damaging the enamel and eventually causing tooth decay.

Over time, cigarette smoke damages the nerve endings in your nose, causing you to lose your sense of smell.

Inside the airways and lungs, tobacco smoke increases the chances of infections and can lead to chronic diseases such as bronchitis and emphysema.

It happens by damaging the cilia, tiny hair-like structures that help keep the airways clean.

Tobacco smoke then fills the alveoli, tiny air sacs that lie between the lungs and the blood and allow the exchange of oxygen and carbon dioxide.

A toxic gas called carbon monoxide passes through the membrane and into the blood, where it combines with hemoglobin and replaces the oxygen that would normally be carried throughout the body.

This is one reason smoking causes oxygen deprivation and shortness of breath.

In about 10 seconds, the bloodstream carries nicotine, a stimulant, to the brain, triggering the release of dopamine and other neurotransmitters that contain endorphins, which produce euphoria, making smoking highly addictive.

Nicotine and other chemicals in tobacco also cause blood vessels to constrict, reducing blood flow and damaging delicate vascular endothelial cells.

These vascular effects lead to thickening of the vessel walls, which increases the adhesion of platelets and increases the likelihood of blood clots, which can lead to heart attacks and strokes.

Many chemicals in tobacco cause dangerous mutations in DNA that can cause cancer.

In addition, ingredients like arsenic and nickel may interfere with DNA repair processes, impairing the body's ability to fight many cancers.

In fact, smoking kills one in three cancer deaths in the United States.

More than just lung cancer

Smoking causes cancer in multiple tissues and organs, and it can also blind you and weaken your bones.

women have difficulty getting pregnant

May cause erectile dysfunction in men

But there is a big advantage for people who quit smoking: almost immediate and long-lasting health benefits.

Heart rate and blood pressure begin to return to normal just 20 minutes after a smoker's last puff.

After 12 hours, carbon monoxide levels stabilize and the oxygen-carrying capacity of the blood increases.

After a day of stopping, your blood pressure and heart rate return to normal, and your risk of heart attack begins to decrease.

After two days, the nerve endings that control smell and taste begin to recover.

After about a month, your lungs will be healthier, and you'll cough less and be less short of breath.

The cilia in the airways and lungs begin to heal within a few weeks, and after nine months they are back and more resistant to infection.

By your one-year anniversary of quitting smoking, your risk of heart disease is halved because your blood vessels are functioning better.

After five years, the chance of a blood clot forming drops dramatically, and the risk of stroke continues to decline.

After 10 years, the odds of developing fatal lung cancer are reduced by 50%, presumably because the body's ability to repair DNA is restored again.

In 15 years, the odds of developing coronary heart disease are essentially the same as those of nonsmokers.

It's not easy to quit smoking

As nicotine withdrawal symptoms, smoking cessation can lead to anxiety and depression.

But fortunately, such effects are usually temporary.

Quitting smoking is getting easier thanks to an ever-growing array of tools.

Gum nicotine replacement therapy skin patches lozenges sprays may help smokers quit smoking

They stimulate nicotine receptors in the brain and prevent withdrawal symptoms without taking other harmful substances.

Counseling and support groups, cognitive-behavioral therapy, and moderate-intensity exercise can also help keep smokers away from tobacco.

This is good news because quitting smoking puts you and your body back on the road to health.

Every day, we face questions like climate change and vaccine safety, and we have to find answers that rely heavily on scientific information.

Scientists say the world is warming

They say vaccines are safe

how do you know they are right

Why should we trust science?

In fact, many people don't believe in science.

Polls consistently show that a significant percentage of Americans do not believe that human activity is causing the warming, they do not believe in evolution by natural selection, and they doubt the safety of vaccines.

why we should believe in science

Scientists don't like to talk about whether they believe in science or not.

In fact, they would think of science and faith as diametrically opposed things, and would say that believing is in the realm of faith.

Faith is a far cry from science, it's a whole other thing.

Scientists say that religion is based on faith or on Pascal's wager logic.

Blaise Pascal was a 17th-century mathematician who tried to use scientific arguments to decide whether we should believe in God or not.

As much as a few hours on Sunday

(Laughter) But if God exists and I don't believe in it, it's going to be really bad.

So Pascal said, "Better believe in God."

In the words of a college teacher, "He asked for a railing of faith."

He abandoned science and rationalism to take a gamble beyond logic.

But the truth is, for most people, most scientific claims are gambling beyond logic.

Most of the time, we can't assess scientific claims on our own.

In fact, that's true for most scientists in fields outside their own specialties.

Think about it, geologists can't answer whether vaccines are safe.

Most chemists are not evolutionary experts.

Physicists don't know whether cigarettes cause cancer, despite what other scientists say.

If even the scientists themselves have to gamble beyond logic when it comes to matters outside their expertise, why should scientists listen to other scientists?

why do they believe each other's claims

And should we believe that claim?

My opinion is yes, you should believe it, but for a different reason than most people think.

Most of us were taught in school that the reason we should believe in science is the scientific method.

Scientists were taught to follow a method, and that this method ensured that their claims were true.

The textbook method that most people were taught in school is hypothetical deduction.

According to the standard textbook model, a scientist makes a hypothesis, deduces the logical conclusion of that hypothesis, tests it in practice, and asks, "Well, does this conclusion hold up?"

"Can this phenomenon be observed in the natural world?"

And if it's right, the scientist says, "Good, my hypothesis has been proven correct."

There are many famous examples in the history of science of scientists who have done just this.

The most famous example is Albert Einstein.

When Einstein constructed his general theory of relativity, one of the conclusions of his theory was that four-dimensional space-time was not just empty space, but that there was cloth in it.

There was that cloth that was sagging by massive objects like the sun.

So, if this theory is correct, when light passes by the sun, it will be bent in its vicinity.

It was a pretty shocking prediction, and it took several years for scientists to confirm it, but in 1919, they did, and surprisingly, the theory was proven correct.

Light passing near the sun actually bends.

This was the key to confirming the theory.

It was seen as proof that that novel idea was correct, and was widely covered by many newspapers around the world.

Now, this theory or model is sometimes referred to as the deductive-legal model, mostly because scholars like to complicate things.

In the ideal case, it's also because the law is involved.

So the law is related

In the ideal case, hypotheses are not just an idea, but ideally a law of nature.

Why is it important to be a law of nature

Because if it's a law of nature, it's absolute

If it's a law, it's always true, anytime, anywhere, under any conditions.

We all know one famous law: Einstein's famous equation, E=mc2, which tells us how energy and mass are related.

And that relationship will always work

However, there are some problems with this model.

the main problem is that it's wrong

It's not true. (Laughter) I'll give you three reasons why it's false.

First, a logical problem

It is a problem of the falseness of the consequent affirmation

Again, this is fancy academic phrasing, but the point is that it's possible to make true predictions from false theories.

So just because a prediction is true doesn't mean it's logical proof that the theory is true.

There are good examples of this in the history of science, too.

This is Ptolemaic's view of the universe, with the earth at the center of the universe and the sun and planets revolving around it.

Ptolemy's theory was believed by many very intelligent people for centuries.

Why?

The answer is that the theory has yielded many true predictions.

Ptolemy's system allowed astronomers to accurately predict planetary motions, and in fact, the original predictions were more accurate than our current heliocentric theory.

This is the first problem with the textbook model.

The second is a practical problem, a problem of auxiliary hypotheses.

Ancillary hypotheses are assumptions that scientists make, but they may not even be aware of.

I'll give you an important example of this from the heliocentric theory, which eventually took over the geocentric theory.

When Nicolaus Copernicus said that the Earth is not the center of the universe, but that the Sun is the center of the solar system, and that the Earth moves around the Sun, scientists

He said, "Listen Nicholas, if that were true, we would be able to detect the motion of the Earth around the Sun."

Here's an explanation of a concept known as annual parallax.

Astronomers said, if the earth is moving, look at a star that you can see, like Sirius -- well, you can't see the stars in Manhattan -- but imagine you're in the country.

If we make the same observations six months later, in June the Earth will have moved to this position, so if we look at the same stars, the background will be different.

The difference in this angle is the annual parallax

This is a prediction based on the heliocentric theory

Astronomers looked for annual parallax, but found nothing at all.

Many claimed that this proved the heliocentric theory false.

Why?

We now know that the astronomers of the time had two auxiliary hypotheses, neither of which was correct.

One is the assumption about the size of the Earth's orbit.

Astronomers have overestimated the Earth's orbit by calculating the distances to other stars.

So what we're going to draw today is this image from NASA, and the Earth's orbit would be pretty small.

It's actually much smaller than what's pictured here.

So annual parallax is very small and very difficult to detect.

This is related to the second reason why it didn't work as expected: scientists thought their telescopes were sensitive enough to detect parallax.

it wasn't

It wasn't possible for scientists to detect annual parallax until the 19th century.

Now for the third problem

The third problem is a matter of fact, and that much of science doesn't fit the textbook model.

Much of science is never deductive, it's actually inductive.

So scientists don't always start with theories and hypotheses, they often start with observations of what's going on in the world.

The most famous example of this is the famous scientist Charles Darwin.

When young Darwin set out on his journey aboard the Beagle, he had no hypotheses, no theories.

Just wanting to have a career as a scientist, he started collecting data.

After all, he hated medicine because the sight of blood made him sick, so he needed another career path.

So we started collecting data

I collected a lot of things, including the famous finch.

While collecting, he put the finches in a bag, and he didn't even know what that meant.

Many years later in London, Darwin began to review the data and come up with an explanation, and that explanation was natural selection.

In addition to inductive science, another technique that scientists often use is modeling.

One of the things scientists want to do in life is explain why.

What do you do?

One way is to build models to test ideas.

This is a picture of Henry Caddell, a 19th-century Scottish geologist.

You can tell he's Scottish in his deerstalker hat and Wellington boots.

(Laughter) The question Cadell tried to solve was, "How do mountains form?"

He realized that when you look at a mountain range like Appalachia, you see rocks that fold.

And this idea later played an important role in the debate about continental drift.

And he modeled it, and he built a wacky device out of levers and wood, and there's a wheelbarrow, a bucket, a big bucket.

The reason for Wellington boots is unknown

I wonder if it was rain

He created this physical model with the goal of demonstrating that side pressure can create patterns on rocks, or in this case, mud, that look a lot like mountains.

It was a claim about what causes mountains.

Scientists these days prefer to work indoors, so they don't do a lot of physical models, but they do computer simulations.

computer simulation is a kind of model

It's a mathematical model, just like the physical model of the 19th century, it's very important for thinking about causes.

Let's take one of the big questions about climate change: There's a huge body of evidence about global warming.

The black line on this slide here shows the steady rise in global temperature, measured by scientists over the last 150 years, especially in the last 50 years.

But what is driving that change?

How do we know what is causing the observed warming?

Scientists can use simulations to model it.

Here's an illustration of a computer simulation that looks at all the different factors that can influence Earth's climate: sulfate particles from air pollution, volcanic ash from volcanic eruptions, fluctuations in solar radiation, and, of course, greenhouse gases.

And scientists look at what combinations of variables they put into their models to replicate what's happening in real life.

This black line is reality

The model is this thin gray line, and the answer is a model that includes the familiar "all of the above" choices in academic achievement tests.

In order to reproduce the measured temperatures, we have no choice but to incorporate all the factors, including greenhouse gases, and especially as you can see, the increase in greenhouse gases has followed this very dramatic trend in temperature over the last 50 years.

So on this basis, climatologists can clearly say that climate change is not only happening, but that greenhouse gases are a major part of why it's happening.

Now, because scientists are doing different things, the philosopher Paul Feijerbend, as we all know, said, "The 'anything goes' mentality is the only principle that does not hinder scientific progress."

Actually, this is an understatement, and Fireavend doesn't say that in science, "anything goes."

In fact, the full text of what he said is, "If you ask me what the scientific method is, I have to say, 'Anything goes.'"

What he was trying to say is that scientists do a lot of different things.

it's about being creative

But that brings us back to the question: If scientists use different methods, how do we decide what's right and what's wrong?

who will judge

The answer is for the scientist to decide, and that decision will depend on the evidence.

Scientists gather evidence in many different ways, but whatever it is, it must be put to the test.

Sociologist Robert Merton looked at the problem of how scientists examine data and evidence, and called it "systematic skepticism."

He thinks it's organized because scientists work together to test collectively, and he thinks it's skeptical because scientists do it on the basis of disbelief.

So the burden of proof is on the person who brought in the new allegation.

In this sense, science is inherently conservative.

Convincing the scientific community to say, "Okay, this is clearly true," is very difficult.

So while the notion of a paradigm shift is gaining traction, in fact, examples of really significant shifts in scientific thinking are relatively rare in the history of science.

This leads us all the way to the next thought. Historians have focused on the issue of consensus since scientists collectively judge evidence. The final conclusion of historians is that science, scientific knowledge, goes through a process of systematic, collective scrutiny, and it is the collective consensus of scientific experts who judge the evidence and make a positive or negative decision.

So we can think of scientific findings as the consensus of experts.

You can think of science as being like a jury, though it's a very special kind of jury.

It's the kind of geek jury you don't get to see very often.

It's a jury of people with PhDs, and unlike a normal jury that's either guilty or not guilty, a scientific jury has a lot of options.

Scientists sometimes say "yes it's true"

You can also say "No is false"

Or, "It's a real possibility, but we need more research and more evidence."

Sometimes I say things like, "There's a real possibility, but there's no way I can answer that, so I'll put it on hold for now and think about it later."

This is what scientists call "intractable."

But this brings us to the final question: if science is what scientists think it is, isn't it just an appeal to authority?

We were taught in school that appealing to authority was a logical fallacy.

Here's the contradiction of modern science, I think, the contradiction of the conclusion that historians, philosophers, and sociologists have come to -- that science is an appeal to authority. But authority doesn't mean a specific person, it doesn't mean an individual like Plato, Socrates, or Einstein, no matter how smart they are.

Authority is the whole scientific community

You can think of it as a kind of "collective wisdom," although it's a very special group.

Science appeals to authority, but the standard is not a specific person, no matter how brilliant.

The standard is the collective wisdom, the collective knowledge, the collective work of all the scientists who have worked on a problem.

Scientists have a kind of culture of collective distrust, a culture of "prove it," like this lovely lady, showing her peers the evidence she's found.

Of course, these people are smiling too much to be scientists.

(Laughter) Now, my final point.

most people wake up in the morning

i trust my car

This is Manhattan, so this is a bad analogy, but most Americans who live outside of Manhattan wake up in the morning, get in their car, start the engine, and the car runs, and it runs very well.

modern cars rarely break down

why does the car work so well

Not for the talent of Henry Ford or Karl Benz or Elon Musk.

The reason is that modern cars are the result of the work of hundreds of thousands of people over a hundred years.

Modern cars are the result of the collective research, wisdom and experience of everyone who has worked with cars, and the reliability of technology is the culmination of accumulated efforts.

It's not just the talent of Benz, Ford, and Musk that we're benefiting from, but the collective wisdom and hard work of everyone involved in modern cars.

So is science, except science is older than cars.

Our reason for believing in science is the same as we are for trusting technology, and the reason for believing in anything, is that experience speaks for itself.

But blind trust is no good

Like science itself, our belief in science must be evidence-based, so scientists have to get better at communicating.

Scientists have to explain to us the process, not just the results, and we have to learn to listen better.

thank you

(applause)

In 1066, 7,000 Norman infantry and cavalry sailed across the English Channel.

The target was England, home to over a million people.

This short voyage would have grave consequences.

Around the same time, other groups of Normans set out across Europe, and their adventures would influence the history of the entire continent.

So who are these warriors and how did they leave their mark so far?

The story begins more than 200 years earlier, when the Vikings began settling the northern coast of France, as part of the Great Mass Migration of Scandinavian people across Northern Europe.

The people who lived in France called the invaders "Normans" after the direction they came from.

Ultimately, the Frankish king Charles negotiated a settlement with the Viking chieftain Rollo in 911. Rollo's tract of land on the north coast of France became known as Normandy.

The Normans showed great adaptability in their new settlements.

He married a Frankish woman, adopted the French language, and soon began converting from the ancient Scandinavian religion to Christianity.

Despite adapting, the Normans kept the warrior traditions and the conquest spirit of their Viking ancestors alive.

Eventually, the ambitious Norman knights sought new challenges.

The Normans' most famous achievement was the conquest of England.

1066 William, Duke of Normandy, opposes Harold Godwinson's claim to the English throne

Soon after landing in England, William and his knights clash with Harold's forces near Hastings.

The climactic moment of the battle is forever immortalized in the 70-meter Tapestry of the Bayeux, where the arrow in Harold's eye sealed the victory of the Normans.

William cemented what he gained from this victory with a massive castle-building movement and a reorganization of English society.

The massive survey carried out by William the Conqueror, who lives up to his nickname, is known as the "Domesday Book," and records the population and ownership of every land in England.

Norman French became the language of the new court, while the common people continued to speak Anglo-Saxon.

Over time, the two languages ​​merged into one, English as we know it today, but the divide between aristocrats and peasants can still be seen in synonyms, such as "cow" and "beef." pork? sheep? Mutton? ]

By the end of the 12th century, Norman power had expanded further into Wales, Scotland and Ireland.

During this time, an independent group of Norman knights advanced to the Mediterranean coast, inspired by stories of pilgrims returning from Jerusalem.

And he threw himself into a tangled web of conflicts between the major powers across the region.

The Normans became highly prized mercenaries, and one of the first recorded battles they practiced was the charge of heavy cavalry with horizontal spears. This overwhelming tactic soon became a staple of medieval warfare.

The Normans also played a central role in the First Crusade of 1095-99, a bloody struggle to regain Christian rule in parts of the Middle East.

But the Normans did more than just fight.

As a result of their victories, chieftains such as "Astro William" and "Robert the Cunning" seized lands in southern Italy, eventually uniting them to form the Kingdom of Sicily in 1130.

Under Roger II, the kingdom became an example of tolerance for other peoples in a world torn apart by religion and civil strife.

Muslim Arab poets and scholars served at court alongside Greek Byzantine sailors and architects.

Arabic remained an official language along with Latin, Greek and Norman French

The geographic knowledge of the world was compiled in the Tabula Rogeriana, whose world map of the time held its place as the most accurate map for 300 years.

And the church built in Palermo combined Latin architecture with an Arab ceiling and a Byzantine dome, all decorated with exquisite gold mosaics.

So where are the so successful Normans now?

In fact, this was a key part of their success: not just dominating the society they conquered, but becoming part of it.

Eventually, the Normans as an ethnic group disappeared, but their contribution remained.

And even today, in the castles and churches that dot the landscape of Europe and wherever English is spoken, the Norman legacy lives on.

I want to tell you one thing, and only one thing, and it has to do with what people ask me -- "What do you do?"

And I usually say, computer music.

A lot of people finish the story at that moment and walk away, but most of the people who stay have blank eyes, like, "What do you mean?"

I felt that my response was not giving them enough information, and at this point I panicked and said the first thing that came to my mind: "I don't even know what I'm doing."

Well it's true

And then this thought follows - "I love what I'm doing."

Today I would like to introduce you to this thing that I love and tell you why I love it.

Let's start with this question: "What is computer music?"

I'll do my best to explain it to you by telling you some of the things I've been working on.

First of all, it's called ChuckK

ChucK is a programming language for music, it's open source, it's free, and I'd like to think that -- it crashes just as much on any modern operating system.

Rather than tell you more, let me show you a demo.

By the way, I'm going into geek mode for a few minutes, but please don't pull back.

Rather, I would like to invite you to join me in your world.

Don't worry if you've never written code before

I hope you understand

First of all, let's build a sine wave oscillator and call this oscillator "Ge."

and connect "Ge" to "DAC"

This is an abstraction of a computer's audio output, okay?

and connected me ("Ge") to the speaker

Now let's set the frequency to 440 Hz and set the duration of this operation to 2 seconds.

Okay, so when you play this -- (sound) -- you'll hear a 440Hz sine wave for two seconds.

OK Great Copy and paste this and change some values ​​220Hz 0.5s Leave 400Hz as is 0.5s and 880Hz

Let's double the frequency and raise it by an octave, and we get this sequence of tones.

OK, great. I have a lot of ideas about using this to make terrible "single sine wave music", but let's just let the computer do what it does best: iterate.

Put this all in a while loop, not really necessary but indented for readability

it's a good habit

And then it goes like this - (beep) - it goes on for a while.

In fact, it never stops unless the computer breaks down.

I can't prove it, but I hope you can believe it.

Then replace this 220 with "math.random2f"

I want it to generate a random number between 30 and 1000, and let that number be my ("Ge") frequency.

Let's do this every 0.5 seconds

(Beep) Let's do it every 200 milliseconds

(signal sound) 100

(Beeps) Well, at this point

So what I think of as "typical," "computer," and "music," was born.

It sounds to me like the sound of a mainframe computer thinking hard.

It looks like this - the square root of five million is

Now, is this computer music?

Well, by definition, it's like computer music.

It's not the kind of music you hear when you're driving down the highway, but it's the foundation of computer-generated music. In fact, we've used ChucK to build instruments for the Stanford Laptop Orchestra, which is based at Stanford University's CCRMA.

A laptop orchestra is an ensemble of laptop people and a hemispherical speaker array

The reason we use these speakers is because we wanted the sound of the instruments that we created from the laptop to come out close to the instrument and the performer, much like a traditional live instrument.

If I were to play the violin here, the sound would flow naturally from the instrument, not from the PA system.

This speaker was made to simulate that

let me show you how it's actually done

The first step is to go to IKEA and buy a salad bowl.

This is a 28 cm Blanda Matt

It's the actual name of the product. I use this when I make salads.

And then you turn it upside down and drill holes, six per hemisphere, then you make a base plate, you put the car speakers and the amplifier inside the enclosure, and you have a hemispherical speaker array.

Add musicians and laptops and you have a laptop orchestra.

What does a laptop orchestra sound like?

So let me show you a demo of one of the nearly 200 instruments I've made for the orchestra.

As for what to do, move over here

This device in front of me was once a game controller called Gametrak.

Comes with a glove to wear on your hand

It's connected to the main body by a cord, which tracks the position of the hand in real time.

It was originally designed to sense swing motion as a golf game controller.

This product ended in failure, and the price was reduced to 1,000 yen.

Now we can create a prototype of the instrument.”

I'm going to show you one of the many things I've created, an instrument called "Twilight," which is a metaphor for how sound is lifted up from the earth.

hope it goes well

(music) Undo

If you move it to the left, if you move it to the right, it sounds like an elephant in pain.

this is a little metallic sound

turn up the volume a little

(Music) Sounds like a floating car.

ＯＫ

The third is a ratcheting sound. Turn the volume up.

(music) It sounds a little different.

the fourth makes a buzzing sound

(music) And finally, this is a completely different sound. Imagine a giant drum set up on a stage.

(Drums) (Laughter) I've just introduced you to one of the many instruments in the laptop orchestra.

(Applause) Thank you.

And when you put them all together, you get a performance like this.

(Music) My experience building a lot of instruments for laptop orchestras, my curiosity about bringing this promising, expressive instrument to as many people as possible, and a little bit of eccentricity - these three things combined - in 2008, I became one of the co-founders of a startup called Smule.

Smule's goal was to create something of portable music that could be used as a means of expression, and one of the first instruments they built was the Ocarina.

let me ask you a few questions

The ocarina -- (music) -- is based on the ancient flute-like instrument called the ocarina, and it's shaped like a four-hole English pendant, and you blow into a microphone to make sounds.

There's a little ChucK script running inside the device that senses the strength of your breath and also synthesizes sounds.

(music) The vibrato is controlled by the accelerometer and it goes like this - (music) Let's play a little bit of Bach

You can hear the melody accompaniment here.

The accompaniment follows the melody, not the other way around

(MUSIC) It's designed to allow you to take your time and find areas to express yourself, so you can pause for a while and do something very dramatic.

(music) Oh, what a great chord to end with.

(Applause) Thank you.

Now, I think a good question for Ocarina is whether it's a toy or a musical instrument, maybe both, but more important to me is whether it's expressive.

And at the same time, I think that making an instrument like this is questioning the role and place of technology in the way we play.

For example, not so long ago, just a hundred years ago -- not that long ago in human history -- playing together as a family was a common pastime.

I don't think it's done much now.

Of course, in front of the radio and recording media.

In the last hundred years, I think, with the advancement of technology, we're more connected to music as listeners and consumers, but we're playing it less often than we used to.

why

Maybe because it's too easy to hit the play button

Listening to music is wonderful, but playing music also has its own unique pleasures.

One of the goals of this effort that I'm doing is to take us back in time a little bit.

If that's one of our goals, the other is to look to the future and create new types of instruments that have yet to be developed that are enabled by technology and ultimately change the way people play.

Let me give you an example here, this is a feature of Ocarina.

It represents the Earth, and you can hear other Ocarina users playing it by blowing into their iPhones.

This is "G.I.R" from Texas, and "R.I.K." from Los Angeles.

You guys are playing great. It's like playing minimal music.

(Music) This idea came from the idea that technology shouldn't be at the forefront, and -- (Laughter) -- I started thinking about this.

The first thing that came to my mind was that somewhere, someone was playing music, and it was a small thing, but it was a way to connect with important people, and maybe technology could make that possible.

The last example is one of my favorites, but in the aftermath of the 2011 earthquake and tsunami disaster in Japan, a woman asked people through our app to sing "Lean on Me" with her.

It's an app that allows you to add your voice to the performances of other users or groups of users.In a sense, she created a special global choir of strangers, and in a matter of weeks, thousands of people joined it.As you can see, people from all over the world have joined and these lines converge.The very first song was sung in Tokyo.

And this is the sound of a thousand people

a thousand voices

(Recording) ♪ Sometimes in life ♪ ♪ There are painful and sad things ♪ ♪ But if you think about it ♪ ♪ There's a tomorrow

(Applause) Was it computer music?

Well, yeah, I couldn't have done something like this without a computer.

But it's also a chorus of people. So what I've essentially answered so far is why I'm doing this, so let's go back to the first question: What is computer music?

The point here, at least to me, is that computer music isn't about the computer.

people are the center

How we can use technology to change the way we think, the way we act, the way we play, and perhaps even the way we connect through music.

Including saying that, I would like to say computer music. Thank you for your attention.

(applause)

The human voice is something that everyone can play

I'd say it's the most powerful sound in the world.

Only human voices can start wars and convey love

But I'm sure many of you have had the experience of talking and no one is listening.

Why?

How can we speak powerfully and change the world?

My suggestion is to stop bad habits.

For all of you, I've prepared here, "The Seven Deadly Sins of Speakers."

I don't mean to claim to be exhaustive, but these are seven pretty high-impact bad habits we tend to fall into.

The first is gossip

It is to speak ill of someone who is not there

It's not good practice, as you know, and five minutes after we hear a swear word, the person who said the swear word is talking about us.

The second is criticism.

There are people who come to mind, don't you think?

The third is negativity—

Sometimes you turn backwards

My mother was really negative in her later years, and she couldn't listen. One day, I said to her, "Today is October 1st."

One day, I said to my mother, "Today is October 1st."

(Laughter) I can't bear to hear that you're so backwards.

Speaking of negativity, the same goes for complaints

Britain's national art

It's also the national sport, isn't it?

They complain about sports, politics, whatever, but complaining only spreads unhappiness.

It doesn't bring warmth and light to the world

And there are people who make excuses, excuses

Do you remember

Some people just shift the blame

People who blame others and don't take responsibility for their own actions are just not worth listening to.

The penultimate sixth deadly sin is dramatization exaggeration

sometimes lower the rank of words

If you keep saying 'wow', when you see something really 'wow', you don't have the words to express it, right?

(Laughter) Of course, this exaggeration also leads to lies.

finally become self-righteous

to confuse fact with opinion

If you mix the two up, you won't hear anything.

Even if someone hits my opinion as if it were a fact

you wouldn't have heard

The above is the "seven deadly sins of the speaker"

what we should avoid

But can we also work positively?

yeah you can

There are four powerful foundations on which we can stand to empower our stories and change the world.

If you take the four initials, you get a word.

It's "HAIL" The meaning is also wonderful

When I say hail, I don't mean "hail," which comes down from the sky.

It means "to warmly welcome and applaud." And that's the kind of response you should get when you deliver your words based on these four points.

So what does "HAIL" refer to?

Do you understand?

The “H” is for honesty, telling the truth and being open and clear

“A” is authenticity

A friend of mine put it this way, which is a nice way of saying that it's about standing in your own truth.

"I" is for integrity. Take your word, do what you say, and be someone you can trust.

And "L" is for love

It's not a romantic love, it's a love that wants everyone to be happy, and there are two reasons for this.

One is absolute honesty

Because it's not everything, like "Wow, you look terrible this morning"

You don't need those words

Honesty is great when softened with love

Also, if you really want someone to be happy, it becomes difficult to criticize them.

You can't do both at the same time

It is "HAIL"

When it comes to saying something, as the old song says, the way you say it is just as important as the content.

you have a great toolbox

The throat is an amazing instrument and a toolbox, but very few people know how to use it.

Now, let's open the toolbox and take out the tools inside, and you can take them home and use them to improve your speaking skills.

First is the vocal range.

Falsettos are usually useless, but there are vocal ranges in between.

I'm not going to go into it too much because there are voice experts out there, but you can change where you put your voice.

I'm going to talk through my nose, isn't it?

And I'm going to try speaking with my throat. Most people speak from here.

But if you want to add more weight, go lower -- through your chest.

Can you tell the difference?

There's also the fact that we vote for low-voiced politicians, because we associate depth with power and authority.

that's the vocal range

Next, there is the "voice color"

the texture of the voice

Studies show that people prefer voices that are rich, smooth and warm, like hot chocolate.

If your voice doesn't sound like it, don't worry, you can train it. Find a voice trainer.

You can train Find a voice trainer

Breathing, posture, and practice can improve your voice in ways you won't recognize.

And "prosody"

My favorite is the intonation, the metalanguage that gives meaning to words.

This is the real pleasure of conversation

I don't feel like listening to you when you speak in the same tone all the time, because there's no cadence.

It's a monotonous world with little change.

And you often hear this kind of prosody, don't you? Like interrogative sentences, the end of the sentence goes up? It's not really a question, but an opinion?

(Laughter) If you do this over and over again, you'll lose the ability to use prosody to communicate.

And "pace" when you speak very fast

It makes you feel very excited, while speaking slowly can emphasize that, ultimately, it's the familiar silence.

There's nothing wrong with a little silence, right?

You don't have to fill the silence with "uh" or "uh"

Silence has great power

Emotional excitement is usually expressed by "pitch" and tempo, but in fact, it is possible to express it by pitch alone.

where did you put my key

where did you put my key

If you change the pitch, it will mean something a little different.

Finally, it is "volume"

Volume can make you feel excited

did you surprise me

Or by speaking very quietly, you can attract attention.

Some people speak loudly all the time

let's avoid that

That's what you call a "major annoyance," mindlessly imposing your own sound on the people around you. I'm not impressed.

These things can help you communicate something important.

Maybe it's time to speak on stage like this

When you propose marriage, it could be negotiating a raise or giving a speech at a wedding.

Whatever it is, when you're ready for it, take a look at this toolbox and see what engine you're going to use.

Warm up your voice too

let me show you how

Could you all stand for a moment?

Here are six vocal warm-up exercises that I always do before I speak.

When talking to important people, please do

First, raise your arms, take a deep breath, and let it out.

once again

oooh that's good

Next, it's a warm-up exercise for your lips.

And then, like I did when I was a kid

Now my lips are ready

Next, move your tongue with an exaggerated "L" la la la la la la la la la

great you guys are great

Then the rolled tongue "R" Lururururururu

It's like champagne for your tongue.

Lastly, what you should do is call it a siren in the industry.

I recommend it starts with 'wee' and ends with 'o'

"Wee" is high, "Ou" is low

Let's go weeeeeeeeeeeeeee

great applause to all

Please sit down. Thank you. (Applause)

Please do this before we speak again

Now let's wrap up

it's very serious

we are now in this situation

In an environment of noise and noise, you're talking not very well to people who won't listen.

I've talked about this here on many different fronts.

What would the world look like if we could speak powerfully in purposeful settings to people who are conscious listeners?

More to the point, what would the world be like if we consciously created sound, consciously received sound, and designed every environment with sound in mind?

Sounds will sound beautiful in the world, where mutual understanding will become the norm. This is an idea worth spreading.

thank you

thank you (applause)

This is a lot of 1's and 0's

It's called binary information.

Now the computer will talk

I now have the information

Think about this

All computers do things through binaries.

I'm a cybersecurity researcher, so my job is to sit at my desk and face all this information and make sense of it, and make sense of what these 0's and 1's mean.

Unfortunately, it's not just the 0's and 1's that we're showing you on the screen.

It's not just a few pages

Billions of 0's and 1's in volumes that no one can comprehend.

It sounds really exciting, but when I first got into cyber -- (Laughter) when I first got into cybersecurity, I wasn't sure if scrutinizing the 1's and 0's was what I wanted to do for the rest of my life.

These are very important things, but I didn't want to spend my life on them.

But after 30 minutes of working in the military industry, I quickly realized something was wrong.

In fact, when it comes to national defense, protecting my grandmother's computer from viruses is surprisingly low on the priority list.

The reason is that cyber is bigger than all those things.

Cyber ​​is part of our lives because computers are part of our lives, even if you don't have one.

The computer controls everything in the car, from GPS to airbags.

I also control your phone

Thanks to computers, we can make emergency calls and talk to other people.

Computers control our nation's entire infrastructure.

Thanks to computers, we have electricity, we have heating, we have clean water, we have food.

Computers also control military installations, everything from missile silos to satellites to nuclear defense networks.

All of this is made possible by computers, and thanks to cyber, and when something goes wrong, cyber prevents it.

there is my turn

My main job is to protect them and keep them working, but on rare occasions, I also have a job to break the defenses, because cyber is not only defense, it's attack.

We're entering an era where things like cyberweapons are being taken up.

In fact, the potential for cyberattacks is so great that the cyberworld is now considered a new domain of warfare.

it's war

not necessarily a bad thing

On the one hand, we've got a whole new front to defend, but on the other hand, we've got a whole new way to attack bad guys, a whole new way to stop bad guys.

Let's consider that example, completely hypothetical.

Suppose a terrorist wants to blow up a building, and they want to blow it up again and again.

Terrorists themselves don't want to be in a building that's being blown up.

Suppose he uses a mobile phone as a remote detonation device.

Now, stopping these terrorists used to be limited to a hail of bullets and car chases, but not now.

We are now in an era where we can stop a terrorist at the touch of a button from a distance of more than 1,000 kilometers. Regardless of the terrorist's own understanding, the moment he decides to use a mobile phone, he is stepping into the cyber realm.

A clever cyberattack can break into a terrorist's cell phone, disable the battery's charging protection, overload the circuit, overheat it, and blow it up.

No more phones, no more explosives, maybe no more terrorists, all at the touch of a button, even thousands of miles away.

how does it work

It all comes back to 0's and 1's

Binary information is what makes a phone work, and if you use it correctly, you can blow it up.

And when you start thinking about cybersecurity from this perspective, the life of looking up binary information also seems exciting.

But there's a catch. It's very difficult. Here's why.

Think about all the information you have on your cell phone.

I have a picture that you took

I have music for you to listen to

In addition to your contacts and emails, there are also 500 apps that you probably never use, and behind all that software is the code that controls your phone, and inside that code is that little piece that controls the battery, which is exactly what I'm looking for, but it's all jumbled up with a lot of 0's and 1's.

It's what the industry calls finding a needle in a pile of needles, because they all look the same.

We're only looking for one keycode, but it's mixed with everything else.

Let's go back for a moment to the hypothetical situation of blowing up a terrorist's cell phone, and I'll tell you my real-life experience.

In almost everything I do, my job starts with sitting down and looking at a huge amount of binary information, and the goal is always one key piece with a specific role.

At this time, I was looking for high-tech code, and I knew I could hack it, but it was buried somewhere in a billion 0's and 1's.

Unfortunately I didn't know what to look for

I didn't know what shape it was in, so it was extremely difficult to find.

So when you do that, you basically start by looking at different pieces of binary information and deciphering each piece to see if it's what you want.

After a while I thought I had found what I was looking for

I thought this was

I thought it was a close match, but I wasn't sure

I didn't know what the 0's and 1's there were referring to.

I spent some time working on it, but it didn't work, and in the end, I decided that I was going to get this sorted out, and decided that I would go to work for the weekend and not come back until I had this sorted out, so I started working on it.

I got to work on Saturday morning, and in about ten hours, I managed to put all the pieces together into one puzzle.

I still didn't know the answer to the puzzle

I didn't know what the 0's and 1's meant

After 15 hours, I started to see a little more, but I started to worry that maybe what I was working on wasn't exactly what I was looking for.

After 20 hours, I started to see the big picture, and gradually -- I finally realized that I was going down the wrong path, but I wasn't about to give up.

After 30 hours in the lab, I knew exactly what I was looking at, and as expected, it wasn't what I was looking for.

I spent 30 hours putting together 0's and 1's to make a picture of a kitten.

(Laughter) I wasted 30 hours of my life looking for this kitten that had nothing to do with my purpose.

I'm frustrated and exhausted

For 30 hours, the lab was completely closed, so it probably smelled bad.

But before I stopped there and went home, I took a step back from the problem and asked myself what I had done wrong.

How could I have made such a stupid mistake

it's my specialty

this is how i make my living

something must have happened

I think it's easy to get lost when you're looking at information at this level.

It's hard to see the forest for the trees

It's easy to go down the wrong rabbit hole and waste a ton of time doing the wrong thing.

I just had an epiphany

we were wrong from the first step

0 and 1 are the way computers think

We're not like humans, and yet we've been trying to adapt to think like computers, to be able to make sense of this information.

It should have adapted the problem to the way we think rather than to the problem, because our brains are also capable of analyzing vast amounts of information, just in a different way.

What if we could do that by simply replacing this information with another kind of information?

With this idea in the back of my mind, I ran out of my lab at work and ran into my home lab, both in similar places.

But the main difference is that the workplace is surrounded by cyber stuff, and that seems to be the problem in this situation.

At home, I'm surrounded by what I've learned.

So I thought, with all the books, with all the ideas I've touched on up to that point, can't we translate this problem into a completely different domain?

the biggest question is what to replace

What is the most natural use of our brains?

my answer is vision

Our ability to process visual information is enormous

We can process different signals, such as color gradients and color depths, and see the world in a coherent picture.

great ability

So if we can translate these binary patterns into visual signals, we'll be able to harness the brain's powerful ability to process these things.

I looked at the binary information and started asking myself, what is the first thing I do when I see something like this?

The first thing I want to do The first question I want to solve is what is

What it does and how it works is fine

all i want to know is what it is

The way to find out is to look at the chunks, look at the chunks of binary information and think about the relationships between those chunks.

If you collect enough chunks, you can see exactly what this information is.

Now let's get back to blowing up a terrorist's cell phone.

Here's what English characters look like at the binary level.

When I go through your cell phone contacts, I see something like this.

Analysis is also difficult in this state, but if I replace this very same information that I'm trying to find, and replace that relationship with visual information, here's what I get.

English letters, when abstracted into visual information, look like this.

All of a sudden, all the information that was expressed as 0s and 1s appeared in a completely different form that even I could distinguish in an instant.

Instantly see information patterns

With this you can see the pattern in seconds, but with 0 and 1 it takes hours and days.

Now, anyone can memorize what the pattern shows in minutes, but it takes years of experience in the cyber industry to see the same thing in a row of 0's and 1's.

This piece shows the sequence of lowercase and lowercase letters in your contacts.

this is uppercase and uppercase uppercase and lowercase and lowercase and uppercase

this is a space this is a newline

When you look at this level, you can see detailed binary information in seconds, not weeks or months.

Here is a picture of what I saw on my phone

Visual abstraction looks like this

Here's the music. Visual abstraction looks like this.

What's important to me is that the actual code is

What I'm ultimately after is this, but here's the visual abstraction.

If you can find this, you can blow up your cell phone.

If it's 0 and 1, it'll take weeks to find this out, but if you're going to find this kind of abstraction, you can do it in seconds.

And the best thing about this method is that it gives us a whole new way of making sense of information that we see for the first time.

I know what English looks like at the binary level, and I know the visual abstraction of it, but I've never seen a Russian binary.

Looking directly from 0 and 1 would take weeks, but with this kind of visual abstraction, our brains can pick out the subtle patterns in it and unconsciously apply them to new situations.

Here's a visual abstraction of the Russian binary.

Knowing the patterns of one language allows us to identify even unfamiliar languages.

Here's what the picture looks like Here's what the clip art looks like

The mobile phone code looks like this The computer code looks like this

Our brains can see patterns that we would never have seen if we just looked at the 0s and 1s.

But this is just the surface of the true power of this technique.

We're just beginning to harness this brain's ability to process visual information.

If we take the same concept and then replace it with three-dimensional information, we'll also find new ways to make sense of information.

Find all the patterns in seconds

Can find associations with code

I can find cubes that show letters

Even the smallest distortion can be found

What would take weeks and months from 0's and 1's becomes instantly apparent from some sort of visual abstraction. As we continue to explore this method and gather more information, we'll find that our brain's built-in pattern analysis capabilities will allow us to process billions of 0's and 1's in seconds.

This is really cool and helpful, but all it tells you is what it is.

At this point, I can find the code on my phone based on visual patterns.

but not enough to explode the battery

I now need to find the code that controls the battery, but I run into the needle pile problem again.

That code is roughly similar to other code on the system.

Maybe you can't find the code that controls the battery? There are many similar codes.

The code that controls the screen The code that controls the buttons The code that controls the microphone Even if you can't find the battery code, you should be able to find something close.

So my next task is to compare similar pieces of binary information.

At the binary level, this is really tough, but even with similar things, visual abstraction allows us to not have to dig into the raw data.

I just compare the pieces and wait for the image to appear

Find the code you're looking for by chasing bundles of similar code like bread crumbs

So at this stage, I've found the code that controls the battery, but it hasn't exploded yet.

The final piece to this puzzle is understanding how the code that controls the battery works.

To do that, you have to find very fine, detailed relationships in the binary information, which is also very difficult to look at for 0 and 1.

But once you convert the information into physical representations, you can let the visual cortex do the rest.

Our visual cortex finds all the detailed patterns, the important pieces, for us.

It finds out exactly how the piece of code is working to control the battery.

This takes hours, and the same process would have taken months in the past.

In the situation of blowing up a terrorist's cell phone, this would be a good thing.

I wanted to know if this would actually work in my daily work.

I've touched on the objects I've analyzed before in the same way, but even then I was looking for some specific, detailed code in a mass of binary information.

Looking at this level, I thought I was looking at the right information, although I didn't find the relationship in the code I was looking for.

I didn't really understand it, but when I went down to this level and looked at the similarities within the code, I found that I didn't see any similarities with the rest of the code.

it wasn't even code

If you look at it from this perspective, you can see that it's not code.

an image of something

This way you know it's a photo, not just an image.

If it turns out to be a photograph, I have dozens of binary conversion techniques for visualizing and interpreting that information, and in a matter of seconds, through the visual conversion technique, I know exactly what data I'm looking at.

And then I saw -- (Laughter) that kitten again.

All of this is possible because we've found a way to translate difficult problems into what our brains do naturally.

what is this

For kittens, it means they can no longer hide between 0's and 1's.

For me, it means no more wasted weekends.

It's that we've found a revolutionary way to tackle a problem that was once considered impossible for cyber.

It means we have new weapons in the growing cyber warfare, but for all of us, we cyber engineers, we have the ability to be first responders in emergency situations.

We unlocked the means to stop the bad guys in a time-sensitive situation.

thank you

(applause)

I've been thinking a lot lately about how the world has changed in the last 20, 30, 40 years.

A few decades ago, if a chicken caught a cold, sneezed, and died in a remote village in East Asia, it would have been a tragedy for the chicken himself and all his friends, but I don't think there was a threat of a global disease or the possibility of millions dying.

A few decades ago, even if the banks of North America went bankrupt because they gave too much money to people who couldn't pay them back, even if it was terrible for lenders and borrowers, we couldn't have imagined that the global economic system would be in stagnation for nearly a decade.

globalization

This miracle will allow our bodies, our minds, our words, our pictures, our ideas, our lessons, our learning, to spread across the globe faster and cheaper than ever before.

It brings a lot of bad things, as I said earlier, but it also brings a lot of good things.

Many of us are unaware of the enormous success of this Millennium Development Goal, which some say has been achieved long before the deadline.

The fact that we've achieved our goals proves that humankind can achieve tremendous progress if we work together and work hard.

But to put it simply, we've been caught off guard by globalization, and lately it feels like we're lagging behind.

And if you see the negative side of globalization, I know it can be devastating.

The challenges we face today -- climate change, human rights and demographics, terrorism, pandemics, drug trafficking, slavery, endangered species, and so on -- and so on and so on, and so on and so on, and so on, and so on and so on, and so on, and so on, and so on, and we're so largely untouched.

So that's the challenge that we all face today at this interesting point in history.

that's obviously what we should do next

We have to work together to find better ways to solve problems globally, so that we don't just end up as victims of globalization.

Why can't we move forward slowly?

What is the reason?

There are many reasons, of course, but perhaps the biggest one is that humans are still organized the way they were 2,300 years ago.

There's a huge force of seven billion people on the planet -- it's us who are causing all these problems -- and just as those seven billion of us can solve it all.

But how are these seven billion people organized?

They still fit into the 200-strong nations, and nations have governments, make laws, and encourage certain actions.

It's a very effective system, but the problem is that the way these laws are set up and the way governments think about them is totally inadequate to solve global problems, because it's all about internal affairs.

The politicians we elected and the politicians we didn't elect, by and large, think small.

They don't see the problem in the big picture.

They act as if they believe that all nations exist as independent islands, in their own planets, in their own solar systems, living happily in isolation from other nations.

This is a problem, countries are competing with each other and competing with each other.

This week, and every other week, you'll see people between nations trying to kill each other, and even when that's not happening, there's competition between nations, trying to take each other down.

this is clearly not good

we must change once and for all

Clearly, we need to find ways to push countries to get a little better together.

But why don't they do it?

Why is it that our leaders are still fixated on domestic affairs?

The first obvious reason we can think of is that we ask them to

because I command you to do so

When we elect a government, or allow an unelected government, we are effectively telling our government that what we want is to do a few things for our country.

We want prosperity, growth, strength, transparency, justice and all of that.

So unless we ask governments to think a little bit about foreign affairs, and then about the global problems that threaten to destroy humanity, we can't blame them for continuing to look only at domestic affairs, sticking to a narrow view instead of a broad one.

That's the number one reason things don't change

The second reason is that these governments, just like the rest of us, are cultural psychopaths.

This is rude, but you know psychopaths, right?

A psychopath is someone who unfortunately lacks the ability to truly empathize with others.

They look around and see no other person with a deep, rich three-dimensional life, a goal, a passion.

What they see is a cardboard humanoid, very sad, very lonely and - fortunately - very rare.

But surely most of us aren't very good at empathizing, are we?

Of course, people who look, walk, eat, pray, and dress like us can relate very well.

this is a question to ask yourself

I think you should always watch

I wonder if we and politicians will become cultural psychopaths.

The third reason, which is so silly that it doesn't deserve to be mentioned, is that there is a belief in governments that domestic and international challenges are incompatible and will continue to be.

this is ridiculous

Normally, I work as a policy advisor,

For the last 15 years or so, I've been advising governments around the world, and I think there's one way to solve any domestic problem most creatively, effectively, and quickly.

Still, you may say, Why is it not working?

Why can't we change politicians?

Why can't we ask them?

Like many people, I spend a lot of time complaining about how hard it is to change people, but I shouldn't get frustrated about it.

We just have to accept that we're inherently conservative.

i don't like to change

It's for evolutionarily very smart reasons.

If we were willing to change, we wouldn't be here today.

It's very simple. Thousands of years ago, we discovered that if we kept doing the same things, we wouldn't die. What we did once and didn't die didn't kill us.

But of course there are exceptions

Otherwise you're stuck in all directions

The exception is an interesting one, and it's when you show others that you're self-interested, and that gives them confidence and makes a little difference.

So I've spent the last 10, 15 years trying to figure out what can be of self-interest, not just politicians, but also business people and people in general, who can always look a little bit outside and think more broadly than just themselves.

and i found something very important

In 2005, we started a study called the "National Brand Index."

It was a very large poll that asked a very large number of people, representing about 70 percent of the population of the planet, a series of questions about their image of other countries.

The National Brand Index has become a very, very large database year after year.

About 200 billion data points track what and why ordinary people think about other countries.

So why did we start this? Because the governments I advise are very interested in their country's image.

Partly because I convinced them that image is important to their country's survival and prosperity in the world, but they know.

If a country has a nice positive image like Germany or Sweden or Switzerland, everything is simple and easy.

more tourists and investors will come

Sell ​​your products at a higher price

On the other hand, if it's a very vulnerable nation with a negative image, everything will be difficult and expensive.

So governments care a lot about their country's image, because a nation's image makes a direct difference to a nation's earning power, and that's what they promise to bring to their people.

So a couple of years ago, I decided to take some time out of that huge database and try to figure out why people prefer one country over another.

The answer that the database gave me was shocking.

it was 6.8

I don't have time to explain in detail

What they basically taught me -- (Laughter) (Applause) -- is that the kind of countries we like are the "good" countries.

We are rich, we are powerful, we are successful, we are modern, we are technologically advanced.

That's why I don't admire the country

So what is "good"?

We mean countries that contribute something to the world we live in, or actually make the world a safer, better, prosperous, or just world.

those are our favorite countries

This discovery is significant -- what I mean -- because it makes the circle square.

I could tell any government right now, and I'm doing it, but to make it work --

If you want to sell more products, if you want to get more investment, if you want to be more competitive, you need to act and behave like a "good" person, because that's why people look up to you and do business with you, and that's why the more you work together, the more competitive you become.

This was a pretty important discovery, and as soon as I discovered it, I felt a new exponent emerge.

In fact, the older I get, the simpler my ideas become, and the more childish they become.

It's called the Good Nation Index, and it's exactly what it says it is.

It seeks to assess how much each country on the planet contributes to all of humanity except its own citizens.

The strange thing is that no one has ever thought to evaluate this before.

So my colleague Dr. Robert Gober and I spent the last two years, with the help of many very serious and intelligent people, trying to do our best to collect reliable data from all over the world to find out what countries really give the world.

Are you waiting for which country is the best?

So let me tell you, first I want to tell you what exactly I mean when I say "good" country.

When I say "good," I don't mean "more moral."

When I say country X is the best country on earth, "best" doesn't mean "best."

"best" is something else

When you discuss "good" nations

"Better," "Better," and "Best," but not the same as "Good," "Better," and "Best."

It's simply a country that gave more to humanity than any other country.

I won't go into the internal affairs of that country, as that will be evaluated elsewhere.

So the winner is Ireland

(Applause) According to the data here, no country on earth contributes more to the world per capita per dollar of GDP than Ireland.

in short

This means that when we go to bed at night, our last thought, 15 seconds before we all fall asleep, should be, "Oh! I'm glad Ireland exists."

(Laughter) And it's -- (Applause) -- that I think there's an important lesson to be learned in the depths of a very severe recession, if you're able to try to revive your own economy while still remembering your international obligations, which is really rare.

Finland has almost the same rating

The only reason it's below Ireland is because it had a lower lowest score.

Now, the other thing you'll notice in the top 10 is that the countries other than New Zealand are Western European countries.

because those countries have money

It disappointed me, because I didn't want to find any evidence on this index that a region of purely rich countries would help poor countries.

but that's not all

In fact, if you look at the bottom of the list, you'll see something that's not on the slide that really pleases me, and that's that Kenya is in the top 30, which shows something very important.

"Goodness" is not about money

It's a matter of preparation

and it's a matter of culture

Goodness is about governments and people who care about the world and have the imagination and the courage to think about other nations, rather than just thinking about themselves.

I'll also show you the other slides so that you can see some of the lower countries.

Germany is 13th, the United States is 21st, Mexico is 66th, and there are some big developing countries like Russia at 95th and China at 107th.

Countries like China, Russia, and India are very far down in the same ranks, but from some perspectives, it's not surprising.

They've spent a lot of time over the last few decades building up their economies, building up their societies and political institutions, but they're hoping that their second phase of growth will be a little more outward-looking than their first phase.

And then you can look at each country in detail through the actual datasets on which they were evaluated.

From tonight on goodcountry.org

I will prepare it so that you can see the data for each country.

You can drill down to the level of country-specific datasets

Again, the Good Nation Index

What is it for?

It's because I want to introduce, or reintroduce, the word to the world in order to create a debate about "goodness."

I am also interested in competitive countries.

And I've done a lot of hearings about prosperous, wealthy, fast-growing countries.

Countries that say they're happy, I've done enough hearings because they're countries that only think about themselves.

At the end of the day, everyone is just thinking about themselves.

I think we know what you want to hear

I want to ask you about a good country, and I have one thing for you.

I would like to make a request

It's easy to do, and you might find it interesting and even useful, and it's just a matter of starting to use the word "good" in this context.

When you think of your own country When you think of other people's countries When you think of companies When you talk about the world we live in today Start using that word as I spoke tonight.

"Good" is not the opposite of "bad." This is a never-ending debate.

Goodness is the opposite of selfishness. Good nations think about us all.

This is what I want you to put into practice, and use it as your cane to correct your politicians.

When you endorse them and re-elect them, when you vote for them and when they ask what they can do for you, use the old word "good" and ask yourself, "Is this what a good country would do?"

And if the answer is no, carefully ask yourself

Is it the behavior of my country? and

Do I want to be from a country that has a government that does that? and

Or, on the other hand, do you prefer the idea of ​​walking around the world with your head up and saying, "I'm proud to be from a good country?" and

everyone welcomes you

Fifteen seconds before everyone falls asleep at night, they say, "Thank you, God, for that man's homeland to exist."

I think the ultimate thing is what makes the difference.

The word "good" and the number 6.8 and the discovery and what's behind it changed my life.

I think these things can change your life, and you can use them to change the way politicians and companies behave, and in doing so, I think we can change the world.

Since I came up with these things, my idea of ​​my country has changed a lot.

I used to want to live in a rich country, and then I started wanting to live in a happy country, but I started to realize that it wasn't enough.

I don't want to live in a rich country

I don't want to live in a fast-growing or competitive country.

I want to live in a "good" country, and I hope you feel the same way.

thank you

(applause)

I'd like to talk about how AI and humans can coexist, but before we do that, we need to question human values.

First of all let me confess my mistake

It was December 16th, 1991, at 11:00 am.

I was about to become a father for the first time

My wife, Shenling, was lying in a hospital bed in 12 hours of extremely painful labor.

I was sitting by her bed looking anxiously at my watch, without telling my wife.

If she didn't have a baby in the next hour, I was supposed to leave her there and go back to work to give a presentation on AI to my boss, Apple's CEO.

Luckily, my daughter was born at 11:30. (Laughter) (Applause) I didn't do anything I shouldn't have done, and I still regret that I put work before the love of my family.

(Applause) But the AI ​​presentation was a success.

(Laughter) Apple liked my work and decided to present it at TED1992 -- 26 years ago, right here on this stage.

I thought I had made the biggest and most important discovery about AI, and the next day the Wall Street Journal agreed.

But in terms of discoveries, my achievements are not India or the Americas after all.

It's about the size of a small island off the coast of Portugal.

Meanwhile, the Age of Discovery continues, and more and more scientists are devoting themselves to AI.

About 10 years ago, three North American scientists made a major discovery about AI: deep learning.

Deep learning is a technology that takes in large amounts of data about a domain and allows it to make predictions and decisions with accuracy that surpasses that of humans.

For example, let's say you show a deep learning network a bunch of pictures of food, and it can identify the food, say, whether it's a hot dog or a non-hot dog.

(Applause) Or, if you show them a lot of photos, videos, sensor data of highway driving, they can actually drive a car on the highway, just like a human being.

So what if we showed a deep learning network all of President Trump's speeches?

So this artificially intelligent President Trump -- which is actually a network -- (Laughter) actually -- (Applause) You guys like the double contradiction, don't you?

(Laughter) (Applause) If you ask this network to give a speech on AI, the president, or rather, the network, will say, (sound played) Trump: It's great to use AI to build a better world.

Lee: What about other languages?

Trump: (speaks Chinese) (laughs) Lee: You didn't know you could speak Chinese, did you?

Deep learning has become central to the Age of Discovery in AI, with America leading the way.

But now we're entering an era of practical application. It's an era where execution, product quality, speed and data matter.

China has emerged

The Chinese entrepreneurs that I have invested in are incredible hard workers and their attitudes to work are astonishing.

Compared to the ferocious work of Chinese people like me in the delivery room, it's nowhere near as good.

For example, one start-up described their work-life balance by saying, "We're 996, so come join us."

What does it mean?

Working hours are from 9am to 9pm, 6 days a week.

We're comparing it to 997 other startups.

What's more, the quality of products made in China has steadily improved over the last 10 years in a highly competitive environment.

In Silicon Valley, entrepreneurs compete in a very gentlemanly manner, much like the old wars, when each one attacked one another.

(Laughter) But what's going on in China is a do-or-die fight, like the ancient Roman gladiators.

In such a challenging environment, entrepreneurs are learning how to grow rapidly, learning to build better products at lightning speed, learning how to refine their business models, until they've built a strong position --

As a result, great Chinese inventions like WeChat and Weibo will almost certainly outperform their American equivalents, Facebook and Twitter.

Moreover, the Chinese market embraced this change and accelerated the change and paradigm shift.

For example, if you were to visit China, you would hardly see cash or credit cards, because mobile payments, which we all talk about a lot, is already happening in China.

Last year, 18.8 trillion US dollars were traded over the Internet via smartphones, and it's the technology behind it that made it possible.

That amount exceeds even China's GDP.

You're probably wondering, how can we exceed GDP?

Because that includes all transactions: wholesale, distribution channels, retail, online and offline transactions, shopping at malls and farmers' markets.

The technology is used by 700 million people not only for commerce, but also for sending money to each other, directly from person to person, and with virtually no transaction costs.

It can be exchanged instantaneously and can be used anywhere

And the Chinese market is huge

It's a big market, so entrepreneurs can get more customers, they can make more money, they can invest more, but more importantly, it gives entrepreneurs the opportunity to collect massive amounts of data, which can be the catalyst that powers AI.

So as a result, Chinese AI companies have been able to make big strides. Currently, the companies with the highest market capitalization in computer image recognition, speech recognition, text-to-speech, machine translation, and drones are all Chinese companies.

With America ushering in the Age of Discovery and China ushering in the Age of Practicality, we are witnessing an amazing era in which two forces, two superpowers, are joining forces to unleash the most rapid technological revolution that mankind has ever experienced.

And this will bring enormous wealth, unprecedented wealth, according to PwC, in 2030 AI will contribute $16 trillion to total global GDP.

There is also a big challenge in terms of the possibility that jobs will be replaced by AI.

The Industrial Revolution created more and more jobs, because the work of skilled craftsmen was broken down into different parts of the assembly line, creating more jobs.

But AI replaces all assembly line jobs with robots.

It's not just factories, truck and car drivers, telemarketers and customer service jobs -- and hematologists and radiologists -- these jobs will gradually be replaced by artificial intelligence over the next 15 years.

And the only jobs that require creativity are -- (Laughter) I'm going to have to step into my comfort zone.

Yes, creative work is inevitable, because AI can optimize, but it can't create.

But even more serious than the loss of jobs is the loss of meaning, because the industrial view of work has brainwashed us into thinking that work is what we are for, that it is work that determines the meaning of our lives.

I was the epitome of trying to apply that work-centric mindset to myself.

It was incredibly hard work

That's why I almost left my wife in the delivery room, and that's why I worked at 996 with the entrepreneurs I invested in.

But my work obsession came to an abrupt end a few years ago when I was diagnosed with stage four malignant lymphoma.

This PET scan image shows more than 20 malignant tumors spreading like a fireball, and it melted away my ambition.

But more importantly, it was a turning point in my life.

Knowing that I might have only a few months left to live made me realize that it would be foolish to base my self-worth on how hard I worked and what I achieved.

my priorities were all wrong

I neglected my family

My father was dead, but I never told him that I cared for him.

My mother has dementia and no longer recognizes me as her son.

When I was in chemotherapy, I read Bronnie Ware's book, a book about the last wishes and regrets of people on their deathbeds.

She learned that on the brink of death, no one regrets saying, "If only I had worked harder."

The only regret I have is that I wish I had been with the people I loved more, or told them how much I cared.

Fortunately, my tumor is now in remission.

(Applause) So I'm back at TED and I can tell you that I've changed my life.

I only work 965 now sometimes 996 but usually 965

I move closer to my mother, and I usually take my wife to my business trips.If the kids go on vacation and they don't come back home, I'll go see them.

This new way of living made me realize how important love is to me. In the face of death, my life changed, but it gave me a new perspective on how AI is affecting humanity, how we should work with and coexist with humanity.

love is the reason we exist

When we hold a newborn baby, we feel love at first sight.When we help someone in need, only humans can give and receive love.That's the difference between us and AI.

I can confidently say that, unlike science fiction, AI doesn't have love.

When AlphaGo defeated world champion Ke Jie, Ke Jie shed tears and loved the game, whereas AlphaGo felt nothing happy about winning, let alone wanting to hug his loved ones.

So, in the era of AI, how should we human beings differentiate themselves from AI?

I just talked about the presence or absence of creativity. Of course, that's one possibility, but I'd like to introduce a new perspective, which we call compassion, love, and empathy.

These are things that AI does not have

I like to think that while AI is taking over menial jobs, humans can and should do caring jobs.

You might wonder how many such jobs there are, but think about it.

Don't you think we're going to need a lot of compassionate caregivers to get more care to more people?

For our children to thrive in this brave new world, don't you think we need ten times as many teachers?

Shouldn't we use our newly acquired wealth to create new occupations that require affection, such as caring for the elderly and homeschooling?

(Applause) This graph, of course, isn't perfect, but it shows four ways we can coexist with AI.

We will all be grateful that eventually AI will become more prominent and take over menial jobs.

AI will also be a great tool for creative professions -- scientists, artists, musicians, writers, etc. -- to become even more creative.

AI can work with humans as an analytical tool, and when we wrap AI in human warmth, we can use it for jobs that require compassion.

And we will always be able to differentiate ourselves from AI in a profession that requires both compassion and creativity, a unique ability to leverage our irreplaceable minds and hearts.

Now, you have the blueprint for human-AI symbiosis.

AI makes us happy

It frees us from menial labor and makes us realize what makes us human.

Choose to embrace AI and treat each other with love

thank you

(applause)

When I think about prejudice and prejudice, I think of stupid bad people doing stupid bad things.

This idea was summed up nicely by British critic William Hazlitt, who said, "Prejudice is the child of ignorance."

All I want to tell you is that it's a mistake.

I want you to know that prejudices and prejudices are normal and often rational and even conscientious, and once you understand them, you'll be better able to understand them.

Let's talk stereotypes first, because you know me by name and some things, so you can judge me.

You can imagine my ethnicity, my political orientation, my religious views.

In fact, these guesses are fairly accurate.

we are good at that

I'm very good at it, because the ability to stereotype is not an arbitrary trick of the mind, but rather an example of a general thought process.

I'm sure people in the audience have a lot of experience with chairs, apples, and dogs, and based on that, you can assume from unfamiliar examples that you can sit in a chair, you can eat an apple, and a dog can bark.

you may be wrong

Chairs may fall apart when you sit on them Apples may be poisonous Dogs may not bark By the way, my pet Tessie doesn't bark.

Well anyway, most of the time our guess is accurate.

Most of the time, whether social or non-social, our imaginations are accurate. Otherwise -- if we're not good at imagining new things we encounter -- we wouldn't be here.

In fact, Hazlitt later wrote in an excellent essay,

"Without the help of my preconceptions and habits, I would not be able to walk through a room, I would not know how to behave in every situation, and I would not know how to relate to my surroundings."

so is prejudice

We sometimes divide the world into us versus them, inside and outside the group, and when we do, we realize we're doing something wrong, and it's kind of embarrassing.

But it can also make you proud

we openly admit that

My favorite example of this is a question from the audience during the Republican debate before the last election.

(Video) Anderson Cooper: Questions from the floor on foreign aid Yes please (Video) Anderson Cooper: Questions from the floor on foreign aid Yes please

Woman: Americans are suffering in this country right now.

Why do we continue to help other countries when we ourselves need help?

COOPER: Mr. Perry, what do you think?

(Applause.) Rick Perry: You're right.

In fact, in general, people are drawn to their own country and ethnicity by feelings of solidarity, loyalty, pride, and patriotism.

Regardless of political affiliation, many people are proud to be Americans and put Americans ahead of other nations.

Residents of other countries think the same way about their own country, and the same applies to ethnic groups.

Some will deny this

Some would say it's so cosmopolitan that ethnicity and nationality shouldn't affect decency.

But even such sages will admit that they have a preference for those close to them in the group, such as friends and family, so even they have a distinction between us and them.

These distinctions are natural enough and common sense, but they can be skewed, and this is part of the work of the great social psychologist Henri Tajfel.

Tajfel was born in Poland in 1919

He left the country to go to college in France, and because he was Jewish, he couldn't go to college in Poland, but then he joined the French army in World War II.

He was captured and made a prisoner in a war camp, which was a terrifying event, because if he was found to be Jewish, he would be moved to a concentration camp where he would hardly survive.

In fact, most of his friends and family were dead when he was released after the war.

he got another job

It's a job to help war orphans

But he had been interested in the science of preconceived notions for a long time, and when there was a scholarship exam for a famous British course on stereotypes, he applied and was accepted, and then he embarked on an amazing career.

The impetus for this was the insight that many people were wrong about the Holocaust.

At the time, many believed that the Holocaust was due to some of the sad defects of the Germans, such as genetic blemishes and authoritarian traits.

Tajfel dismissed this idea

He said that what happened in the Holocaust was simply an overdrive of normal psychological processes that each of us has.

To find out, he conducted a series of classical studies on British youth.

In one of his studies, he asked young people in England a series of questions, and based on their responses, he told them, "Looking at your answers, I think you're like this." He told each half of the participants, "You're a Kandinsky fan," and "You're a Kree fan."

it was completely bullshit

The answer had nothing to do with Kandinsky or the Cree.

The participants probably didn't even know the names of the artists.

Tajfel just arbitrarily separated the participants.

But what he discovered was that this categorization had an impact. He then gave the participants money, and they gave the money to their own group members rather than to other groups.

To make matters worse, participants became keen to identify their own group with other groups, because in doing so, money was spent by their own group, and less money was spent by other groups.

These prejudices appeared very early on

So my colleague at Yale, and my wife, Karen Wynn, conducted a series of experiments with babies, where you show them a doll, and this doll has food preferences.

A doll likes Aomame

Suppose another doll likes graham crackers

When we looked at the baby's own food preferences, they basically preferred graham crackers.

The question here is, does food preference affect how you treat the doll?

Babies preferred dolls with the same tastes as themselves, but worse, babies preferred dolls that beat dolls with different tastes.

(Laughter) This in-group and out-of-group psychology is everywhere.

We see it in political conflicts with different ideologies.

In extreme situations, such as war, we don't give less to those outside of our group, or even humanize them. For example, Nazis see Jews as worms and lice, and Americans see Japanese as rats.

Stereotypes can be just as bad.

So, while it's mostly rational and useful, sometimes it can be irrational, give the wrong answer, or veer in a completely immoral direction.

This point is best studied in the context of elections.

An interesting experiment was conducted before the 2008 election, by social psychologists, who examined how much people associated candidates with the United States through their unconscious associations with the flag.

In one of the experiments, when we compared Obama and McCain, we found that McCain was perceived as more American, and people who were told this weren't too surprised.

McCain was a prominent warmaker, and many would explicitly say that McCain had a more American background than Obama.

But when Obama was compared to British Prime Minister Tony Blair, he was also rated as more American than Obama, even though the participants knew Blair wasn't American.

Yes, they were responding to skin color.

These stereotypes and prejudices affect the real world, and they're all small but very important.

In one recent experiment, researchers placed ads for baseball cards on eBay.

A picture of a white man holding a card and a picture of a black man holding a card.

both are the same baseball card

A photo of a black man holding a card was substantially less valuable than a photo of a white man holding a card.

In an experiment at Stanford, psychologists investigated the sentencing of white murder cases.

As a result, all things being equal, if you looked like the man on the right, you were more likely to get the death penalty than if you looked like the man on the left, largely because the man on the right seemed more typical black -- more typical African American.

Now that we know this, what should we do?

there are several ways

One way is by working with people's emotions, with people's empathy, which is often done with stories.

So if you're a libertarian parent, and you want to pass on the benefits of a non-traditional family to your kids, you might have them read a book like this, "Heather's Two Mothers."

(Laughs) “Mom, help me! There's a libertarian under the bed! '' In general, through storytelling, the nameless outsider becomes a participant, and it's more interesting to see people as individuals than as groups.

There is a theory that Stalin said, "One death is a tragedy, but a million deaths is a statistic." Mother Teresa said, "I see the masses and I do not act.

When I see an individual, I act."

psychologists have looked into this

For example, in one experiment, one group was presented with a list of events caused by a crisis and asked how much they would donate to solve it. Another group was presented with no list of events, just individual names and faces, and this group's donations were significantly higher.

This is no secret to anyone involved in charity work.

Charity people don't bring facts and statistics.

I'd rather bring my face, show people

By extending our sympathy for an individual, we can extend our sympathy for that individual to the group.

This is Harriet Beecher Stowe

One story is that President Lincoln invited her to the White House during the Civil War and said, "You are the lady who started this terrible war."

I was talking about "Uncle Tom's Cabin"

It's not a great philosophical work, it's not a theological work, it's not even literary, but it's a great book that makes people think about things they wouldn't have read or thought about, like being a slave.

And it probably contributed to the great social transformation.

More recently, if you look at America in recent decades, shows like "The Cosby Show" seem to fundamentally change American attitudes toward African-Americans, while shows like "Are you friends? Will and Grace" and "Modern Family" seem to influence how gays and gays are viewed.

I don't think it's an overstatement to say that comedy is the main vehicle for moral change in America.

But I don't think emotions are everything, so I'd like to conclude by appealing to the power of reason.

In Stephen Pinker's wonderful book, "The Good Angel Among Men," he writes, "The Old Testament says love your neighbor, and the New Testament says love your enemy. I don't really love either of them, but I don't want to kill them."

I know I have a duty to them, but love isn't the criteria for the moral feelings I show them or the attitude I should behave toward them.

It's based on an understanding of human rights, and it's based on the belief that their lives are as precious to me as my life is to me. The author uses the story of the great philosopher Adam Smith as a background to support this, but let me do that, too.

Now, Adam Smith first asks you to imagine the deaths of thousands of people, and those people are from countries you don't know well.

It doesn't matter if it's China, or India, or one of the countries in Africa.

Smith asks me how to react.

You're going to say that's terrible and you'll go on with your life.

I know it's normal for us to open up the New York Times online, for example, and find out about this kind of news, but we're committed to our lives.

Instead, imagine, for example, tomorrow that your little finger will be cut off, and that

It's important to you, says Smith.

I won't be able to sleep that night thinking about tomorrow

And here's the question, would you save your little finger at the cost of thousands of lives?

Keep the answer in mind. Smith says he would never do that. What a nasty answer.

And this raises a question, as Smith puts it, "If passive thinking is always so shallow and selfish, why are our principles always so generous and noble?"

Smith's answer to this is, "Reason, principle of action, consciousness

They command, A voice that moves the most arrogant of our passions, We are all no different."

This last part is often referred to as the fairness principle.

This principle of fairness is spoken of in religions around the world, in all the golden rules, in moral philosophies around the world.

The clearest illustration of this point of view is actually, for me, neither a theologian nor a philosopher, but the end of Humphrey Bogart's "Casablanca."

Spoiler alert The protagonist tells his lover that they must break up for the common good He says he doesn't imitate accents "Three little problems in this mad world aren't as big as a pile of beans."

our reason can stifle passion

Our reason can also strengthen our empathy. It motivates us to write or read "Uncle Tom's Cabin." It also creates habits, taboos, laws, and disciplines us as rational people when we shouldn't act on impulse.

this is the constitution

It was enacted in the past and still works today, and it shows that no matter how many times a popular president is re-elected, no matter how much white people want to restore slavery, they can't.

we ruled ourselves

in another sense

When it comes to choosing people for jobs and awards, we are strongly influenced by their race, strongly influenced by their gender, strongly influenced by their attractiveness.

But sometimes I think it's wrong

Instead of just trying to do something about this problem, we're trying to keep other sources of information from influencing us. For example, in many orchestral auditions, the players are separated by screens and controlled to see only the information they deem relevant.

I believe that preconceptions and prejudices represent the fundamental duality of human nature.

We have instincts, instincts, and emotions that influence our decisions and actions, for better or for worse.

And in doing so, reason will push us to make the world a better place.

thank you

(applause)

I'm a veteran of the Starship Enterprise.

I flew through the Wangyang universe in a huge spaceship. The crew that accompanied me on this journey was made up of people from all over the world, with a wide variety of races, cultures and backgrounds.

Now... (Applause) I am the grandson of Japanese immigrants who came to the United States, and they too, in search of opportunity, boldly crossed into unknown new worlds.

My mother is from Sacramento, California.

my father is in san francisco

They met in Los Angeles, got married, and I was born They met in Los Angeles, got married, and I was born

I was about four years old on December 7, 1941, when the Japanese military bombed Pearl Harbor.The world plunged into war overnight.The world plunged into war overnight.

America suddenly went into hysteria America suddenly went into hysteria

Japanese-Americans and Americans of Japanese ancestry were met with suspicion, fear, and raw hatred all at once, simply because they looked like the Japanese who attacked Pearl Harbor.

The hysteria grew, and finally in February 1942, on the orders of President Franklin Roosevelt, on the orders of President Franklin Roosevelt, all the Japanese Americans on the West Coast were arrested. didn't

Due process guarantees are at the heart of the justice system Due process guarantees are at the heart of the justice system

But justice has vanished

We Japanese were imprisoned in 10 barbed-wire camps in some of the most devastated parts of America: the sweltering deserts of Arizona, the unbearably humid swamps of Arkansas, the wastelands of Wyoming, Idaho, Utah, Colorado, and the remote corners of California.

On April 20th, I celebrated my fifth birthday. It was just a few weeks after my birthday. My parents woke my brother, my baby sister, and me.

My brother and I were looking out the window from our living room when two soldiers came up to us.

Bayonets were shining at the ends of their rifles.

When I stopped at the front door, I banged on the door When I stopped at the front door, I banged on the door

When my father answered, the soldiers ordered us all out.

My father handed me and my brother a small bag, and my father handed me and my brother a small bag, and I just went outside and stood there waiting for my mother to come out.

I still can't forget that scene

It's imprinted firmly in my mind

Our family was forced out of our homes, along with other Japanese Americans.

There was a guard on each end of each train, a guard on each end of each train, and we were like criminals.

For four days and three nights they were swayed by train across two-thirds of America until they were brought to the swamps of Arkansas.

I still remember the barbed wire that surrounded the camp I still remember the barbed wire that surrounded the camp

We won't forget the watchtowers with automatic weapons on us We won't forget the watchtowers with automatic weapons on us

I won't forget the searchlights following me as I run from the barracks to the toilet at night I won't forget the searchlights following me

But at 5 years old, I was a little happy with the lights on the way to pee.

As a child I was too young to understand my situation I was too young to understand my situation

Children are amazingly adaptable

With that adaptability, the tragic, extraordinary life of the POW camp became my everyday life.

3 times a day in a rowdy, crowded hall queuing for filthy food

Taking a group shower with my father has become normal for me.

Living in a camp, living in barbed wire as a prisoner of war was established.

When the war ended, we were set free When the war ended, we were set free And given a one-way ticket to go anywhere in America We were given a one-way ticket to go anywhere in America

My parents decided to move back to L.A.

we are penniless

On top of having everything taken away, the public was criticized badly On top of having everything taken away, the public was criticized badly

My first home was in Skid Row, the poorest neighborhood in L.A. My first home was in Skid Row, the poorest neighborhood in LA.

It was a terrible experience, and it was terrifying for me and my brother as kids.

One day, a drunk man staggered up to me, and one day a drunk man staggered up to us, and he fell down in front of us, and he vomited.

My younger sister said, "Mommy, let's go home!" At that time, the camp surrounded by barbed wire was the "home" that we wanted to return to.

My parents worked hard to get a normal life back My parents worked hard to get a normal life back

because i lost everything

It was a mid-life restart for my parents It was a mid-life restart for my parents

I literally toiled and worked until I finally managed to raise the money to buy a three-bedroom house in a nice suburban area.

As I hit puberty, I became very curious about my childhood incarceration.I became very curious about my childhood incarceration.

I also started reading social studies books and learned about the ideals of American democracy.

"All human beings are created equal." "All human beings have an unalienable right to life, liberty and the pursuit of happiness." Considering my experience in the camps, this doctrine somehow did not make sense to me.

History textbooks never mentioned the camps History textbooks never mentioned the camps

So I started having long, sometimes heated discussions about this with my dad every night So I started having long, sometimes heated discussions about this every night with my dad

My father and I had many arguments And what I got was his wisdom What I got was his wisdom

My father was the one who suffered the most during that incarceration, and yet he had a deep understanding of American democracy.

He told me, "This democracy exists for the people." He told me, "This democracy exists for the people."

My father taught me that American democracy is supported by good people who care about the institutions and ideas that go into making it work.

My father took me to the election campaign office, and the governor of Illinois was running for president at the time, and he taught me the basics of American electoral politics.

And he talked with me about young Japanese Americans in World War II, and young Japanese Americans in World War II.

When Pearl Harbor was bombed, young Japanese Americans, like young Americans, volunteered to join the draft committee to fight for the United States of America.

However, it seems that even actions for this country were rejected, but actions for this country were also rejected.

Japanese Americans were denied military service and described as "non-foreigners and enemies."

It's insane to be called an enemy when you stand up to fight for your country. The only salvation is the "non-foreigner" part, which is to say, despite the negative terminology, I was an "American citizen."

However, they were later stripped of their "citizenship" status and forced into internment for a year.

Then the U.S. government realized that there was a wartime manpower shortage, and suddenly it flipped its palm and opened the door for young Japanese Americans to serve in the military.

It's completely absurd, but something amazing and wonderful happened. Thousands of young Japanese Americans, both men and women, left their barbed wire camps and stood up for the United States in the same uniforms as the soldiers who guarded them, leaving their families behind in the camps.

They didn't just stand up to free their families from barbed-wire jails, they stood up to restore the then neglected ideal of all people being equal, the very ideal that American democracy should uphold.

"All humans are created equal"

They were prepared to fight for the United States.

A Japanese-American-only special unit was organized, and a Japanese-American-only Japanese-American special unit was organized and sent to the battlefields of Europe, where they fought regardless of danger.

With incredible courage, they put up a brave and wonderful fight.

They were sent on some of the most dangerous missions and consistently had the worst combat casualty rate of any unit.

There is one battle that vividly tells this story.

That's the Battle of the Gothic Line

This impregnable mountain range, from the caverns This impregnable mountain range, from the caverns to the rugged hillside, was occupied by the Wehrmacht.

And then the Japanese 442nd Regimental Combat Team came in. And then the Japanese 442nd Regimental Combat Team came in as an extra force.

The Wehrmacht assumed that attacking from the rear was impossible.

The 442nd Regimental Combat Team saw this impossibility.

On a dark night with no moonlight, the 442nd Regiment began to climb over 300m high cliffs, fully armed.

I silently climbed the cliffs all night long

It's dark, so there can't be anyone who slips their hands or feet There can't be anyone who slips their hands or feet

It just fell without a sound

We endured by suppressing our voices so that our existence would not be known.

They climbed non-stop for eight hours, and those who reached the summit waited quietly for the dawn to come, and when the sun rose they launched a surprise attack, and when the sun rose they launched a surprise attack.

Caught off guard, the Germans gave up this hill and finally the Gothic Line fell. They gave up this hill and finally the Gothic Line fell.

After six months of stalemate, the 442nd Regiment broke the deadlock in just 32 minutes.

Absolutely brilliant, and at the end of the war, the 442nd returned to the United States as the most decorated unit of World War II.

Upon welcoming them to the White House, President Truman said, "You've fought not just your enemies -- you've fought bigotry, and you've won a spectacular victory."

they are my heroes

They believed in the shining ideals of the United States, and they proved that American citizenship is not a status of some people, and that its definition has nothing to do with racial background.

Their work has made even Japanese Americans, objects of fear, suspicion and hatred, part of the definition of the American people.

They made a difference, they left us a legacy, they left us a legacy.

They are my heroes, and my father is also a hero who understands democracy and guides me.

The legacy our ancestors left behind, and with that legacy comes a responsibility.So I will do everything in my power to help my homeland, America, grow to be a better country than it is today. More importantly, I'm a proud American.

thank you very much

(applause)

What comes to mind when you hear the word "design"?

Is it something like this? Stylish handicrafts, logos, posters, maps, and other visually appealing designs that never go out of style.

But what I want to talk to you about today is

It's not about that kind of design, it's about the things you probably use every day that you haven't really thought about, the things you carry around that change their design often.

What I'm going to talk about is digital experience design, especially system design, and they're so big that it's hard to get a sense of their scale.

For example, Google processes more than one billion searches every day, and more than 100 hours of video are uploaded to YouTube every minute.

That's more footage uploaded in a single day than the three major broadcasters in the United States have broadcast in the last five years.

More than 1.23 billion people share photos, messages and stories on Facebook.

That's about half of the internet population and one-sixth of the world's population.

Over the course of my career, I've been involved in the design of some products, but they're so large that they pose unprecedented design challenges.

But what's really difficult about design at scale? It's a combination of two things: boldness and humility. Boldness is about believing that you're creating something that the whole world wants and needs.

Unfortunately, no school teaches you "Introduction to Design for Humanity."

I and the other designers involved in these products are exploring, creating and working hard to find best practices for design at scale.

The first thing to know about large-scale design is that the details really matter.

This is a great example of how very small design elements can have a big impact.

The team that manages the Like button on Facebook decided to change the design.

Buttons have become disjointed as our brand has evolved, so we needed to bring them up to date.

You'd think it would be a pretty simple, easy design, just a little button, but it's not.

This button had a lot of design constraints.

It is necessary to create it within the fixed set values ​​of vertical and horizontal.

We also had to be careful to make it work in multiple languages, and we also had to be careful with fancy gradients and borders, because it would take away from the elegance of a classic web browser.

So I had a really hard time designing this little button.

And here's the new version: The designers on this project spent more than 280 hours, or months, redesigning this button.

Why spend so much time on something so small?

Because when you're doing big designs, nothing is trivial.

On average, this trivial little button is viewed 22 billion times a day on more than 7.5 million websites.

One of the most popular designs ever

It's a tremendous amount of pressure for a small button, and there's a designer behind it, but this kind of design needs to be detailed.

The next thing to understand is how to design with data.

When you're building a product like this, having a huge amount of information about how the product will be used can help you make design decisions, but it's not just following the numbers.

I'll give you an example to help you understand

Facebook has long had tools to report photos that violate our community standards — spam and harassment.

There were tons of photos that got flagged, but when I opened the lid, very few actually violated community standards.

Most were typical party photos

Let me give you an example. My friend Laura - let's say - uploads a picture of me at a karaoke party.

This is just an example.

(Laughter) By the way, some people worry about their bosses and colleagues seeing embarrassing photos of themselves on Facebook.

It's unavoidable for anyone working at Facebook.

Anyway, there are many photos that have been falsely flagged as spam or harassment, and one of the techs on the team had a foresight.

He had a really good idea of ​​what was going to happen, and he looked at a lot of cases, and most of them asked for the photos of him to be removed.

This was a scenario the team never thought of.

So we added a new feature where you can send a message to a friend and ask them to remove the photo.

but it didn't work

Only 20% messaged their friends.

So the team got bogged down

So talk to an expert in mediation

I also learned about the universal principles of euphemisms, which I didn't know about euphemisms until this research was done.

and found something interesting

I helped my friend more than ask her to remove a photo.

I decided to tell my friend how the photo made me feel.

That experience is useful now

For example, if I find this photo, it's not spam, it's not harassment, but I don't want it on Facebook.

So you tell Facebook, "I don't like that I'm in this photo," and then we dig deeper.

Why don't you like this photo?

Select "because I'm embarrassed"

And it prompts me to send a message to my friend, and that makes a big difference.

I can choose the specific words that are encouraged to tell Laura how this photo made me feel.

My team realized that the impact of this small change was enormous.

Whereas 20% of people used to send messages, now 60% of them do. Studies have shown that two-way conversations ultimately lead to better feelings.

The same survey also found that 90% of friends want to know why they've offended them.

I don't know about the remaining 10%, but the "unfriend" feature might help.

As you can see, these decisions are very nuanced.

Of course, we use a lot of data to inform our decisions, but we rely heavily on iteration, research, testing, intuition, human empathy, and so on.

It's art and it's science

Now, the designers who create products like this are sometimes called "data-driven," a term that absolutely captivates us.

We have a responsibility to rigorously test our designs, because many people expect us to do well, but data analysis does not inspire our designs.

Data can make good design great, but it can't make bad design good.

And then, as a general rule, you have to understand that when you introduce change, you have to be very careful.

It's a joke I use a lot, but we spend as much time designing when we introduce change as we do about the change itself, and it's all connected with when the things we use often change and we need to get used to it.

In fact, we can use bad design very effectively. In the long run, even if change is good, it's very frustrating when it happens, especially if it's the users who create the content, because they can claim it as theirs.

In fact, it was written by a user.

Years ago, when I was working at YouTube, we were looking for ways to get more people to rate our videos, and what I found interesting in looking at the data was that most people used only the highest five-star ratings, most people used only the highest five-star ratings, and a handful of people used the lowest one-star ratings, and in fact no one used two stars, three stars, four stars."

So I simplified the design and made it a two-way vote: good or bad.

It's made simple so that anyone can participate.

Users were more familiar with 5-star ratings

video makers loved to be recognized

Millions of people were used to traditional design.

So, to help users adapt to change and get used to new designs faster, I explained what I was going to do while sharing data and graphs with the community. Through this conversation, I was able to engage with the big industry, and it ended up being one of my favorite TechCrunch headlines, "What YouTube gave me about five-star ratings was — 'useless.'"

Now, when you change the design of a product that many people use, you can't completely escape the backlash that comes with it.

No matter how much you want to do the right thing, you'll still be bombarded with the cliche of video protests, angry emails, even parcels that require security checks. What we have to remember is that users are very sensitive to changes like this, because these products, this work -- are very important to them.

Now, I hope you understand that we need to pay attention to design details. We have to be aware of how we use data in the design process, and we have to introduce change very carefully.

these are all useful

It's a great way to do large-scale designs.

But it doesn't mean anything if you don't understand something more basic.

You have to understand who you're designing for.

Once you set the goal of designing for all of humanity, at some point you hit a real wall when you start working really hard toward that goal.

For example, in San Francisco, we get a little frustrated when our phones go out of service, because we can't navigate to that new fancy coffee shop.

But what if you don't have reliable electricity and you have to drive four hours to charge your phone?

What if you don't have access to public libraries?

What if there was no press freedom in your country?

What do these products start to mean?

This is Google YouTube Facebook that most people in the world see, and most of the next five billion people who get online will see it.

Designing a low-cost phone is not a glamorous design job, but if you want to design for the whole world, you have to design for where people are, not where you are.

How do you keep this big idea in mind?

It's about getting out there to see and hear and understand the people that we design for.

We'll make our products work the same as they always have in the non-English speaking world.

I sometimes reach out to them on their cell phones to get a sense of their reality.

What is the significance of designing on a global scale?

Improving and evolving a product is a difficult and sometimes frustrating job.

It's going to take a lot of effort to get boldness and humility in there, and the humility part is a little bit more troublesome for the design ego.

Because these products are constantly changing, and everything I've designed in my career is going to disappear in the blink of an eye, and everything I'm going to design will eventually become obsolete.

But some things remain: the endless excitement of being a part of something bigger than even we can comprehend, the hope that we can change the world.

thank you

(applause)

Have you ever thought in the middle of a romantic dinner, "My wine glass is full of fingerprints."

(Laughter) Or have you ever visited a friend's house and worried that you're going to leave fingerprints on everything you touch?

And did you try to sit there tonight without touching anything?

you are not alone

Conveniently, even criminals underestimate the power of fingerprints.

We're not just talking about the twisted junctions that characterize each fingerprint.

I'm talking about a world full of information hidden in small, often invisible things.

Fingerprints are actually made up of molecules, and they fall into three categories: molecules in sweat, which we produce in varying amounts.

After being ingested, the molecules that are expelled through sweat, the dirt molecules that stick to our fingertips, and that's blood, paint, oil, and other invisible substances.

Molecules tell us who we are and what we've been doing.

All you need is the technology to make the molecules talk.

Now let me show you the unimaginable power that fingerprints hold.

Katie was found dead in the woods three days after being raped and gone missing.

Police have narrowed down the suspects to three of more than 20 men seen near the scene that day.

The only piece of evidence is two very faint overlapping fingerprints on the tape around Katie's neck.

Faint and overlapping fingerprints usually don't help police identify criminals.

And until recently, we're in a labyrinth here, but here's where we really shine.

The tape was sent to the lab, and they asked me to use our latest technology in their investigation.

So we used an existing imaging mass microscope (a type of mass spectrometer) technology that was further improved specifically for the analysis and imaging of fingerprint molecules.

In a nutshell, you hit your fingerprint with an ultraviolet laser, and the molecules are lifted out of your fingerprint so they can be measured by a mass spectrometer.

Mass spectrometers measure the "weight" of molecules -- what we call mass -- the numbers you see represent mass.

But more importantly, it tells us what the molecule is, for example, is it just a fever reducer, or does it smell more criminal from a forensic point of view?

When we apply this technology to the evidence we have, we've detected an ingredient in a condom lubricating agent.

We even developed a test that could suggest which brand of condom was used.

We're passing this information on to the police, who had already obtained a warrant and found condoms from the same manufacturer in Dalton's home.

And Dalton and Thomson have previous sexual assault convictions, so Chapman seems the least likely to have committed the crime.

But can this evidence alone lead to an arrest?

Of course not. We've been asked to investigate further.

And then we found two other molecules that were very interesting.

One is an antidepressant and the other is a special molecule.

This is produced only when alcohol and cocaine are ingested in the body at the same time.

Alcohol is known to potentiate the effects of cocaine, so this tells us something about the mindset of the perpetrator during the crime.

When this information was passed on to the police, it turned out that Thomson was, in fact, a drug addict and had a history of psychosis, which is probably why he was prescribed antidepressants.

Now it's becoming more likely that Thomson committed the crime.

But in reality, we don't know where these molecules came from, or which fingerprint they were detected on, or even who those two fingerprints belonged to.

don't worry

mass spectrometry imaging technology can help

In fact, the technology is so sophisticated that it can even tell you where the molecule is on your fingerprint.

As you can see in this video, each mountain in the graph corresponds to a mass, and each mass corresponds to a molecule. When you select each molecule in software, you can figure out where it's on your fingerprint.

Some images aren't very useful, some are useful, some are very useful.

And you can make multiple images of a single fingerprint, and in theory you can make hundreds of images for each type of molecule detected.

Then the first step

Overlapping fingerprints are probably different molecules, especially if they belong to different people. So we use software to visualize the unique molecules that are in one fingerprint and not in the other.

This allows us to distinguish between the two fingerprint patterns.

This is very important, because it allows the police to identify which of the two fingerprints belongs to Katie.

I can say that because I compared the fingerprints taken from Katie's body with the two fingerprints.

Now I can focus on one fingerprint, the fingerprint left by the killer.

Second step here

Where are the three molecules I saw attached?

Let the software show you where it's attached.

Analysis revealed that it was only the murderer's fingerprint.

So that means the ingredients come from the killer's fingerprints.

So the results from the molecular analysis began to match very well with the information the police had about Thomson, and the fingerprints must be his.

But the reality is, that alone isn't enough to identify a murderer.

Step 3: If you can create hundreds of different images from the same fingerprint, why not stack them up? Couldn't you increase the continuity and clarity of the pattern by layering them?

This is the result

Shocking

We've got a clear image of your fingerprint, and the police are going to check it against a database.

Result matched Thomson's fingerprint

Thomson is the killer

(Applause) Katie, the suspects, and the scenario are fictitious, but this story actually contains elements of an investigation that we've faced with the police, and it's the collective wisdom that we've shared with the police.

Now, in 2017, after nine years of intense research, I'm very excited to contribute to the police investigation.

It's no longer my dream, it's a real goal

We're looking to take this even further and scale it up to create kits to learn more about and identify suspects.

I believe we are in a new era of criminal profiling.

The work of criminologists has relied on the skillful art of recognizing patterns of behavior known to fit a particular type or profile.

Unlike this method of identification, which is both skillful and subjective, we are trying to do the same thing by analyzing the molecular composition of fingerprints, and the two methods can be used simultaneously.

I told you that molecules tell the truth, but they reflect a person's health, their behavior, their lifestyle, their habits, everything, and you can tell from their fingerprints.

Molecules attached at the slightest touch tell us our secrets.

thank you

(Audience) Wow

(applause)

Thank you very much.

i want to talk about passion

There is a Jewish proverb that I love

What is truer than true? the answer is a story

As a writer, what I want to say is stay true to the facts about our common humanity.

I'm interested in any story, and sometimes it sticks in my head until I write it.

Common themes that come to mind are justice, loyalty, violence, death, political issues, social issues, and freedom.

Aware of the mysteries of the world, I write about coincidences, premonitions, emotions, dreams, forces of nature, and magic.

Over the last 20 years, I've published several books, but I was an unknown author until February 2006, when I was the flag bearer for the Turin Olympics.

Since then, I've been a celebrity, I've been noticed in department stores, and my grandchildren think I'm cool.

(Laughter) Let me introduce you to a moment of hare.

Preparing for the Olympic Opening Ceremony - Someone called me to say that I was selected as one of the flag bearers.

I said it must be the wrong person because I'm a far from athletic person.

I don't know if I could get around the stadium without a walker.

(Laughter) I was told it was no laughing matter.

It was the first time that only women had carried the Olympic flag.

5 women representing 5 continents and 3 Olympic gold medal winners

Of course my question was, what am I going to wear?

(Laughter) They told me it was a uniform, and they asked me for my size.

it's my size

I imagined myself in a fluffy anorak like the Michelin Man.

(Laughter) In mid-February, I was in Turin, cheering for 80 teams -- crowds.

Athletes have made sacrifices at the stake for medals

Everyone deserves a medal, but there's also an element of luck involved.

A little bit of snow, a few inches of ice, and the force of the wind can affect the outcome of the competition.

But more than training and luck, it's the heart that counts.

Only the brave and unmoving heart will win the gold medal

everything is passion

The streets of Turin were full of red posters with the Games slogan

“Passion lives here” Isn't that always the case?

The mind is what drives people and determines their destinies.

A passionate heart essential to the hero of my book

Lone wolves, dissidents, adventurers, mavericks, rebels, questioners, rule-bending and risk-takers.

like people here

Good people with common sense don't make attractive protagonists.

(laughs) I wish I could play a good ex-partner.

(Laughter) (Applause) In the dressing room of the stadium, I met the other flag bearers, three players and actresses Susan Sarandon and Sophia Loren.

And two passionate women, Kenyan Wangari Mathai, Nobel Peace Prize winner, who planted 30 million trees, changed the soil and weather across Africa, and transformed the economic situation in many villages.

And Somali Mam, a Cambodian activist fighting child prostitution.

She was sold to a brothel by her grandfather when she was 14.

The story of a girl who was raped by a man who believed he could cure AIDS by having sex with a virgin girl.

I heard that every day, a girl in a brothel would be forced into 5 to 15 partners, and if she resisted, she would be tortured with electricity.

I was handed a uniform in the waiting room

It wasn't something I would normally wear, but it was far from the Michelin Man I was concerned about, and it was decent.

i'm like a fridge

(Laughter) So did most of the flag bearers, except for Sophia Loren, who is the epitome of beauty and passion.

Sophia is over 70 and looks good

sexy, slender and tall with dark skin

But brown skin without wrinkles

I wonder why?

I was asked on a TV program, "What's your beauty secret?"

She said, ``It's your posture.

(Laughter) Free advice from one of the most beautiful women in the world.

Beware of complaining, coughing, moaning, talking to yourself, and farting.

(Laughter) I didn't exactly say that.

(Laughter) Around midnight, we were called to the side of the stadium, and the Olympic flag was broadcast, and the music started, which, by the way, is also playing here -- the triumphal march.

Sophia, standing in front of me, is 30cm taller than me, without counting her fluffy hair.

(Laughter) She kept the flag on her shoulder, walking gracefully like a giraffe in the savannah, and I trotted behind her.

(Laughter) Of course, every camera looks at Sophia.

Thanks to that, I was in a lot of photos, but most of them were between Sophia's legs.

(Laughter) It's a place most men would be happy with.

(Laughter) (Applause) The best four minutes of my life were in stadiums.

My husband gets mad when I tell him this, but most of the things I do alone with him take less than four minutes. (Laughter) So you shouldn't take it personally.

I have all the clippings of those wonderful four minutes because I don't want to forget them when my brain cells are destroyed.

I want to forever keep in mind the key word of the Olympics: passion.

There is such a passionate story

1998 Location: Tutsi refugee prisoner of war camp in Congo

By the way, 80% of the world's refugees and displaced persons are women and girls.

This camp can also be called a concentration camp, because if you don't get killed, you either die of disease or starve.

The main characters are a young woman, Rose Mapendo, and her children.

she is pregnant and widowed

She was forced to watch her husband being tortured and killed by soldiers.

She saved seven children and a few months later gave birth to premature twin boys.

give birth

She cuts the umbilical cord with a stick and ties it with her own hair.

In order to please the commander of the camp, the twins were named after him, and because of the lack of breast milk, they were fed tea.

When a soldier tried to rape her eldest daughter, she defended her daughter with a gun pointed to her head.

The family survived for 16 months, and thanks to some astonishing luck and the passionate heart of a young American man, Sasha Shannoff, got a ride on an American ambulance. Rose and her nine children settled in Phoenix, Arizona, where they are now doing well.

Mapendo means great love in Swahili

The hero of my book is a woman of strong heart and passion, like Rose Mapendo.

I don't make up heroes

There are a lot of people who want a book...

Because I worked with women for the sake of women

I am familiar with women

I was born a long time ago into a conservative patriarchal Catholic family on the edge of the world.

That's right, I became a feminist at the age of five, because Chile didn't have that mindset at the time, so I was just a weird kid.

(Laughter) I will soon learn that freedom and dissent against patriarchy come at a high price.

But I was willing to pay the price, and I doubled back every blow I took.

(Laughter) When my daughter, Paula, was in her 20s, she was told that feminism was outdated and that she should move on.

We had an unforgettable fight Is feminism obsolete?

If you're in a privileged position, you can say that.

Their bodies and lives are controlled.

no education, no freedom

Rape, assault, and even the occasional murder cannot be blamed.

For most young Western girls today, being called a feminist is an insult.

Feminism isn't sexy

(Laughter) Feminism has never died.

If the times change and you don't like the way you call it, all you have to do is change it

Aphrodite, Venus, slut, whatever, as long as you understand and support it, the name doesn't matter

Another passion story is a sad story

2005 Small village in Bangladesh

It happened at a women's clinic.

Jenny, an American dental hygienist, uses her three weeks off to volunteer at a clinic.

I'm going to clean my teeth, but there are no doctors or dentists here, and the clinic is just a hut infested with flies.

Outside, women line up for hours for treatment.

The first patient is in pain from several decayed molars.

Even though I know the only solution is a tooth extraction

Jenny doesn't have the qualifications or experience to do so.

She's scared and takes risks

I don't even have the necessary equipment, but luckily I had a local anesthetic with me.

Brave and passionate Jenny

I start extracting teeth while praying quietly.

Patient relieved by tooth extraction kisses her hand

that day she had a lot of teeth extracted

The next morning, when Jenny goes to the doctor's office, yesterday's first patient is waiting with her husband.

her face swollen like a watermelon

I don't even know where my eyes are

Furious Husband Threatens to Kill Jenny

Jenny is horrified by what she's done, but the interpreter says the swollen face has nothing to do with the tooth extraction.

I didn't get back in time to make my husband's dinner the day before - my husband hit my wife.

Millions of women today are in this situation.

they are poor in poverty

Two-thirds of the world's labor is done by women, yet women own less than 1% of global wealth

They're unpaid or less than men for doing the same work, they're not financially independent, they're vulnerable, and they're constantly exposed to exploitation, violence and abuse.

It's true that if women were given an education, a job, control over their own income, inheritance, and ownership, it would benefit society.

If women were given public power, their children and their families would be better off.

When families thrive, villages thrive, and as a result, whole nations thrive.

Wangari Matai goes to a Kenyan village

I explained to the women that the barren land was the result of cutting down and selling trees.

Then we have the trees planted and take the time to grow the trees.

In five or six years the land grew into a forest, the soil became fertile and the village was saved.

The poorest countries and many backward societies have always held back women.

Yet this obvious fact is ignored by governments and charities.

Where $1 is donated to women's businesses $20 is donated to men's businesses

Women make up 51% of humanity

More than technology, design, entertainment, if women are empowered, everything will change.

I can promise you that if women are connected, guided and educated, they will bring peace and prosperity to this poor planet.

Most of the casualties in today's wars are civilians, many of them women and children.

A man controls the world and this is the result

What kind of world do we want?

A basic question most people have

Is it reasonable to ride the tide of the world today?

We want a world where everyone's right to life is protected and the quality of life is enriched.

I saw the Fernando Botero exhibit at the UC Berkeley library in January.

Because of the Abu Ghraib Prison theme, no museum or gallery in the United States has so far attempted to exhibit this work, except for the New York gallery that owns Botero's work.

It's a giant painting of torture and abuse of power in a unique Botero style.

The painting becomes an afterimage and never leaves my mind.

My biggest fear is persecution

I'm also worried about power being abused or abused.

In the human world, a male leader defines reality and forces the pack to accept reality and uphold its rules.

The rules change all the time, but the rules are always there for men, and in this case the economy doesn't work -- the trickle-down effect works perfectly.

Injustice permeates the ladder from top to bottom

At the bottom are women and children, especially the poor.

Even the poorest man can abuse women and children.

I'm tired of power being wielded through gender, income, race and class.

The time has come to make a fundamental change in our civilization.

But real change requires the power of women to police the world

We need a lot of empowered women, we need to nurture the power of women in men.

Of course I mean a man with a young heart

The old man is hopeless and has no choice but to wait for his last breath.

(Laughter) I envy Sophia Loren's long legs and legendary breasts.

If I had a choice, I'd choose Wangari Matai, Somalymum Jenny, or Rosemapendo's heroic heart.

i want to make this world better

I want to do better, not better

As proof of that, look around this venue, there's knowledge, there's energy, there's talent, there's technology.

Now is the time to move, roll up your sleeves and work passionately to create a perfect world that's almost here.

thank you

March 10, 2011 — I was at the MIT Media Lab in Cambridge, discussing with faculty, students, and staff whether I should be the next director.

At midnight that night, a magnitude 9 earthquake struck off the Pacific coast of Japan.

My wife and family were in Japan, so when the news started to spread, I was very upset.

I kept watching the news, I was glued to government officials and TEPCO press conferences, and then I learned that a nuclear reactor had exploded and a cloud of radioactive material was spreading toward my house, only 200 kilometers away.

But TV didn't tell us what we most wanted to know.

What I wanted to know most was what was happening in the reactor, what was going on with the radiation, and whether my family was in danger.

At that point, I had an intuition that I should use the Internet to figure it out on my own.

There were people on the internet who, like me, wanted to know what was going on, so I decided to form a loose organization, called Safecast, to measure radiation doses and publish the measurements, because I didn't think the government would do that.

Now, three years later, we have 16 million measurement points, we designed our own Geiger counters, and anyone can download the blueprints and join the network.

There's even an app that lets you see radiation levels for most of Japan and other parts of the world.

It's probably the world's most successful citizen-based science project, with one of the largest publicly available radiation measurements in the world.

I think it's funny myself — (Applause) Hi.

It's about how a group of amateurs who didn't really know what they were doing got together to do what even NGOs and governments couldn't do.

I believe the internet holds the key, and this is no fluke.

We weren't lucky, we weren't special.

It was triggered by a disaster that brought us all together, but it's all thanks to the new ways that the Internet and other circumstances have made possible, and I'd like to talk to you about this new principle.

Do you remember when there was no internet yet? (Laughter) Let's call that era "pre-net."

Before the internet things were simple

Everything was Euclidean, Newtonian, reasonably predictable.

Everyone was trying to predict the future, even economists.

Then came the Internet, and the world became extremely complex -- cheap and fast -- and it became clear that Newton's laws, which we've all cherished for the rest of our lives, are only partially true. And what we've come to realize is that most of the people who thrive in this unpredictable world are following a different set of principles.

Before the Internet, when you launched a service -- you built a hardware layer, a network layer, a software layer -- it cost millions of dollars to build something decent.

To start a big, multimillion-dollar business, you hired someone with an MBA to plan it, you raised money from investment firms and big corporations, and you hired designers and engineers to build the product.

This is the pre-internet "pre-net" innovation model.

But with the advent of the internet, the cost of innovation has plummeted. The cost of collaboration, distribution, communication, and Moore's Law have brought the cost of starting a new business to near zero. Whether it's Google, Facebook, or Yahoo, it's the result of students innovating without permission.

So, at least in the areas of software and services, the Internet has moved from an MBA-led model of innovation to a designer- and engineer-led model. It has moved innovation from the power, money, and prestige of large, unwieldy institutions to dormitories and entrepreneurs.

It's a well-known fact that things like that happen on the internet.

I know it's happening elsewhere.

Let me give you an example

Media Lab doesn't just deal with hardware.

I will do anything

It deals with both biology and hardware, and Nicholas Negroponte's famous motto is "Demonstrate or die," as opposed to the traditional academic mindset of "publish or leave."

He used to say, "One successful demo is all it takes, because the way we influence the world is when the big companies that inspire us make products like the Kindle and Lego Mindstorms."

But now that we can bring our products to the world so cheaply -- I'd like to change my motto. This is the official statement.

"Spread or die," is the new motto.

In order for a product to have any relevance, it has to be spread all over the world, and it can be driven by big companies, like Negroponte's satellite story.

(Applause) Thank you.

You just have to start yourself, don't wait for a big organization to do it for you.

So last year, we sent a bunch of students to Shenzhen to interact with innovators in factories, which was really cool.

There were machine tools, but no prototypes, no presentations.

They were creating new things right on their machine tools.

The designer is in the factory, but it's like there's a factory inside the designer.

You can go out to the stalls and look inside and you'll see these unique mobile phones.

Young people in Palo Alto are building websites, young people in Shenzhen are building new mobile phones.

They build mobile phones as easily as they build websites, and the innovation is thriving like a jungle.

A young man in Shenzhen makes a few mobile phones, sells them at a street stall, sees what other people have made, goes back, makes another 2,000, and sells them again.

Isn't this similar to software development?

Agile development and A/B testing — they remind me of iteration.

That's why I want to choose an innovative Shenzhen person for my next fellow.

Innovation is really spreading to the periphery.

3D printers are a hot topic

Limore's favorite of MIT's proud alumni is a pick-and-place machine made by Samsung Techwin.

This machine can place 23,000 parts on electronic boards in an hour.

It's like a mini factory in a box

What used to be done by hand in a factory with thousands of workers can now be done efficiently in this little box in New York, so she doesn't have to travel all the way to Shenzhen.

Just buy this box and you can manufacture it.

The cost of innovation, the cost of prototyping, the cost of distribution, the cost of manufacturing, the hardware, has become so cheap that there's a lot more room for innovation, and it's becoming possible for students and entrepreneurs to manufacture.

This is recent, but there will be changes similar to what happened in software.

Sorona is a process developed by DuPont that uses genetically engineered microbes to make polyester from corn sugar.

It's 30 percent more efficient and much greener than fossil fuel-based methods.

Genetic engineering and bioengineering are opening up new opportunities in areas such as chemistry, computation and memory.

It's going to open up new possibilities in medicine, and maybe one day we'll even be able to grow chairs and buildings.

But the problem is, Sorona cost about $400 million to develop and took seven years to complete.

It's like the days of the mainframe

But even in bioengineering, the cost of innovation is falling.

This is a desktop DNA sequencer

In the old days, it was very expensive to read genes.

But now, at the desk, students can do it in their dorm rooms.

This is Gen9's Gen9 Assembler. Until now, printing genes has required lab workers to sequence manually with droppers, with one error in every 100 base pairs, and it has taken a long time and cost a lot of money.

But this new device sequences genes on a chip, and the error is one in 10,000 instead of 100 base pairs.

This machine is capable of synthesizing 200 million base pairs per year, equivalent to the amount of genes synthesized in the world per year.

It's like going from handcrafted transistor radios to Pentium processors.

This device will become the Pentium of bionics, which will extend bionics to dormitories and start-ups.

The same thing is happening in the field of soft-hard bionics, a whole new way of thinking about innovation.

It's bottom-up, it's democratic, it's chaotic, and it's hard to control.

It's not a bad thing, but it's so new that the organizational rules that we've built up so far won't help, because everyone there is operating according to a different set of principles.

One of my favorite principles is the power to pull, which is the idea of ​​pulling resources out of the network when you need them, as opposed to having them all in one place and controlling them all.

In the case of Safecast, when the earthquake happened — I knew nothing about it, but I was able to find Sean, who ran the hackerspace, and Peter, the analog hardware hacker who built the first Geiger counter, and Dan, who built the monitoring system when Three Mile Island melted down.

I wouldn't have been able to find it before the earthquake, and it would have been better to find it online when I needed it.

As a three-time college dropout, the idea of ​​"learning rather than teaching" is deeply embedded in my mind. To me, education is what you get — learning is what you do.

(Applause) Maybe I'm biased, but education seems to be trying to get you to memorize an encyclopedia before you go out and do something. But I have Wikipedia on my phone. Education seems to be premised on one person, on the top of a mountain somewhere, with just a HB pencil, solving problems, but in reality we're all connected, we're always with each other, and we can look it up on Wikipedia if we need to. is the

When Safecast started three years ago -- we were just a bunch of amateurs -- but perhaps now, as a group, we have more know-how than anyone else about collecting and publishing data and promoting science with the public.

And "compass over map" —

The idea of ​​this principle is that the cost of planning is going up and up, and planning itself isn't that accurate or useful.

So at Safecast, I just wanted to collect data and make it public, and I didn't have a detailed plan.

"Sold out" "Let's make it"

"Not enough sensors"

"But it looks like it could work for mobile."

“Let’s take measurements by car” “Let’s recruit volunteers”

"I'm short of funds" "Let's collect on Kickstarter"...

It's impossible to plan all these things, but having a strong compass gave me a sense of where to go, and it's a lot like agile development.

Luckily, even though the world is extremely complex, there are simple things to do.

It's time to stop thinking that you have to plan everything, have everything in place, be perfectly prepared, and so on, and focus on connecting, learning all the time, keeping your antennas up and focused on the NOW.

That's why I hate the word "futurist."

we should be the now-ist like we are now

Thank you very much

(applause)

Can a paring knife protect my father from an armed Muslim group?

I was confronted with this question one Tuesday morning in June 1993, when I was a law student.

I woke early in the morning in my father's apartment to the sound of constant banging on the door of his apartment on the outskirts of Algiers, Algeria.

At the time, the local paper said that every Tuesday, a scholar would be shot down by a fundamentalist.

My father was teaching about Darwin in college, and some so-called Islamic Salvation Front officials came into the classroom, denouncing him as an advocate of biologicalism, and he kicked the guy out, and someone behind the door wouldn't even give his name or leave.

So my father called the police -- perhaps fearing the rise of armed extremism that had already claimed the lives of so many Algerian police -- but no one answered.

So I went to the kitchen, got out my paring knife, and set it up at the front door.

It's really silly, but I couldn't think of anything else, so I stood there.

In retrospect, it was this moment that paved the way for me to write this book, "Your Fatwas Don't Work Here: Behind the Fight Against Islamic Fundamentalism."

The title comes from a Pakistani play

Indeed, that moment sent me on a journey to interview 300 Muslims in nearly 30 countries, from Afghanistan to Mali, to see how they, like my father, fought against fundamentalism in peaceful ways -- and how they weathered the dangers that came.

Luckily, the unidentified visitor in June 1993 left, but other families weren't as lucky, and that feeling motivated my research.

Either way, someone will come back a few months later and leave him on his kitchen table saying, "I think I'm dead."

Over time, fundamentalist armed groups in Algeria murdered as many as 200,000 civilians in what became known as the "Dark Decade" in the 1990s, and each of these women was among the dead.

Governments have also used torture and enforced disappearances in their tough counterterrorism efforts.In addition to these atrocious events, the international community has largely ignored these acts.

My father, the son of an Algerian farmer turned professor, finally gave up teaching at the university and was forced to move out of his apartment.

For example, in the November 1994 El Watan series, "How Extraordinary Is Terrorism Born from Fundamentalism?", my father openly criticized terrorists for their extreme departure from the original Islam that their ancestors had followed.

This statement could even get you killed.

My father's country taught me in the Dark Decade of the 1990s that public resistance to Islamic extremism is one of the most overlooked human rights struggles in the world.

20 years later this is still true

In every country that has stories of armed jihadists targeting civilians, there are people who are unarmed and resisting extremists.

In the West, Muslims are often assumed to condone terrorism.

Those on the right think that Islamic culture is inherently violent, while those on the left see Muslim and fundamentalist violence as just the product of legitimate protest.

But both views are completely wrong.

In fact, many Muslims around the world are adamantly opposed to both fundamentalism and terrorism, and often for good reasons.

They are victims rather than perpetrators in this violence.

Let me give you one example

A 2009 study by the Arab-speaking media found that only 15 percent of Al Qaeda victims between 2004 and 2008 were Western.

This is also a terrible number, but the vast majority of the victims are Muslims, and they were killed by Islamic fundamentalists.

I've been talking about fundamentalism for five minutes, but let me tell you what I mean by the word fundamentalism.

Quoting a definition by Algerian sociologist Marieme Eli Lucas, she said that fundamentalism is -- because it's plural. Fundamentalism in all the world's religious traditions is "the political activism of the extreme right, manipulating religion to achieve its own political ends in the context of globalization."

Sadia Abbas calls this the radical politicization of theology.

I don't want to give the impression that the same monolithic Islamic fundamentalism exists everywhere, because the fundamentalist movement is different.

Some use violence and advocate

Although the two are often related, some are not.

it takes many forms

It's also a non-governmental organization, and we have Cage Prisoners here in England.

It can be a political party, like the Islamic Brotherhood, or it can be a militant group, like the Taliban, or it can be a militant group, like the Taliban.

But in any case, it's all radical effort.

It's neither conservative nor traditional.

In most cases, it changes rather than protects the relationship between people and Islam.

I'm talking about far-right Muslims, and if their supporters claim to be Muslim, they're just as offensive as any other far-right.

In my opinion, if we are liberals, leftists, human rights defenders, feminists, we should stand up against these activities and support those who are grassroots opponents.

Let me be clear: I am in favor of effective opposition to fundamentalism, but the very struggle must be based on international law. So please do not take my statement as justification for rejecting democracy. I would like to voice my support here.

Nor do my remarks justify a range of human rights violations, such as the numerous death sentences handed down in Egypt earlier this week.

What I'm saying is that we have to confront these Islamic fundamentalist movements, because they're threatening human rights in a Muslim-majority context.

But such violence is just the tip of the iceberg.

These movements collectively promote discrimination against religious and sexual minorities.

It seeks to take away religious freedom from those who practice their religion in a different way, and from those who choose not to believe.

And they typically lead an all-out war on women's rights.

In the face of these movements in recent years, discourse in the West has mostly offered two flawed answers.

The first narrative that we sometimes see on the right is that most Muslims are fundamentalist, or that Islam is inherently fundamentalist, which is just aggressive and wrong. But unfortunately, the narrative that we see on the left is too politically fair, ignorant of the problems of Islamic fundamentalism, and even worse, apologizing for it, which is also unacceptable.

So I'm looking for new ways to tell these stories, grounded in real-life experience and the hopes of those on the front lines.

What strikes me is that discrimination against Muslims is on the rise in recent years in countries like the United Kingdom and the United States, and that's also a serious problem. But I strongly believe that standing up to fundamentalists and telling debunking stories about Muslims, who are the primary victims, is also a great way to fight discrimination.

I'm honored to introduce you to four people with amazing stories.

The Refi Pia Theater Workshop, named after Faizan Piazeda and his father, has been promoting the performing arts in Pakistan for years.

As jihadist violence increased, they began to be threatened to cancel the event, but they didn't give in.

And then in 2008, when bombers hit the 8th World Performing Arts Festival in Lahore, glass rained down on the venue, injuring nine people. Later that night, Piazeda and others made a very difficult decision: they announced that the performing arts festival would continue on schedule the next day.

As Faizan said at the time, if you give in to Islamic fundamentalists, you're just sitting in a corner of darkness.

I didn't know what was going to happen

will anyone come?

In fact, the next day, thousands of people came to support the performing arts in Lahore. This was both wonderful and terrifying, so Faizan ran up to a woman with two young children and said, "Did you know there was an explosion here yesterday and there is still terror today?"

She said, "I know, but I remember coming to your festival with my mother when I was about these kids' age.

We have to stay here."

With such an enthusiastic audience, Piazeta and others were able to finish the festival on schedule.

And the next year they lost all their sponsors because of security risks.

When I met them in 2010, they were in the middle of the first event that they were able to do in the same place -- the 9th Youth Performing Arts Festival -- and the city had already suffered 44 terrorist attacks that year.

This was at a time when Pakistan's Taliban launched a coordinated attack on girls' schools, ending with the attack on Malala Yousafzai.

What do you think Piazeta and the others would have done in this situation?

They put on stage productions by female students.

I had the honor of seeing a musical in Punjabi called "Nang Wall," where all the roles were played by female students from the Lahore Grammar School.

They sang and danced and acted as mice and buffaloes, and I watched with bated breath to see if this wonderful play would come to an end.

And when the curtain came down safely, the audience breathed in unison, and some of them were in tears.

I remember thinking in that moment, "Two years ago the bomber was front page news in this place, but the people who were here tonight are just as important news."

Maria Bashir is Afghanistan's first and only female chief prosecutor.

She's been in this position since 2008, setting up an investigative agency to investigate cases of violence against women, which she says is the most important area of ​​her mission.

When we meet at her office in Herat, she walks in surrounded by four big men with four big guns.

In fact, she now has 23 bodyguards, because she was nearly killed in a bomb attack that killed her child, and one of her bodyguards lost a leg.

why does she keep going?

Everyone asks the same question, she smiles, and says, "Why would you risk not living?"

For her, it's simply that a better future for Maria Bashir's family is worth the risk, and a better future won't come without people like her taking risks.

Later in an interview, Prosecutor Bashir told me how she was concerned about the possible outcome of negotiations between the government and the Taliban targeting her.

"If you give the Taliban a place in government, who will defend women's rights?" she asks.

And I'm calling on the international community not to forget their promises to women because they want to make peace with the Taliban.

A few weeks after I went through Afghanistan, I saw a headline on the Internet.

They say an Afghan prosecutor has been assassinated.

A frantic Google search, thankfully, revealed that Maria was not a victim, but sadly, another Afghan prosecutor was shot dead on his way to work.

I hear headline stories like this now, and since international forces are leaving Afghanistan after this year, we have to remain concerned about what's happening to the people there and to all people like Maria Bashir.

Sometimes I hear her voice in my head, not bravado, she says, "The situation for women in Afghanistan will definitely get better someday.

Even if we are killed, we must build that foundation."

I can't find the right words to criticize the terrorist organization Al-Shabaab. They attacked Nairobi's Westgate Mall in September 2013, the same day a children's cooking competition was taking place.

67 people were murdered, including a poet and a pregnant woman.

Far away in the American Midwest, I was lucky enough to meet a Somali-American who was campaigning against al-Shabaab's attempt to recruit a small number of young people to Minneapolis to participate in atrocities like Westgate.

Abdulizak Bihi's studious 17-year-old nephew, Burhan Hassan, was recruited here in 2008 as a soldier, kidnapped to Somalia, and killed when he tried to return home.

Since then, Mr. Bihi has also been chairman of the unfunded Somali Center for Education and Advocacy -- continuing to speak out against the recruiting of soldiers by terrorist groups, the failure of the government, and Somali-American groups like the Abubakar Asadiq Islamic Center, which he believes turned his nephew into fundamentalism through the center's youth program.

But he doesn't just condemn mosques.

He denounces the government's failure and criticizes that more should be done to prevent poverty in the community.

Budgets were scarce, so Bihi needed creativity.

Following the 2010 mass attack on World Cup spectators in Uganda to oppose al-Shabaab's attempts to influence disaffected youth, he planned a Ramadan basketball championship in Minneapolis in response.

Many Somali-American children participated in sports, even though fatwas forbid it.

They played basketball that Burhan Hassan could never do again.

For this, Mr. Bihi was ousted by the leaders of the Abubakar Asadiq Islamic Center, with whom he once had a good relationship.

He said, "One day on TV, an imam called us heretics and said, 'They're going to destroy the mosque.'" This is completely at odds with what Adlizaq Bihi is trying to achieve by reducing al-Shabaab's recruitment of soldiers. He's trying to protect the religion I love from a few fundamentalists.

One last thing I would like to say is that Amer Zenoun-Zuani, a 22-year-old law student from Algeria, dreamed of a legal career, just like I did in the '90s.

She refused to give up her studies, but fundamentalism was fighting to reclaim Algeria at the time, threatening all who would continue to be educated.

January 26, 1997, Amell was in school, took the bus in Algiers, and headed home to spend the night of Ramadan with his family—never finished law school.

When the bus reached the suburbs of her home, it was stopped at a checkpoint occupied by armed Islamist groups.

Amell was taken off the bus with his school bag and killed on the street.

The man who slit her throat said to the other passengers, "If you go to college, the day will come when I'll kill you all like this."

Amell died at exactly 5:17 p.m., and we know that because her watch broke when she collapsed in the street.

Her mother showed me the clock, the second hand pointing majestically up to 5:18, a time that will never come.

Just before he died, Amer is said to have said to his mother and sisters, "If Allah wills, nothing will happen to us, but if anything happens, think that we lost our lives for knowledge.

Mom and Dad, keep your chest up."

Losing a young woman like this is profound and immeasurable, so I did some research. I tried to find hope again in Amer, and her name actually means "hope" in Arabic.

I found hope in two places

The first is in the strength of her family and other families to continue telling this story and living through terrorism.

In fact, Amer's sister, Lamia, overcame her grief to go to law school and is now a lawyer in Algiers.

The second place I found hope for Amer was wherever men and women continued to stand up to jihadist fighters.

We should pay tribute to Amer and support those who continue to fight for human rights today, like the network of women living under Islamic law.

I was told by Shrifa Hadar in Algiers that just fighting terrorism, as claimed by victims' rights, is not enough.

We must fight fundamentalism, because fundamentalism is an ideology that breeds terrorism.

Why aren't Amer and people like them better known?

Why is it that we all know who Osama bin Laden is, but we know so little about the people behind him who are standing up against him?

We have to change this situation, so I want you to share these stories through your networks.

Look again at Amer Zenoun's watch It's stopped forever Look at your watch Make a decision that this moment is the time to help people like Amer

We don't have the right to be silent about them, not because it's easier or because the policies of the West are flawed, because 5:17 is still getting too close to too many amers in places like northern Nigeria, where students are still being killed by jihad.

Now is the time to speak up and stand with all those who peacefully fight fundamentalism and terrorism in their own communities.

thank you

(applause)

(Video) Nicolas Negroponte (N): Switch to the video disc and put it in play mode.

I'm interested in bringing people and computers together.

We'll be using TV screens and things like that for future e-books.

(music) I'm interested in touch-sensitive displays, hi-tech, high-touch, so you can use them without moving your fingers.

Another form of computer fusion with humans is to acquire it.

Suddenly, on September 11th, the world expanded.

Ne: Thank you. (Applause) Thank you.

When I was asked to give this talk, I was asked to watch all 14 TED talks I've given so far, in chronological order.

The first talk is actually 2 hours long

Then an hour, then half an hour, and before I knew it my head was getting thinner and thinner.

(Laughter) Imagine 30 years of your life running past you.

I'm going to tell you what happened in the last 30 years, and then I'll try to predict the future, and then I'll tell you some of the things I'm doing next.

The slide shows when the first TED was held in my life.The slide shows when the first TED was held in my life.

It's important to me, because I had 15 years of research before TED, so I had a lot of material to talk about, so it wasn't difficult to talk about.

I can't talk like Fidel Castro or Buckminster Fuller for two hours.

At the time, I had 15 years of research experience, and the Media Lab was about to open.

We had a lot to talk about

There are some important things about those times -- and some important things that happened during that time.

First of all, computers weren't for people back then.

Another thing that was unique about that era was that we were considered "what the fuck are computer scientists?"

We weren't considered "real."

Looking back, what I'm about to show you is taken more seriously now than it was then.

So I'm going to talk about the characteristics of the past period, and I'll talk about some of my very early work.

And this was the beginning of what I call sensory computing, even before the Media Lab was founded.

A number of papers have been published about how silly it is to use your fingers.

There are three reasons for that, one is the low resolution

Second, the hand would block the view, and the last one was a masterpiece. Fingers would smudge the screen, so you shouldn't.

This is a device we built in the '70s that never saw the light of day.

Not only is it touch sensitive, but it also senses pressure.

(Video) Voice: Draw a yellow circle there

N: This piece is much later, but before TED1 -- (video) Voice: Move it to the left of the diamond.

draw a big green circle

Man: Oh, hey

N: It was a so-called multi-channel operation, where a person spoke and pointed at two different interfaces at the same time.

And then the Entebbe Incident happened.

In 1976, when an Air France plane was hijacked and taken to Entebbe airport, the Israelis carried out a brilliant rescue operation, and they actually built a full-scale model of the airport in the desert.

In 1976, the U.S. government asked some of us researchers if we could reproduce this on a computer, and people like me naturally said yes.

Shortly after that, a contract was signed with the Ministry of Defense, and we built this truck and photographic equipment.

We used a video disc to do a kind of simulation, and again, this is '76.

A few years later, this car was here, and the result was Google Maps.

And yet, people didn't see this as real computer science, but Jerry Wiesner, president of MIT, didn't, he thought it was real research.

My key piece of advice for anyone thinking about doing something with their lives is to involve the head of the organization.

So running the Media Lab was like having a gorilla in the passenger seat.

If you're stopped for speeding, the cop looks in the window, looks at the passenger seat, and says, "Excuse me, please proceed."

So we were able to do research with fewer constraints, and this is a pretty "device."

Lenticular photography of Jerry Weisner, only the mouth is made to move Only the mouth is made to move

By vibrating the photo of him on this lenticular sheet, you can lip-sync in a very simple way.

It was a teleconference system that didn't use the Internet at the time.

So that's what we were doing at the Media Lab -- that's what we were trying to do, merging the computer world, the publishing world, and so on.

This was also not universally accepted, but it was central to the early TED philosophy.

This was our vision of the future.

And so the Media Lab was born.

As I've gotten older, I can say with confidence that I've been to the future.

I have experienced the future many times

The reason I'm saying this is because I've said many times, "In 10 years, this is going to happen."

“Five years from now, this will come true.”

Five years later, it has come true.

So when I say I've been to the future, it's because I've felt like I've been to the future many times.

Because people finally realize that the medium itself isn't important.

I'm showing you this car in a slide that doesn't look very good, because I want to tell you a story that has shaped a part of my life.

One of my students wrote his PhD thesis on the subject of "backseat drivers."

Back in the early days of GPS, this car knew where it was and could give verbal instructions to the driver, like when to turn right or when to turn left.

In fact, in this day and age, there are many problems with issuing such instructions. For example, what does "turn right at the next" mean?

If you go down the road, the "next," "right," is probably another right turn, and so on. And there were a lot of problems like that.

"There is no chance of being accepted.

too much responsibility to bear

There will also be insurance issues.

Please don't patent it."

So we didn't patent it, but it shows how sometimes people can't see the essence of things.

I'm going to show you a few works in a hurry.

It's a young Yo-Yo Ma, and I'm tracking his body as he plays the cello and the hypercello.

They were walking around in this outfit these days

Now I'm a little more grown up and it's normal

And I want to briefly mention at least three heroes.

Marvin Minsky taught me a lot about common sense. Let's talk about Muriel Cooper, who is very important to Ricky Worman and TED, and she was the first person on stage to say, "I introduced Ricky to Nicky."

No one called me "Nicky," no one called Richard "Ricky," so no one knew who she was talking about.

And of course Seymour Papert -- he's the one who said, "It's impossible to think 'thinking' -- without thinking 'thinking about something.'"

This is really—please take it easy later—

this is a very deep word

I'm going to show you some slides from TED2, which may be silly.

I came to feel that the significance of television lies in the display.

It was around the end of TED1 and TED2, and what I want to mention here is that even if it were possible for intelligence to reside in devices, when I look at the things that are being built today that involve the Internet of Things, I feel deplorably pathetic, because what's happening now is that we've put oven controls in our phones, door locks in our phones, and everything in our hands, and we really shouldn't do that.

Instead, we need something that when you put a chicken in the oven, the oven says, "Oh, that's chicken," and starts cooking.

"The oven is cooking Nicholas's chicken and he likes it done..."

Instead of putting intelligence in the devices themselves, these days we've just put it in our phones and put it in the hands of our users, underutilizing the usefulness of the Internet of Things.

About TV, I said in 1990 that this is what TV is today, and what TV of the future will look like.

People sneered, but they didn't really understand it.

1990 Telecommunications George Gilder decided to call this diagram the Negroponte switch.

I'm probably a lot lesser-known than George, so when he called it the "Negroponte switch," it stuck. Cell phones would replace phones that used to go through underground cables, and television would go through underground cables instead of being picked up by an antenna.

This is the slide that was used that year, and it came true with complete fidelity.

and launched Wired

We also took turns handling the magazine reception desk, and a very angry parent called me and said, "Is your son a porn magazine or something?"

He didn't seem to understand his son's interest in Wired.

let's talk a little faster

This is my favorite, the back cover of Newsweek magazine in 1995. Read it. (Laughter)

[Nicholas Negroponte, Director of the Media Lab,] [predicts the future of buying books and newspapers over the Internet] [yes, yes (sarcasm) Newsweek 1995] It feels good when someone's criticism that you're completely wrong is completely overruled.

Published his book "Being Digital"

With this project, I had the opportunity to publish with a big publisher and get it out to the general public, and it allowed me to build a new media lab.

I spoke at TED [Multimedia is a big, indoor experience]

[Multimedia is a big, indoor-only experience—] We've caught up with the times [small, thin, bright, high-definition displays change this 1995]

Every year, I looked forward to that moment [Small, thin, bright, high-definition display drastically changed this 1995]

It wasn't like the old Ricky Worman parties, but he started to invite a lot of his old friends, including me.

And then something changed for me fundamentally.

I'm more interested in computers and learning, and I've been influenced by Seymour, but learning in particular is the thing that most closely resembles computer programming.

When you write a computer program, you start by making a list, you decide on an algorithm, you make it a set of instructions, and when you find a bug -- as with all programs -- you need debugging.

We fix the program, we run it again, and it goes through repetition like that, and that repetition is really like learning.

So Seymour and I started One Laptop Per Child (OLPC), where we give each child a computer in places like Cambodia.

We've had enough OLPC TED talks, so let's just cut it short.

What many people don't know is that the OLPC was a billion-dollar project, at least for the seven years that I was running it, and it's also important to note that there was no funding from the World Bank or the United States Agency for International Development.

Most of the countries contributed out of their own treasuries, which is an interesting point, at least for me, because it has to do with what we're going to do next.

These are the countries where OLPC attempts were made

The next experiment I tried was in Ethiopia.

Here is the content

The theme of this experiment is whether it is possible to learn in a place without schools.

We distributed tablet PCs without any instruction manuals, and let children figure out how to use them.

The kids turned it on, the kids turned it on, and in five days, they were 50 apps per child, and in two weeks they were singing the ABC song, in two weeks they were singing the ABC song, in six months they hacked an android.

It was interesting enough

I think this is the best photo

The child on the right is a child who volunteered to play the role of a teacher.

teaching the children on the left

There are no adults here

I said, "Can we do this on a larger scale?"

I asked, "What is missing for that?"

Here, the kids are doing a press conference, they're writing on the dirt.

The answer is—what am I missing?

Let's not predict the future Time is running out What the hell is going to happen?

The challenge is to connect the last billion people. Connecting the last billion people is very different from connecting the next billion people, because -- connecting the next billion people is easy.

Living in the wild is not the same as being poor.

Poverty is a product of our society, but people who live in the wild are not poor in that sense at all.

They may be primitive, but connecting them to the internet, the history of OLPC, and an experiment in Ethiopia gave me confidence that this could be done in a very short period of time.

This project, which I'm sorry to say has not yet been agreed upon by the project partners so that they can be announced, will be realized using geostationary satellites.

There are many reasons why geostationary satellites are not the best, but there are many reasons why geostationary satellites are not the best, but there are many reasons why geostationary satellites are not the best.

If we can connect Africa with the last billion people for that amount, I think we should do it.

thank you

(Applause) Chris Anderson (A): Leave it as it is.

N: Should I continue?

A: No

You spoke wonderfully

Nicholas What will happen in the next prediction?

(laughs) Ne: I'm sorry to hear that.

My prediction is -- this is my prediction, 30 years from now I won't be here anymore.

I'm thinking about learning how to read. Until now, we've been absorbing a lot of information through our eyes, which may actually be a very inefficient route.

So my prediction is that in the future, we'll be absorbing information in a digestive way, like swallowing a pill and already learning English.

Taking a pill absorbs knowledge of Shakespearean literature.

that information is absorbed through the bloodstream

Once the drug enters the bloodstream, it travels to the brain, and once it reaches the brain, it's in many different places, delivering information to the right place.

it's interesting

A: Have you met Ray Kurzweil?

N: No, but I did talk to Ed Boyden, one of the speakers, Dr. Hugh Herr, who's here, and a lot of other people.

This is not so outrageous, 30 years from now.

A: I'm looking forward to it.

Let's see today's clip again at TED 30 years from now, and then let's all drink the red capsule.

It's all thanks to you

It was Nicholas Negroponte

Ne: Thank you

(applause)

In preparation for this talk, I searched for quotes that I could introduce to you.

I'm happy to say that I found three that sound good. The first is Samuel Johnson, who said, "When you make choices in life, never neglect life."

The only problem is, I couldn't decide which quote to introduce to you.

It's the sweet anxiety that choice brings

In this post-industrial capitalist era, choice has been elevated to an ideal, coupled with the idea of ​​individual freedom and self-creation.

In addition to this, we also believe that progress will last forever.

But this ideology also has a downside, fueling feelings of insecurity, guilt, feelings of inadequacy, and a sense of failing to make choices.

Unfortunately, this ideology of individual choice keeps us from thinking about social change.

Apparently, this ideology has been very effective in plucking out our fangs in how we think about politics and society.

Instead of criticizing society, we focus more and more on self-criticism, sometimes to the point of desperation.

Why is this ideology of choice still so powerful that it affects people who don't have much choice?

Why is it that even the poor feel so close to the almost rational notion of choice that we respect?

The ideology of choice makes us imagine and think about the future.

Let me give you an example

A friend of mine, Manya, was working in a car dealership and earning money while in college in California.

Manya's typical approach to customer service was to discuss the customer's lifestyle, how much they wanted to spend on the car, how many children they had, and what they wanted the car for.

Most of the time, the customer ends up narrowing down which car is best.

Manya says, before a customer goes home and thinks about it, "The car you're looking to buy now is perfect, but in a few years, when your kids are out of the house and you're financially free, your car will be perfect.

But the car you're buying now is perfect."

And the next day, when Manya's customers returned to the store, the majority of them bought "that car," a car that, if not necessary, was very expensive.

Manya had great success selling cars and soon switched to selling aircraft.

(Laughter) With her deep understanding of human psychology, she was lucky enough to land her current job as a psychoanalyst.

Why did Manya's guests lose their senses?

Manya was successful because she was able to create an ideal future in the minds of her customers, to imagine themselves as more successful and freer than they are now.

We rarely make perfectly rational choices.

Choices are influenced by our own unconscious and those around us.

When we make choices, we often think about what other people think of our choices.

Sometimes we see other people's choices and make choices.

They also care about socially acceptable choices.

That's why even after we've made a choice, say, after we've bought a car, we read reviews of cars, as if we want to convince ourselves that we made the right choice.

Choices Induce Anxiety

Choices are associated with risks and losses

totally unpredictable

This is why people increasingly have the problem of not being able to choose anything.

I was at a wedding the other day, and I met a beautiful young woman, and as soon as I met her, she began to open up to me about her insecurities about her choices.

"It took me a month to decide which dress to choose."

"It took me weeks to find a hotel to stay tonight."

“Now I have to choose a sperm donor.”

(Laughter) I looked at her face in amazement.

"Sperm donor? What are you in a hurry for?"

And she said, "I'm turning 40 this year, and I don't have an eye for men."

Choices provoke anxiety because they lead to risks, as one famous Danish philosopher, Soren Kierkegaard, once said, "Anxiety is linked to possibility for the sake of possibility."

Now we think we can prevent these risks.

There's plenty of market analysis and predictions of future earnings.

Markets are inherently risky and random, but even then we think we can rationally predict them.

Accidents sometimes do dramatic things

Last year, my friend Bernard Harcourt at the University of Chicago gave a conference on the concept of chance.

He and I were both panelists, and just before we published our papers, we decided, without knowing what each other's papers were about, that we would seriously try to "accidentally."

We told the audience, "What you're about to hear is a random mix of two papers. We don't know what the other paper is about."

That's how I held the conference

Bernard reads the first paragraph I read the first paragraph Bernard reads the next paragraph I read the next paragraph And so on and so on.

Surprisingly, the majority of the audience did not realize that the paper they had just heard was a hodgepodge.

Audiences couldn't believe that professors in positions of authority like us would take chance seriously.

The audience thought we were working on a paper together and that the bullshit was a joke.

We live in an age of big data, which is overflowing with information, and an age of abundant knowledge about the human body.

I also deciphered the genome

We also know a lot about the brain.

But surprisingly, people are increasingly turning a blind eye to this knowledge.

Ignorance and denial are on the rise

Here's what we think about the current economic crisis: one morning you wake up and everything is back to normal, no political change, no social change needed.

I don't have to do anything about the ecological crisis now, or I think someone else will act before I do.

When an ecological crisis does occur, like the Fukushima catastrophe, some people do not change their environment.

Psychoanalysts are well aware that people surprisingly don't have a passion for knowledge, they have a passion for ignorance.

what do you mean

For example, when faced with a life-threatening illness, many people don't want to know about it.

Instead, they want to deny that they have the disease, which is why it's a bad idea to tell them if they haven't asked.

Surprisingly, studies show that people who deny their illness can live longer than those who rationally choose the best treatment.

But this kind of blindness doesn't help much in society.

If we don't know where we are going, we can do a lot of social harm.

In addition to turning a blind eye, what we face today is a kind of obviousness problem.

French philosopher Louis Althusser pointed out that ideology works in a way that creates a veil of obviousness.

What we desperately need before we can criticize society is to lift the veil of this obviousness and think about it from a different angle.

If we go back to the ideology of rational personal choice that we tend to hold dear, it is precisely now that we need to remove this obviousness and think a little differently.

I often wonder why we still care about the self-reliant spirit that capitalism has relied on from the beginning.

Why do we think we're manipulating our lives, rationalizing our ideals and making the best choices, and avoiding losses and risks?

What I find very shocking is that the very poor, for example, don't support the idea of ​​raising taxes on the rich.

In many cases, they think they're going to get "off the shelf."

Even if they can't in their own generation, maybe their son will be the next Bill Gates.

If so, I don't want to increase my son's burden

Or there's the question, why don't people who don't have health insurance support universal health care?

Some people bring up the issue of choice as a reason not to support them, but they don't have a choice.

Margaret Thatcher, as you know, said, "There is no such thing as society."

There is no society, only individuals and their families.

Sadly, this ideology still works so well that it's why the poor are ashamed of their poverty.

We will continue to feel guilty because we didn't make the right choices, and as a result we didn't succeed.

we feel insecure about our inadequacy

So you work hard, you spend long hours at work, and you spend long hours reinventing yourself.

When we worry about choice, we can easily give up the power to choose.

We identify ourselves with authority figures and self-help therapists who tell us what to do, and we embrace knowing-looking, totalitarian leaders who don't hesitate about our choices.

I'm often asked the question, "What have you learned from your choice studies?"

There is an important message that I have learned

As I started thinking about choices, I stopped taking them seriously and personally.

First, I realized that many of my choices were irrational.

It has to do with my unconscious mind, the choices that other people are likely to make, and the choices that are likely to be socially acceptable.

I'm also cherishing the idea that it's very important to go beyond individual choices and rethink social choices.

I lost the ability to think about social change.

We spend so much time making choices for ourselves and so little thinking about the choices we can make for everyone else.

Never forget that choice is always associated with change.

We can bring about individual change, but we can also bring about social change.

You can also choose to increase the number of wolves

We can also choose to change the environment and increase the bees.

We can also choose to introduce a new rating agency.

We can choose to control the company instead of being controlled by the company.

we have the potential to make a difference

Now, at the beginning, I mentioned Samuel Johnson's words, "When you make choices in life, don't neglect life."

Finally, I made the choice to choose one of the three quotes I wanted to use at the beginning.

As I have made the choice, as a nation, as a people, we have the choice to rethink what kind of society we want to live in in the future.

thank you

(applause)

Four years ago, here at TED, I announced Planet's first mission, to launch a multitude of satellites and take pictures of the entire planet every day for everyone to see.

The problem we were trying to solve was simple

The satellite images you see on the Internet are old, and they may be years old, but human activity happens in days, weeks, months.

I wanted to give people the tools to see change and empower them to take action.

"The Blue Marble," a beautiful photograph taken by the Apollo 17 astronauts in 1972, made us all more aware of this fragile star.

We wanted to take it to the next level and give you the tools to take action to protect the planet.

After many Apollo programs of our own, we achieved our goal by launching the largest constellation of satellites in human history.

Today, Planet takes satellite images of the entire globe every day.

mission complete

(Applause) Thank you.

It took 21 rocket launches. It looks easy in this animation, but it was hard work.

We now have over 200 satellites in orbit, transmitting data to 31 ground stations we've built around the world.

1.5 million 29-megapixel images are taken every day.

We currently have an average of over 500 images of any point on the ground.

Huge amounts of data are recording huge changes.

Many people use these images

Agricultural companies to improve farmer yields

Consumer map service companies to improve online maps

Governments use it for border security and disaster response after floods, wildfires and earthquakes.

Many NGOs also use

For tracking and preventing deforestation

To find and help refugees fleeing Myanmar

To trace all activity in the Syrian crisis and accountability

I'm here today to announce "Planet Stories"

Anyone can go to palnet.com, create an account, and see all the images we have.

It's like Google Earth, but the images are always up-to-date and you can go back in time.

By comparing images from any two days, you can see dramatic changes taking place on Earth.

We can also take our 500 images and turn them into time-lapse videos to effectively see how things change over time.

and you can share it on social media

very cool

(Applause) Thank you.

Originally, this tool was intended for journalists who wanted unbiased information about world events.

Now we're making it available to anyone for non-commercial personal use.

It's my hope that this tool will enable people to see and act on the changes that are happening on the planet.

Mankind has acquired a database of ever-changing information about the Earth.

So what's the next second mission?

It is "Universe + AI"

What we're trying to do with AI is find things on satellite images.

The same AI tools that can find cats in online videos can be used to find information from satellite imagery.

You know, this is a boat, this is a tree, this is a car, this is a road, this is a building, this is a truck.

For the millions of photos taken each day, if you could do that, you'd have a database of daily information for every object of any size on Earth.

search becomes possible

that's what we do

This is a prototype using our API

this is beijing

Let's say you wanted to know how many planes there are at this airport.

Select an airport and find the plane in today's image Find the plane in the previous image as well You can graph the number of planes at Beijing Airport over time

You can do this for any airport in the world.

Next, let's take a look at the Port of Vancouver.

Do the same, but this time search for a ship.

Zoom in on Vancouver, select a range, search for a ship.

It will show you where the ship is

Think how useful this would be for the Coast Guard to track down and seize boats that are fishing illegally.

Vessels fishing legally transmit their positions with automatic vessel identification systems.

But I often find ships that don't.

pictures don't lie

The Coast Guard can use this to spot illegal fishing vessels.

We're going to add more than just ships and planes, and we'll be able to deliver the changes in position of those objects over time, and we'll be able to connect that to other workflows.

Over time, we'll be able to build more sophisticated browsers that integrate data from different sources.

Ultimately, I believe that there will no longer be an image appearance, and we will have an interface that allows us to query the Earth.

For example— “How many houses are there in Pakistan?

Make a graph of changes in the number of houses over time.”

Imagine asking, "How many trees are there in the Amazon? Can you tell me where the trees were cut in the last week?"

Don't you think so?

And that's what we're aiming for, and we call it a "queriable planet."

Planet's first mission was to take a picture of the entire planet every day and make it available for everyone to see.

Planet's second mission is to index and query everything on the planet at any one time.

by analogy

Google indexes everything on the internet and makes it searchable

We're going to index everything on Earth and make it searchable.

thank you

(applause)

Right now you're watching a movie in your head

It's a great multi-track movie.

Play what you're seeing and hearing in 3D and surround sound, and this is just the beginning.

Even though it's a movie, you can smell it, taste it, and even touch it.

I have body sensations, so I have pain, I have stomach cramps, I have orgasms.

They also have emotions, they feel anger and happiness.

I have memories, and scenes from my childhood are played before my eyes.

And there's always a stream of consciousness narration.

The main character in this movie is you, who experiences all this first hand.

The film is your stream of consciousness, the subject of your experience in your mind and in the world.

Consciousness is one of the basic elements of human existence.

everyone is conscious

We all have an inner movie, you, you, you

Nothing else we know more directly than this

At least I know first hand about my consciousness.

I'm not sure if you are conscious

Awareness is what makes life worth living.

Without consciousness, life has no meaning or value.

But at the same time, consciousness is the most mysterious thing in the universe.

Why are we conscious?

Why is there an inner cinema?

Why aren't we just robots that don't experience an inner movie or something like that, processing input and creating output?

No one can answer these questions at this time

It may take some radical thinking to merge consciousness with science.

Some say the science of consciousness is impossible.

science is inherently objective

Consciousness is inherently subjective

Therefore there can be no science of consciousness.

For most of the 20th century, that view prevailed.

Psychologists have studied behavior objectively, neuroscientists have objectively studied the brain, but no one has ever addressed consciousness.

Even 30 years ago, when TED began, there was very little scientific research on consciousness.

Twenty years ago, we began to see signs of change.

Neuroscientists like Francis Crick and physicists like Roger Penrose said it was time for science to tackle consciousness.

Since then, scientific research on consciousness has proliferated and flourished.

this research is great

But so far, there have also been fundamental limitations.

Central to the recent science of consciousness has been the search for correlations, the study of correlations between specific regions of the brain and specific states of consciousness.

I've just heard from Nancy Kanwisher about some amazing results in these studies.

And so our understanding goes much further, and for example, the areas of the brain that are associated with conscious experience are well understood, like seeing faces, feeling pain, feeling happy.

But this is not out of the science of correlation.

there is no scientific explanation

We know that these brain regions are associated with certain conscious experiences, but we don't know why.

Let me tell you, this work in neuroscience is beginning to answer some of the questions we need to answer about consciousness, such as questions about specific brain regions and what they correlate with.

But in some ways they are simple questions.

For neuroscientists, it's no big deal.

It's not simple when it comes to awareness

And yet we're missing the real mystery of this subject: why is all the physical processing in the brain accompanied by consciousness?

Why is there an inner subjective film?

so far i don't really know anything

You might think that in a few years neuroscience will figure it out.

Like traffic jams, hurricanes, and life, one of the sudden phenomena will find the answer.

A classic example of emergence is any kind of spontaneous behavior: how traffic jams happen, how hurricanes work, how living things reproduce, how they adapt, how they metabolize.

When applied to the human brain, some behaviors and functions of the human brain could be explained as abrupt phenomena, such as how to walk, how to talk, how to play chess, are all behavioral questions.

But when it comes to consciousness, questions about behavior fall into the simple category.

Classified as a conundrum is the question of why all behavior involves subjective experience.

And the standard paradigms about emergence -- even the standard paradigms of neuroscience -- don't say much.

Now, I consider myself a materialistic scientist.

I've been searching for a scientific theory that can explain consciousness well for a long time, and I've hit a wall in my search for a theory of consciousness that speaks purely in physical terms.

And I've come to the conclusion that it's not working for systemic reasons.

It's a long story, but the main ideas are simple, and the purely reductionist explanations, in terms of physics, neuroscience, and so on, give us an explanation of how the system works, its structure, its dynamics, its resulting behavior, etc. These are good for simple questions, like how it behaves and functions, but the subjective experience, like why does it all feel like it's coming from within, is a whole new and always deeper question.

i'm stuck here

Explanations lead to great things, and we're used to it: physics explains chemistry, chemistry explains biology, and biology partly explains psychology.

But consciousness doesn't fit this scheme.

On the other hand, our being conscious is a sensory premise.

On the other hand, I don't know how to apply that to the scientific worldview.

So I think consciousness is kind of irrational right now.

In the face of this kind of irrationality, we may need some radical ideas. We may need one or two seemingly crazy ideas in order to understand consciousness scientifically.

Now, here are some crazy idea candidates.

My friend Dan Dennett here today owns one.

Dunn believes that the conundrum of consciousness doesn't exist.

The idea of ​​inner subjective cinema is fraught with a kind of illusion and confusion.

In fact, all we have to do is explain the objective functions and behaviors of the brain, and then everything that can be explained will be explained.

You have persuasive power

It's a radical idea to explore if you want a purely reductionist, neuroscientific theory of consciousness.

At the same time, for me and many others, this view is too simplistic to deny the sensory data of consciousness, which is unsatisfactory.

let's go the other way

I want to talk to you about two crazy ideas that might develop in the rest of your time.

The first crazy idea is that consciousness is fundamental.

Physicists sometimes think of certain aspects of the universe as basic building blocks: space, time, mass.

They assume fundamental laws that govern them, such as the law of gravity and quantum mechanics.

These basic properties and laws cannot be explained in terms of more basic concepts.

Rather, we take them as primordial and build the world out of them.

sometimes the basic concepts increase

In the 19th century, Maxwell came to the realization that electromagnetic phenomena could not be explained by the fundamental concepts that already existed: space, time, mass, and Newton's laws.

This is our situation with regard to consciousness.

If we can't explain consciousness in terms of basic concepts that already exist, such as space and time, mass and electric charge, then logically we have to expand our basic vocabulary.

Natural thinking posits consciousness itself as a fundamental concept, a fundamental building block of nature.

It's not like you suddenly can't think scientifically.

Rather, it paves the way for us to think scientifically about consciousness.

So we need to learn the fundamental laws that govern consciousness, which connect consciousness to other fundamental concepts, such as space, time, mass, and physical phenomena.

Sometimes physicists say they want basic laws so simple that we could write them on the front of our T-shirts.

I think it's similar to the situation with consciousness.

We want laws so simple and basic that we could write them on the front of a T-shirt.

I don't know what the law is yet, but that's what I want.

The second crazy idea is that consciousness might be universal.

Consciousness exists in all things, albeit at varying degrees.

This is also called panpsychism. "Pan" means universal, "mind" means mind, and all things are conscious, not just in humans, but in dogs and mice and flies -- Rob Knight microbes and subatomic particles.

Even photons have some kind of consciousness.

It's not that photons have intelligence and can think.

Mitsuko said, "Oh, I'm always moving at high speed, and I can't even move slowly and enjoy the scent of roses."

It's not that I'm worried

That's not true

The idea is that photons also have some kind of immature subjective feeling, and they may have some sort of precursor to consciousness.

it may seem a little strange

Why would you think such a crazy thing?

Part of that motivation stems from the first crazy idea that consciousness is a fundamental concept.

If consciousness is as fundamental as space and time and mass, then it's natural to think that consciousness is universal and that's what it is.

It's also worth mentioning that while this idea may be counter-intuitive to us, it's not so counter-intuitive to people in cultures where the human mind is more deeply connected to nature.

An even deeper motivation stems from the idea that the simplest and most powerful way to discover the fundamental laws that connect consciousness with physical phenomena is to connect consciousness with information.

Wherever there is information processing, there is consciousness.

Complex information processing, as humans do, is accompanied by complex consciousness.

Simple information processing has simple consciousness.

And what's very promising is that recently neuroscientist Giulio Tononi has made great strides in developing these theories using theories of mathematics.

Tononi had a mathematical methodology for integrating information that he called phi, which measures the amount of information integrated within a system.

Tononi thought that phi entailed consciousness.

So there's a lot of information integration going on in the human brain, so there's a high degree of phi, and there's a lot of consciousness.

There's a fair amount of information integration in mice, albeit a moderate one, so there's a fair amount of consciousness.

But at the worm, microbe, and particle level, the amount of phi drops.

Even if the amount of information integration declines, it will not go to zero.

According to Tononi's theory, the level of consciousness is never completely zero.

In effect, Tononi proposes a basic law of consciousness: higher phi is higher consciousness.

I don't know if this theory is true or not, but it may be the current dominant theory in the science of consciousness.

A final motivation is that panpsychism might help integrate consciousness with the physical world.

Physicists and philosophers have often found physics to be strangely abstract.

Physics uses many equations to describe the structure of reality, but it does not describe the underlying reality.

What powers these equations, as Stephen Hawking puts it?

In the panpsychist view, we can leave the equations of physics out of the way, but we can also use them to explain stream of consciousness.

The ultimate goal of physics is to explain the stream of consciousness.

In this view, consciousness is what powers the equation.

In that view, consciousness does not hang outside the physical world as something superfluous.

it is right in the center

This panpsychistic view has the potential to transform our relationship with nature, and may have very important social and moral consequences.

Some of these may not be intuitive

I used to think that we shouldn't eat anything conscious, and that we should be vegetarian.

If you're a panpsychist and hold that view, you're going to be hungry.

When you think about consciousness, your perspective changes dramatically, but what matters to ethical purpose and moral thinking is not so much consciousness itself, but the degree and complexity of consciousness.

It's natural to question consciousness in other systems, such as computers.

How about an artificial intelligence OS like Samantha in the movie "her"?

Is she conscious?

If you take an informed, panpsychistic view, it seems likely that Samantha is conscious because she processes and synthesizes complex information.

If that's true, then the ethics of developing artificially intelligent operating systems and powering them down would be serious ethical issues.

Finally, you might ask about the consciousness of the planet as a whole.

Does Canada have consciousness?

Or, on a more intimate level, what about a cohesive group, like the TED conference audience? Now, are we conscious of the TED group, and are we watching the inner movie of this TED group? Is it different from an individual's inner cinema?

I don't know the answer to that, but I think it's at least a question worth taking seriously.

Now, this panpsychistic view is extreme, and I don't know if it's true.

I actually think that the first crazy idea of ​​consciousness as a fundamental concept is more correct than the second idea of ​​universalizing consciousness.

Because that view raises a lot of questions and a lot of challenges, like how these tiny bits of consciousness come together to form the complex consciousness that we understand and love.

If we can answer these questions, we may be able to establish an important theory of consciousness.

Even if it doesn't work out, this is one of the most difficult questions in science and philosophy.

can't be solved overnight

But I'm sure it will be resolved eventually.

Understanding consciousness is the real key to understanding the universe and understanding who we are.

Maybe all it takes is the right crazy idea.

thank you

(applause)

It wasn't until I walked into the operating room for the first time and actually saw an operation in action that I had a clear picture of what it would be like.

I was a university engineering student at the time.

I was imagining something like what I saw on TV

Sweat is pouring from the surgeon's forehead as ominous music plays

But it was completely different

The music that was playing there was, I think, Madonna's best hits.

Since then, every time I've seen surgery, I've come to realize that this is what it's like.

There is just the usual everyday scenery

But sometimes the music stops and suddenly everyone is quiet and everyone's attention is focused on something.

This is a sign that something serious and dangerous is happening that needs attention.

The first time I witnessed it was during a procedure called laparoscopic surgery, and for those of you who don't know, in short, in laparoscopic surgery, instead of making a large incision like in most surgeries, the surgeon cuts three or more tiny holes like this.

And then you insert a long, thin instrument like this, and a camera, and you perform surgery in the space inside the patient's body.

The advantage of this surgery is that the risk of bacterial infection is greatly reduced, pain is greatly reduced, and recovery is faster.

But there's also a downside, which is that they use a long, pointed instrument called a trocar to make a small hole in the abdominal wall.

So how the surgeon uses it is to put it on the patient's stomach and push it until the abdominal wall is perforated.

The reason the whole operating room staff was so focused on this device was because you had to be very careful in this process so that when the device penetrated the abdominal wall, it didn't damage the underlying organs and blood vessels.

It's the same as everyday problems It's the same as everyday problems

(Laughs) Everyone has experience, right?

(Applause) When the straw was about to pierce, you were worried that it would pierce through to the other side and pierce your hand holding the pack, or that the juice would squirt out, right?

Every time, you were doing the same physical thing that I saw in the operating room, with a straw in hand.

I actually found this to be a real problem

In 2003, the FDA announced that trocar insertion was the most dangerous procedure in minimally invasive surgery.

Again in 2009, another paper was published implicating trocars in more than half of the major problems associated with laparoscopic surgery.

Despite this, the device has been the same for the last 25 years.

So in graduate school, I decided to do research on this topic.

And trying to get a friend to figure out what I was working on, I said, "I was drilling a hole in the wall of my apartment to hang something, and the drill went through the wall.

Have you ever had a blade suddenly go through? ', and the blade suddenly pierces through, right? and say

He looked at me and said, "It's like drilling a hole in your skull, isn't it?"

(Laughter) Actually, when I looked it up, they used a drill for head surgery.

Many neurological surgeries begin by drilling a hole in the skull.

If the surgeon isn't careful, the drill bit will go straight into the brain.

When I saw this, I started to think, could there be a hole in the skull, a laparoscopic surgery, or something else?

Because if you go to the doctor, something will definitely stab you, right? (smile)

In fact, stabbing is a common practice in medical settings.

I've researched several medical procedures that pierce various tissues in the body.

Let's take a look at just three: laparoscopic surgery, epidural anesthesia, and craniotomy, and these surgeries alone account for 30,000 reported problems each year in the United States.

I thought it would be better to do something about this.

Let me show you some of the instruments used for these procedures.

This is the needle used for epidural anesthesia.

This is used to puncture the ligaments between the spines and inject anesthetics, such as those used during childbirth.

This is the instrument used for bone marrow biopsies.

It sticks into the bone to take samples of bone marrow and bone lesions.

This is a Civil War era bayonet.

(Laughter) I don't think anyone would doubt me if I told them this was a medical device.

because it is similar

The more I researched it, the more I realized there had to be a better way.

And we're starting to see a common problem with these body-piercing devices: a physics problem.

What is going on physically?

Let's see you punch a hole in the wall again

Are you applying force against the wall with the drill?

According to Newton's laws, the force pushing back on the wall is equal and opposite.

These two forces are balanced during the drilling process.

But the moment the drill bit penetrates the wall, the wall can no longer push back.

But because humans can't react to that change

You have to hold the drill down for a fraction of a millisecond until it reacts, and that one-sided force drives the blade into it.

But if you can retract the drill bit at the moment of penetration, can you avoid accelerating forward?

I made this a research topic

Suppose you have a sharp instrument for puncturing tissue.

What's the easiest way to retract that tip?

i thought it was a spring

As the spring expands, the tip of the instrument protrudes, and just before it penetrates the tissue, the spring retracts the tip.

In order not to withdraw until the moment the hole opens

I used a trick like this

When the tip of the instrument is pressed against the tissue, the device spreads outward.

Friction created with the wall prevents the spring from pulling back the tip of the instrument.

But the moment the hole penetrates, the tissue can no longer push the tip back.

This mechanism is released and the spring retracts the tip.

I'll play this slow and show you

We shot at 2,000 frames per second, and you can see the tip of the tool at the bottom of the video where it's drilling a hole.

As soon as the hole goes through, it unlocks like this and pulls the tip back.

I'll show you another close-up video

You can see the sharp tip of the blade, but the moment it breaks the rubber membrane, the blade retracts into the white sheath.

you can see

This takes 4/100ths of a second after penetration

What's more, the device has a typical "puncture-proof" design, and it's not specific to skull drilling or laparoscopic surgery, so it can be used in a variety of medical settings, and it can be scaled.

But this is the result of repeated improvements

this is the first prototype

Yes, I made it out of popsicle sticks. (Laughter) On top of that is a rubber band.

I made this in about 30 minutes, and I knew it would work, so

With this idea, I decided to work on this project for two years.

The impetus for this research was this problem

because I couldn't sleep at night

But I think it's something that everyone cares about, because there are so many opportunities to get stung.

I don't know when I will run into this problem

On that first day of surgery, I never thought I'd be in the care of Trocker.

Last year, while traveling in Greece, I had an appendicitis.

I was admitted to a hospital in Athens, where the surgeon told me that I was going to do a laparoscopic surgery.

They take out the cecum through a small hole, after being told how long it will take to recover and what the prognosis is.

Asked if I had any questions, the only thing I asked was

"What kind of trocar do you use?"

There's a saying that aptly describes laparoscopic surgery, by a doctor named H. C. Jacobius, who said, "It's the drilling itself that's dangerous."

The reason why this phrase is so memorable is that it was written in 1912 by H.C. Jacobius, who performed the first laparoscopic surgery on a human.

This problem has been hurting and killing patients for 100 years.

I think that experts should be working day and night to solve various problems in this world.

Actually that's not the case

We should try to find these problems and try to solve them.

So if you have a problem that bothers you and you can't sleep at night,

Get involved in that problem, you might save a lot of people's lives.

(applause)

i was born in taiwan

There are many hardware stores in the area where I was born and raised, and I like to walk through night markets.

Vibrant stall colors, lights, toys Vibrant stalls, colors, lights, toys, and quirky items.

When I was a little girl, I also loved taking apart toys, even my brother's BB gun.

I also like to create places to explore and play.

The materials for these devices are plastic sheets, plastic bags, things you'd find in a hardware store or at home.

We're going to take a solution of highlighter in water and run it through a plastic tube to create a glowing and circulating device that people can walk through and enjoy.

I like the look and feel of these devices, and they're reasonably priced.

We also make a device that works with a part of the body

A camera and an LED light -- a bungee cord strapped to your waist that records your belly button so you can see it from a different perspective and see what it's doing.

(Laughter) I also like to modify appliances.

From ordinary automatic lights

So I take the sensor, attach it to an extension cord, and use clay to attach it to the TV.

The whites of the eyes and eyelids trick the sensor into thinking it's daytime, and the light bulb goes out.

I wanted to collect images of different eyes, so I put a lightbulb and a TV on my helmet and built this device.

The helmet shape made it easier to record the eyes.

By using this device, I can also collect images of other eyes, and I collected images of different eyes and used them in my work.

The four eyes of this work are

Each one controls a different device

This eye is spinning the TV

This eye inflates a plastic tube

This eye is watching a video of the manufacturing process of another device.

These two eyes are making the liquid glow.

Many of these works can be seen all over the world, in museums and expositions.

I also like natural science and biology

In 2007, I was a research fellow at the Smithsonian Institution's Natural History Museum, studying bioluminescent marine life.

I like the look and feel of these creatures.

It's soft and slimy, and I was fascinated by how they light up their habitat to attract the opposite sex, protect themselves, and attract prey.

I got all sorts of clues from this study, from the movement of bioluminescent organisms to the lighting patterns.

So I gathered a bunch of different types of materials and tried this and that, experimenting and trying to see what kind of creatures I could make.

I tried to see what would happen if I hooked up a whole bunch of PC cooling fans.

This device is about 750 square meters and consists of a variety of creatures, and this device is about 750 square meters and consists of a variety of creatures, and the creatures hang from the ceiling or are placed on the floor.

It looks like an alien when you walk away, but when you get close, it looks like an alien when you walk away, but when you get close, it's made of black trash bags and Tupperware It's made of black trash bags and Tupperware.

Ordinary things are reborn and give us magical impressions.

(Thank you for applause

(applause)

I'm here to tell you not just my story, but the stories of some of the most incredible women I've met in India.

continues to inspire, guide and guide me in my life's journey—

They are amazing women

Never had the chance to go to school, never had a degree, never traveled, never knew the outside world.

Ordinary women who achieved extraordinary things with the greatest courage, wisdom and humility.

These are the women I look up to as teachers.

For the last 30 years, I've been working in India, working with women in rural areas.

I was born and raised in Mumbai

When I was in college, I met Jayaprakash Narayan, a well-known Gandhian leader who inspired young people to go to work in rural India.

I also participated in activities in the village to work in rural areas.

The land rights movement, the peasant movement, the women's movement.

It led me to a very small village, where I fell in love with a young, handsome, dynamic peasant leader who was not very educated, but was charismatic.

So I surrendered to my youth, married him, left Mumbai, and moved to a small village with no running water, no toilets.

To be honest, my family and friends were pretty shocked.

(Laughter) I used to live in this village, and I had a family and three children, and one day, a few years after my marriage, a woman named Kantabai came to visit me.

Kantabai said, "I want to open a savings account. I want to save money."

I asked, "Are you a blacksmith?

Do you have enough money to save?

I have no place to live

can you save money ”

Cantabai will not be handed over

"I want to save money because I need plastic sheets for monsoon season.

Don't let the rain get your family wet."

I went to the bank with Cantabai

Kantabai was trying to save less than 15 rupees and 15 cents a day.

The bank manager denied the cantabai application.

Kantabai's savings are too low, so he's just wasting his time dealing with him.

Kantabai doesn't want to take out a loan

I'm not asking for any subsidies or grants from the government.

I'm just asking you to have a safe place to store your hard-earned money.

it's a natural right

So I said, if the bank won't open an account for Kantabai, I can start a bank so that women like her can have an opportunity to save.

And I applied to the Reserve Bank of India for permission to set up a bank.

(Applause) But it wasn't easy.

(Laughter) As the reason for the rejection, the Reserve Bank of India said, they can't allow banks for illiterate people.

i was shocked

Tears did not stop

And when I got home, I kept crying.

I told the kantabais that the permission was denied because the women in the village were illiterate.

He said, "Stop crying

I'm going to learn to read and write, then just apply again."

(Applause) We started a reading and writing class.

Every day, women from the village attended classes.

Their determination was so strong that even after working all day, they would come to class and learn to read and write.

And five months later, I applied again, and this time I wasn't alone.

Fifteen women accompanied me to the Reserve Bank of India.

The women said to the Reserve Bank of India employees, "You rejected our application because we are illiterate.

You rejected my application because you're illiterate.

There were no schools for us to go to when we were kids, so it's not our fault that we're not educated."

The women went on to say, "I can't read or write, but I can count."

(Laughter) (Applause) And I said to the clerk,

“Please let me calculate the interest on the principal amount, whatever it is.”

(Laughter) "If we can't do the math, you don't have to allow it.

Have your employees do the calculations without using calculators and see which one can be calculated faster."

(Applause) Needless to say, permission to open a bank has been granted.

(Laughter) (Applause) There are now over 100,000 women in our bank, with more than two billion dollars in capital.

It's all women's savings, it's women's capital, and it doesn't require an outside investor to come up with a business plan.

It's true

savings by rural women

(Applause) And then there's this story, after the bank was granted permission to open, Kantabai now owns his own house, and he lives with his family in the house he bought for himself and his family.

(Applause) After the banks opened, we realized that women weren't able to go to the banks, because they were working less hours.

So I thought, if women don't come to the bank, let's go to the bank, and that's how I started the home visit service.

I recently started doing digital banking.

Digital banking requires you to remember your PIN

The women said, "I don't need a PIN, I'd rather not."

So I tried to persuade him that he should remember his PIN and that I could help him remember it.

But women are stubborn

I said, "Give me an alternative," and -- (Laughter) I said, "What about your thumb?"

I thought it was a good idea

With digital banking coupled with biometrics, women are now using their thumbs to conduct electronic transactions.

as they say

"Anyone can steal your PIN, so they can steal your hard-earned money. Nobody can steal your thumb."

(Applause) It reminded me of a lesson I've always learned from women: don't make poor suggestions to the poor.

because they are smart people

(Applause) A few months later, another woman came to the bank, a callaway.

She took out a loan with gold jewelry as collateral.

I asked, "Why would you take out a loan with your treasured accessory as collateral?"

Kerabai said, "We had a terrible drought, we had no food, no fodder for our livestock.

no water

You use the money as collateral to buy food and fodder for your livestock."

And he asked me, "Can you buy water with gold as collateral?"

i couldn't answer

Kerabai asked me, "You're dealing with women in your village and you're managing the money. What happens when the water runs out one day?

Who am I going to bank with if you're gone? ”

It was a valid question, so during the drought we decided to build tents for livestock.

It's a place where farmers gather their livestock and feed and water them.

it didn't rain

Livestock tents extended by 18 months.

Kerabai was around the cattle tent, singing songs of encouragement.

Karabai became popular

It rained and the cattle tent was closed, but after the cattle tent was closed, Kerabai visited a radio station, and there is a radio station in the area with over 100,000 listeners.

Karabai told the radio station that he wanted to have a regular show.

The radio station manager said, "How are you going to write a script if you can't read or write?"

Kerabai's answer was

"I can't read or write, but I can sing

What's the problem? ”

(Laughter) And now Kerabai has a regular radio show, and not only that, but he's become a well-known radio personality, he's been on every radio station, and he even goes to Mumbai.

I'm invited to appear on the show.

(Applause.) Kerabai has become a local celebrity.

One day I asked her, "Why did you start singing?"

She said, "Do you want to know the truth?

When I was pregnant with my first child, I was always hungry.

I don't have enough food to satisfy

I didn't have money to buy food, so I started singing to forget my hunger."

what a strong and wise man

I've always believed that women are going through a lot of hardships -- cultural, social, financial -- and yet they find solutions.

I'll tell you another story, a woman named Sunita Cambre.

I went to business school and now work as a veterinarian.

I'm from an untouchable caste called Dalits, but I work as a goat artificial inseminator.

It's a predominantly male profession, and it's even more difficult for Sunita, because she comes from the untouchable caste.

but work hard

He became famous as a goat doctor because he successfully gave birth to goats in the area.

recently received a national award

I visited Sunita's house to send my congratulations.

When you get to the village, there's a big Sunita sign.

There was a picture of her smiling

I was very surprised to find a large picture of the untouchables from that village standing at the entrance of the village.

When I arrived at Sunita's house, I was even more surprised, because male leaders of higher castes were visiting her house and drinking tea, which is a very rare sight in India.

High caste leaders would never visit an untouchable house and drink tea.

The leaders asked Sunita to attend the village assembly and give a speech.

Sunita broke India's centuries-old caste system.

(Applause) Let me also tell you about what the younger generation is doing.

I'm standing here, and I'm very proud to be here, coming from Musward to Vancouver.

Back home, Sarita Bise—she's not even 16—

I'm practicing hard. I'm participating in a sports activity called the Champion On Program.

Aiming to represent India in field hockey, we are practicing hard

she will be attending

The Tokyo Olympics to be held in 2020

(Applause) Sarita grew up in a very poor nomadic community.

I'm so proud of her

There are millions of women like Sarita and Kerabai Sunita, even near you.

It's all over the world. At first glance, you might see people who don't even have an opinion, you might think they're voiceless.

That is a big mistake

I am very lucky to work with them.

They're telling me their stories and sharing their wisdom. We're just lucky to spend time together.

Twenty years ago -- and I'm very proud -- we visited the Reserve Bank of India and established the first ever bank for rural women.

Now they're pushing me to go to the National Stock Exchange of India to set up the first fund for rural women who want to start small businesses.

They're pushing me to start the world's first bank to provide microcredits to women.

One of them said, "My courage is my capital."

For me, their courage is my capital.

And if you want it, your bravery is also capital.

thank you

(applause)

I would like to introduce you to an organism that is a slime mold called mojiko.

It's a filamentous fungus with a disrupted self-awareness, because it's not a fungus.

It is one of 700 known slime molds belonging to the Amoeba kingdom.

It's a single-celled organism that sticks with other cells to become a giant supercell so that it can maximize its resources.

So each strain of slime mold has thousands or even millions of nuclei, all of which share a cell wall and act as a single organism.

In natural ecosystems, you'll find slime molds feeding on rotting vegetation in forests, as well as in researchers' laboratories, classrooms, and artists' studios.

I first learned about slime mold five years ago.

A friend of mine, who is a microbiologist, handed me a petri dish with yellow blobs in it and told me to take it home and play with it.

All I was told at the time was that it liked darkness and moisture, and its favorite food was porridge oats.

I'm an artist who's worked with biology and the scientific method for many years, so I'm no stranger to living materials.

I've worked with plants, bacteria, cuttlefish, and fruit flies.

So I went home looking forward to seeing what I could do with my new collaborators.

I took it home and observed

gave me a variety of foods

I saw it make a network

Formed connections between food and food

I've seen it leave traces where it went

I also learned that when slime molds don't like their current petri dishes, they escape in search of a better home.

The observation progress was recorded by time-lapse photography.

Slime molds grow at about a centimeter per hour, so they're not really suitable for real-time observation.

For example, if you gobble up a pile of delicious oats, the slime mold will expand in different directions at the same time to explore new territory.

And when you join yourself, you realize that you're already there, you realize that you exist, and instead of going back the way you came, you expand further.

I'm pretty impressed with this feat. How can a bunch of slime cells, at its core, know its own territory and move in a conscious way.

I've found a number of studies, papers and articles highlighting the wonderful properties of this organism, and I'm going to share some with you.

For example, a team from Hokkaido University in Japan filled a maze with slime mold.

The slime mold combined into one large cell

The team puts food in two places, oats, of course, and the slime mold makes a connection between those two points.

Run away from empty places and dead ends

It's a maze with four paths, but no matter how many times it's repeated, the slime mold forms the shortest, most efficient path.

that's pretty clever

The team concluded from their experiments that slime molds possess primitive intelligence.

In another experiment, slime molds were exposed to cold air at regular intervals.

Slime mold hates cold air

Dislikes dryness

Every time the slime mold was exposed to the cold at regular intervals, its growth slowed down accordingly.

But on the next trial, even though the experimenter didn't apply the cold, the slime mold slowed down in preparation for the cold.

Somehow the slime mold knew it was about time for the cold that it didn't like.

The conclusion of this experiment was that slime molds can learn.

In the third experiment, we had the slime mold explore an area filled with oats.

The slime mold spreads like a branch

Each time it spreads and finds food, it continues to spread, forming a network.

After 26 hours, the slime mold had formed a fairly tight network between the oats here and there.

If that's all there is to it, it's not surprising at all, but in fact, the starting point, the center oats, represented the city of Tokyo, and the surrounding oats represented the suburban stations.

Slime mold recreated the transportation system of Tokyo (Laughter), recreating what has been created over time by residential architecture, civil engineering, and urban planning.

What it took us well over a hundred years, slime molds made in just over a day.

The conclusion of this experiment is that slime molds can form efficient networks and solve the traveling salesman problem.

it's a biocomputer

So the slime mold was mathematically modeled and algorithmically analyzed.

Sonication Replicate Simulated

Research teams around the world are trying to understand the rules of operation of slime molds, decoding their functions and applying what they learn in the fields of electronics, programming and robotics.

The question is: How does slime mold work?

Slime molds do not have a central nervous system

It doesn't have a brain, and yet it does what we do with our brains.

Able to learn, remember, solve problems, and make decisions

Where does this intelligence reside?

Here's a microscopic image I recorded at 100x magnification and 20x speed. Inside the slime mold, there's a rhythmic flow of signals, blood vessel-like structures that carry cell-forming components, nutrients and chemical information through the cell, first in one direction and then the other.

And it's this continuous, synchronized oscillation within the cell that allows us to make intricate senses of the environment without a huge central controller.

Here resides the intelligence of the slime mold.

University researchers aren't the only ones interested in this organism.

A few years ago, I started a slime mold society called SliMoCo.

An open, democratic online network for myxomycologists and enthusiasts to share knowledge and experimental methods across disciplines and affiliations.

Membership is self-selective

People find this company like slime mold finds oats.

Our members include scientists, computer scientists, researchers, but also artists like myself, architects, designers, writers, activists, you name it.

Very interesting

To give you just a few examples, there are artists who paint with glowing mussels, collaborative teams who use 3D printing technology to combine biological and electronic designs in workshops, and artists who use slime molds to map areas of their communities.

Although slime molds are used directly as biological tools, they are also used as symbols of solidarity, communication and cooperation.

Other public activities include many slime mold workshops that engage creatively with slime molds.

You design your own laboratory where you can invite people to explore what slime molds can do and explore their properties.

Everyone brings home a new pet, and we encourage them to submit the results of their experiments to the Slime Mold Society.

The slime mold society has allowed me to collaborate with interesting people from all walks of life.

So far, I've been working with a filmmaker on a feature-length slime mold documentary.

(Laughter) And thanks to the Slime Mold Society, I think we were able to conduct the world's first human slime mold experiment.

Part of the exhibition in Rotterdam last year

We asked visitors to become slime molds for 30 minutes.

We basically connected you all together and made you look like one giant cell, and let it run according to the rules of slime mold.

Participants must communicate with vibrations, no words

As one individual, one giant cell, it moves without an ego. Its purpose in moving and exploring its surroundings is to find food.

Then, a large number of participants roaming the park, wearing "Slimmyce Chu" T-shirts and tied up with yellow ropes.

When you hit a tree, you have to change and reshape the connections without using words.

This is a strange experiment in many ways.

there was no hypothesis

I never tried to prove or realize

But through this experiment, I've learned how to create a playful space where intelligence, mediation, and autonomy can engage the public at large, and discuss the findings.

The most exciting part of this experiment is the conversation that follows.

A completely voluntary symposium was held

We were talking about the human psychology of how hard it is to let go of individual personalities and identities.

There was also talk of bacterial communication.

Each person offered their own interpretation, and our conclusion from this experiment was that the people of Rotterdam were very supportive, especially when beer was served.

More than just oats

Beer also acted

But folks, it wasn't as fuel efficient as slime mold, and slime mold is a fascinating target for me.

It's biologically attractive, it's computationally attractive, but it's also a symbol for dealing with things like community, collective action, and cooperation.

A lot of my work draws on scientific research, and this one pays homage to the maze experiment, albeit in a different form.

Also slime mold is my work tool

We are co-creators of photos, prints, animations and interactive events.

Slime mold didn't technically choose to work with me, but in a way, it's a collaboration.

By understanding how slime molds work, I can predict certain behaviors, but I can't control them.

The slime mold has the final say in the creative process.

In the end, slime mold follows its own aesthetic eye.

The branching patterns we see at every scale and shape in nature, from deltas to thunderbolts to blood vessels to neural networks.

There are clearly important laws at work in this simple yet complex life, and there is so much to be learned from exploring and using this beautiful, brainless blob in any subject or problem.

Let's honor Mojihokori

thank you

(applause)

(music) This is called the "human test," and it's a test to see if you're human.

Raise your hand if this applies to you

Is it OK? yes?

let's get started

Have you ever eaten boogers in your childhood long ago?

(Laughter) It's okay. It's okay here.

Have you ever made a funny little noise when you remembered something embarrassing?

Have you ever intentionally put the first letter of an email in lowercase to express sadness or disappointment?

(laughs) It's okay.

Have you ever expressed your anger by ending an email with a period? nice period

Have you ever laughed or smiled back when someone said something bad to you and wondered why you reacted that way for the rest of the day?

yes

Have you ever wondered how many times you've lost your ticket while walking from check-in to the gate at the airport?

yes

Have you ever put on your trousers and long afterwards noticed loose socks sticking to your thighs?

(laughs) Good.

Have you ever tried to guess someone else's password and locked their account?

hmm

Have you ever had the thought that one day your true nature might be exposed?

yeah it's ok here

Have you ever wished you had a natural talent that you weren't aware of yet?

hmm

Have you ever broken something in real life and found yourself looking for an undo button in real life?

Have you ever left your TED badge behind and immediately started imagining what you would do for three days in Vancouver?

Have you ever wondered how someone you thought was so ordinary suddenly became so beautiful?

Have you ever been texting someone and staring at your phone, smiling like an idiot?

Have you ever sent that person an email saying, "I'm staring at my phone with a stupid smile on my face right now"?

Have you ever been tempted or given in to spying on someone else's phone?

Have you ever had a conversation with yourself and suddenly realized you were a real idiot?

(Laughter) Have you ever felt like your cell phone ran out of battery in the middle of a fight, and your phone ran out of patience for you two?

Have you ever thought that it's futile to deal with problems that have arisen between you, because it's easier to stay where you are than to do something, or because opportunities will come your way?

Have you ever realized that very few things happen by themselves after all?

Have you ever woken up blissfully happy and suddenly a flood of terrible memories someone left you with?

Have you ever been unable to envision a future for someone who has disappeared from your life? Have you ever been unable to envision your future?

Have you ever looked back on the event with the sad smile of autumn and realized that the future still comes?

congratulations

test finished

you are all human

(applause)

What I want to talk to you about today is... I'm going to put out some slides.

What I want to talk about today is the structure of polypeptides... (Laughter)

Many people ask me about "LOST", "What is that island?"

This question is usually followed by, "No, seriously, what is that island all about?"

(Laughs) Why is it full of mysteries? Where exactly does the mystery draw you?

Thinking about what to talk about at TED

So I asked the kind TED rep, "Hey, what should we talk about?"

And he said, "Don't worry, I can do anything as long as it's great." (Laughter)

You gave me a lot of courage

If you're in this room, I'd like to say thank you.

I've been thinking about what to talk about

Why are you dealing with so many mysteries? i thought i'd figure it out

I thought about what I was doing and why, and then I remembered my grandfather, and I loved him so much, his name was Harry Kelvin.

He was my mother's father. He died in 1986. He was an amazing person.

Let me tell you one thing that made him great. He started an electronics store after World War II.

I used to sell surplus parts and assembly kits to schools.

To me who was a very curious person and a child

I came with a radio and a phone

And then he opened the lid, unscrewed it, and showed me the inner workings, which might seem obvious to all of you.

But it was a great gift for a child.

They open it up and show you how it works, why it works, what it is.

He was in many ways the ultimate disassembler.

Not only did my grandfather take things apart, he also piqued my interest in a variety of technologies, like letterpress, and I fell in love with printing.

I fell in love with silkscreen printing, bookbinding, and box making.

When I was a kid, I used to take apart boxes and stuff all the time.

Last night, I took apart a Kleenex box in my hotel room.

I was just looking at it. After all, this is... it's beautiful. Really, you can see how the box works.

I met Reeves here at a book fair a few years ago, and he was making pop-up books.

The engineering of that paper fascinated me.

It's got folds, it's printed, it's glued, it's got the company's trademark on it, and I really like the box.

So my grandfather led me to these things.

He also gave me the tools

Like an artist's patron, he encouraged me to create something.

When I was 10 years old, he gave me a Super 8mm camera.

Back in 1976, it wasn't normal for a 10-year-old to be able to use an 8mm camera.

I couldn't believe how generous he was.

It's not like you did it for nothing.

You call him up and say, "Hey Grandpa, you really need an 8mm camera.

I don't know, but I want to make a movie.

One day I'll be invited to TED, which is, let's say..." (Laughter) And my grandmother was the best.

He'll help me like this

"You're better than drugs, what this kid is trying to do is..."

He was a wonderful person (laughs).

So I got an 8mm camera, and thanks to my grandmother, I got a synthesizer when I was 14.

My grandfather also helped me with other things I was into, like magic tricks.

I went to a magic shop in New York called the Lou Tannen Magic Shop.

It was a small, shabby building in Midtown.

You get on the elevator, and the door opens, and you're in a little magic shop.

it was a magical place

I prepared all sorts of magic tricks, for example, like this, like this

So far so good, but I can't move after this

I have to clean it up somehow

Like, "Oh, my computer is over here!" (laughs)

One of the things I bought at the magic shop is this Tannen's Mysterious Box.

The description read, 50 dollars worth of magic, only 15 dollars.

It's a bargain (laughs)

I bought this decades ago

If you look closely, you'll see that it's not open at all.

But I keep holding

It's always on the shelf in my office, and when I saw it, I wondered why I never opened it.

why do you keep it? I'm not the type to keep everything at home

But for some reason this box didn't open

And I felt there was a key here, about telling a story at TED that I've never told before, because it would be boring elsewhere.

I'm starting to wonder if there's something in this box.

I like the design with the big "Hatena" mark.

I'm wondering why I didn't open this box

I realized that it represented what was important to me.

This box represents my grandfather.

Is it okay to cry at TED? Because...

It's okay, I won't cry, but... (Crying face - lol)

This box represents endless possibilities.

Represents hope Represents potential

I love this box because whatever I do, I'm drawn to the endless possibilities, the sense of potential.

And I've found that mysteries capture the imagination.

It may not be such a great idea, but sometimes mysteries are more valuable than knowledge.

And then I started thinking about things like "LOST," and I realized there were mysterious boxes all over the place!

Damon Lindelof and I worked with him on "LOST," and we were asked to produce this series in a very short period of time, 11 and a half weeks --

Writing, casting, staffing, filming, editing, post-production

We're going to turn it into a two-hour pilot show, and we didn't have a lot of time.

And that sense of possibility How could this be?

I don't have time to develop

There are people who interject that this can't be done or that this should be changed.

I couldn't believe it.

And that's how this show came about. For those of you who haven't seen it, or who don't know you, let me show you some of the show so you can see what we made.

help! somebody help! help! help!

Get this person out of here! Away from the engine! Carry it out of here!

I'm in labor!

How many months pregnant are you?

eight months

How long until the due date?

I don't know, but it seems like it's started

oi! oi! Get out of there... 10 years ago, if you wanted to do this, you had to kill one of the stuntmen.

It's actually (throwing in - laughter) it was difficult.

What's amazing is that it's now possible

I was able to use this amazing technology, and I realized that I could do anything that I couldn't do before.

Even if I had written it, it wouldn't have been shot like this, and what's amazing to me is the creative process.

Technology is overwhelmingly inspiring

I realized that the blank page was a "mystery box"

I need to fill it with something great

I used to watch a lot of screenplays for "Ordinary People."

The romance in that script is wonderful and inspires me.

I wanted to fill my page with the spirit and thoughts and feelings of that script.

i love apple computers i'm crazy

Apple computer, that PowerBook

They challenge me, they say things like this

What would you like me to write for you?

It grabs my heart (laughs).

And "Fuck it, I can't write anything today." (Laughter)

When you look at the story in terms of content, you get stuck in the mystery box within the story.

The TV show has a basic question, and the first scene is called a "teaser."

Literally the big question

The viewer is drawn in, and of course the next question pops up, and it goes on and on.

For example, in "Star Wars," a droid meets a mysterious woman.

Who is that person? I don't know. It's a mysterious box! Then Luke Skywalker gets the droid and sees the holographic image.

And I know it was a message

She's looking for Obi-Wan Kenobi, he's her only hope.

But who exactly is Obi-Wan Kenobi? Mysterious box!

Luke then goes to see Ben Kenobi, who was actually Obi Wan.

Oh my God! That's how you get attracted to it... (laughs) Haven't you seen that movie? (smile)

You're famous! That being said... that's why I became fascinated by this mystery box thing.

And then there's the mystery, in the sense of the imagination, that of keeping information out.

When you do it intentionally, it becomes something that draws you in.

If Spielberg's mechanical shark, like the shark in "Jaws," worked, it wouldn't have been such a scary movie, because it would show too much.

In "Alien" you never see the aliens, that's why they're scary!

Even the romantic comedy "The Graduate" has that date scene: you're in the car, it's noisy, you close the roof.

They're there and you can't hear them talking! Not even a word!

But this is the most romantic scene, and it's fascinating because you can't hear it.

For me, it was. And finally, this idea, which is kind of a paradigm, let's unfold the mystery box a little bit.

It's the difference between what you think you've been given and what you're really being given.

You see this in so many movies and stories.

For example, what kind of movie is "E.T."? A story about an alien meeting a child?

No, E.T. is about divorce.

It's the story of a family twisted by heartbreak, divorce, and a child who can't find a way out.

What is "Die Hard"? Is it a terrific adventure action movie that unfolds in a skyscraper?

It's about a man on the brink of divorce.

he comes to los angeles depressed

It's a great scene, and I wouldn't say it's the most dramatic scene in cinema history, but it's a great scene.

It takes 30 minutes for a person to be drawn, before it starts what everyone expects.

When you watch a movie like "Jaws," what is the scene that people expect?

This is the scene that people expect and remember from Jaws.

she will be eaten there is a shark

But "Jaws" is the story of one man, trying to find his place in the world, trying to be a man, and how to get by with his family in a new town.

This is my favorite scene, and it's probably not the scene that you think of when you think of Jaws, but it's a great scene.

come kiss me

Why?

because daddy needs it

"Why?" "Because daddy needs it." Isn't that the best scene?

Hey you? So when you think of Jaws, things like character creation, that's what's in the box.

When you make a sequel or a monkey movie, you're copying the wrong parts.

We shouldn't imitate sharks and monsters.

If you want to imitate something, it's a person. You should imitate the important part.

Look inside yourself and see what's inside

Because ultimately, the mystery box is all of us.

Then there's distribution — is there a mystery box bigger than a movie theater?

I'm so excited to go to the cinema and see something.

It is often the case that the moment when the lights go out is the best scene.

And I'm satisfied with that feeling of anticipation that makes my heart swell

Then, as the movie progresses, something happens and you think, "Oh," something else happens, and you groan, "Hmm."

And if it's a great movie, I'm going to immerse myself in it, and to me, it's the same whether it's a TV or an iPod or a computer or a cell phone.

It's funny, like I said before, I'm an Apple fan, and about a year ago, I was trying to watch Steve Jobs' keynote on the Internet in the morning.

What was the giant iPod behind him displaying?

It's "LOST"! I didn't know! And then I realized that I had taken a turn

Inspired by technology, the work I created is now being used to sell that technology. (smile)

Let me show you a few more

I'd like to show you one thing that has nothing to do with you, and this is a video that's been posted online.

It was made five or six years ago

It's made by people who have experience working in visual effects.

The point here is that the mysterious box they used to make this is now available to everyone.

I realized that what my grandfather did for me when I was a kid is now available to everyone.

You don't need my grandfather anymore, though you may want it.

I'd like to point out that the person who made this had an old computer, a Quadra 950, with a slightly lower resolution, but a piece of software called Infinity that was over 15 years old.

Still, it's doing an amazing job that looks like it was made in Hollywood.

The biggest mystery, I think, is what comes next.

Now that we're democratized, media production is happening everywhere.

Things that took luck and wishes to get when I was a kid are now everywhere.

full of amazing possibilities

And I think about the filmmakers who have never had a voice, who have never had a voice before, and that's really exciting.

When I was giving a class or a talk, I would often say to would-be writers, "Here, write! Use your hands."

It costs nothing to write and you don't need anyone's permission

Now we can say, "Hey, make a movie!" There's nothing stopping you from making a movie with technology.

It's good enough, as good as those "right people" use it.

Communities controlled by privileged classes are never the best.

This is a great opportunity to see what other people are like. When I shot "Mission Impossible III," we had an amazing visual effects crew.

ILM did the visual effects, they were amazing, it was a dream of mine to work with them.

I'm going to show you a couple of scenes from the movie.

then this

Yeah I'm an explosion lover too

I'm going to show you my favorite visual effects in this movie.

A character played by Tom Cruise is waking up.

The villainous man caused it

Stick a gun in his nose and shoot a little capsule in his head so you can use it to kill him later.

waking up

when we shot this scene

The guy with the gun was British actor Eddie Marsan, a nice guy.

I learned one thing this early in my career: Don't hurt Tom's nose. (Laughter)

There are three things you shouldn't do. Number two is this.

Eddie with the gun is a great guy.

He was a really nice British guy, and he was like, "I'm sorry, I really don't want to hurt you."

I needed to show you better

It didn't work out the way I thought it would, so I had to figure out a way to do it.

I sat down and thought about what I was doing with that 8mm camera my grandfather gave me, and I realized that those hands didn't have to be Eddie's.

Tom's hands are fine

If Tom does it himself, he knows how to do it, so it doesn't hurt.

So I put makeup on Tom's hands to make them look like Eddie's hands.

And now I have that hand through Eddie's sleeve. I'll show you one more time. That's Tom's hand.

without asking for extra money

look again

Tom is there and wakes up, dazed and struggling

tom's hand tom's hand tom's hand lol

(Applause)

Hello (Applause)

That's why you don't need the best technology to make a movie work.

And in honor of my grandfather, I leave the mystery box unopened.

Thank you very much

(standing ovation)

I would like to talk to you about a new model of higher education that, once widespread, can raise the collective intelligence of millions of creative, driven people who would otherwise be left behind.

Look around the world and choose one place

Please pay attention there

You will find that people are pursuing higher education.

let's meet some of them

I'm Patrick

Patrick was born in Liberia into a family of 20 children.

During the civil war he and his family were forced to flee to Nigeria.

There, despite the circumstances, he graduated from high school with near-perfect grades.

He wanted to go on to higher education, but he was sent to South Africa to work because his family was living on the poverty line, and his family was living on the poverty line.

Patrick never gave up on his dream of higher education.

Late at night after work, he searched the internet for ways to study.

let's meet debbie

Debbie is from Florida

None of her parents, none of her siblings went to college.

She worked hard all her life, proud of the American dream, paying taxes and making ends meet every month, a dream that could only come true without higher education.

But Debbie has

I have no savings, she can't pay her tuition.

And you won't be able to quit your job

Meet Wael

Wael is from Syria

He's experienced firsthand the tragedies, the horrors and the failures that the country was forced into.

he believes in the power of education

He knew that if he could find a chance to get a higher education -- an opportunity to get ahead of everyone else -- he would have a better chance of surviving by turning the world upside down.

The system of higher education just didn't work for Patrick and Debbie Waell, just as millions of potential students, millions of high school graduates, millions of people who are eligible for higher education, millions of people who want to study, are inaccessible for a variety of reasons.

First, for economic reasons

college education is expensive we all know that

In much of the world, higher education is a tall order for the average citizen.

This is the biggest problem facing our society

Higher education has become the privilege of the few, not the right of all.

Second, for cultural reasons.

There are students who are eligible for tertiary education, who can afford it and want to study, but they can't because they are socially inept. Education is not a place for women.

This is the case, for example, with millions of women in Africa, who are denied access to higher education because of cultural barriers.

And third, UNESCO says that by 2025, 100 million students will be deprived of access to higher education simply because there aren't enough seats to accommodate them and the demand can't be met.

Even if they pass the placement test, they can't get an education because they don't have space for classes.

For these reasons, I created the University of the People. It is a non-profit, tuition-free, degree-granting university that is meant to be an alternative to a regular university and to create an alternative for those who have no other alternative. This alternative is affordable and at scale, disrupting the current education system, disrupting the current education system, and opening the gates of higher education to all eligible students, income, place of residence, and social esteem. nothing to do with

Patrick and Debbie Waell are just three examples out of 1,700 incoming students from 143 countries.

We -- (applause) -- thank you.

we didn't have to come up with something completely new

We just used the amazing power of the internet to figure out what was going wrong and spread the word about it.

We set out to build a model that could cut the cost of almost all higher education.

what we did is this

First, bricks and mortar cost money.

Regular universities have to spend money that virtual universities don't need.

We don't have to charge students for these expenses.

the expense does not exist

You don't have to worry about carrying capacity

There are no seat restrictions at the virtual university.

No one actually has to stand in the back of the auditorium.

Students don't need to buy textbooks Students don't need to buy textbooks

Thanks to the use of freely available materials and the generosity of professors to make their material accessible for free, we don't have to force students to buy textbooks.

All materials here are free

Even the professors who make up the largest sums of money on every university's balance sheet come to their students for free.

More than 3,000 of them are presidents and vice-chancellors of top-level universities like New York, Yale, Berkeley, and Oxford, and they're professors and academic advisors who are participating to help students.

Finally, trust in mutual learning among peers.

We encourage students from all over the world to interact and learn together using this wonderful pedagogical model, and it also reduces the time burden on professors with class assignments.

If the Internet creates a global village, a global community, this model could lead the way.

let me show you what we do

There are only two programs offered here, business administration and computer science, and these are the two programs that are most in demand around the world and the ones that help students get jobs the most.

Once students are admitted, they are placed in small classrooms of 20 to 30 students so that they can receive proper personal attention when needed.

And each nine-week course, they meet a whole new set of students from all over the world.

Every week, when they enter the classroom, they see the lecture notes for the week: reading assignments, homework assignments, and discussion questions, which are the core of learning.

Every week, all students must participate in classroom discussions and comment on what others have to say.

In this way we open up our students and develop positive attitudes towards different cultures.

By the end of the week, students take quizzes and submit homework, which are evaluated by their peers under the supervision of an instructor, earn points, and move on to the next week.

By the end of the course, you'll have to take the final exam, get your grades, and continue on to the next course.

We opened the gates of higher education to all qualified students.

Any student with a high school diploma, sufficient English proficiency, and an internet connection can study with us here.

We don't use audio materials or videos.

broadband is not required

Any student from any part of the world can study together here under any internet environment.

Tuition is free

The only thing students are required to pay for the exams is $100 per exam.

A full-time undergraduate student takes 40 courses and pays $1,000 a year -- $4,000 for the entire degree.

We offer a variety of scholarships for those who can't afford even this.

Our mission is to ensure that no one is left behind for financial reasons.

With 5,000 students in 2016, this model is economically sustainable.

Five years ago, it was a vision of the future.

today it became a reality

Last month, this model received its final academic endorsement.

The "University of the People" is now fully accredited.

(Applause) Thank you.

Now is the time to expand your business with this certification.

We have demonstrated the effectiveness of this model

I would encourage universities and, more importantly, governments in developing countries to repeat this model and ensure that the doors to higher education are open.

A new era is upon us, and in these times we will see the model of higher education as we know it today collapse, from a minority privilege to a basic right for all, affordable and accessible.

thank you

(applause)

One of the most humiliating words you can use to describe someone is, "He succumbed to the pressure."

I know that feeling too painfully

As a child, I was immersed in sports.

My main sport was soccer and I was a goalkeeper, the best and worst position on the field.

Because when you're a keeper, you get a special jersey, you can dominate glory when you stop a big shot, but you're disappointed when you score a goal.

Being a keeper puts a lot of pressure on you because all eyes are on you.

There's a game in high school that I still remember vividly.

I was a member of the California Select Team in the Olympic Candidate Development Program.

I had a great game...

Until you realize the coach of the USA national team is standing behind you.

In that moment everything changed

In less than a few seconds, I fell from the peak of my ability to the bottom.

The moment I knew I was being assessed not only changed how I played, but it forever changed how I thought about the mental side of human behavior.

All of a sudden, the movement of the ball seemed like it was in slow motion, and I was conscious of everything I was doing.

I missed the next shot, but luckily it didn't go into the goal.

But as luck would have it, I flipped the next shot into the goal

My team lost, the national team coach left

I couldn't win against the pressure of judging gazes

I'm sure most of us have experienced it at least once, because there are many occasions when we feel pressure in our daily lives, like taking an exam, giving a speech, making a proposal to a client, and what I would call a form of torture, an interview.

(Laughter) But the question remains, "Why?"

Why do we fail to perform under pressure?

It's inexplicable that even an athlete who spends so much time perfecting his physical technique would go through an experience like this.

What about the mental side?

i haven't spent that much time

This applies not just to sports, but to other fields as well.

When I take an exam or speak in public, I think, "I can do it," or "I'm doing great," but after that, there are times when I can't demonstrate my ability in the most important situations.

But if you think about it, most of the time, we don't practice in a real environment, and as a result, when people's eyes are all on us, we can't perform at our best.

But how is that possible?

My experience in that field and other important aspects of my life led me to cognitive science.

I wanted to know what we should do to make the most of our limitless potential.

I wanted to understand how we could use what we know about the brain and the mind to find the psychological methods that enable us to perform at our best.

So why?

Why do we fail to perform when we feel pressured?

I don't think many people are surprised to hear that they become anxious in stressful situations.

We worry about situations, about outcomes, about what other people think of us.

But what's surprising is that by focusing too much on anxiety, we prevent ourselves from succeeding.

Yes, we become too conscious of our actions.

When we feel compelled to perform, we try to control as much as we can the things that are better left out of our minds and let nature take its course, and as a result, we fail.

Imagine everyone running down the stairs

What do you think would happen if I asked you to think about how you use your knee?

You might hit the floor headfirst

Humans can't focus on too many things at once, so using a cell phone while driving is not a good idea.

And when you feel the pressure and you're afraid to do a good job, you try to control things that you might not be aware of.

As a result it fails

My research team called this phenomenon of over-consciousness "analysis paralysis" and studied it.

In one of them, I asked college football players to pay attention to movements that they would not normally pay attention to while dribbling.

I told them to be aware of which part of their foot is in contact with the ball.

As a result, I was able to show that when you pay attention to the step-by-step details of your play, you play slower and make more mistakes.

Under pressure, we worry about our ability to perform, and we try to force good results by controlling every detail of our actions.

but eventually it fails

In basketball, we call a player who doesn't miss a shot "unconscious."

Former San Antonio Spurs star Tim Duncan once said, "The more time I have to stop and think, the more I make mistakes."

George Balanchine, who was a great choreographer, is said to have advised his dancers, "Don't think, just dance."

Ironically, the more we try to do our best when we feel pressured, the more we control our actions in ways that lead to bad outcomes.

Then what should I do?

Given that we have a habit of being overly conscious, what should we do to be able to demonstrate our abilities when it matters?

The key part here is the front part of the brain above the eyeball called the prefrontal cortex, which normally helps us focus a lot.

We are often attracted to the wrong things.

So how to stop it?

It's a simple thing to do, but singing, or focusing on your little toe, as professional golfer Jack Nicklaus is said to have done, is an effective way to distract your mind from nasty overthinking.

It's also beneficial to practice in an environment that simulates the actual performance, and to minimize the difference between practice and the actual performance, so that you can get used to people's eyes.

This is also true in areas other than sports.

Whether you're studying for an exam or you have to give an important speech about pressure (Laughter), it's really important to get used to the situations that can happen in the real world.

When you take a test, close your book, set a time limit, practice drawing answers from memory, and when you give a speech, practice in front of an audience.

If you can't do that, you can practice in front of a video camera or a mirror.

Getting used to the production environment has a lot to do with whether we win or lose the pressure afterwards.

We've also found ways to eliminate the pesky anxiety and self-doubt that can occur in stressful situations.

Researchers say that writing down your thoughts and fears before a potentially stressful situation can clear your mind and reduce your chances of having those thoughts and fears in your life.

Just like waking up in the middle of the night and writing down the worries about what you have to do the next day or what you have to accomplish, you can go back to sleep.

This act of journaling and getting your thoughts down on paper reduces the chances of anxiety attacks and distractions later on in the real thing.

As a result, you'll be able to perform at your best right here.

So far, I've talked about what happens when you put shackles on yourself, and the tricks you can use to reach your true potential.

But let's not forget that it's not just ourselves that hold us back and lead us to failure, it's the environment around us that influences how well we handle pressure.

Our parents, our teachers, our coaches, our bosses, all of us influence whether or not we are the best at what we do.

Mathematics is a good example

That's right, as I said, it's math.

Many people have confessed their math frustrations and insecurities, like when they took a math test or when they had to calculate their tip at the checkout in front of a smart friend.

And we love to speak publicly about the times when we couldn't handle the pressure of mathematics.

It's rare to see educated people boast about how bad they are at reading, but there are plenty of people who boast that they're not good at math.

And unfortunately, in America, this trend is more common among girls than among boys.

To understand where this anxiety about math is coming from, my research team used fMRI (functional magnetic resonance imaging) to look inside the brains of people with math anxiety.

They found that mathematics phobia is associated with real-world sensations, such as pain.

And when people who are anxious about math are about to take a test -- not actually taking it, but just preparing for it -- the regions of the brain involved in the pain response are activated.

It's true that math can be a headache for some people.

But where does this math phobia come from?

In fact, math phobia is contagious from person to person.

When adults are worried about math, the kids around them start to worry.

Even in the first grade of elementary school, just by being in the same classroom with a teacher who isn't confident in math, children's math learning declines throughout the school year.

And this phenomenon is more prevalent in girls.

Children at this age tend to imitate adults of their own sex, and in America, 90 percent of elementary school teachers are women.

Of course, it's not just what happens in the classroom that matters.

Social media also plays a big part

Not too long ago, there was a Barbie doll on the market that would talk when you pulled the strings, and say, "I can't have enough clothes."

"Math class is hard"

And just a few years ago, a major retailer sold T-shirts for girls that said, "I'm too cute to do math."

And don't forget your parents

yeah i'm a parent

In fact, when parents who are insecure about their math skills help their kids with their math homework, their kids learn less math throughout the school year.

As one parent once said, "I judge my child's math homework in first grade to be worth one glass of wine or three."

(Laughter) When adults feel insecure about their math skills, it can be passed on to children, affecting their ability to handle pressure.

But just as we can put shackles on others, we can also remove them.

My research team has found that if parents and children are taught games and ways to make math fun -- for example, solving math problems instead of telling them fairy tales before bed -- telling fun stories not only improves their math attitudes, but their math performance throughout the grade.

Our environment is important

From classrooms to parents to the media, it makes all the difference in whether we win or lose the pressure.

It's been a while since that high school game, when I was a freshman in college.

I was taking a chemistry class in science school, and it just wasn't for me.

I thought I could do it because I studied hard for my first midterm exam, but my results were disappointing.

Out of 400 students, my grades were the lowest.

I thought I wouldn't graduate in science school, and I even considered dropping out of college.

But then I changed the way I studied.

I stopped studying alone and joined study sessions with my friends.At the end of the study session, we would close the book and ask each other questions.

I started practicing under stress.

If I had looked inside my brain during my first midterm exam, I would have probably seen the pain response that I see in people with mathematics phobias that I study.

You should have had that reaction when you studied under stress.

But when I walked into the hall for the final exam, my mind was calm, and as a result, I got one or two of the highest scores in my class.

The result was not only because I understood the content, but because I learned how to overcome my limitations at this point.

What's going on in our brains is so important, and knowing that can help us learn how to prepare ourselves and others for success, not just on the field, but in the boardroom and the classroom.

thank you

(applause)

look at this picture

do you understand somehow

I'm a molecular biologist, and something like this

I've seen a lot of model diagrams that represent cellular and molecular processes.

This picture shows something called clathrin-mediated endocytosis.

It's the process by which extracellular molecules are taken up inside the cell in coated vesicles like bubbles and become part of the cell.

But there's a problem with this painting, and most of it doesn't quite fit.

Many experiments and all kinds of scientists know what these molecules are, how they move around in cells, and how they operate in a very dynamic environment.

So I enlisted the help of Clathrin expert Thomas Kirkhausen to create a new model that would tell us everything.

So start outside the cell

looking inside the cell

Clathrin self-assembles into a soccer ball-like structure with a triskelion structure.

It touches the cell membrane, transforms it from cup-shaped to bubble-like vesicles, and binds to proteins outside the cell.

The bound proteins detach the vesicles from the cell membrane, and clathrin's job seems to be over. Then the proteins go inside the cells, making them yellow and orange, which is responsible for clathrin shedding.

These proteins are mostly reused These proteins are mostly reused

These processes were so tiny that even the best microscopes couldn't see them, so animations like this are really effective at visualizing hypothetical processes.

And here's another diagram, but it's a depiction of what the researchers imagined, where the HIV virus is moving in and out of the cell.

This is an oversimplification, far from being the cellular process that we now know.

You might be surprised, but these simple diagrams are the only way most biologists can visualize hypotheses at the molecular level.

Why?

Because it's very difficult to make movies of predicted molecular processes.

I've spent months in Hollywood learning 3D animation software, spending months working on one animation, and the problem is that researchers don't have that kind of time.

But it's well worth it

Nothing can convey more detailed and accurate information about molecular processes to the masses than animation.

Now, I'm working on a new project, "Science of HIV." I plan to animate the entire life cycle of the HIV virus at the molecular level, as accurately as possible.

The animation weaves together images of the virus, how it infects human cells, how it fights infection with treatments, and more from thousands of data points researchers have spent decades collecting.

What we've learned over the years is that animation is not only useful for communicating ideas, but it's also very useful for exploring hypotheses.

Most biologists still use pencil and paper to visualize the research process, but that's no longer enough to represent today's data.

Animation allows researchers to precisely flesh out their ideas.

A researcher studying the molecular structure of a neurodegenerative disease I've worked with in the past came up with an experiment that's directly related to an animation I made with him.

I believe that animation will change biology.

Through animation, we can change the way we engage as researchers, the way we explore data, and the way we teach in the classroom.

But for that to happen, we need more researchers to create animations, and to that end, we've worked with biologists, animators, and programmers to create a new free and open source software called Molecular Flipbook, which is just for biologists to create molecular animations.

It took researchers who had never used animation software 15 minutes to turn their research hypothesis into the first molecular animation.

We're also creating an online database where anyone can view, download, and post their own animations.

I am very happy to announce that a downloadable molecular animation software toolkit is now available in beta today.

Now that we're finally able to animate our models, I'm really excited about what biologists can do and what insights we can gain.

thank you

(applause)

This year Germany is celebrating the 25th anniversary of the peaceful revolution in East Germany.

In 1989, the communist regime fell, the Berlin Wall fell, and a year later, the German Democratic Republic (East Germany) and the Federal Republic of Germany (West Germany) united to form today's Germany.

Germany inherited many things from East Germany, including the old East German system, the Stasi, the secret police archives.

Only two years after the Stasi disbanded, its archives were made public, and historians like me began studying these documents to learn more about East German intelligence.

You've probably seen a movie called "Sonata for a Good Man."

This movie made the Stasi known all over the world. We live in an era where the words "espionage" and "eavesdropping" are on the front pages of newspapers, so I wanted to talk about what the Stasi actually did.

I'll begin by briefly describing the history of the Stasi, because understanding its self-concept is very important.

Its origins originate in Russia

In 1917, the Russian Communist Party established the All-Russian Extraordinary Committee against Counter-Revolution and Sabotage, commonly known as the Cheka.

It was headed by Felix Dzerzhinski.

The Cheka was used by the Communist Party as a way to terrorize the people and execute enemies in order to establish a regime.

later evolved into the better known KGB

Stasi officials worship the Cheka

He called himself a Chekist, and as you can see, his insignia looked just like that.

In fact, the Russian secret police created the Stasi and led it.

When the Red Army occupied East Germany in 1945, the organization quickly expanded, quickly began training German communists, and created its own secret police.

Now, in this hall where we are, in 1946, the East German ruling party was founded.

Five years later, the Stasi was formed, gradually taking on the dirty work of repression.

For example, the central prison built by Russia to hold political prisoners was taken over by the Stasi and used until the end of communism.

Have a look at this

In the early days, all the important formalities took place in the presence of the Russians.

But being a German known for being so efficient, the Stasi grew rapidly, and already in 1953 had more members than the German Gestapo, the Nazi secret police.

Every ten years that number doubles

In 1989, the Stasi had over 90,000 members.

So each person monitored 180 inhabitants, which was unprecedented in any other country.

At the head of this incredible organization was a man named Erich Mielke.

He controlled the Ministry of National Security for over 30 years.

He was a vigilant official - the one who murdered two policemen not far from here and took the Stasi for his personal property.

But what's so special about the Stasi?

First and foremost, it had tremendous power, because it combined several different roles into one organization.

First, the Stasi was an intelligence agency.

They used every means imaginable to covertly gather information, including tipping and tapping phone calls, including this photo.

They were active not only in East Germany, but all over the world.

Second, the Stasi was a secret police.

I could stand in front of people on street corners, arrest them, and imprison them in private prisons.

Thirdly, the Stasi also had a role like a prosecutor.

It had the right to initiate interim investigations and formally interrogate people.

Last but not least, the Stasi armed itself

More than 11,000 soldiers served as a "guard regiment"

It was founded to suppress protests and rebellions.

Because of this concentration of power, the Stasi was called "a state within a state."

Let's take a closer look at the tools the Stasi used

And remember, back then, neither the internet nor smartphones were invented.

The Stasi, of course, used all sorts of technical tools to study people.

The phones were bugged, including the West German Chancellor's phone, and the apartment was tapped.

Every day, 90,000 letters were opened by this machine.

The Stasi recorded every move of tens of thousands of people with specially trained spies and hidden cameras.

In this photo, you can see me as a young man standing in front of the building where we are now, and it was taken by a Stasi spy.

The Stasi even collected people's odors.

A sample preserved in a sealed jar was found after the peaceful revolution.

Each such mission was carried out by a highly specialized department.

The wiretapping was completely independent of the department that censored the letters, and there was a reason for this, because when a spy quits the Stasi, he knows very little information.

This contrasts with the Snowden case, for example.

On the other hand, the specialization of organizational vertical roles was also important in order to prevent any empathy for the object of observation.

The spies who were after me didn't know who I was or why they were after me.

In fact, I brought forbidden books from the West into East Germany.

But the Stasi was notable for its emphasis on spies, people who secretly inform organizations.

So-called informal personnel were of the utmost importance to the Minister of State Security.

Since 1975, 200,000 people, more than 1% of the population, have worked with the Stasi all the time.

In some ways, the minister's approach made sense, because technical devices can only record what people do, but informants and spies can report what people are up to and think.

That's why the Stasi hired so many informants.

The way they were hired and "educated," as they were called, was very sophisticated.

Not far from here was the University of the Stasi, where methodologies for officials were devised and taught.

These guidelines detail the step-by-step process of betraying someone you know.

We often hear about people being pressured to become informants, but that's often not true.

An effective informer is someone who is willing to give you the information you want.

Those who cooperated with the Stasi usually had political convictions and rewards.

Officials are trying to make personal connections with their informers, and to be honest, as the Stasi example shows, it's not that hard to get people to betray you.

Some, like Ibrahim Boehme, were the head of the East German dissidents who were allied with the Stasi.

He was the leader of the peaceful revolution of 1989 and was on the verge of being elected as the first free East German chancellor until it was revealed that he was an informer.

The spy network was really extensive.

Almost every organization had many informants in the churches and even in West Germany.

Once upon a time, I said to one of the Stasi's leading officials, "If you send me an informant, I'm sure they'll find out."

And he replied, "Nobody sent it.

I just used the people around you."

In fact, two of my best friends had tipped off to the Stasi.

Not only in my case, the informant was very close.

Take another dissident leader, Vera Langsfeld, whose husband was spying on her.

There have been cases of famous authors being betrayed by their brothers.

This reminds me of George Orwell's novel 1984, where the only seemingly credible person was an informer.

So why did the Stasi store all the information in the archives?

The main purpose was to control society

The Stasi chief used to say, "Find out who's who," which means, "Find out who's thinking what."

He didn't wait for someone to raise an anti-establishment signal.

They wanted to know in advance who was thinking and what they were planning.

East Germans knew, of course, that they were surrounded by informants in a totalitarian regime that created a pervasive state of mistrust and fear, which was the most important means of oppressing the people in any dictatorship.

Therefore, not many people in East Germany were willing to stand up to the communist regime.

Against such people, the Stasi often took very cruel measures.

It was called "Cherzetzn" and was described in another guideline.

It's hard to translate exactly what it means, but it comes from the meaning of "biodegradation."

But this is actually very accurate in what it means.

The goal is to covertly undermine people's self-confidence, for example, by tarnishing their reputations, making them fail at work, or destroying relationships.

You could say that East Germany was a very modern tyranny.

The Stasi didn't want to arrest all the dissidents.

We made it a priority to paralyze them, which we were able to do because we had a lot of personal information and had access to many organizations.

Detaining people was only a last resort.

For detention, the Stasi had 17 remand prisons, one in each state.

Here the Stasi even developed a very modern means of restraint.

The interrogating officials usually didn't torture the prisoners.

Instead, we used sophisticated methods of psychological pressure, centered around total isolation.

Almost all prisoners were relegated to testimony.

If you visit the old Stasi prison in Berlin and take a guided tour led by a former political prisoner, they'll explain how this was done.

There is one more question to answer: if the Stasi worked so well, why did the Communist regime collapse?

First of all, in 1989, the East German leadership didn't know what to do with the widespread protests.

I was particularly puzzled by the more liberal policies of the Soviet Union, the birthplace of socialism.

In addition, the regime relied on loans from West Germany.

Therefore, no orders were given to the Stasi to suppress the rebellion.

Second, I couldn't criticize the communist ideology.

Instead, their leaders were bound by the belief that socialism was perfect, and of course the Stasi had to follow suit.

As a result, the regime was unable to identify the real problem from the data they had collected, and thus was unable to solve the problem.

And finally, the Stasi died because of the organizational structure that protected them.

The end of the Stasi was tragic, because in the course of the peaceful revolution the officials had to concentrate on only one thing: to destroy the documents they had been writing for decades.

Fortunately, human rights defenders stopped this.

That's why today, by looking at the files, we can better understand how the spy state works.

Thank you

(Applause) Bruno Giussani: Thank you, thank you very much.

Mr. Hubatas, I have a few questions for you.

Says 'NSA is akin to the Stasi'

You mentioned earlier about the spies and informers in East Germany, the neighboring country of my homeland (Switzerland).

Are these two stories directly related or not?

As a historian, what do you think about this?

Knabe: I think it needs to be said from different points of view.

First of all, I believe that the same act of collecting data has different purposes.

Is it to protect the people from terrorist attacks, or is it to suppress the people?

this is fundamentally different

But on the other hand, even in democratic societies, these tools can be abused, and we have to be careful to prevent them, and intelligence agencies have to follow the rules.

And the third point is that we are very happy to be in a democracy, while Russia and China are probably doing the same thing, but nobody talks about it, because they can't do that.

(Applause) Last July, when the Stasi case was first exposed, you filed a criminal complaint in a German court. Why?

This is the second point I mentioned earlier, especially in a democracy, I believe that the rules are for everyone.

It's a rule for everyone, no organization should break it.

German criminal law says that wiretapping cannot be done without the permission of a court.

Luckily, it's spelled out in Germany's criminal code, so if it's not enforced, it should be investigated. It took a long time for German prosecutors to start investigating this case, with Chancellor Angela Merkel being the first, but no other people in the country have been investigated.

I wouldn't be surprised. (Applause) -- after hearing you.

From the outside, from the perspective of people who don't live in Germany, the Germans should act stronger and faster.

But it wasn't until it was revealed that Chancellor Angela Merkel was being wiretapped that people reacted. Why?

It's proof that the public feels safe in German democracy.

Without fear of being arrested, when you leave the hall after this conference, no one expects the secret police to stand in their way and arrest them.

So I think that's a good sign.

The people are not as afraid as they used to be

But of course, public authorities would have a duty to deter illegal activity, whether in Germany or elsewhere.

This is my last personal question.

In Germany, there was debate about granting asylum to Edward Snowden.

Do you agree or disagree with this?

This is a tough question, but since you asked me, I'll be honest with you, and I think it's okay to grant asylum, because he was so brave, he sacrificed his life, his family, everything.

I think something should be done for these people, especially if you look back at Germany's history, and many people fled the country and sought asylum, but they didn't get it, so granting Snowden asylum is a good thing.

(Applause) Mr. Juvetas, thank you very much.

When I accepted to be on TED, I didn't know if I should speak or sing.

But when I was told that the topic was "words," I thought I had to say something for a moment.

i have a problem

it's not the worst thing in the world

fine

not tense

I know there are other people out there with much more severe disabilities, but for me, words and music go hand in hand through one thing.

Through that I have a stutter

It may seem strange that I spend so much of my life on stage.

Some of you may think that I'm comfortable in public, that I'm talking to you and that I'm feeling at home here.

But the truth is, all my life, including this moment, I've been living in fear of speaking in front of people.

It's a whole different thing to sing in front of people. (Laughter) But you'll get used to it in no time.

I've never really spoken to you about this so clearly.

I think it's because I've always lived with the hope that when I grow up, I'll stop stuttering.

When I grow up, I think I'll be able to speak French, or when I grow up, I'll be able to manage money, or when I grow up, I'll be able to stutter.

(Laughter) So now I can talk about this, because I've gotten this far, which means I'm 28 years old.

I'm sure you're big enough

(Laughter) And I'm a grown woman who's lived her life as a performer and has a speech impediment.

So I think it's better to tell the truth

There are some interesting things about stuttering

The worst thing that could happen to me is meeting another stutterer.

(Laughter) It happened in Hamburg, and the man I met at the time said, "Hello, Bobobo, my name is Joe."

Imagine my horror when I thought he was being made fun of.

(Laughter) People think I'm drunk all the time.

(Laughter) Sometimes people wonder if I've forgotten my name.

I think you want to say something very strange. Proper nouns are the worst.

If you try to use the word "Wednesday" in a sentence, you end up with something like this. Because you feel stuck or something else, you change it to "tomorrow," or to something else, like "the day after Tuesday."

It's nasty, but you just have to get through it, because so many times I've honed this loophole speech and changed my words at the very last minute to trick my brain.

But you can't change a person's name

(Laughter) When I used to sing a lot of jazz, I used to work with a pianist named Steve.

As you can probably guess, the S and T sounds, together or separately, are nothing but my weaknesses.

But I had to introduce the band while doing this jazz improvisation, and when I was walking around Steve, I would often find my voice choking on "Stu."

It made me feel a little awkward and uncomfortable, and it completely ruined the atmosphere.

So after a few iterations of this, Steve was happy to be "Sive." And that's how we got through it. (Laughter) I also had various treatments.

I put it all together and say it, like a kindergarten teacher sings, and it sounds very calm, like I took a lot of tranquilizers.

But I'm really doing it I'm doing it

I use it when I have to be on a TV show or have a radio interview, because saving airtime is the most important thing.

(Laughter) This is how I survive for work.

But as an artist who feels that his work is simply a source of honesty and truthfulness, I often feel like I'm cheating.

So before I sing, I want to tell you what singing means to me

It's more than making a nice sound, and it's more than making a nice song.

It's more than expressing feelings and being understood.

More than make me feel what I'm feeling

It's not about mythology or making yourself a myth.

Somehow, through a miraculous synaptic function in the human brain, we never stutter when we sing.

And when I was young, it was a very effective therapy for me, singing, and I sang a lot.

that's why i'm here today

(Applause) Thank you.

Singing is a sweet consolation to me

I feel like I can become fluent only when I sing

Only then will what comes out of my mouth become exactly what I want to say.

(Laughter) So I think this is a TED Talk, but I'm going to do a TED Sing.

This is a song I made last year

thank you very much thank you

(Applause) (Piano) ♪ I may be beautiful ♪ ♪ My nose is ♪ ♪ just a little too high ♪ ♪ For my face ♪ ♪ I may be dreamy ♪ ♪ My dreams are ♪ ♪ just a little too big ♪ ♪ For me now ♪ ♪ I could be an angel ♪ ♪ My angel's circle ♪ ♪ In your grace ♪ ♪ Even that fades ♪ ♪ I'm Trump ♪ ♪ If you put out an ace ♪ ♪ I'm stupid ♪ ♪ I want to know ♪ ♪ Is there hope even at the bottom? ♪ ♪ I want to know ♪ ♪ All I know ♪ ♪ Will you take it from me ♪ ♪ Will I be able to choose or not let it go ♪ ♪ I'll wait forever ♪ ♪ But my hometown is ♪ ♪ a little too far ♪ ♪ From this place ♪ ♪ I swear I'll try ♪ ♪ If I go slowly ♪ ♪ When I walk at your pace ♪ ♪ Do you look beautiful in the rain? ♪ ♪ It's because of someone else who's so cute ♪ ♪ I look so ugly ♪ ♪ I don't know why ♪ ♪ What's the matter ♪ ♪ I want you to tell me ♪ ♪ There's hope in the depths

You probably don't know me, but I'm one of the top 0.01 percent of people you hear about everywhere, which is unmistakably Plutocrat.

I want to speak to my fellow ultra-rich people today, because I think it's time for us ultra-rich people to talk.

Like many super-rich people, I'm proud and unapologetic to be a capitalist.

I have individually, co-founded and funded over 30 companies in a variety of industries.

I was the first non-family investor in Amazon.

I co-founded a company called Aquantive, which I sold to Microsoft for $6.4 billion.

owns a bank with a friend

I told you this because -- (Laughter) you wouldn't believe it, would you?

I tell you this because I want to tell you that my life is like that of many other super-rich people.

I take capitalism and business in the big picture, and I make an insane amount of profit from it, and I live in ways you can't even imagine: multiple homes, yachts, private planes, and much more.

But let's be honest, I'm not the brightest.

Not even the hardest working person

Student days were ordinary

no technology at all

i can't write a program

Indeed, my success is the result of extraordinary luck in birth, circumstance and timing.

But I have some strengths

One is that you have a very strong ability to take risks, and the other is that you have a great intuition and insight that can tell you what is going to happen in the future.

So today, do you care how I see the future?

You can see the iron rake, the kind of farming tool that an angry mob holds, because we, the super-rich, live in a state of unimaginable greed, which keeps us further and further away from the 99 percent of the general public.

In 1980, the top 1% of Americans accounted for 8% of the national income, compared to 18% for the bottom 50% at the time.

Now, 30 years later, the top 1% make up over 20% of the national income, and the bottom 50% make up 12-13%.

If this trend continues, over the next 30 years, the top 1% will account for over 30% of national income, while the bottom 50% will account for only 6%.

You see, the problem isn't inequality per se.

A certain degree of inequality is necessary in a highly functioning capitalist democracy.

The problem is that inequality today is at an all-time high, and it's getting worse every day.

And if we continue to concentrate wealth, power, and income in the hands of a handful of super-rich, our society will transform from capitalist democracy to neo-feudalism, like France in the 18th century.

It's pre-revolutionary France when the people with the farm implements revolted.

I have a message for all the uber-rich and millionaires like me, the people who live in luxury in the bubble world: Wake up.

wake up the end will come

If we don't do anything about the blatant economic inequality in this society, the people will come to attack us. In a free and open society, the widening economic inequality cannot continue for long.

There is no example that has continued in the past

Extremely unequal societies are accompanied by police states and riots.

If we don't take action, a rebellion will overtake us.

It's not a matter of chance, it's a matter of time

When the time comes, it's going to be terrible for everyone, but it's especially bad for us super-rich.

Sounds like a liberal honor student.

No, I'm not making an ethical argument that economic inequality is bad.

My point is that this growing economic inequality is absurd and ultimately self-defeating.

Growing inequality not only makes us more vulnerable to attack by the public, but it also hurts businesses.

A role model for us rich people would be Henry Ford.

Ford introduced the famous "five-dollar-a-day" plan to double wages, which was common at the time, and his feat was not only to make factories more productive, but to convert the poor and exploited automakers into a growing middle class who could afford the goods they made.

Ford had an intuition that, as we now recognize, the economy is best thought of as an ecosystem, and it has the same characteristics as the natural cyclical system, and the economy also has a cyclical system between businesses and customers.

Wage increases lead to demand, demand leads to employment, which in turn leads to higher wages, higher demand and higher profits. This virtuous cycle is exactly what the economic recovery is lacking today.

So we need to move away from trickle-down policies, which are strong on both parties, and adopt what I call the "middle-out economy."

A middle-out economy rejects the neoclassical economic view that economies are efficient, linear, mechanical, and therefore tend towards equilibrium and fairness, and adopts a 21st-century mindset: that economies are complex, adaptive, ecological, tend to go in the opposite direction to equilibrium and fairness, to inequality, far from being efficient, but effective if well managed.

This 21st-century perspective makes it very clear that capitalism does not work because of the efficient distribution of existing resources.

Capitalism works by creating new solutions to human problems.

The nature of capitalism is that it's a system that evolves to find solutions.

People who solve other people's problems are rewarded

Clearly, the difference between a poor and affluent society is the extent to which it has produced solutions in the form of production for the people who live there.

The sum of the solutions that our society has is the sum of our prosperity, and that's why companies like Google, Amazon, Microsoft, Apple, and the entrepreneurs who built them have done so much to make our country prosperous.

This 21st-century perspective also makes it clear that the best way to understand economic growth is by the rate at which we solve the problem.

But that rate depends on the number of people who solve problems -- how many diverse people we have who are capable of solving problems -- and how many of our citizens are willing to participate as entrepreneurs who can provide solutions and as consumers who buy those solutions.

But this maximization of participation doesn't just happen by chance.

it doesn't happen naturally

It takes effort and investment, which is why all the most prosperous capitalist democracies are characterized by massive investments in the middle class and the infrastructure that depends on them.

We, the super-rich, need to get out of this trickle-down economy, where the richer we get, the more people get rich.

The trickle-down theory is wrong, it can't be.

I earn a thousand times the average wage, but I don't shop a thousand times more, right?

I bought two of these trousers. My partner, Mike, calls them "executive trousers."

I can buy 2,000 of these, but there's no point in buying them, right? (Laughter) The number of times I go to the barber

I don't eat out that often

No amount of super-rich amassed wealth can ever drive a nation-wide economy.

Only a growing middle class will make that possible.

"I can't help it," my super-rich friends might say.

It's a different time than it was in Henry Ford's time.

there are things you can't do

but it might be possible

On June 19th, 2013, Bloomberg published an article I wrote called "The Capitalist Theory of a $15 Minimum Wage."

Some of the smart people at Forbes magazine have some diehard fans of mine, and they called me "A Ridiculous Proposal by Nick Hanauer."

But just 350 days after that article was published, Seattle Mayor Ed Murray passed into law an ordinance raising the minimum wage in Seattle to $15 an hour, more than double the common federal wage of $7.25.

Any sensible person would wonder why this happened.

And that's because, together, we've reassured middle-class people that they are the source of growth and prosperity in capitalist economies.

It reminded me that the more money workers have, the more companies will have more customers and the need to hire more people.

It reminded us that when companies pay workers a living wage, taxpayers don't have to pay for food stamps, medical assistance, rent subsidies, and other welfare programs that workers need.

We reminded them that low-wage workers pay very poor taxes, and that if all companies raised the minimum wage, all companies would benefit and there would be more competition.

Now, the standard counterargument here is that raising the minimum wage will increase unemployment.

Politicians, when they repeat the trickle-down plan, they say, "What happens when labor costs go up? There are fewer jobs."

do you think it's true?

I have conflicting evidence

Since 1980, CEO wages in our country have gone from 30 to 500 times the average wage.

This is the actual increase in labor costs

Moreover, as far as I know, no company has outsourced, automated, or moved the CEO role to China.

In fact, it looks like we're hiring more CEOs and executives than ever before.

So do tech workers and financial services workers, who earn many times more than the average wage, but their employment is increasing.

Most people would think that a $15 minimum wage is an insane, risky economic experiment.

we don't think so

We see Seattle's $15 minimum wage law as a way to maintain a logical economic policy.

This will allow our city to beat your city.

Because, you know, Washington already has the highest minimum wage in the nation.

The hourly wage here is $9.32, which is 30% more than the federal minimum wage of $7.25, but importantly, it's 427% of the federal minimum wage of $2.13 for tipped occupations.

If trickle-down proponents were right, Washington would have a lot of unemployed people.

Seattle would have sunk

But Seattle is the fastest growing big city in the country.

Washington is growing more small business jobs than any other major state.

Seattle's restaurant business is booming.

The reason for this is that the principle of capitalism is that when workers have more money, businesses have more customers and need more workers.

If restaurants pay their employees to let them eat out, that's good news for the restaurant business.

It's a good story, although some restaurateurs don't seem to think so.

Easier said than done?

of course it is

different mechanics at work

But can we stop thinking that if low-wage workers earn a little more, unemployment will skyrocket and the economy will collapse?

there is no such evidence

The worst thing about trickle-down economics isn't its claim that if the rich get richer, everyone will be happier.

Those who oppose raising the minimum wage argue that it's bad for the economy for the poor to get rich.

that's nonsense

Let's stop the rhetoric that me and other super-rich people built our country.

We super-rich know, and we don't admit it, that if we were born anywhere else outside of the United States of America, we'd be like those people who stand barefoot on a dirt road and sell fruit.

It doesn't matter if you have good entrepreneurs in the poorest neighborhoods.

It's all about how much purchasing power the entrepreneur's customers have.

So let me introduce you to what I call "new capitalism," a new form of economy, a new form of politics.

Let's accept that capitalism overwhelms other institutions, and that it works better when more people are involved, be it entrepreneurs or customers.

Let's reduce the size of government at all costs, but not by cutting welfare, but so that workers get enough wages so they don't need protection.

Let's invest heavily in the middle class to make our economy fairer and more inclusive. Fairer means truly competitive, and truly competitive means more capable of creating solutions to humanity's problems, which is the force that drives growth and prosperity.

There is no better social technology that humankind has produced for prosperity in society than well-managed capitalism. But capitalism, because of its fundamental dynamics of proliferating complex systems, is inevitably prone to inequality, wealth concentration and bankruptcy.

The job of a democracy is to maximize public engagement, to bring prosperity instead of concentrating money in the hands of a few.

Politics can only bring prosperity and growth by creating the conditions for both entrepreneurs and their customers to prosper.

Aligning power between capitalists like me and workers is not bad news for capitalism.

it is essential

A reasonable minimum wage, affordable health care, paid sick leave, and the advanced tax system needed to fund the critical infrastructure needed by the middle class, like education and R&D, these are the essential tools that any successful capitalist should be willing to use to grow, because no one benefits them more than we do.

I'm sure you, taking what many economists say, assume that economics is an objective science.

I don't think so. I believe that economics is also a tool that humans use to reinforce and encode our social and ethical preferences and biases about status and power. That's why uber-rich people like myself have always wanted stories that would convince other people why our position is ethically correct and good for everyone. It's going to lead to growth, but investing in you will inflate our debt and bankrupt our country, and things that concern us don't concern you.

For thousands of years, these stories were called the priesthood.

To this day, it's a trickle-down economy.

None of this is clearly selfish no matter who sees it

We uber-rich need to understand that the United States of America made us, we didn't make the country. Middle-class growth is the source of prosperity in a capitalist economy, not the result of prosperity.

And we must never forget that even the most talented of us, in the worst of circumstances, stand barefoot on the dirt road selling fruit.

To my uber-rich fellows, it feels like it's time for us to recommit ourselves to a new, more inclusive, more effective new capitalism for our country that will ensure America's economy remains the most vibrant and prosperous in the world for many years to come.

Let's protect our own future and the future of our children and grandchildren.

Or you can do nothing and hide in the posh life and education of the upper classes and play in private planes and yachts -- and it's fun -- and wait for the popular rebellion.

thank you

(applause)

We live in a world where data is collected 365 days a year, 7 days a week, 24 hours a day.

This data is collected by people called front desk specialists.

The department store you frequent has a salesperson, the grocery store has a cashier, the hospital has a patient registry, and the last movie theater you went to had someone who sold you tickets.

They casually ask, "Can I have your zip code?"

Or "Would you like to use a drug discount card?"

It's all about providing data

But when you ask a slightly more complicated question, the conversation becomes a little more complicated.

let's tell a story

Once upon a time there was a woman named Margaret.

She has nearly 20 years of experience as a front desk specialist.

At that time, she never -- never really -- asked her patients about their gender, their race, their ethnicity.

Because Margaret knows just by looking.

I see

She can tell if she's a boy or a girl, if she's colored or if she's American.

Only those categories exist in her mind.

The big day comes when her nagging boss invites her to a meeting that changes everything, and says, "You have to ask questions to identify each patient."

Bosses represent 6 genders, 8 races and over 100 populations.

And Margaret is stunned

I was so offended

I ran to HR to see if I was entitled to early retirement.

And she ended the story by saying, "My nagging boss is calling a meeting that changes everything. Food, food... didn't even bring, didn't even bring..."

(Laughter) (Applause) (Applause) You have to bring food to a meeting like this.

(Laughter) Anyway

(Laughter) This is an example in healthcare, but of course every business collects data in some way.

True story, when I was about to send money

A customer service representative asked if you were born in the United States.

I hesitated to answer the question, she started betraying the company she worked for before she realized why I hesitated.

I said, "Miss, you're being silly, but the company wants you to listen."

(Laughter) The way she confided was like, "Miss, why?

Why are companies asking this question?

Do you want me to deport you? ”

(Laughter) But I had to show you another face: me as a professional reading poet.

It's me who understands that Margaret-likes are everywhere.

Good people, maybe even good employees, lack the ability to ask the right questions to ask, which unfortunately makes her look bad, and worse, the business itself looks even worse than she is.

I didn't know who I was

No way, the woman who's literally going to give a TED Talk and use her as an example.

You can't imagine

(Applause) Unfortunately, people tend to refuse to answer questions because they feel that the information they provide is being used to discriminate against them, and it's all because of the way the information is presented.

This doesn't give good data

We all know the problems bad data causes.

Poor data wastes time, costs money, and wastes resources.

Unfortunately, when you have bad data, you waste a lot of things, because you have health inequalities, you have social determinants of health, you have infant mortality, and all of these analyzes depend on the data that's collected, so having bad data doesn't solve the problem.

Underprivileged people are unlucky and underprivileged because the data we use is outdated, or it's not good at all, or we don't have it at all.

Wouldn't it be great if people like Margaret and the bank wire customer service agent had the skill to collect data with compassionate care?

Let me explain what it means to be "graced"

Each line should start with G.R.A.C.E.D.

G: Engage front desk specialists R: Make them aware of the role they play A: And hold them accountable for data accuracy C: To let people know why data collection is important E: To get the education they need D: To be considerate and considerate every time they respond

(Applause) I'm an artist.

What happens to me is that when I create something artistic, I also awaken the mentor within me.

So I've developed the previous explanation into a rich training program, "I'm G.R.A.C.E.D.

When I went to the Equity Consultation Office to start my career as a front desk specialist, I was like, "So you're asking that question?"

And then everything turned into a bright light, and I remembered what I had asked and talked to people about, calling people the wrong gender, calling them the wrong race, calling them the wrong ethnicity, creating an atmosphere of hostility, making people feel bad and annoyed at my lack of skill.

There was computer training, but unfortunately it didn't help the situation.

About asking questions, I asked questions and got no answers.

You go to the computer and say, "What am I going to do when this happens?"

Then the computer...

Silent, because the computer can't answer.

(Laughter) So what's important is that you have someone trained to guide you in those situations and tell you what to do.

When I created the "I'm G.R.A.C.E.D." nurturing program, I created it not only from my memorable experiences, but also from my beliefs.

In order to create a space where people can have open conversations with peace of mind, I sought an educational design for the training program.

I wanted to talk about prejudice, and prejudice can be unconscious, conscious, or behavioral.

When you engage with questioning people, you can challenge their way of thinking and change their attitudes.

Now, the data available at the front desk can be used in research to find cures and close inequalities.

Now, teaching people to change gradually is always a better way to change than shocking them to change.

People are more likely to provide information when they are treated with respect by knowledgeable staff.

You don't have to be a statistician to understand the power and purpose of data, but you have to treat people with respect and be considerate and considerate.

When you acquire such skills, you take responsibility for empowering someone else.

Most importantly, humans should be the ones who teach humans how to communicate with other humans.

(Applause) If you're planning to go to work and attend a conference that changes everything. (Laughter) Remember Margaret.

And don't forget food, food, food...

thank you

(Applause) (Cheers) Thank you.

(applause)

When I was a child, I loved the information obtained from data and numbers When I was a child, I loved the information obtained from data and numbers When I was a child, I loved the information obtained from data and numbers

So I didn't want my parents to lie with numbers, so I didn't want my parents to lie with numbers.

"Talishia, how many times do I have to say it? It's already the 1000th time."

No, Dad, it's the 17th time. It's not my fault that it happened twice.

I wanted to know what people hide with numbers I wanted to know what people hide with numbers

As a statistician, I want you to show me the data so that I can judge You show me the data so that I can judge

I had my third child with my husband, Donald I had my third child with my husband, Donald, and I was 41 and a half weeks pregnant and past my due date.

Statistically speaking, I'd say it's within the 95 percent confidence interval. (Laughter)

I'd say it's within the 95 percent confidence interval. (Laughter) At this stage, every few days, you need to have a fetal stress test.

You don't see your own doctor, you see a doctor who happens to be in the hospital during working hours.

20 minutes into the stress test, the doctor comes in and says, 20 minutes into the stress test, the doctor comes in and says, ``The fetus is under stress.

Now, as a statistician, what would I say?

"Show me the data!"

So the doctor said, the fetal heart rate was in the normal range until 18 minutes, then dropped, and in the last two minutes it was almost like the mother's heart rate.

I moved a little bit, so you know, I have to stay still during the measurement, but at 41 weeks, even 20 minutes is tough.

Maybe the baby was moving around.”

But the doctor said, "I don't want to risk it."

so i said

"If I was 36 weeks pregnant and the same data came out-"If I was 36 weeks pregnant and the same data came out-

Do you recommend induced labor? ”

"No, you'll have to wait until 38 weeks, but you're almost 42 weeks - there's no reason to keep the fetus in your womb. Get ready for the hospital room."

"Then why don't you try it again?

I can get more data-

I'm doing my best for 20 minutes, so I'm still

You can take the average of the two and find out what's going on."

My wife and I also feel the same way.

So the doctor also said, "If you miss your due date, you're twice as likely to have a miscarriage. Get a room."

What would I say as a statistician

"Show me that data!"

If you're going to talk about probability, I'm just doing probability research every day.

Let's have a thorough discussion (lol) Let's have a thorough discussion (lol)

"Okay, do you mean the miscarriage rate will double from 30% to 60%?

"Okay, do you mean the miscarriage rate will double from 30% to 60%?

what is the number? ”

"It's not that far, but it doubles the odds - we just want the best for the baby."

I won't flinch, attack from another angle

"Of 1000 pregnant women - how many will miscarry just before their due date?" How many will have a miscarriage just before their due date? ”

The doctor looks up and looks at us and says it's about 1 in 1000.

“So out of 1,000 pregnant women — how many miscarry right after their due date?”

"About two." (Laughter) "That means my chance of miscarriage goes up from 0.1 to 0.2%." "That means my chance of miscarriage goes up from 0.1 to 0.2%."

This data doesn't convince me that induction is necessary at this point.

Finally, I said, "To be honest, I don't think my due date is accurate."

(Laughter) The doctors were surprised and confused by this.

(Laughter) I ended up not induced labor and went home that day.

I had to sign a waiver form.

I'm not saying don't listen to your doctor, because my first child was induced at 38 weeks, and I had low cervical mucus.

I am not an opponent of medical intervention.

So how could we say no with such certainty that day?

Because we had data that showed different results.

My husband and I have been collecting records of my temperature fluctuations for six years.

I showed a different basis from the doctor's judgment I showed a different basis from the doctor's judgment

In fact, it can be traced back almost exactly to the date of fertilization.

(Laughter) This will work for your child's wedding speech. (Laughter) "Yeah, I remember it like it was yesterday.

When I met your father that day, I was in a high temperature period of 37 degrees Celsius.

The reason I walked out of the hospital that day with confidence was because I was collecting data.

So what does this data look like?

This is a standard chart of waking body temperature for a woman during her menstrual cycle. A standard chart of waking body temperature.

From the beginning of one menstrual cycle to the beginning of the next cycle From the beginning of one menstrual cycle to the beginning of the next cycle

You can see that temperature is not random.

So obviously there's a pattern, low temperature at the beginning of the cycle -- there's a clear pattern -- low temperature at the beginning of the cycle -- it jumps here, and it's hot at the end of the cycle.

What is going on here?

What does this data tell us?

At the beginning of the cycle, the hormone estrogen predominates, and estrogen has the effect of lowering body temperature.

Ovulation releases an egg and increases progesterone.

Body temperature rises to receive fertilized egg Body temperature rises to receive fertilized egg

As for why the temperature rises-

Think about why birds sit on eggs.

Think about why birds sit on eggs.

It's to warm the eggs It's to warm the eggs

That's what happens in a woman's body month after month. That's what happens in a woman's body month after month.

And if you're not pregnant -- the estrogen rises again and the cycle starts all over again.

But if you're pregnant, sometimes the temperature goes up from there and stays high for nine months.

That's why pregnant women tend to sweat and get hot (laughs).

This is a drawing I made three or four years ago.

I'm really excited about this drawing

Your body temperature rises from a low temperature state for about five days. Five days is the time it takes for the fertilized egg to pass through the fallopian tube and implant.

When the temperature changed for the second time, the pregnancy test confirmed that I had my first child. I was very happy. The pregnancy test confirmed that I had my first child.

But a few days later, I had a small bleed, then a lot more, so I knew it was an early miscarriage.

If I hadn't taken my temperature -- I would have thought that my period was late this month.

If you have a problem with your pregnancy, you have data that you can use.

You can ask how to prevent this problem

And this isn't just about temperature or pregnancy/birth, and this isn't just about temperature or pregnancy/birth, but the data tell us a lot about the body.

Taking your temperature, for example, can tell you the state of your thyroid. Taking your temperature, for example, can tell you the state of your thyroid.

the thyroid acts like a thermoregulator

Set the thermostat to adjust to the optimum home temperature

When the house gets too cold, it kicks in and says, "I have to turn on the heater to warm it up."

When it gets too hot, it moves by saying, "Let's turn on the air conditioner and cool down."

This is the function of the thyroid gland in the body.

Thyroid tries to maintain optimal body temperature Thyroid tries to maintain optimal body temperature

When the temperature is low, the thyroid will do its best to "warm up the body"

Cools when the temperature rises

What happens when this thyroid doesn't work well?

If it doesn't work, the effect will be on the temperature If it doesn't work, the effect will be on the temperature Lower than normal or very unstable

So by collecting data, we can get information about the thyroid. So by collecting data, we can get information about the thyroid.

If you have a thyroid problem and you go to the hospital -- they will check your blood for thyrotropin levels.

But the problem with this test is that it doesn't tell you how active the hormones are in your body.

Even if you have enough hormones, it may not actually help you regulate your body temperature.

So just by recording your temperature every day, you can get information about your thyroid status.

What should I do if I don't like taking my temperature every day?

I personally recommend that you take measurements, but if you don't like it, there are plenty of other data you can take.

Blood pressure, weight, I don't think anyone wants to weigh themselves every day. (Laughter) I don't think anyone wants to weigh themselves every day.

One day my husband woke me up in the middle of the night, "Honey, I can't breathe through my nose."

I turned over to my husband and asked, "Can you breathe through your mouth?"

(Laughter) "I can, but I can't breathe through my nose!"

So, being a good wife, I rushed my husband to the ER at 2:00 a.m. I rushed my husband to the ER at 2:00 a.m.

The whole time I was driving I was thinking Don't leave me to die! (smile)

(Laughter) When we got to the ER, the nurses came. They said we couldn't breathe through our noses, so they took us to the back.

"Can't you breathe through your nose?" "Yes"

"But you can breathe through your mouth." (Laughter) The doctor stepped back and looked at us.

"I understand the problem. You're at risk of having a heart attack.

Immediate ECG and CAT scan" Immediate ECG and CAT scan"

No, no, we're not having a heart attack. We can breathe with our mouths.

I went back and forth with this doctor because I thought I had the wrong diagnosis.

It's not going to calm me down, but I didn't think it was a heart attack.

Fortunately, this doctor is at the end of his shift.

A new doctor came in to replace us. We're distraught, my husband can't breathe... through the nose, but (Laughter) the doctor started asking questions.

"Do you two exercise?"

"I ride my bike and go to the gym

"Sometimes." (Laughter)

Then the doctor said, "What were you doing just before you came here?"

I thought you must have been asleep

"What was your husband doing just before?"

I explained the many medicines I was taking.

"I took a decongestant and used a nasal spray," and the doctor suddenly had an epiphany, "Oh! You can't use a decongestant and a nasal spray together.

Conversely, it gets stuck. Use this instead.”

and prescribed another medicine

We looked at each other and then I saw the doctor's face and he said, 'Why did you correctly diagnose my husband?' 'Why did you correctly diagnose my husband? “Did your previous doctor recommend an ECG or CAT scan?”

And the doctor said to us, "If you have a 160 kg man come to the ER and he can't breathe, you suspect a heart attack, act first." Suspect a heart attack, act first."

ER doctors are trained to make quick decisions, but they're not always accurate.

If we had data about the heart and were able to share it, maybe the first doctor wouldn't have misdiagnosed.

If you look at this chart, the systolic blood pressure readings from October 2010 to July 2012. The systolic blood pressure readings from October 2010 to July 2012.

If you look at the measurements, it's initially in the prehypertensive or hypertensive zone, but over the past year and a half it's been in the normal range.

This is the heart rate of a healthy 16 year old

What does this data tell us?

Clearly, this is data from a patient who has undergone a radical transformation, and luckily that person is here now.

The 160 kg man I took to the ER is now sexier, healthier, weighs about 100 kg, and has blood pressure like this.

My husband has changed his diet over the last year and a half My husband has changed his diet over the past year and a half and changed how he exercises, which improved his heart rate, and with it his blood pressure, and with it his blood pressure.

Finally, there is something I would like you to take home from here today.

Just like us, you can become an expert on your body by taking responsibility for your own data and taking daily measurements.

you can make your own decisions

it's not difficult

You don't need a PhD in statistics to become an expert on your body.

You don't even need a medical degree You don't even need a medical degree

A doctor is an expert on the human body, but you are an expert on yourself.

What would happen if these two experts worked together What would happen if these two experts worked together Couldn't we make a better decision than leaving it to the doctor alone?

So now that you've seen the power of information, you can also collect your own data.

(Laughter) Come on, stand up.

Take responsibility for your own data today

With this, I hereby award each of you a TED Associate in Elementary Statistics major in Time-Dependent Data Collection and Analysis, with all associated rights and privileges.

What's the right thing to say as a rookie statistician the next time you go to the doctor?

Audience: Show me the data! Talithia Williams: I can't hear you!

Audience: Show me the data!

Talicia Williams: One more time!

Audience: Show me the data!

Talithia Williams: show me the data

thank you

(applause)

We are seen as a bucket organization for failed social policies.

I can't decide who will come to us and how long they will stay.

We accept people who have been abandoned and who have fallen out of all other social safety nets.

If society can't take over, we have to

It's our job to contain and control them.

Over the years, prison systems, countries, and societies have become very good at it, but that's not a good thing.

Today, there are more prisoners per capita than anywhere else in the world.

There are more black people in prison today than there were in 1850 with the Slavery Act.

We're home to the parents of three million children in our community, and we're the new psychiatric hospital, which means we're the largest provider of psychiatric care in the country.

Locking people up is not trivial

Despite this, we are called the "Ministry of Corrections."

Today I'm going to talk to you about what we're thinking about is a shift in the way correction works.

My belief and experience is that if we change our thinking, we can create new possibilities and new futures, and prisons need a different future.

I've spent my entire 30-year career in orthodontics.

I followed my father into this world.

He was a Vietnam veteran. Correction was the perfect job for him.

He was strong, earnest, and disciplined.

I'm not that type of person, and I'm sure he was worried about me.

Ultimately, I decided that if I was going to end my life in prison, I would want to be outside of it, so I wanted to research and tour McNeil Island Prison, where my father worked.

This was in the early '80s, and prisons were very different from what we see on television and in the cinema today.

In many ways it's going in the wrong direction.

I walked through a five-story cell block

There were eight men in one cell.

There were 550 men in that housing unit.

In case you were wondering, they shared one bathroom in this tiny space.

When the staff unlocked the cell, hundreds of men swarmed out of the cell.

Hundreds of men were marching out of the cell.

I left there as soon as possible

Eventually I returned there and started working as an employee.

My job was to run a block of cells and control the hundreds of men there.

Even while I was working in the reception center, I could hear the inmates clamoring from the parking lot, slamming the cell doors, screaming, trying to break down the cells.

Lock up hundreds of volatile people and you're in chaos.

Containment and control - that was our job

To make this more effective, what we learned was a new residential unit, called the Centralized Management Unit, IMU, which is a modern version of a pit.

We put inmates in cells with hard steel doors that had bayonet doors so they could be handcuffed and fed from the outside.

what do you think happened?

it's quiet

No more turmoil at all

It's safer there, because the most violent or destructive prisoners can now be quarantined.

but isolation is not a good thing

It deprives a person of social contact and makes him/her worse.

Getting them out of the IMU was difficult, both for them and for us.

Locking people up, even in prison, is no small thing.

My next placement was a difficult state prison, which housed more violent and destructive inmates.

By that time, the industry had advanced, and we used a variety of tools and techniques to manage disruptive behavior.

We had beanbag guns, pepper spray, plexiglass shields, flash grenades, emergency response teams.

We met violence with force and chaos with chaos.

We've been pretty good at calming down conflicts.

While I was there, I met two experienced correctional staff who were also researchers, an anthropologist and a sociologist.

One of them said to me one day, "You're good at calming conflicts.

Have you ever thought about how to prevent conflict? "and

I was trying to be patient with them, explaining that a brute-force approach is what makes prisons safe.

they did that to me too

This conversation led to new ideas, and we started doing some small experiments.

First, we decided to train our staff in teams, rather than sending one or two people to state training institutes.

Instead of four weeks, I gave them ten weeks of training.

And then we tried an apprenticeship model, where newcomers were paired with veteran staffers.

they both did their job

Second, we incorporated verbal tranquillization skills into our training, and we added it to the ongoing use of force.

It was the use of non-violence against the use of force.

I also did something more drastic

They trained inmates in the same skill.

We changed our mix of skills to try to reduce the violence instead of just responding to it.

Third, when we expanded our facility, we tried new interiors.

The biggest and most controversial aspect of this design was, of course, the toilet.

there is no toilet

This may not make sense to you today, but it was a big deal at the time.

No one has ever heard of a cell without a toilet.

Everyone thought it was dangerous and insane.

Even in an environment with eight people in one cell, there was a toilet.

This little thing changed our job

Increased open exchanges between inmates and staff, and developed rapport

Easier to detect and intervene before conflicts escalate.

Units are cleaner, quieter, safer and more humane

This was more useful for keeping the peace than any other menacing technique I had seen at the time.

Interaction changes people's behavior, both staff and inmates.

We changed our behavior by changing our environment.

In the unlikely event that I should have missed this lesson, I was next assigned to headquarters, where I was confronted with a change in the system.

As it stands, many things resist systemic change: politics and politicians, bills and laws, courts and litigation, internal politics.

System change is difficult and slow, often unpredictable often unpredictable

Changing the prison system is no small thing.

So I reflected on my experience and remembered that when we interacted with inmates, they calmed down.

When we changed our environment, so did our behavior.

These are not big system changes

Small changes, but these changes opened up new possibilities.

I was then assigned to a small prison as warden.

And at the same time, I was studying for my degree at Evergreen State University.

I interacted with a lot of different types of people, people with different ideas and backgrounds.

One of them was a rainforest ecologist.

She saw my little prison and had the idea to turn it into a laboratory.

We talked about how we could contribute to the advancement of science by helping prisons and inmates do things that they couldn't do on their own, and we found ways to do that, like increasing endangered species like frogs, butterflies, and endangered prairie plants.

At the same time, we found ways to operate more effectively through solar and rainwater harvesting, organic farming and recycling.

This remedy led to many projects that impacted the entire system, not only in our system, but in other states as well. Small experiments have made big changes in science and in the community.

Thinking about our work changed our work

This project made my work more interesting and exciting.

My staff and I were thrilled

Both staff and prisoners

they were inspired

everyone wanted to be part of this

They made a meaningful contribution and made a difference.

let me clarify the situation here

inmates are very adaptive

they need to be

They often know more about our system than we do.

and they're here for a reason

I don't think my job is to punish them or forgive them, but that they can live a decent and meaningful life in prison.

So the question here is: Can prisoners live a decent, meaningful life? And if so, what kind of change will this make?

So I took this question to a more difficult place, where the most violent prisoners were held.

The IMU was a place of punishment

We thought there was nothing to be gained there.

For example, the implementation of treatment programs

But what we've learned is that it's the inmates, especially those inmates, who need treatment programs.

In fact, they needed an intensive program.

So we turned around and started looking for new possibilities.

What I found is a new type of chair

Instead of using the chair as a punishment, we put it in the classroom.

Okay, we haven't forgotten our responsibility to control, but now inmates can safely interact face-to-face with other inmates and staff, and because control is no longer an issue, everyone can focus on other things, like learning. Behavior has changed.

When you change the way you think, you change the things you can do, and this gave me hope.

I can't say at this point that all of this is going well.

I can say that things are going well

Our prisons are becoming safer for both staff and inmates, and when our prisons are safe, we can spend our energies on more than controlling.

Reducing recidivism is our ultimate goal, but it's not our only goal.

And let's be honest, we need more people and more institutions to prevent crime.

If we rely solely on prisons to reduce crime, I don't think we'll ever get there.

You can do things you never thought you could do in prison.

Prisons can also be a source of innovation and sustainability to restore endangered species and restore the environment.

Inmates can be scientists, they can be beekeepers, they can be dog rescue workers.

Inmates can also be a source of meaningful work and opportunities for staff and inmates who live there.

We can also provide a human environment along with containment and control.

These are not contradictory

We can't wait 10, 20 years to see this value.

The way we do it is not a massive systemic change.

Our approach is to make hundreds of small changes over days and months, not years.

We need to learn by doing smaller experiments. Experiments open up possibilities.

We need new and better ways to measure the safety impact of our working and social environments.

We need more opportunities to participate and contribute to our community and yours.

Prisons need to be safe, that's right.

it can be realized

Prisons need to be human environments, where people can participate, contribute and learn in a meaningful way.

we are in the process of learning how

so i have hope

We don't have to be bound by old notions about prisons.

we can decide and create it

When it's done in a thoroughly human way, prison becomes more than a bucket for failed social policies.

Maybe we'll finally live up to the name "Ministry of Corrections."

thank you

(applause)

In his 1968 speech, the Reverend Martin Luther King reflected on the civil rights movement and said, "The last thing you remember is not the words of your enemies, but the silence of your friends."

As a teacher, I treasure these words.

All around us every day, the consequences of silence manifest themselves in different ways: discrimination, violence, genocide, war.

In my classes, I encourage my students to think about silence in their lives through poetry.

We stand by our students, fill in the silences we find, recognize and name them, and help them understand that silence is not something to be ashamed of.

To create a culture in the classroom where students feel safe to speak up about their silence, four key principles are posted on the bulletin board in front of the classroom and signed by all students at the beginning of the school year: "Read with open arms, write carefully, speak clearly, speak the truth."

I always think about the last point: telling the truth about yourself.

And I realized that if I'm going to ask my students to be brave enough to speak up, they must first tell the truth about themselves, and also tell them about the times when they weren't able to speak up.

So I tell my students, Growing up in a Catholic home in New Orleans, I was told every time Lent came around, that the most important thing for a human being is to give up something, to give up something that you tend to indulge in as a sacrifice, to show that you understand the sacredness of God.

I gave up sodas, McDonald's, French fries, French kisses and everything else

I gave up speaking one year

Because I realized that the most valuable thing I could sacrifice was my voice, but I lost my voice long before that.

For too long I said what others wanted to hear and didn't say what they ought to say. Before I knew who I was, I told myself I shouldn't give advice to anyone, and at times I would stubbornly keep my mouth shut.

When Christian was assaulted for being gay, I put my hand in my pocket, looked down, and walked past him, pretending not to know.

I've been unable to use my locker for weeks, because the lock reminds me of the lock on my lips, while the eyes of the homeless man on the street begged me to acknowledge that he was worthy of being looked at.

I was more busy with my Apple product than giving the man a real apple.

At a charity party, a woman came up to me and said, "What a wonderful teacher you are to teach a poor and stupid child.

I persevered when she said, "That woman's donation was more important than the dignity of the students."

We are so focused on what people say that we rarely pay attention to what they don't say.

Silence is the scar that remains after fear leaves

Feeling like my own shortcomings have gutted me and cut off my tongue

And I feel the air pulling away from my chest 'Cause I don't even feel safe in my lungs

Silence is the Rwandan genocide

Huge Hurricane Katrina Silence is the sound you hear when you run out of body bags.

It is also the sound after the rope tightens the neck

It's charred, it's chained, it's privileged, it's pain

If you've been chosen to fight, you can't choose your own fight

I won't let my indecision cling to silence anymore

I tell you, Christian, that you are a lion, that you are a divine being, brave and radiant.

Ask the homeless man from that time his name Ask him how his day was 'Cause some people just want to be treated like a human

I'll tell that woman that my students can talk about transcendentalism like the thinker Thoreau Don't think you understand my students with what you've learned on TV.

Instead of giving up something this year, I'm going to live each day as if I had a microphone on the back of my tongue and a podium behind my self-restraint.

Nobody needs a podium, all they need is their voice

thank you

(applause)

Let's dive into the depths of the ocean, and if you've ever had this amazing experience, you know that after about two and a half hours, you're in a world of total darkness.

There you can see the most mysterious creatures that cannot be described in words. The World of Bioluminescence Dr. Edith Witter is now with the Marine Research Conservation Organization,

I invented a camera that can capture these amazing creatures, and here's the footage.

Same bioluminescence as fireflies. This is a flying turkey.

I was educated as a geologist and I love this

This luminous creature shines so that it cannot be eaten, this luminous creature shines so that it cannot be eaten by natural enemies, or to attract prey.

There's a lot going on in the deep sea, and this is a fish with glowing, pulsating eyes.

There is also a color to hypnotize natural enemies. and finally

It's one of my favorites, and it's shaped like a pinwheel.

I'm always really amazed when I go deep into the ocean.

This is still an unknown world. And we humans still only know about 3% of the ocean.

We've already discovered the world's tallest mountains, the world's deepest valleys, the world's deepest lakes and waterfalls, and these are the things we all have in common.

But in places I thought were devoid of life, there was more life, more diverse and denser than in the rainforests. Humans didn't know much about this planet. Is there nothing there or is it full of surprises

Now, let's go up to the shallows and see some really cool creatures.

When I was a child, all I knew about cephalopods was fried squid.

What you see right now is an octopus at the Institute of Marine Biology.

According to research by Dr. Roger Hanlon, cephalopods use their extraordinary eyes to perceive their surroundings and see the light and conditions around them.

Crawling over coral reefs, this octopus finds a place to rest, curls up and melts into the background.

It's an extremely difficult task

Next are two squid

When male squid fight each other, if they are aggressive, they turn their body color white.These two males are fighting.

This squid fights by hitting each other's buttocks

It is interesting. Next, the left side is male

On the right is the female, where the male divides his body color in half, and the female only sees the kind, gentle color of the male.

And the male - let's look again, one more time. Look at this color coding. The right side is white and the left side is brown

He's stepping back a bit and making one color aggressive white to keep the other males away Look!

(Applause)

this is a giant squid from australia

You have small drooping eyes

but they can be incredible

There's one trying to hide in a crack in the rock

And look at his feet, he pulls them back and turns them into seaweed.

and blend into the background

Next two males are fighting

Again, they are really smart and these two squid

do not hurt each other

But look at the pattern on their skin

This is an octopus. I'm trying not to find you

Don't be eaten by foreign enemies. And change your body like a rock.

Look around, this octopus makes good use of the waves and their shadows as it traverses the seafloor, so you can't see it.

They are truly one. It's melting into the background This moving rock operation. we learned a lot of new things in this shallow water

We continue to dive deep into the ocean, but there are also many discoveries in shallow water.

There are many discoveries in shallow water, because there are many predators in shallow water. This is a predator, a barracuda. ​​If you were an octopus, you could use your surroundings to hide easily.

Next is a scene of a beautiful coral seafloor, where the octopus changes its color and texture, etc.

If you don't camouflage, it's very easy for enemies to spot you.

And here was the octopus. Incredible, right? and surprised,

I try to run away with black ink, and when I settle on the bottom of the sea, "Oh, I've been found."

"This time let's be as big as possible"

This big brown pattern makes your eyes look really big

He was cheating. let's rewind

At first I thought it was a joke,

I thought it was CG. Let's play it in reverse. Look at the surface color of the skin and its texture.

It's just amazing. It even changes colors and textures to blend in with its surroundings. Watch it transform into seaweed

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The octopus is no longer visible here. I'm here too...thank you

I teach civic suffrage, and I also have a business.

Yes, I'm sorry to those of you who have fallen asleep, but please wake up. (Laughter) Why does the word ``citizen's participation'' make you sleepy, or rather, does it have an instantaneous sleep-inducing effect?

I think it's because the word itself stands for something terribly noble, terribly serious, terribly boring.

This is where people like us come in. It's our mission to show up at these gatherings, whether online or in person, in any way we can, to reinvigorate citizen suffrage, like it was in the midst of the American Revolution and the civil rights movement.

To refocus the public's attention on political participation, we need to make clear what it means to teach about power.

That's something that should be done at the municipal level.

So that's what I want to talk to you about today. I'm going to start by defining some terms, and I'm going to tell you about the scale of the problem that I think we're facing, and explain the role of the city as a place to solve it.

Let's start with the terminology

"Citizen participation" is simply the art of contributing to social welfare and problem-solving within a municipality.

Manipulating citizenship equates to suffrage, or, in the words of Bill Gates' father, "a lifetime presence." It involves three elements: the foundation of your values; your understanding of the systems that make the world work;

So let me define the word "power," which is, in a nutshell, the ability to get other people to do what you want them to do.

it might sound threatening

You don't like to talk about power, do you?

It sounds scary, and it sounds like something sinister.

Using this word itself makes me feel uncomfortable

According to democratic culture and democratic "myths," power resides in the people.

That's it

There's no room for question here, and re-investigation is not welcome at all.

The word power has an ethically negative connotation.

sounds inherently conspiratorial

seem inherently evil

But the truth is, power is neither inherently good nor inherently evil, just as fire and physics are inherently neither good nor evil.

it is what it is

And power governs the operation of all forms of government, whether democracy or dictatorship.

And a common problem that we face today, especially in the United States, is that so many citizens around the world are horribly ignorant about power. What is power? Who has it? How does it work? How does it flow?

And as a result of this ignorance of power, the handful of people who understand how power works in civic life, who know how bills become laws, how friendships turn into grants, how prejudice turns into policies, how slogans turn into social movements, and so on, wield unfairly bloated power, exploiting the vacuum created by the ignorance of the majority to pursue their own interests.

That's why it's so fundamentally important to understand and democratize the concept of power now.

This moment is both exciting and challenging at the same time, because this ignorance of power is so pervasive that it results in a concentration of knowledge, understanding and influence.

Hey, just think about it, how does your network become a grant?

And it's already gone smoothly, like a high-ranking government official going down in the world and becoming a lobbyist for private interests, using his existing relationships to fund new jobs.

How can prejudice become policy?

Behind the scenes, without everyone's knowledge.

How do you turn a slogan into a social movement?

The recent "Tea Party" movement, like the "Don't trample me" rattlesnake flag, originated in the American Revolution.

But the problem is that most people aren't really interested in this reality, and they don't want to know.

The uneducated ignorance of civil power is of one's own will.

For example, there are millennials who think politics is dirty.

they don't want anything to do with politics

I don't want to get involved in politics, I just want to do volunteer work.

Some IT geeks believe that the panacea for solving power bias and abuse is simply to collect more data and increase transparency.

The left thinks that power resides in corporations, while the right thinks it resides in government.

The optimistic believes that good things will happen, and the cynics believe that bad things will happen, and both the lucky and the unlucky believe that what they are given is reasonably good and does not believe that it can be significantly changed by other factors, such as predetermined or inherited power.

It's this fatalistic notion that is permeating the lives of ordinary citizens that is at the root of our disgustingly low levels of civic knowledge, civic engagement, civic engagement, and political awareness, especially in America today.

Political practice itself is efficiently subcontracted to a group of experts, for example, to people in the finance, welfare, information, and research fields.

The rest of us, ordinary people, have no choice but to take anything with a grain of salt because we are amateurs.

It also undermines the desire to know how the world works.

That's why I choose to stay out of politics

Now is the time for us to tackle this problem, these challenges, head-on. If you yourself are aware of this kind of inaction or willful ignorance, that's what I was talking about -- the concentration of opportunity, wealth, and power -- the deep inequalities that exist among citizens.

That's why it's so important in this day and age to rethink citizenship in terms of educating people about power.

I don't think it's ever been this important in our lifetimes.

If people don't learn about power, people won't wake up, and if people don't wake up, they'll all be left behind.

Now, one of the arts of wielding power is to wake up and speak up, but it's also about having a platform where people can act on their decisions.

Citizens' participation in politics can be summed up in a simple proposition: "Who decides?"

This leads me to my third point today, which is simply that there is no better place in our time than the city to exercise this power.

Think about the city you live in, the city you're from.

Think about everyday problems in your city

It could be small things like where we should put streetlights, or on a larger scale, suggesting longer or shorter opening hours for local libraries, or on a larger scale, such as converting run-down waterfront districts into highways and greenways, or guaranteeing a minimum wage for all local businesses to live on.

Imagine what you want to change in your city, and then think about how you can achieve it, how you can make it happen.

List all the forms of power that are being exercised in the current state of the city, not just about money, but about people, ideas and information, misinformation, the threat of force, the power of social norms.

All of these are acting as powers

Now think about how you can wield or neutralize these different forms of power.

It's different from the story about what to do with the kingdom in "Game of Thrones."

It's a problem that's happening all over the world.

Let me just take a moment to tell you two stories from recent news.

In the city of Boulder, Colorado, relatively recently, voters approved a proposal to municipalize a private electric power company, called Xcel, to become a public power company and run it not for profit but for the environment.

Xcel hit back at this decision by using its voting system to call for a referendum to cancel or nullify this municipalization plan.

The Boulder civic activists who pushed for this plan were literally in a power struggle over electricity.

At Alabama State University in Tuscaloosa, there's a campus organization with the somewhat horrifying name "The Machine." It's made up mostly of white sorority and boy clubs. "The Machine" has dominated campus elections for decades.

But recently, "The Machine" has begun to dabble in the actual city administration, manipulating elections to get a young, for-profit candidate, a former member of a fledgling organization, elected to the Tuscaloosa City Board of Education.

These are just two examples taken almost randomly from newspaper headlines.

Thousands of these things happen every day

Whether you like or dislike the Boulder and Tuscaloosa operations I just talked about, you can't help but be impressed by the "power intelligence" of these people and their skills.

You're forced to acknowledge the power they wield, and you can't turn a blind eye, because they understand the fundamental propositions of exercising civil rights: what is your goal and where are you, what strategies and tactics should you use, who's against you and who's on your side.

Now, think again about the problems and the possibilities in your own city, the problems, the problems you want to solve, the new things you want to start.

How about trying to practice what you already know?

This is a challenge, but it's also an opportunity.

We're living in a time where, contrary to globalization, or perhaps thanks to it, citizenship is all more deeply and strongly localized than ever before.

In fact, power in our time is pouring into cities at an unprecedented rate.

Here in the United States, the central government is locked in partisan politics.

Here, civic imagination, innovation, and originality are rising from the ecosystems of their communities and spreading out into the wider world. And this great wave of innovation, localism, is now reaching every corner of the world, and you can see it in the way people eat, work, share, shop, and move around.

is an emerging phenomenon

Modern localism is intensely networked.

Think, for example, of a strategy to create more cyclist-friendly cities, as it quickly spread from Copenhagen to New York to Austin to Boston to Seattle.

Some cities experimented with public participation in budgeting, giving ordinary citizens the opportunity to formulate the city's budget and make decisions about its allocation.

What started in Porto Alegre, Brazil, has spread here to New York and some boroughs of Chicago.

Migrant workers in cities ranging from Rome to Los Angeles are planning to go on strike to make residents aware of what their cities would look like without immigrants.

Across China, members of the New Citizens' Movement are organizing and actively campaigning to combat bribery and corruption within the government, angering the authorities and attracting the attention of anti-corruption activists around the world.

My own hometown, Seattle, is joining a growing coalition of cities around the world to help meet the Kyoto Protocol's CO2 reduction targets.

Citizens of participating cities band together to create a network of powers, like a large island nation, capable of transcending broken regulations and monopoly control.

Our immediate challenge is to accelerate this movement.

It's about getting more and more people involved in this trend.

That's exactly why I started a project at my company, Citizen University, to develop a curriculum for ordinary people called Citizenship.

This curriculum begins by learning the three arrows that I described earlier: values, systems and skills.

Now, I would like to invite you, the audience, to participate in the development of this curriculum. The stories, the experiences, the challenges that you have had and the challenges that you have faced should collectively form a mighty system.

In particular, I encourage all of you here to try out some of the simple exercises in the early framework of this curriculum.

Write a story that describes the future of your city. Enter a date. Write it as a case study that looks back from the future.

I also write about the values ​​of my fellow citizens who have supported my work and the sense of ethical purpose I've been able to inspire in those around me.

Write down every single one of your experiences with the government system, with the market, with welfare institutions, with religious groups, with the media.

Also, make a list of all the skills you've used -- the art of negotiating, the art of advocating, the art of articulating a problem, the art of embracing diversity in conflict -- all the skills that have enabled you to involve others and overcome opposition.

What's happening at the same time as I'm writing this story is that in the process, I'm figuring out how to decipher the power, how to write the power.

Share what you write Do what you write And share what you do

Share your stories literally on the Citizen University Facebook page.

Let's take this even further, including the conversations we're having at the many events that are happening around the world today on the same topic at the same time.

By doing so, we should be able to work together and once again increase the willingness of citizens to participate in politics.

Let's all work together to democratize democracy and make it accessible to amateurs.

Let's work together to create a network of cities that will become the most powerful mass testing grounds for self-governing governments that have ever occurred on the planet.

Because we have the "power" to make it possible

thank you very much

(applause)

30 years since TED started

The World Wide Web turns 25 this month -

So I want to ask you guys

Let's talk about the journey so far and the future

let's talk about the situation

Let's talk about the ideal web

25 years ago I worked at CERN

After a year, I finally got permission to start a side project.

i wrote the code

maybe i'm the first user

I was afraid that it would be so complicated that no one would use it.

With some persuasion and great help from everyone around me, it slowly started to take off.

I felt great

A few years later, in 2000, five percent of the world's population was using the World Wide Web.

Seven years later, in 2007, it was 17 percent.

In 2008, I founded the World Wide Web Foundation, and when I saw the numbers, I got worried.

And as of 2014, 40 percent of the world's population uses the World Wide Web, and that number is growing.

certainly increasing

So what I want you to think about is both the front and the back.

Anyone here at TED would ask, how can we get the other 60 percent to the web as soon as possible?

There are a lot of things that are important. Mobile will surely be the center.

At the same time, think about the number 40 percent, because if you're here -- you live on the Web -- you might not remember anything anymore, you might just look it up on the Internet and be relieved that the Web is a success.

It's certainly successful, and there's a lot of it. There's even Khan Academy, there's Wikipedia.

Online commerce has completely changed the way we do business in some ways, enabling transactions that were previously unimaginable.

Commerce is almost universally affected

Governments are also being affected, if not entirely, by massive amounts of open data, lots of e-government -- and a lot more visible stuff happening on the web.

There are many things that are hard to see

It's medical care. If you're late at night and you're worried about what kind of cancer your loved one might have, you can talk online to someone who cares in another country.

These events can't be in the outside world, and there's a degree of privacy there, too.

But when you use the web, you can't just assume that it's a transparent, neutral medium in some ways.

We can argue without worrying about what's actually going on, and we can ignore the fact that the web is not only monitored, but also monitored by people who might misuse the data.

But what we're realizing is that we're going to have to worry about the infrastructure that underlies everything, not just how we use the web.

we enjoy great freedom of speech

We can tweet, and millions of people can read it, except when Twitter is blocked in that country, or when information about how we express ourselves and what we're doing and what's happening in the country we live in is not available to other people.

So we should protest and try to eliminate censorship, and where there is censorship, we should aim for an open web.

the open web is great

Then you can talk to anyone

it doesn't matter who i am

What's more, we're embedded in the social media giants, which are like a repository, and we can talk to people who use the same social network much more easily than people who use other services. After all, we're limiting ourselves.

Some of you may have read about "filter bubbles." What is the filter bubble phenomenon? We like to use computers to find things we like, don't we?

When we're surrounded by things we want to click on, we're overjoyed, so the program will automatically give us only what we like, and we'll be surrounded by a rosy world.

And here's what we got — there's a danger threatening the web society.

What kind of web do you prefer?

An unfragmented web is my ideal, although some countries seem to think fragmentation is necessary to counter current information surveillance.

If I had to give an example of an ideal web - it would be a very good foundation for democratization.

It can be used in health care, privacy is ensured, a lot of health and medical data is stored, and it becomes useful for scientists' research.

The remaining 60% of people - to be able to use the web as soon as possible

We want the web to be a strong foundation for innovation, so that when something nasty happens, like a disaster, we can react quickly.

This is just one example, there is certainly much more to be desired.

you should have

On this 25th anniversary, I want you to think about your ideal web.

If you go to webat25.org there is a link

A lot of sites out there are starting to put together a "major charter," a declaration of rights on the web.

why don't we try it too?

what if we decide? This becomes a basic right, the right to talk to anyone you want to talk to.

What do you put in your charter?

Let's crowdsource the charter for the web

let's do it this year

Let's use the power of our 25th anniversary to create a charter together on the web. (Applause) Thank you.

please help me thank you

(applause)

In 2001, when my first children's book was published, I went to my alma mater's elementary school to talk to my students about being a writer and illustrator.

She was still at school and busy preparing lunch for the day.

So I approached her and said hello, "Hi Ginny, how are you?"

And she looked at me, and though she knew me, she couldn't quite remember who I was, and she said, "Steven Kroszaska, right?"

It was a surprise to me that she remembered Krosaska, but Stephen was my uncle who was 20 years older than me, and she was the lunch lady when my uncle was a kid.

She started talking about her grandson, and this blew my mind.

The school lunch lady has grandchildren, which means she has children, and she leaves school after work.

I always thought she lived in the diner with a ladle.

I never thought about it before

This chance encounter sparked my imagination, and I created a series of Lunch Lady graphic novels about a cartoon school lunch lady who uses fried fish nunchucks to fight villainous cyborgs, school bus monsters, and mutated ghosts.

(Laughter) (Applause) It's amazing how this series has been so welcomed into the world of children's books.

And when I go to school, the cafeteria staff participate in my projects in a very meaningful way.

Every lunch lady in America says the same thing: "Thank you for making us superheroes."

Because they were not treated very well in the general public for a long time.

But this meant the most to Ginny.

When the book first came out, I invited her to the launch party, in front of everyone there, to whom she kept feeding for years, and I gave her a picture and some books.

She died two years after this picture was taken, and I went to her wake, and what I saw there was this painting next to her coffin.

With that in mind, we created School Lunch Hero Days across America, a day where we could recreate that feeling in the cafeteria, where children would come up with creative projects for cafeteria workers.

I partnered with the School Nutrition Association Did you know that a little over 30 million children eat school meals every day?

That means a little over 500 million lunches are made each year.

The hero's story goes far beyond just a kid getting a few extra chicken nuggets on his tray.

Brenda from California keeps a close eye on every child in the line and reports to her counselor if anything goes wrong.

A Kentucky school lunch lady found that 67 percent of students depended on school lunches for their daily meals and that they went without meals all summer long, so she converted a school bus into a portable cooking device and drove around feeding 500 kids a day during the summer.

And the kids did a great project

i thought i would do

They made hamburger cards out of construction paper.

We took a photo of our school lunch lady's face and pasted it on the cartoon lunch lady's face.

Also, we made our own cartoon where we put a cartoon lunch lady next to our actual school lunch lady.

We also made thank you pizzas, and all the kids put different toppings on construction paper pizzas with different messages.

I was so impressed with the reaction from the lunch lady, one woman said to me, "Until this day, I felt like I was in the far corner of the planet at this school.

I thought no one would notice us."

Another woman said, "Well, what this project taught me is that what you do matters."

Of course what she does is important

they all do important things

They feed our children every day. Children need to be fed before they can learn. The uncles and aunts at school lunches are working on the front lines to create an educated society.

So I hope that, without waiting for School Lunch Hero Day or anything else, I can say thank you to the cafeteria staff, and I want you to remember how powerful gratitude can be.

Gratitude can change your life

Gratitude changes the lives of those who receive it, and gratitude changes the lives of those who express it.

Thank you

(applause)

These are ordinary things: watches, keys, combs, glasses

They belonged to the victims of the Bosnian genocide and were worn to the end.

These mundane, everyday objects are familiar to all of us.

Among the victim's belongings, personal items such as toothpaste and a toothbrush clearly show that they had no idea of ​​the looming shadow.

Mostly they were told they would be exchanged for prisoners of war.

These items were recovered from numerous graves across my country, and thus, twenty years after the war, forensics unearthed bodies from newly discovered large graves.

and probably the biggest ever

During the four years of fighting in the early '90s, about 30,000 civilians, mostly civilians, went missing in the devastated Bosnian Union, and they are estimated to have been killed. Another 100,000 were killed during the fighting.

Most of them were killed either early in the war or towards the end of the hostilities, when UN safe zones like Srebrenica fell into Serb hands.

The International Criminal Court has handed down dozens of sentences for human rights crimes and genocide.

A genocide is an organized and meticulous mass murder of a racial, political, religious or ethnic group.

just as genocide is murder

It's about destroying property, cultural heritage, and ultimately the very notion that they existed.

Genocide isn't just about killing, it's about denying the dignity of the individual.

There's no such thing as a perfect crime, there's always a trace.

The relics of a violent death - Rather than fragile and ephemeral bodies, there are more "certain relics" than our selfish and fading memories.

These items have been unearthed from mass graves, and the main purpose of their recovery is a unique procedure to identify those who disappeared during the first carnage on continental Europe since the Holocaust.

All bodies should be found and identified.

Once recovered, these items, which the victim was wearing at the time of the execution, are carefully cleaned, identified, and inventoried.

Thousands of works of art are packed in white plastic bags like you've seen in CSI.

These items are used in courts for visual identification of victims, but they are also used as invaluable legal evidence in war crimes trials during combat.

Survivors are sometimes called in to witness and identify these items, but physical sighting is a very difficult, inefficient and painful process.

Once the forensics, doctors, and lawyers have finished inspecting the items, they become the stuff of stories.

Incredibly, many are destroyed, or haphazardly shelved, and quickly forgotten.

A few years ago, I decided to create a visual archive of all the excavated items for survivors' convenience.

As a storyteller, I want to give back to society.

I want to do more than call attention

It's possible that someone recognizes these items, or at least the photograph will remain as a memento of what happened, without prejudice, for eternity.

Photography is something about empathy, and if these objects are familiar, they evoke empathy.

Here, as a photographer, I'm just a forensic tool, but the pictures of the artifacts tell a story just like official documents do.

When all the missing people are identified, the graves will be filled with rotting corpses, and these everyday items will remain.

Sober, these items are the final testimony of the individual victims, the last eternal memento, the testimony that these people once existed-

thank you

(applause)

Today, I would like to introduce you to a project that inspired me to change the way I approach architecture: the Fez River Reconstruction Project.

In my hometown of Fez in Morocco, there's one of the greatest medieval walled cities in the world, the Medina, on the banks of a river.

The entire city is listed as a UNESCO World Heritage Site

After 1950, as the population grew, urban infrastructure such as green spaces and sewage systems changed, and under great stress.

The most damaged of these was the Fez River, which bisects the Medina, and for centuries was considered the soul of the city.

In fact, you can see the existence of this river's extensive water network all over the city at places like public fountains and springs.

Unfortunately, since 1952, pollution in the river has led to it being slowly covered with concrete debris.

In addition to this erasing process, the houses on the banks of the river were demolished to bring the various machines to the narrow streets of the medina.

These urban voids were rapidly turning into illegal parking lots and garbage dumps.

In fact, until the river reaches the medina, there is no particular problem with the quality of the water.

But mostly untreated sewage and chemicals used in crafts like tanning are dumped, polluting the rivers.

One day, I couldn't stand the desecration of my city's most important river, so I decided to take action.

Once the river water is clean, we can remove the concrete covering the river. Through luck and some patience, my colleague Takako Tajima and I were asked by the city to work with a team of engineers to remove the river lid.

But we weren't satisfied with that, so we came up with a further proposal: to pave the riverbanks and turn them into sidewalks, weaving these sidewalks into the city center, and ultimately transforming the urban voids along the riverbanks into the public spaces that the Fez River medina lacks.

I would like to briefly introduce two public spaces.

First up is Rusif Plaza, where the dotted line is the river, and the plaza is right above the river.

It used to undermine the urban integrity of Medina, a chaotic hub of transportation and home to the world's largest sidewalk network.

As you can see, the river behind this historic bridge next to the plaza looked like a river of garbage.

So what we proposed was to build a pedestrian-only plaza, cover it with a reclaimed leather roof, and connect it to the riverbank.

The second place we intervened was also in an urban void near the riverbank, which was used as an illegal parking lot, and we proposed to transform this area into the medina's first playground.

This playground will use a lot of retread tires and add artificial wetlands to not only purify the water in the river, but also to retain it in the event of a flood.

As the project progressed, it won a number of design awards, and with the intervention of new investors, the goals and design of the project changed.

To achieve the primary goal of this project, we took a unique approach that no other architect would have thought of.

It took our pride as designers and our consciousness as authors aside and put our activist stances in the forefront, bringing together the desires of many of our sponsors and narrowing it down to the project's most important goal: to remove the lid covering the river, clean the water, and create a public space for everyone.

We are very lucky that most of our goals have already been achieved or are on the way to achieving them.

About Rusif Plaza

This is what it looked like six years ago

this is how it looks now

It's still under construction, but it's heavily used by locals.

And finally, this is Rusif Plaza after the project was completed.

This is a river that was used as a garbage dump.

After years of work, the concrete was removed and the river was clean and flowing.

And finally, this is what it looks like after the project is complete.

The Fez River Restoration Project will change and adapt to the socio-political environment of the city, but by rethinking my role and approach as an architect, I believe I have been able to put into practice the core concepts of this project: transforming the Fez River from a sewage system into a public space, transforming the city of Fez from a mummified heritage to a living city for its inhabitants.

thank you

(applause)

In Kenya, 1984 is known as "the year of cups" or "the year of rumblings."

A gorogoro is a measuring cup that's used to measure two kilograms of cornmeal in the market. The cornmeal is called ugali, which is used to make a polenta-like cake that's eaten with vegetables.

Both maize and vegetables are grown by most Kenyan farmers, and families are self-sufficient with their farm produce.

One gurg rod is equivalent to three meals for the average family, and in 1984, the whole country harvested only one gurg rod.

It was the worst drought ever in memory.

Now, I'm providing farmers with rainfall insurance for droughts like the Year of the Cup.

I was born into a missionary family who built a hospital in Indonesia, and my father built a mental hospital in Tanzania.

This is a picture of me in front of the hospital when I was five years old.

My family never expected me to grow up to be an insurance agent. (Laughter) Let me tell you how it happened.

In 2008, I was working for the Ministry of Agriculture in Rwanda, and my boss had just been promoted to minister.

She started a bold plan to start a green revolution in this country, and in the blink of an eye, we were importing lots of fertilizers and seeds and teaching farmers how to use fertilizers and how to plant seeds.

A few weeks later, someone from the International Monetary Fund came and asked the minister, "Minister, it's great to help farmers get food, but what if it doesn't rain?"

The Minister replied confidently - and with some defiantness, "I pray for rain."

this is the end of the story

As we were driving back to the Department of Agriculture, the minister turned to me and said, "Rose, you were interested in finance.

Find me insurance."

Six years later, last year, I was fortunate enough to be part of a team that provides insurance to 185,000 farmers in Kenya and Rwanda against drought.

They own an average of 2,000 square meters of land and pay an average of 2 euros for insurance.

It's petty insurance

You can't get by with traditional insurance at a premium of two or three euros, because traditional insurance relies on inspections.

Farmers here in Germany are inspected at the beginning, in the middle and at the end of the farming season and, if there are any losses, an estimate is made of them.

It doesn't pay to do those visits to smallholder farmers in central Africa.

Instead, we rely on technology and data.

This satellite measures the presence or absence of clouds. Think about it: if there are clouds, it might rain, but if there are no clouds, it simply cannot.

This image shows the start of the rains in Kenya this season.

You can see clouds appearing and disappearing around March 6th, and then more clouds appearing around March 11th.

These clouds were the beginning of the year's rains.

This satellite tracks all of Africa, going back to 1984. And that's important because if we knew how many times a place had droughts in the last 30 years, we could predict with great accuracy the probability of future droughts and put a price on the risk of droughts.

Data alone is not enough

We developed an agronomic algorithm to tell us when and how much rain our crops need.

For example, corn plantings require two days of rainfall during the planting season, and then one rain every two weeks for proper germination.

After that, the crop needs rain every three weeks during the leaf development period, while the flowering period requires more frequent rains, about once every 10 days while the corn cob is growing.

At the end of the farming season, it's preferable not to have rain because it spoils the crops.

It was hard to create this kind of insurance, but the really hard part was selling it.

We set a modest goal of having 500 farmers insured by the end of the first term.

After several months of intensive promotion, a total of 185 farmers were enrolled.

I was disappointed and completely confused

Everyone was saying farmers needed insurance, but our main customer wouldn't buy it.

Either they waited and didn't trust insurance companies, "I've been doing it myself for years.

I was thinking, "Why is there insurance now?"

Many of you are probably familiar with microcredit by now, a way of lending small sums of money to the poor, started by Muhammad Yunus, who won the Nobel Peace Prize for founding the Grameen Bank.

What we've learned is that selling microloans isn't the same as selling insurance.

If it's a loan, the farmer has to get the trust of the bank, and hopefully the bank will loan the money to the farmer.

an attractive proposition

With insurance, the farmer has to trust the insurance company, with insurance the farmer has to trust the insurance company, and they have to pay the insurance company.

This proposal is very different

So it will take time for insurance to pick up, and in 2012 only 4.4 percent of Africans were insured, half of them in one country: South Africa.

We've been trying to sell insurance directly to farmers for several years, but the marketing is very expensive and we haven't had much success.

And then we realized that there are a lot of institutions working with farmers: seed companies, microfinance institutions, mobile phone companies, government agencies.

They all lend to farmers, and before they make the final decision to lend, farmers often say, "But what if it doesn't rain?

I don't know if I can repay the debt."

Many of these institutions were at their own risk, just hoping the worst didn't happen that year.

However, most institutions restricted access to agriculture.

I couldn't afford to take these risks.

These institutions have become our clients, and when you combine lending and insurance, something interesting happens.

let me tell you one more thing

In early February 2012, western Kenya started to rain. This was earlier than usual. When it rains early, it motivates the farmers, because when it starts raining early, it usually leads to a good harvest.

So the farmer got a loan and planted.

For the next three weeks, not a single drop of rain fell, and the crops that had sprouted so well wilted and died.

We were insuring loans from a micro-finance institution, and they were lending to about 6,000 farmers in the area, and we called them and said, 'We know there's a drought.

fine

We will pay you €200,000 at the end of the farming season.”

And they said, "Thank goodness, but it's too late.

Can I have the money now?

Then farmers can plant again and harvest this season.”

So we convinced our insurance partners to allow the farmers to replant that April.

We talked to seed companies about replanting and convinced them to factor the cost of insurance into the price of each bag of seed, and we put a card in each bag with a number on it.

The satellite then measures the amount of rainfall for three weeks, and if it doesn't rain, we provide seeds.

This is the first time- (Applause) Wait, we're not done yet!

One of the first to receive a reimplantation guarantee was Bosco Mwini.

We visited his farm in August of that year, and I wish I could have seen the smile on his face as he showed me the crops he had harvested.

But he insisted on photographing the whole crop, so I took this photo from a great distance.

Insurance ensured his harvest that season, and I think we now have all the tools to give African farmers control over their own path.

The year of cups will never come again

Instead, I'm looking forward to a harvest year called the Year of Insurance.

thank you

(applause)

Oliver was so dashing, so handsome, so charming, so restless, a man that I was completely enamored with.

(Laughter) Bernese Mountain Dog, my ex-husband and I adopted him, and after about six months, we knew Oliver was going to need a lot of work.

I couldn't leave him alone because of severe separation anxiety.

I once jumped from the third floor of an apartment building.

Putting cloth, recycled garbage, etc. into your mouth

chasing flies that don't exist

suffered from hallucinations

I was diagnosed with canine obsessive-compulsive disorder, but that was just the tip of the iceberg.

But just like humans, sometimes, six months later, we find out that the person we love is already in trouble.

(Laughter) Most people don't take the guy they're dating back to the bar they met, most people don't take the guy they're dating back to the bar they met, and they don't give him back to the friend who introduced him or re-registered on the dating site.

(Laughter) I love you anyway, I'll stick with you, and that's what I did to my dog.

i studied biology

I did my Ph.D. in history of science from MIT.

But when I fell in love with Oliver, I realized that I could help my dog ​​overcome panic and anxiety, and it changed my life.

opened my world

In fact, I spent the past seven years researching animal mental illness.

Can people get mentally ill like humans, and if so, what does it mean to us?

And what we've found is that animals can suffer from mental illness, and recognizing it, and detecting mental illness, can help us be better friends with them, and at the same time, help us understand ourselves better.

Let's talk a little bit about diagnosing mental illness.

A lot of people think that we don't know what animals are thinking. And that's true, but when you're in a relationship, or at least in my case, it's not like you can ask someone you're with, a parent or a child, how they're feeling, and they'll give you an answer.

Maybe you can't describe what you're feeling, maybe you don't know what you're feeling

It's actually a fairly recent phenomenon that people feel they have to talk in order to understand their emotional distress.

Before the early 20th century, doctors' observations alone were often enough to diagnose emotional distress.

It also became clear that thinking about mental illness in animals isn't all that far-fetched.

Many of the mental disorders in America are disorders of fear and anxiety, and when you think about it, fear and anxiety are actually very useful animal emotions.

We usually feel fear and anxiety in times of danger, and once we do, we try to escape from any danger.

The problem is when you feel fear and anxiety unnecessarily.

So do mood disorders, which may just be the unfortunate downside of animals with emotions, and obsessive-compulsive disorder, which is also a very healthy animal manifestation of grooming.

Only a few of them lead to mental illness, like compulsively washing their hands and feet too much, or having to perform extreme rituals to the point where they can't sit in front of their food bowls without doing those rituals.

In humans, there is the Diagnostic and Statistical Manual of Mental Disorders, which is the current standard for diagnosing mental illness.

animals have youtube

(Laughter) This is the result of a search for "obsessive-compulsive disorder dog," but I want you to see "obsessive-compulsive disorder cat."

you will be shocked

I'll give you just two examples

An example of shadow chasing

It's funny and somehow cute

The problem is when the dog develops these compulsions throughout the day.

I can't go for a walk, I can't play with my friends, I have no appetite.

Exhibits a pathological obsession with compulsively chasing one's tail Exhibits a pathological obsession with compulsively chasing one's tail

It's a case of a cat named Gizmo.

It looks like I'm on a stakeout, but I'm doing this for hours a day.

Sit by the window and keep scratching the blinds with your paws

Let me give you another example of stereotyped behavior.

This is Tin Tin, the sun bear at the Auckland Zoo.

If you're here, you might think that Tin-Tin is just playing with a stick, but Tin-Tin has been doing this all day. If you look closely, and if you watch all of this half-hour video, you'll see that he's doing exactly the same thing, in the same order, spinning the stick the same way every time.

Another behavior that is very common, especially in captive animals, is the swaying back and forth, the rocking stereotype, which is actually what humans do.

Many people sometimes do this to calm themselves down, and I think animals do too.

But animals don't just do stereotypies.

This is Gigi, a gorilla at the Franklin Park Zoo in Boston.

I am being treated for mood disorders, among other symptoms, by a psychiatrist at Harvard University.

Many animals develop mood disorders

Many animals, including horses, exhibit self-destructive behavior.

They chew things, they do things that make them feel better, even if they're self-destructive, which is akin to self-harm in humans.

There is also the act of plucking hair

Hair, feathers, and skin can cause them to compulsively pluck themselves. Parrots are being studied to better understand trichotillomania, a disorder that currently afflicts more than 20 million Americans.

Lab rats can also pluck

It's called barbering

Dogs used in warfare in Iraq and Afghanistan later develop canine PTSD, or post-traumatic stress disorder, which makes it very difficult for them to return to their normal lives when they return from military deployment.

I'm scared of people with beards, I'm scared of getting into cars.

What I want to note here What I want to clarify is

What I believe is that canine PTSD is different from human PTSD.

But my PTSD is different from yours.My anxiety and sadness are different from yours.

we are all different

each have very different sensitivities

So two dogs that grew up in the same home might be in exactly the same environment, but one might be very afraid of motorbikes, or be terrified of the sound of microwave ovens, and the other might be totally fine.

People often ask me if this is an example of humans driving animals crazy.

Does abuse contribute to mental illness in animals?

Turns out it's actually more complicated

One of the coolest things that's happened to me is that I recently published a book on the subject, and every day when I open my emails, or go to read aloud, or go to cocktail parties, people around me tell me stories of animals they've met.

I recently read aloud in California, and after the talk, one woman raised her hand and said, "Dr. Breitman, I think my cat has PTSD."

We talked in detail there

A rescued cat named Ping who once lived with an elderly man who one day suffered a heart attack while vacuuming and died.

A week later, Pin was found in his apartment, nestled next to his owner's body, and the vacuum still running.

Even two years after that incident, Ping was still too frightened to enter the house when someone was cleaning it.

It was literally a timid cat

hide in the closet

I was trembling with no confidence, but with the loving support of my family and the passage of time and patience, three years later, I am now a happy and confident cat.

Another trauma and recovery story was a few years ago.

i am in thailand for research

I met a monkey named Boonlua. When Boonlua was a baby, he was attacked by a pack of dogs, had his legs and one arm ripped off, and dragged himself to a monastery where he was accepted by a monk.

He was treated by the veterinarian the monk sought help from.

Eventually, Boonlua ended up in an elephant facility, where zookeepers decided to take care of him, and it turned out that Boonlua's favorite foods were mint mentos, beetles and eggs.

Keepers were worried about the gregarious Boonlua being alone, but decided that with the other monkeys, it couldn't defend itself or even play with its arms.

I decided to go with the rabbit, and Boonlua quickly changed.

I was so happy to be with this rabbit

After grooming each other, becoming best friends, and rabbits having babies, Boonlua became even happier.

I became extremely protective of the baby rabbits, stopped sleeping, and -- I fell asleep while I was caring for the rabbits.

Boonlua was so overprotective and overly affectionate that the sanctuary eventually separated the baby rabbits.

Sanctuary staff worried that Boonlua would become depressed after weaning him away, so he gave him another rabbit companion to keep him from becoming depressed.

(Laughter) My official opinion is that I don't look depressed.

(Laughter) My only hope is that I really want you to feel that you have the power to imagine things that are familiar to you.

Whether it's your dog, or your cat, or your one-armed monkey, if you look at it and think it's traumatized or depressed, you're probably right.

This is highly anthropomorphic, allowing us to project human traits onto non-human animals and objects.

i don't think that's the problem

I don't think it's possible to anthropomorphize

It's not like taking a brain out of a human head and putting it in a jar and analyzing it to think about animal thinking.

We've always been the animals that can imagine the emotional experiences of other animals.

How well do you anthropomorphize if you have two options?

Poorly anthropomorphic?

Poor anthropomorphism is all too common.

(Laughter) Sometimes we dress up in corgis and have weddings, or we get too close to exotic wildlife, believing we have a spiritual connection.

there are various

But I think that good anthropomorphism is based on acknowledging the animal similarities between us humans and other species that allow us to make inferences about the minds and experiences of other animals.

One in five Americans takes psychotropic drugs, including antidepressants, anti-anxiety drugs, and antipsychotics.

We owe our achievements so far in all psychotropic drugs to other animals.

Drugs were first tested in non-human animals, not only for toxicity, but also for behavioral effects.

Thorazine, a widely used antipsychotic, was first used in humans after it was shown to work in rats.

In the 1950s, the anti-anxiety drug librium was administered to cats judged to be vulgar and was able to calm them down.

Antidepressants were also first tried in rabbits

But today, we're not just administering these drugs to our animal subjects, we're also administering them to our patients, in both ethical and unethical ways.

SeaWorld administers anxiolytics to killer whale mothers when they are separated from their cubs.

Many zoos treat gorillas with antipsychotics and anxiolytics.

Dogs like my Oliver are put on antidepressants and anti-anxiety medications to keep them from jumping off buildings or into the driveway.

Even crayfish can benefit from anti-anxiety drugs, according to a recent study published in Science.

They become more brave, more active, and more willing to explore their surroundings.

It's hard to know how many animals rely on these drugs, but the animal pharmaceutical industry is huge and growing, and it's projected to grow from $7 billion in 2011 to $9.25 billion by 2015.

Some animals are on drug therapy indefinitely.

A bonobo at the Milwaukee zoo was one of them, until he started giving away Paxil to other bonobos.

(Laughter) (Applause) Beyond psychotropic drugs, so many other interventions are helping other creatures.

This is exactly where I think we can learn from veterinary medicine towards human medicine. Let's say you take a domesticated dog that obsessively chases its own tail to a behavioral veterinarian.

how often you go for a walk

you want to know how much you exercise

They ask how much time you spend interacting with other dogs and other humans.

They'll ask you what kind of treatment history the animal has had - primarily behavioral therapy.

This is often very helpful, especially in combination with psychotropic drugs.

But I think the biggest relief, especially for social animals, is spending time with other social animals.

In many ways, I feel like I've become a service animal to Oliver. I've seen parrots help humans, humans help parrots, dogs help elephants, and elephants help other elephants.

I don't know about you, but unlikely animal friendships are being forwarded to me through the internet.

Facebook seems to be dominated by stories of monkeys raising cats, or Great Dane dogs raising orphaned calves, or cows befriending pigs. If you had asked me about this eight or nine years ago, I might have said that these animal friendships are very emotional, and that they're wrongly anthropomorphized.

That's what makes sense. Oxytocin -- also known as the bonding hormone -- is released when you have sex, or when you're parenting, or when you're in the presence of someone you really like, and there's an interesting study of oxytocin levels that shows that when humans and dogs care about each other and have fun together, oxytocin levels rise in both. is the

In fact, I have a friend who told me that mental health is a two-way street.

His name is Ronnie Hodge, a Vietnam War veteran.

When I returned, I started working with survivors of the genocide and many others who suffered the trauma of war.

He also had PTSD and acrophobia because he was abseiling from a helicopter in the air in Vietnam.To help him with PTSD and acrophobia, he was given a Labradoodle service dog named Gander.

This is the day they met for the first time, which is great, and they spend a lot of time together, visiting veterans who suffer from similar problems.

But what's interesting about Ronnie and Gander's relationship is that about a few months later, Gander also developed a fear of heights, probably because he was watching Ronnie so close.

But the great thing is that Gander is still an excellent service dog, and when they're both at altitude, Ronnie worries about Gander's condition and forgets her own fear of heights.

Spending so much time on stories like this, digging through the material, literally years spent researching this has changed me.

Animals are no longer seen at the species level

I began to see them as individuals, and I began to think of them as organisms that acted on their own forecast systems, and that forecast systems informed them how they would react to the world.

This concept has made me a curious and empathetic person, to the animals that share my bed and sit on my plate, to the people I know who struggle with anxiety, phobias and all kinds of other things. I strongly believe that I can empathize with pigs, pugs and partners, even if I can't know exactly what's going on in their minds.

Perhaps the best thing you can do with the animals you love is anthropomorphize them.

Charles Darwin was told by his father that we all go insane at times.

Thankfully, we usually come to our senses, but only with each other's help.

thank you

(applause)

Ten years ago I wrote a book titled "Will Humanity End in This Century?" ] with a question mark

The publisher took the question mark. (Laughter) The American publisher changed it to "The Last Days of Mankind."

Is it the American character that neither happiness nor misfortune can wait?

(Laughter) Today's theme is that this 45-million-century planet is special, and that humanity holds the future of the planet in its hands.

For most of the Earth's history, threats have come from nature: disease, earthquakes, asteroids, etc. From now on, it's humanity that will bring the worst of it.

And it doesn't have to be anything nuclear. In this interconnected world, when the networks go down, the world collapses in the blink of an eye, plagues spread across the world in days by air travel, and social media spreads panic and rumors, literally at the speed of light.

We're too upset by trivial matters -- improbable plane crashes, carcinogens in food, tiny doses of radiation -- but we and politicians are against catastrophic scenarios.

The worst case, thankfully, hasn't happened yet.

in fact it probably won't happen

But if catastrophic potential is likely, it's worth taking precautions, even if it's unlikely, it's well worth investing in preventative measures, like having fire insurance for your home.

The power of science is great, and while it holds many promises, its negative aspects are terrifying.

Humanity is at greater risk than ever before.

Within the next few decades, millions of people will be able to exploit rapidly advancing biotech technologies, much like cybertech is being exploited today.

Freeman Dyson, at TED, predicted that children of the future will be able to design and build new life forms, much like his generation played with chemistry sets.

It's kind of like science fiction, but it's also part of his scenario, that the Earth's ecosystems and humans wouldn't survive unscathed.

For example, some eco-extremists claim that the planet's earth goddess Gaia should be depopulated.

What if we mastered the technology of synthetic biology, which will be available to everyone by 2050?

By then, other sci-fi nightmares may be real, stupid robots doing whatever they want, networks starting to act on their own, and threatening us.

Can't the law protect us from such risks?

Yes, it's worth doing, but with increasing competition around the world and subject to commercial pressures, whatever the law may be, it's going to happen somewhere else.

It's no use trying to regulate it with something like the drug control law.

There are fools in the global village and they will dominate the world.

As I wrote in my book, getting through this century won't be easy.

Time and time again our society has failed, and in fact there is a half chance that it will fail greatly.

Worst case, is there an event that could wipe out all of humanity?

When the new particle accelerator was born, some people worried that it would either destroy the Earth or tear apart the fabric of the universe.

Fortunately, there is evidence that this is not the case.

Because, as others have pointed out, cosmic rays have collided with other nuclei, and nature has repeated the same experiment over and over again.

But scientists certainly should be cautious about experiments that cause unprecedented conditions in nature.

Biologists shouldn't release genetically engineered, potentially devastating pathogens into the world.

By the way, our particular aversion to possible catastrophes stems from a moral and philosophical question.

Scenario A wipes out 90% of humanity

Scenario B wipes out 100% of humanity

How much worse is B than A?

Some people will say that B is only 10% worse.

B has a 10% higher mortality rate than A.

I think B is incomparably worse.

As an astronomer, I can't believe that humanity is the end of this story.

Five billion years before the sun becomes a red giant, the universe will go on forever, and post-human evolution on Earth and in the far reaches of the universe will continue to evolve in a Darwinian way, just like we've come this far, and maybe even more.

Indeed, human evolution in the future will be rapid, not on natural selection but on artificial timescales.

Considering this huge stake, I don't think we should ever settle for such a possibility, even if the risk of human extinction is one in a billion.

Some of the predicted scenarios might indeed sound like science fiction, but others are eerily believable.

"The unknown is not the same as the improbable," as the saying goes, and that's why we're setting up a center at the University of Cambridge to do research to mitigate the risks we anticipate.

It seems that such a tragedy is worth exploring only for a few people.

We need any and all support from you, because for the next 50 million centuries, all of humanity will be on board this precious blue dot planet in the vastness of the universe.

So let's not ruin the future

Let me end with a quote from the great scientist Peter Medower.

"The bell that rings for mankind is like the bell of the Alpine cattle

If it doesn't ring beautifully around our necks, it's our fault."

thank you

(applause)

It's a strange thing, because when we talk about empowerment, the individual stories are more powerful than the empowerment debate itself.

So I'd like to start with a mundane story.

What is it like to be a young woman in India?

I've lived in India for the last 27 years of my life. I've lived in three small towns and two big cities. I've been through a lot.

When I was seven years old, the tutor who came to teach me math played a prank on me.

he put his hand in my skirt

He put his hand up his skirt and said, "I'll make you feel good."

When I was 17, a male student from my high school sent out an email, detailing the sexual acts he wanted to do to me.

When I was 19, I helped a friend escape domestic violence who was being forced to marry an older man that his parents had arranged for him.

When I was 21, a friend and I were walking down the street one afternoon, and a man pulled down his pants and started masturbating in front of me.

We asked for help, but no one came.

When I was 25, I was attacked by two men on motorcycles on my way home in the evening.

I was hospitalized for two days to treat my mental and physical wounds.

Women I've met in my life -- family, friends, co-workers -- when they've been through this, they rarely talk about it.

living in india is not easy

But it's not this fear that I'm going to talk to you about today.

I'm going to tell you about an interesting learning process that I've learned from this fear.

One night in December 2012 changed my life.

A young 23-year-old schoolgirl boarded a bus in Delhi with a male friend.

There were six men on the bus, young men like you'd find anywhere in India, and the shocking events that followed were repeatedly reported in the media in India and around the world.

The woman was repeatedly raped, forced with a blunt instrument, beaten, bitten, and left behind.

Her male friends were gagged and beaten until they passed out.

She died on December 29th

As most of us here were preparing to celebrate the New Year, India entered a period of darkness.

For the first time in the history of the country, both men and women in Indian cities have realized something terrifying about the condition of women in this country.

Now, like so many other young women, I was terrified.

I couldn't believe that something like this could happen in the capital.

I felt uncontrolled anger, but most of all, I was overwhelmed by helplessness.

But what can we really do?

Some write blogs, others ignore the incident, some join protests.

I've done it all, actually, these are the things everyone was doing two years ago.

The media was filled with horrific deeds that Indian men could commit.

He likened them to beasts and called them sex-hungry wild beasts.

In fact, the incident was so bizarre and unimaginable in India's common sense that the reactions of the Indian media, the public, and politicians led me to this: No one knows what to do.

and no one wants to take responsibility

There were also some insensitive comments, and these are the comments made by celebrities through the media, a common reaction to sexual violence against women.

First, the top comment is from a member of parliament [I know about rape of women, but abuse of children is unacceptable] Second is a religious leader [the woman victim should have called the perpetrator's brother] Third, surprisingly, it's from the defendant's lawyer [A rape victim in Delhi is at fault] And that's when the woman died fighting to the death.

Now, I've been watching this situation day in and day out, and I'm sick and tired of it.

As a writer, as a gender activist, I've written extensively about women, but this time I realized something was different.

I acted impulsively and immediately

I logged on to iReport, a citizen journalist platform, and I made a video about what Bangalore is like.

I talked about how I felt and what it was like on the ground, and I talked about the difficulties of living in India.

Within hours, the blog was going viral, and it was flooded with comments and ideas from all over the world.

In that moment, there were some flashes

The first is that even young women like me can use technology at their fingertips.

Second, most young women rarely use it to express themselves.

Third, for the first time, I realized that it was important to speak up.

So over the next few months, I covered some of the activities in Bangalore that weren't covered in the mainstream news.

We gathered over 100 people at Cubbon Park, a large park in Bangalore, to get a group of young men to wear skirts to prove that it's not the clothes that induce rape.

When I reported on these activities, I felt empowered, because I had a channel and was able to unleash my inner feelings.

I also participated in a government march, where the students held placards that said, "Kill them, hang them up."

It read, "Can you do the same for your own mother and sisters?"

I also attended candlelight rallies, where citizens came together to talk openly about the issue of sexual violence.

[I have sisters and cousins ​​who live in big cities and in foreign countries, but I have never heard of the predicament you describe.] I am embarrassed by this response.

We received supportive comments from all over the world, but also malicious comments.

Some called me a hypocrite

Some called me a victim, some called me a rape advocate.

Some even said I had political ambitions

But I think my earlier comment is somewhat symbolic of what we're discussing here.

But I soon learned that this wasn't the whole story.

My social empowerment came from the new freedoms that came with citizen journalism, but I found myself in an unfamiliar environment.

Last August, I logged into Facebook and was browsing through my news feed and noticed a link that a friend of mine had shared.

I clicked on that link and it took me to an article by an American woman named Mikaela Cross.

The title of the article was "The deafening story of India."

In the article, she detailed her first-hand experience of sexual harassment in India.

The article said, "I can't avoid stares. They're always chasing me, licking my body. They're expressionless, they don't care if they meet my eyes or not.

As I walked towards the fruit shop and the tailor, they would stare at me, as if they were going to cut me to pieces.”

Michaela said India was a traveler's paradise and a woman's hell.

She was stalked and groped and made into a masturbator She was stalked and groped and made into a masturbator

Well, later that night, the article went viral.

was featured in the news around the world

a lot of people were discussing

It had over a million views, a thousand comments and shares, and the same thing happened to me.

The media has been stuck in a vicious cycle of driving public opinion out of control and yielding no solutions.

So that night, I was lost in thought.

As a writer, I've tackled this issue as an observer. As an Indian, I've been embarrassed and distrustful. As an activist, I've looked at it from a human rights standpoint. But as a citizen journalist, I've found it very vulnerable.

So there's a young woman who used a channel like I did to tell her story, but it didn't solve anything.

What no one tells you is that true empowerment comes only when you think and act for yourself.

The word empowerment often sounds like an ideal, a great achievement.

When we talk about empowerment, what we're discussing is whether people will be able to use things and tools at will.

But true empowerment is a state of mind

it's an emotion

The first step to empowerment is to empower yourself, the key to independent will, which should be given to every woman, no matter who you are or where you come from, and it's the hardest thing to do.

We are frightened by our own voice, because it means acknowledging reality, but this is what gives us the power to change the status quo.

Now, with so many different realities to face, I struggled with what to make of this situation, because I didn't know what it meant to me.

I was afraid to judge because I didn't know what would happen if I didn't defend this woman's opinion.

Because I didn't know what it would do if I refuted someone's truth.

but the answer was simple

The decision had to be made, to speak out or to remain silent.

So after some thought, I filmed a vlog and sent it to Michaela as a response, trying to make her understand that there is another side to India, and that things will get better, and I told her that I was very sorry for what had happened to her.

A few days later, I was invited to a live broadcast, and I had the opportunity to speak with her, and for the first time, I connected with this woman, who I had never met before, and who was so far away, but so close to me.

Since this article appeared, more young people than ever have started discussing sexual harassment on campus, and Michaela's college has provided her with the support she needs.

The university took further steps to help students develop the skills they needed to deal with problems like harassment, and for the first time, I felt that I wasn't alone.

If there's one thing I've learned over the past few years as a citizen journalist, it's that society is tragically lacking in actively finding ways to make our voices heard.

What we don't realize is that when we try to stand up, we're not standing up as individuals, we're standing up for our communities, our friends, our peers.

A lot of people say that women's rights aren't recognized, but the truth is -- women often don't recognize their own rights.

A recent survey in India found that 95 percent of women working in IT companies, airline services, call centers, etc. said they were worried about coming home alone after work late at night.

In Bangalore, where I live, that number is 85%.

The situation in rural India is likely due to recent events, such as the gang rape in Badaung and acid attacks in Orissa and Aligarh, and we must act now.

Don't get me wrong, it's very painful for women to talk about their experiences, but we need to start by finding and finding media that can join our system, not just chasing the media blindly.

Now more women than ever before are standing up and questioning the Indian government, thanks to their courage.

Reports of harassment from women are six times higher than before, and in 2013 the government passed a criminal law amendment to protect women from sexual violence.

Let me conclude this talk by saying that there must be a lot of people in this room with secrets, but let's raise our voices together.

Let's fight shame together and talk about it

Platforms and communities The people you love, whoever you choose, whatever you choose, but speak up.

The end of this problem begins precisely with our actions.

thank you

(applause)

In 1781, the English composer, engineer, and astronomer William Herschel noticed that there was an object in the sky that moved differently than other stars.

Herschel's realization that something was different, that something was wrong, led to the discovery of a planet. That planet was Uranus. The name Uranus has entertained generations of children. The planet discovered that night doubled the size of the previously known solar system.

Just last month, NASA announced it had discovered 517 new planets in orbit around nearby stars, nearly doubling the number of known planets in our galaxy overnight.

Astronomy is constantly being transformed as our data collection capacity nearly doubles every year, and within the next 20 years we may discover for the first time a major galaxy in the universe.

But as we enter this age of big data, we're beginning to understand the difference between having more data and having different data, and we're able to change the way we ask questions. The difference isn't the amount of data we collect, but whether it opens new windows into the universe, whether it changes the way we look at the sky.

What will be the next window into space?

What will be the next chapter in astronomy?

I'm going to show you the tools and technologies that we'll develop over the next 20 years, and how these technologies will transform astronomy once again by manipulating data, opening a window into space, a window into time.

why time? Time is about origin and it's about evolution.

Origin of the Solar System - Is the formation process of the Solar System unique and special?

in the evolution of the universe

Why does the universe keep expanding? What is the mysterious dark energy that made the universe expand?

First, let me talk about how technology is changing the way we look at the sky.

Imagine you're sitting in a mountain range in northern Chile, hours before sunrise, looking out west to the Pacific Ocean.

This is a view of the night sky, with a beautiful view of the Milky Way just peeking over the horizon.

It's also a static spectacle, and in many ways, that's how we think about the universe: eternal and unchanging.

But the universe isn't stationary

It's constantly changing on timescales ranging from seconds to billions of years.

Galaxies merge and collide with each other at speeds of hundreds of thousands of miles per hour.

Stars are born and die, but they explode spectacularly and scatter.

In fact, let's go back to the quiet skies of Chile and move forward in time to see how that sky will change over the next year. The pulses we saw were supernovae -- afterimages of dying stars that exploded, brightened, and faded from view.

Ten supernovae are exploding somewhere in space every second.

If you can hear it, it might sound like popcorn popping.

Now, with supernovae out of the way, brightness isn't the only thing that changes.

the sky is in constant motion

Moving across the sky, a swarm of asteroids orbiting the Sun, we see change and movement.The dynamics of the system allows us to model the universe, predict the future, and explain the past.

The telescopes we've been using for the last ten years weren't designed to capture data on this scale.

The Hubble Space Telescope, which has captured some of the most detailed images of the distant universe in the last 25 years, but if you were to use the Hubble Space Telescope to create a single image of the entire sky, it would take 13 million images over the course of about 120 years.

And that's what motivated us to develop new technologies, new telescopes, telescopes that can see the distant universe where the signal is weak, but also telescopes that can capture images as quickly as possible and cover a wide area. Also known as the Large Synoptic Survey Telescope, or LSST, it may be the most banal name ever given to one of the most amazing instruments in astronomy history. making LSST

We plan to start collecting data within 10 years

Here's what we think: The way we think about the universe will change, because one LSST image is the equivalent of 3,000 Hubble Space Telescope images, 3.5 degrees of the sky, and seven times the width of the full moon.

How do you see an image of this scale?

Let's say we use the same technology that we use in cellphone cameras and street-purchased digital cameras to create the largest telescope ever built, about 1.7 meters in diameter, about the size of a Volkswagen Beetle, with a single image consisting of 3 billion pixels.

To see a single LSST image at full resolution, you would need 1,500 high-definition TV screens.

And every 20 seconds, the camera takes a new picture, constantly scanning the sky, building a complete picture of the sky, and every three nights you get a brand new view over Chile.

By the time this telescope is done working, we'll see 40 billion stars and galaxies, and for the first time ever, we'll see more objects in the universe than there are people on Earth.

We talk about this in terms of terabytes, petabytes, billions of objects, but to get a feel for the amount of data this camera is sending out, think of it as playing all the recorded TEDTalks at the same time, 24 hours a day, 7 days a week, for 10 years.

And this amount of data processing is like looking at every part of every TEDTalks video, looking at the changes from frame to frame, searching for all the "new ideas" and "new concepts."

And this is changing the way science works, the way astronomy works, and it's about getting information out of data through software and algorithms, and software is as much the lifeblood of science as the telescopes and cameras we've built.

Now, while this project will undoubtedly make thousands of discoveries, I would like to share with you two ideas about origins and evolution that could be transformative with access to data on this scale.

Over the last five years, NASA has discovered more than 1,000 planetary systems orbiting stars, but the ones we found didn't look like our solar system. Or isn't the formation of the solar system special and peculiar? I faced questions such as

To answer that question, we need to understand the history of the solar system in detail, and detail is the point.

If you look up at the sky, there's an asteroid crossing the sky, like a piece of the solar system.

The positions of the asteroids seem to have been recorded in the early days when the orbits of Neptune and Uranus were much closer to the Sun, and as such large planets moved through the solar system, they scattered the asteroids in their tracks.

Asteroid research is like doing forensics -- it's like doing forensics in our solar system.

What is this?

When we look at the little yellow asteroid moving around the screen, it appears to us that it's moving the fastest because it's closest to the Earth.

One day we may send spacecraft to an asteroid to mine for minerals, but just like the dinosaurs went extinct 60 million years ago, or like an asteroid obliterated 1,000 square meters of Siberian forests early in the last century, or like an asteroid released a mini-nuclear-bomb-sized energy over Russia last year, someday another asteroid may hit the earth.

In other words, the study of solar system forensics can predict not just the past, but our future as well.

Now, from a distance, this is what an asteroid would normally look like as it orbits the Sun.

Every dot visualized in this way is a real asteroid.

The trajectory was calculated from its movement across the sky.

The colors reflect the composition of the asteroid. The central ones are dry and stony, while the ones at the edges are moist and pristine. Water-rich asteroids may have played a role in forming Earth's oceans when asteroids hit Earth in ancient times.

LSST not only has a wide field of view, but it can also detect weak signals, so we can see asteroids far beyond the inner solar system -- asteroids beyond the orbit of Neptune and Mars -- and comets and asteroids about a light-year away from the Sun.

If you look at the details in this diagram -- and if you zoom in from 10 to 100 times -- you'll be able to answer questions like, evidence of the existence of planets outside the orbit of Neptune, finding asteroids that could hit Earth long before they were dangerous, perhaps the Sun formed on its own or in a cluster of stars, and whether the Sun had a sibling star that influenced the formation of our solar system. Maybe that's why things like our solar system are so rare.

Now, about distance and cosmic change, distance (from Earth) is equivalent to cosmic time and cosmic change.

For every foot you look away, or every foot you look at for an object, you see a billionth of a second in the past of the universe. This idea and concept of looking into the past has revolutionized the way we think about the universe more than once.

The first was in 1929, when an astronomer named Edwin Hubble proved that the universe was expanding, leading to the theory of the Big Bang.

The observations were simple: 24 galaxies and hand-drawn charts.

But the idea that the farther away a galaxy is, the faster it is moving away, was enough in itself to give rise to modern cosmology.

Then, 70 years later, there was a second revolution, when two groups of astronomers showed that the universe wasn't just expanding, but that it was expanding at an accelerating rate. It was amazing, like throwing a ball into the sky and finding that as it gets higher and farther, it's speeding up.

They proved this by measuring the brightness of the supernova and how the brightness of the supernova diminishes with distance.

These observations are more complicated

Supernovae are more than 2,000 times farther in our galaxy than Hubble observed, so they require new technology and new telescopes.

A supernova explosion only happens once every 100 years in a single galaxy, so in three years we've discovered only 42 supernovae.

Searching tens of thousands of galaxies, 42 supernovae in three years.

I collected the data and found this drawing.

This may not look impressive, but there's a line that predicts the brightness of a supernova 11 billion light years away, and the handful of points that don't fit on that line are a revolution in physics.

small changes bring big results

Small changes give us the opportunity to discover the way Herschel discovered planets.

Small changes can upend our understanding of the universe.

If the light is slightly weaker in the 42 supernovae, it means they are slightly farther apart, meaning that the universe is not just expanding, but that this expansion is accelerating, revealing a component of the universe now called dark energy, which accounts for 68 percent of the energy in the universe today and is accelerating its expansion.

What is the next possible revolution?

What is dark energy and why does it exist?

Each of these individual lines represents a different model of dark energy and characterizes dark energy.

They're all consistent with the 42 points, but the thinking behind these lines is fundamentally different.

Some believe that dark energy changes over time, while others believe that the properties of dark energy depend on where you look at the sky.

Some people think it will change and make a difference in physics at the subatomic level.

Or there are those who think of modifications to gravity and general relativity on a large scale, and people who say that our universe is just one of many universes, part of this mysterious multiverse.

How can we make sense of this in the next 10 years?

Suppose I give you two dice, and you want to find out if the dice are rigged or fair.

A single roll of the die tells you very little, but the more you roll the dice, the more data you collect, and the more confident you can tell not only if the dice are tampered with, but how tampered they are and what they're tampered with.

The reason we've only found 42 supernovae in three years is because the telescopes we built can only scan part of the sky.

We use LSST to capture a brand new view of Chile's skies every three nights.

On your first night of observation, you'll find ten times as many supernovae as were used to discover dark energy.

In the first four months, it grew to 1,000, and by the end of the expedition, there would be 1.5 million supernovae, and each supernova would be a roll of the die, and each supernova would be used to test which dark energy theories it matched and which it disagreed with.

So by combining these supernova data with other cosmological measurements, hopefully by the end of this survey around 2030, we'll be able to gradually narrow down the various ideas and theories of dark energy, and hopefully gradually unravel the cosmological theory -- the fundamental theorem of the physics that governs the universe.

In many ways, the question I pose is actually the simplest one.

I may not know the answer, but at least I know how to ask the question.

If the 42 supernovae we discovered by looking at tens of thousands of galaxies changed our understanding of the universe above us, then how many times more than 42 supernovae did we get by looking at billions of galaxies and find something that didn't quite match up with our predictions?

Like Herschel's discovery of planets, dark energy, quantum mechanics, general relativity, the data differed from predictions, giving rise to a variety of ideas.

It's exciting to think how much more astronomical data will be available in the next decade to answer questions about the origin and evolution of our universe.

How many answers are there out there that you can't even think of asking?

thank you

(applause)

Nine years ago my sister found lumps in her neck and arms and was diagnosed with cancer.

From that day on, she would benefit from what science had to say about cancer.

Every time she went to the doctor, they measured a certain molecule, which gave her information about how she was doing and what to do next.

Every few years new medical options became available.

Everyone agreed that she was fighting a biological disease resolutely.

This spring, she underwent a revolutionary new treatment in a clinical trial.

it dramatically weakened the cancer

Guess Who I'll Spend This Thanksgiving With

She's my cheery little sister. She works out more than I do.

Science has the potential to change the way we think about certain diseases in our lifetimes, or even 10 years.

but not for all diseases

Robert and I were classmates in graduate school.

Robert was bright, but his thoughts seemed to go haywire with each passing day.

I dropped out of graduate school and worked as a shop clerk.

Even the work at the store became too difficult to do.

Robert became frightened and withdrawn.

After a year and a half, he began hearing voices and believing someone was following him.

The doctor diagnosed schizophrenia and prescribed the best medicine.

The medication quieted his voice somewhat, but it didn't restore his mental clarity and social connections.

Robert fought to stay connected in school, work and friends.

I'm estranged from him and now I don't even know where I can find him anymore

I hope he recognizes me if he's watching this talk

Why is medicine doing so much for my sister and doing so little for millions of patients like Robert?

the need should be there

The World Health Organization estimates that diseases of the brain, such as schizophrenia, bipolar disorder, and depression, are the biggest contributors to the loss of time in life and work.

Part of the reason is that these disorders start early in life, and in many ways, at the best time of life, when people leave school and start working, forming relationships and families.

These diseases can result in suicide, often impairing the ability to work at full capacity, and are also responsible for many untold tragedies, including the loss of relationships and the abandonment of the pursuit of dreams and ideas.

These mental illnesses limit human potential in immense ways.

We're in an era where there are significant medical advances in many areas.

My sister's case of cancer is a very good example, and the same could be said of heart disease.

Drugs like statins prevent millions of heart attacks and strokes.

When you look at the significant and highly advanced areas of modern medicine, there's one common denominator: a scientist discovers a molecule that's important in a disease, develops ways to detect and measure this molecule in the body, and develops ways to block that molecule's action with another molecule that's a drug.

It's a strategy that has been successful many times.

In the brain, this strategy has been limited because, at this time, we don't fully understand how the brain works.

We need to know which cells influence each disease, and which molecules in these cells influence disease.

That is the mission I would like to convey to you today.

In my lab, we're developing techniques to reframe brain problems into big data problems.

Before I became a biologist, I worked in the field of computers and mathematics, and I learned this lesson: when you can collect vast amounts of relevant data about the functioning of a system, you can use computers in powerful new ways to understand how that system works.

Today, big data techniques are transforming larger sectors of the economy, and perhaps the same can be done in biology and medicine.

But you have to get the right kind of data

Data about suitable subjects

This often requires new techniques and ideas.

It's this mission that inspires the scientists in my lab.

Today I want to share two short stories from our work.

One of the fundamental barriers we face in turning the brain problem into a big data problem is the fact that the brain is made up of billions of cells.

Cells are specialists, not generalists.

They specialize into thousands of different types of cells, just as humans do their jobs.

In fact, each type of cell in the body may be capable of giving an intriguing TED talk about its own function.

But even scientists still don't know how many different cell types exist, and they have no idea what the talk will be titled.

We now know a lot of important things about cell types.

They are surprisingly different in size and shape.

Some cells produce different molecules in response to molecules that other cells do not.

Science has gotten insights into these things, mostly on a case-by-case basis -- one cell type at a time, one molecule at a time.

I wanted to do this whole process quickly and systematically.

Until recently, it was like this: if you wanted a list of all the molecules in a part of the brain or in any organ, you had to grind the cells until they looked like a smoothie.

but that's a problem

As soon as you grind the cells, you can only study the contents of average cells, not individual cells.

Imagine trying to figure out how the big city of New York works, all you can do is look back at the statistics about the average New Yorker.

Of course, we won't know much, because what's interesting, important, and exciting is in its diversity and peculiarity.

The same goes for cells

We wanted to do brain research not as a cell smoothie, but as a cellular fruit salad, so we could get data from each piece of fruit and study it.

we have developed the technology to do that

I'm going to have you watch that video

Thousands of individual cells are put into tiny water droplets one by one, and only that cell's molecules can be analyzed.

As the cells enter the droplets, they are greeted by tiny beads containing millions of DNA barcode molecules.

Each bead delivers a different barcode sequence to a different cell.

We react DNA barcodes with RNA molecules in each cell.

RNA is the transcript of the specific gene that the cell uses.

Based on the bound molecules, we sequence billions of bases, and from that sequence, we get information about which cell and which gene the molecule came from.

We call this technique "drop seek," because the analysis uses droplets to separate cells, and we use DNA sequences to tag and list and keep track of everything.

Now, when we run experiments, we analyze tens of thousands of individual cells.

The increasing challenge in this scientific field today is to learn a little more and a little faster from this massive data set.

When I was working on Drop Seek, I was often told, "You're going to be called upon by a major brain research project."

it wasn't what we expected

Science is at its best when everyone is producing massive amounts of exciting data.

So we created a 25-page experimental method guide that allows any scientist to build a drop seek from scratch.

The instructions have been downloaded 50,000 times over the last two years from our lab's website.

I've also created software that any scientist can use to analyze the data from the drop seek experiment, and it's free. It's also been downloaded 30,000 times in the last two years.

Hundreds of labs have reported their findings using this technique.

Now, this technology is about to create a giant map of human cells.

This map is likely to become a giant map of all cell types in the human body and the specific genes used during the activity of each cell type.

Now, I would like to talk about another challenge that we face: trying to reframe the brain problem as a big data problem.

I want to get information from the brains of hundreds of thousands of living people.

But the brain isn't available as part of the body during a person's lifetime.

If we can't get the molecule, how are we going to find the pathogenic molecule?

The answer comes from the fact that proteins, the molecules that contain the most information, are encoded in DNA. DNA is like the recipe that the cell follows to make all proteins.

This recipe varies from person to person, so the exact order and amount in which each cell type expresses each protein will be different for each person.

Everything is encoded in DNA, regulated by genes, but this isn't the genetics you learn in school.

Remember the big B and little b genes?

If I had inherited the Big B gene, I would have had brown eyes.

It's simple

It's rare to find genetic traits this simple.

Even eye color is determined by many pigment molecules, not just one.

Something as complex as the functioning of the brain is determined by the interactions of thousands of genes.

Each gene is unique to each individual in a meaningful way, and each of us is a unique combination of this diversity.

A big opportunity for big data

There are now more and more opportunities for progress on a scale never before possible.

People continue to contribute to vast numbers of genetic studies, and scientists around the world share their research data with each other, which spurs progress.

I'd like to talk a little bit about the genetics of schizophrenia that we recently discovered.

We found it because 50,000 people in 30 countries donated their DNA to the genetic study of schizophrenia.

For several years, it had been clear that the greatest impact of the genome on the risk of developing schizophrenia came from the part of the genome that encodes many of the proteins of the immune system.

But it wasn't clear which gene was responsible.

A scientist in my lab developed a new way to analyze DNA with a computer and made a very surprising discovery.

They discovered that a gene called "complement component 4," or C4 for short, exists in different forms in different people's genomes, and there are dozens of different types, and that these different forms produce different amounts of the C4 protein in the brain.

We found that the more a gene produced the C4 protein, the greater the risk of schizophrenia.

At this stage, C4 is just one risk factor in a complex system.

It's not as simple as the Big B, but it's information about a very important molecule.

Complement proteins like C4 have long been known to play a role in the immune system, and this protein is a sticky molecule that says, "Eat me."

These sticky notes are attached to debris and dead cells, attracting immune cells to remove the unwanted material.

Two colleagues have found that the sticky note molecule C4 also attaches to synapses in the brain, facilitating their removal.

The creation and removal of synapses is a normal process in human development and learning.

The brain constantly creates and removes synapses.

But our genetic analysis suggests that the removal of synapses in schizophrenia may be overdone.

Scientists at pharmaceutical companies say they're thrilled with the discovery, because they've spent years studying complement proteins in the immune system, and they know how those proteins work.

We've already developed molecules that inhibit complement proteins, and we're starting to study these inhibitors in the brain and the immune system.

It has the potential to lead to drug development that targets the root causes of disease rather than individual symptoms.

C4 is just another example of the data-driven scientific method, pushing the boundaries of medical problems that have remained unsolved for centuries.

There are hundreds of risk sites for brain disease in the human genome, each of which has the potential to lead us to the next insight into important molecules.

There are hundreds of cell types that use these genes in different combinations.

We hope that we and other scientists will generate the rest of the data we need, learn as much information as possible from the data, and break even more ground.

Genetics and single-cell analysis are just two ways to reframe the problem of the brain as a big data problem.

there is still more we can do

In my lab, scientists are creating a technology that allows us to rapidly map synaptic connections in the brain so that we can learn which neurons communicate with which other neurons, and how that conversation changes during life and disease.

We're also developing methods to test how cells containing genomes from hundreds of different people respond differently to the same stimulus in a single test tube.

The project brought together people of diverse backgrounds, trainings and interests: biology, computer science, chemistry, mathematics, statistics, engineering, and so much more.

The possibilities of science bring together people with diverse interests and enable them to work together intensively.

What are the future possibilities we want to create?

think about cancer

In the days of ignorance about the causes of cancer, it was thought that cancer was caused by the individual's psychological characteristics.This is the modern era of understanding the true biological causes of cancer at the molecular level.

This kind of understanding will lead to more and more breakthroughs in medicine. There's still a lot to do, but we're already surrounded by survivors of cancers that were considered incurable a generation ago.

Like my sister, millions of cancer survivors are discovering new opportunities for years of life, work and joy, and connections that weren't once taken for granted.

This is the future we're trying to create for mental illness: a future of true understanding, empathy and limitless possibilities.

Thank you for your attention

(applause)

People who believe in heaven have their own ideas about heaven

Heaven, in my opinion, is a place that satisfies curiosity.

Heaven is like a very comfortable cloud, where you can lie on your stomach, just like watching TV on your elbows when you were a kid.

And I can see the places I want, and I can watch the movies I always wanted to see.

It's kind of like the kind of trance you feel when you're reading a book on the subway in New York.

The funny thing is, I'm already living that way, because I discovered, though it took me a while to figure it out.

Because I discovered, it took me a while to figure it out, but when I was 24, I realized that I was more comfortable with things than people, and I decided to pursue that passion.

In my daily life, everything I see seems to be the beginning of a long story, a sort of trance.

For example, this is an exhibition at MoMA in 2004 called "Humble Masterpieces."

At the time, we were in the midtown main building being converted into a big, big building, and we were in a tiny, tiny place in Queens.

It's one of the happiest times of my career.

We have others, too

This is a typeface called Helvetica, which is celebrating its 50th anniversary this year.

Swiss designers like Max Miedinger come together to think beyond Akzidenz-Grotesque and come up with a new sans-serif typeface that reminds me of the Helvetica documentary film.

And, of course, there were 100 times more such masterpieces in "Humble Masterpiece."

But I hope that the real goal of this exhibition gives you a similar feeling.

The idea with this exhibition is that, for example, children will begin to behave in this way.

when doing homework at home

Instead of putting two beans on a tray, I want you to open your kitchen shelf or your mother's handbag and start a museum-quality design collection on your tray.

Everyone is always proposing new "Humble Masterpieces", so at MoMA we have a notebook where visitors can suggest their own "Humble Masterpieces."

In those cases, it's usually 80% porn and 20% suggestions, but this time it was all -- mostly good suggestions.

There was a lot of patriotism going on, too.

For example, I didn't know that the Spaniards invented the mop and are proud of it.

Here are some other great suggestions from Kentucky: bourbon, laundry detergent, glue.

(Laughter) This proposal comes from Milan. This is what we call "panettoni," a lane dividing block made of beautiful concrete that defines lanes all over Milan.

Think about it, if you don't mind send it to me, you're always welcome

Exhibitions like this have helped me better understand what I've been thinking about in the 13 years since I came to MoMA.

I'm Italian In Italy design is at your fingertips

Different areas of the world have different areas of expertise

I was recently in Argentina and Uruguay, where beautiful homes of modernism like no other, but the modern art was terrible.

In Italy, especially in Milan, modern art has almost no place.

But the design...

Even if you don't have to go to a fancy store, just by entering an ordinary store in the area, you can come across elaborate designs that make anyone feel sophisticated.

It's just an ordinary store

New York is good at modern art from a different angle than Milan.

What always amazes me is that even a three-year-old knows Richard Serra, and takes him to the gallery.

But for some reason, they seem to mistake design for decoration.

It's very interesting that when I say the word "design," people are over-designed -- in this case on purpose -- for interior decoration and design.

It seems to remind me of a person who chooses cloth

Of course there are designs like that, but there are other designs as well.

A design school in Jerusalem is trying to design better gas masks, because as you know, in Israel, gas masks are given to everyone, even babies.

So designers looked for ways to lower the neckline so younger generations could drink Coke without choking.

I made a gas mask for toddlers, designed to be easy for parents to hold, because touch is important for children, and for smaller babies.

made a small tent

No matter how cruel and ruthless it may be, this is great design. It's far from fancy furniture, but it's part of my passion.

Since I joined MoMA, my challenge has always been to harness the power of MoMA. It's wonderful to work at MoMA, and I really feel the power.

80% of visitors come to see Picasso or Matisse, and they stumble upon my exhibition and they can't take their eyes off it.

But my challenge at MoMA is something curators in my department have been challenging since its founding in 1929: to see what's happening in the world and use the power of MoMA to make the world a better place.

There are many episodes, including Mr. Eames Demitrios in the audience, on two occasions, his great-grandfather's grandfather... I always get confused about kinship. First, Charles Eames, and second, Charles and Ray Eames. A series of furniture was made

And good designs became available at low prices.

Many architecture and design programs were using good design to lead people to better lives.

The "Mutant Materials Exhibition" held in 1995

In my view, the world of design has entered a new phase, because designers can now customize their own materials.

That led me to a wide range of design materials like airgel at Lawrence Livermore National Laboratory in California, which was just beginning to hit the civilian market.

At the same time, Takeshi Ishiguro's beautiful creation of rice, a beautiful salt and pepper container, also appeared.

As you can see, it's a very diverse body of work.

For example, in 2001, at the "Worksphere" exhibition, we asked designers to propose different working styles that were emerging in the world at the time.

Proposal from IDEO

It's a beautiful "Personal Sky"

The idea is to project the sky onto the ceiling of a small, compartmentalized workspace, so that you can have your very own sky above your head.

Marti Guise also has a style that allows her to work from anywhere, and I love how she works at Hella Jongerius' house.

Through this exhibition, I was able to introduce an important idea about design: designers are the most powerful integrators in the world.

What they do best is take people's needs -- economics, raw materials, sustainability issues -- and integrate them so that in the end -- if they're capable -- they can produce more effective results than solving them one by one.

Hera Jongerius is a wonderfully synthesizer.

Her work is rooted in the times, when work and personal life were considered separate, but she

I said, "No, you can work and play at the same time."

You can see the TV dinner in 2001, that piece is particularly nice.

During that time many exhibitions were held instead of mine

Let me tell you how great designers exist.

For a long time the word "maverick"

I didn't understand it, and ever since I moved to the United States 13 years ago, I've been asking, "What does that mean?"

I looked up the dictionary this morning and it said, "Anyone who doesn't brand their cows to show who owns them."

That's why people who don't follow rules are called "mavericks."

Designers have to be lone wolves, because the best way to design successfully, to create something that has never existed before, is to make it behave like it never existed, or to allow it to be used in entirely new ways.

The "Safe Exhibition" is the most recent exhibition I've put on at MoMA, which ended early last year.

This exhibition showcased designs for safety and protection.

This exhibition had been in the works for a long time, and in 2001 it was called the "Emergency Exhibition."

Then 9/11 happened, and I was so shocked that I canceled the exhibition, but slowly but surely the idea came back, and it went from a half-empty cup to a half-filled cup.

The exhibits are based on the theme of protection and safety, and feature a wide range of works, from mine removal equipment to straw water purifiers.

Also, Cameron Sinclair and I worked together to display some of the work on his website at the "Safe Exhibition."

The interesting thing is that we don't need to talk about design and art anymore, design is free to use whatever it wants to make a statement.

It's a matter of economics and sense of humor.

This is a beautiful project by Ralph Borland from South Africa.

It is a rebellious costume as a citizen

The idea is that when you're rioting or protesting, when the police are approaching, you wear this costume. It's shaped like a big heart, and it has a loud heartbeat that reverberates through the speaker.

Just imagine, if a bunch of people put on this costume, and their heartbeats would gather and amplify, the police would be horrified.

Designers, as in this example, help us understand the problem without creating an immediately useful piece of work.

Anthony Dunn and Fiona Ravy created a work about anguish and paranoia. This hideaway furniture is made of the same wood as the floor.

But what's interesting about this exhibition is that the ultimate shelter we discovered is self-awareness, and a lot of designers are working on this subject.

I'm Cindy van den Bremen, and she created this Capstar.

This is sportswear that Muslim women wear when they enjoy skiing or playing tennis, so that they don't have to expose their religiously hidden parts of their body even during vigorous sports activities.

Finding these needs can sometimes lead to beautiful designs.

Twan Budnick is a very young 27-year-old designer who worked with psychologists to create sensory plush toys for children with psychological disabilities.

very beautiful work

Stuffed animals range from fluffy and cuddly, to ones with springs inside because autistic children want to be held tighter, to dolls with mirrors that allow children to look at themselves and rediscover themselves.

Design looks all over the world and is considered from a different angle than usual.

I recently went to Istanbul to attend the Herald Tribune luxury conference.

I was the last speaker, and it's interesting to note that all the speeches before me were about luxury goods.

There are actually many different kinds of luxury goods, including luxury goods for people who don't have much.

I'll give you two examples: economics-based design has clear limits.

In Cuba, we recycle toys that make a noise when you squeeze them, and use them as bicycle bells. This is a raincoat made from rice sacks.

It's very beautiful, but it's also smart and economical.

This piece belongs to a unit of brothers in São Paulo. Fernando and Humberto Campana are inspired by poverty and the wisdom of the people who live in it to create furniture that now sells for a lot of money.

That's the peculiarity of this market

Design has to consider all the elements, and the interesting thing is that as technology advances, we tend to become more and more wireless and forget about touch.

Designers, on the other hand, encourage hands-on experience, sometimes seeking more than normal contact.

These are a series of furniture that seeks physical contact.

This chair unfolds itself, and when you sit on it, it stamps its own shape.This beautiful furniture series is the work of Ana Mil from Barcelona.

From accessories made of human hair, to chocolate nipples, to toe candies, they're meant to be licked by a lover.

(Laughter) These are wonderful moments for design that are somehow very beautiful.

A few years ago, I met a mathematician from Vienna named Marchetti, and he told me about innovation in the military industry, where covert innovation and civilian innovation are two opposite sinusoids.

makes sense

During the war, great technological innovations are made, but the people are forced to live a simple life. During World War II, neither iron nor aluminum could be used.

When peace returns, suddenly the technology is open to the public market.

As you probably know, the Charles and Ray Eames Potato Chip Chair was a product that benefited from that, because fiberglass suddenly became available for civilian use after the war.

this is a strange moment

The rhythm of the sine curve has changed dramatically, just like the rhythm of life has changed dramatically over the last 25 years, and I don't know what to think of it anymore.

This is an important time for design, because not only is technology making breakthroughs and computer technology making open source possible in the field of design, but the idea of ​​sustainability has become an integral part of the work of many designers.

That's why designers aren't just dealing with objects, they're dealing with human behavior.

Good designers, if not all, are particularly prone to this.

For example, Mathieu Lehanneur is very good.

A young designer from France, at this point he was working with a pharmaceutical company to find new ways to ensure that his pediatric patients were taking their medicines consistently and consistently.

For example, here's a beautiful asthma medicine container that automatically inflates when it's time to take the medicine.

Another medicine you can write on your own skin, and you can enjoy taking it intradermally.

Similarly, Marti Gize is working to experience mistakes and tastes through food and understand it through the mouth.

The next exhibition I'm working on is about cutting-edge technology and design, which has been indebted to a lot of people here.

In this exhibition, rather than metaphors, I'm trying to find common ground -- common grievances, problems, preconceived notions -- and I think it helps us understand design more deeply by seeing it as a way to provide cues and directions, rather than prescriptions.

We look forward to your participation.

I have already sent you an email

I think I can show design and science at different scales, and show you how you can make the very small things amazing and the big things.

Thank you. (Applause)

hello good kids

(Laughter) I'm 71 years old.

(Applause) My husband is 76.

My parents are in their late 90s and our dog, Olivia, is 16.

So let's talk about getting old

I'll tell you how I feel when I see a wrinkle in the mirror, or when I look down and can't find it.

(Laughter) There's a poem by Mary Oliver that goes, "Tell me how you plan to spend your wild and precious life."

In my case, I try to live passionately.

When do you start getting older?

It's society that defines an "elderly", and that's roughly when health insurance starts at 65.

I'm getting older while I'm doing this. We all age differently.

Everyone feels younger than they really are 'cause they don't get old

i'm 17 now

Look at Sophia Loren

"I owe this body all to spaghetti," she said.

When I imitated it, 5 kilograms of meat stuck to the unexpected part.

But it's all about attitude, how you age depends on your attitude and your health.

In my journey through the ages, my mentor is Olga Murray.

At the age of 60, this California girl set out to save girls who were forced to work as slaves in Nepal.

By the age of 88, she had saved 12,000 girls and changed the culture of Nepal.

(Applause) The law now prohibits fathers from selling their daughters for forced labor.

She also founded an orphanage and a nutrition clinic.

she's always happy and always young

What have I lost in the last few decades

Of course, I've lost my friends, I've lost my place, I've lost the boundless energy I had when I was younger, and I'm losing my independence.

In the words of Ram Dass, "Addiction is hard, but accepting addiction makes it easier."

After a very heavy stroke, his immortal soul watched his body change and became kind. He is grateful to those who helped him.

What do I get?

It's free, you don't have to reveal it one by one

Who I am, who I want to be, what other people think, I'm not bound by these concepts.

We no longer need to please men, just animals are fine.

I try to silence my superego and enjoy what I have left.

My body may be wobbly, but my head is still fine

I'm in love with my brain

carefree

I don't hold grudges, ambitions, or self-importance.The seven deadly sins are all worth having.

it's great to let go

i should have done this sooner

Besides, I feel calm because I'm not afraid of getting hurt

I no longer think that being hurt is a weakness

and i got high spirituality

I know I've been close to death before

Now death is right around the corner or imminent

I try to live in the present by paying attention to my surroundings.

By the way, the Dalai Lama has aged beautifully, but I don't want to be a vegetarian or an ascetic.

(Laughter) Meditation is good.

Child: om om om

um um this is it

Better start early

It's very difficult for a vain woman like me to grow old in this culture.

I feel attractive, sexy and sexy.

(Laughter) You can't see me.

I want to be the center of attention

I don't want to be invisible

(Laughter) (Applause) This is Grace Dunman.

She's been in a wheelchair for six years after a terrible accident.

She says there's nothing more stimulating than a hot shower, and every drop of water stimulates the senses and makes you feel happy.

she doesn't consider herself handicapped

I still imagine myself surfing in the ocean

Ethel Seiderman is a gritty activist in my hometown of California.

She wears red enamel shoes Her motto is "One scarf is nice, but two is better"

It's been nine years since she lost her husband, but she doesn't seem to be looking for another partner.

She says there's a finite number of ways to fuck - but she says it differently

(Laughter) As for me, I'm still indulging in sensual fantasies with Antonio Banderas. (Laughter) Too bad my husband has to put up with it.

So what's the secret to keeping my passion alive?

I'm 71 and still passionate

I've been training for a while, and when I feel down or bored, I go bravado.

It's all about attitude attitude

Discipline is not rejecting what comes, but accepting "yes." Dramatic events, comedy, tragedy. Love, death, loss.

say yes to life

I also try to stay in love for training.

It doesn't always work, but it's selfish to try.

Finally, let me introduce you to this.

Jubilation is a blessing

I did what I should do

contributed to society

Now it's time for me. It's a great time.

Unless you're sick or in poverty, everyone has a choice.

I chose to keep my passion, my heart open, and live actively.

I work on it daily

Would you like to join us?

thank you

(Applause) June Cohen: Hey Isabel Isabel Allende: Thank you.

I don't like to meddle on behalf of the TED community, but I just want to say that I think people still think you're attractive, sensual, and sexy.

Well, thank you. (Applause) COHEN: You're right. ALLENDE: Thanks to your makeup.

Now for an additional question - can I ask about your sensual fantasies?

Please, what are you talking about?

(Laughter) Cohen: Sensual fantasies. Allende: Antonio Banderas.

I was wondering if you could talk a little more

Well, to give you an example -- (Laughter) I'd put a naked Antonio Banderas on a Mexican tortilla, drizzle it with guacamole and salsa, and roll him up. (Laughter) Thank you very much.

(applause)

How many times did you use the word “awesome” today?

1 time? Twice? Or 17 times?

And do you remember what I said "awesome" to?

I don't think you remember, because after all, we've been misusing the word. My suggestion to you tonight is that the word "awesome" should be given back to its original meaning of "awe."

The other day, I ate at an outdoor cafe, and the waitress came to our table and said, "Have you been here before?"

She replied "Awesome"

At that time, I thought to myself,

"Really? Is it 'awesome' to come to this store again? Or did you just want to say 'I'm glad you're here again'?"

Also, the other day, one of my colleagues asked me, "Can you save this file as a PDF?"

Seriously, is saving a file in PDF format awesome?

Sadly, the word "awesome" is so overused that it has now taken the place of "great" and "thank you."

Webster's Dictionary defines "awesome" as "a feeling of fear mixed with admiration and reverence that one has when one touches something majestic."

Now if you think about it Quiznos sub sandwiches were awesome?

how was the parking lot? was it awesome?

what about the previous game? Was that awesome?

the answer is no no and no

The sandwiches will be delicious, the parking lot will be nearby, and the game will be an easy win, but not everything will be awesome.

(Laughter) When you say "awesome" for something so mundane, you're robbing the word of its inherent power.

For example, the author of this book wrote, "A snowy day is awesome. So is the money in your trouser pocket."

(Laughter) Well, no, this is not the case. We need to raise the bar for this person with a poor vocabulary. (Laughter) In other words, owning everything makes everything worthless.

Like drinking water from a fire hose, that's exactly what this idiot is doing.

If everything is "awesome", there will be no peaks or valleys.

So folks, here are 10 things that are really awesome.

Imagine having to drag all your stuff back home.

Wouldn't it be easier if you could roll it home?

yes i would invent the wheel

It's a wheel, folks.

Are the wheels awesome? That's right

yeah the wheels are awesome!

Then there's the Great Pyramid of Giza, built about 4,000 years ago, one of the tallest structures in the world.

Pharaoh had his slaves transport millions of stones to this place in order to erect an unusually large tombstone.

Are the pyramids awesome?

yes the pyramid is awesome

what about the grand canyon

It is a landform created over 80 million years.

Is the Grand Canyon awesome?

Yes, so is the Grand Canyon.

Next up is photography, which was invented by Louis Daguerre in 1829. I know you all just whipped out your phone and snapped a picture of an "awesome" sandwich.

Look how awesome is the photo?

yes the photo is awesome

Then there was D-Day, June 6, 1944, the Allied invasion of Normandy, the largest landing in world history.

Was D-day awesome? yes it was awesome

By the way, did you eat anything today? ate?

Then we have to thank the bees, because if they don't pollinate the flowers, the crops won't grow, and then we'll all die, right?

That's how amazing it is

But if a flower could stand up and have sex with another flower, I'd lose to that, but it would be awesome if such a flower existed.

(laughs) Hachi is awesome

Next is the moon landing! Here we go!

It's Apollo 11. "Needless to say"?

Sixty-six years after the Wright brothers flew from Kitty Hawk, Neil Armstrong reached 384,400 kilometers.

is the distance from the earth to the moon

(Laughter) This is one small step for a human being, an awesome, one giant leap!

it was just awesome

And then there was the 1969 Woodstock Festival, an event that Rolling Stone magazine called changed the history of rock and roll.

Tickets were only $24 at the time.

Now I can't even buy a lame T-shirt

The American national anthem "The Star-Spangled Banner" performed by Jimi Hendrix was a masterpiece that symbolized the event.

Was Woodstock awesome? yeah it was awesome

Shark next! Organisms at the top of the food chain

Sharks have rows of teeth in their jaws, and new teeth move forward like a conveyor belt.

Some sharks lose 30,000 teeth before they die.

Awesome things inspire fear, don't they?

Exactly right sharks are awesome!

Lastly, the Internet was born in 1982, and it quickly became the world's main communication method. Tonight, I'm going to upload the PowerPoint I just used to the Internet, and then a drunken old man in Siberia will be able to see all of this stupid presentation. The Internet is awesome.

And some people want to praise my long-awaited presentation, and some people just want to say, "That was awesome."

I will save you time

It's not awesome but it's a true story I hope you enjoy it And you're the newest customer in my audience so far Thank you very much Good night

(applause)

Why does the universe exist?

Why - yes yes (laughter) Please be solemn, this is a vast and boundless mystery.

Why is there a world, why are we in it, and why is there something rather than nothing?

In other words, this is the ultimate "question".

Now, let's talk about the very mysteries of existence and conundrums of existence that we're about to tackle, and why you should pay attention -- and I hope you do.

The philosopher Arthur Schopenhauer said that those who do not allow themselves to ponder the immeasurability of their existence, the existence of the world, are morons.

It's a bit harsh, but it's kind of funny (laughs).

keeps bothering me

Ludwig Wittgenstein, perhaps the greatest philosopher of the 20th century, marveled at how the world should be.

In Proposition 4.66 of "Thoughts on Logical Philosophy", he said, "It is not the state of events in the world that is mysterious, but the way in which the world exists is mysterious."

If you don't like borrowing epigrams from philosophers, what about scientists?

John Archibald Wheeler, the greatest physicist of the 20th century, the teacher of Richard Feynman, the greatest physicist of the 20th century, Richard Feynman's teacher, who coined the term "black hole," said, "I want to know why the quantum, the universe, the existence of existence."

And my friend Martin Amis -- I'm sorry, I'm going to mention a lot of names in my talk, but please get used to it -- my friend Martin Amis once said that we need about five Einsteins to answer the question of where the universe came from.

And I'm pretty sure there will be five Einsteins in the audience tonight.

Einstein?

Hands up? aren't you there?

Now, this question, why is there something rather than nothing, this sublime question was posed very late in the history of thought.

At the end of the 17th century, the philosopher Leibniz, who was a philosopher who went independent from Isaac Newton and created calculus, and who was very bright and independent from Isaac Newton and created calculus, raised it at the same time. Why is there something instead of nothing?

From his metaphysical standpoint, he was or pretended to be an Orthodox Christian, so he said it was clear why the world existed, because God created it.

God was created out of nothing

God is all-knowing and all-powerful

God doesn't need any existing material to shape the world.

God created the world out of nothing

By the way, this is what most modern Americans believe.

they have no mystery of existence

because God created

Now let's put this into the equation

I don't have a slide, so I'm going to use gestures, so use your imagination.

God + Nothing = World

May I? here is the equation

you probably don't believe in god

Scientific or non-scientific atheists, either way, they don't believe in God and they don't like it.

By the way God + Nothing = World Why does God exist even in such an equation? there is already a problem

Unless you believe in the ontological proof, it's not a good one, and you shouldn't believe it, but God doesn't exist by logic alone.

So if there is a God, he may wonder if he is omniscient and omnipotent forever, but where did I come from?

(Laughter) And yet where am I?

God speaks in formal words like "I"

(Laughter) And then there's the theory that God got tired of pondering the mystery of his own existence, and imagined the world as a pastime.

Anyway, let's leave God alone

If you remove God from the equation, \_\_\_\_\_\_\_\_ + Nothing = World

Now, if you're a Buddhist, you'll think that's all there is to it, because essentially what you've got is nothing = the world, and the formula is symmetrical, so the world = nothing.

For Buddhists, the world is just an accumulation of nothingness.

it's a vast emptiness

I think there's a lot of something there, because we're addicted to our own desires.

If we extinguish desire, we will know what the world is really like - emptiness - nothingness, and we will reach a blissful state of liberation, where life in this world is for enjoying enlightenment (laughter). That's what Buddhists think.

But I'm a Westerner, so I'm still interested in the existential conundrum, so \_\_\_\_\_\_\_\_ + — it's going to be an immediate problem, okay? \_\_\_\_\_\_\_\_ + Nothing = World

What should we fill in that blank space?

what about science

Science is the best at unraveling actual natural phenomena, and the basis of science is physics.

It reveals to us "TAUFOTU" - the truth and ultimate composition of the universe - The True And Ultimate Furniture Of The Universe.

So perhaps physics can fill this void, and in fact, starting in the late 1960s or 1970s, physicists began to offer purely scientific explanations for how such a universe came to exist from pure nothingness -- quantum fluctuations out of space.

Stephen Hawking is one of those physicists, and these days, Alex Birenken and other really good physicist friends like Lawrence Krause, author of What Happened Before the Universe Began?

The laws of quantum field theory, the state-of-the-art physics, show us how from utter nothingness -- space, time, nothingness -- tiny blobs of pseudo-vacuum can transform into reality, and then, through the miracle of expansion, transform into this vast and diverse universe that surrounds us.

Now this is a really original plot

very speculative and captivating

But there's a bit of a problem here, and it's the religious views that matter.

Now, Lawrence considers himself an atheist, but he's still trapped in a religious worldview.

He regards the laws of matter as God's decrees.

For him, the laws of quantum field theory are like God's will - "Let there be light."

Those laws have a certain power and influence, and they can shape the pre-creation chaos of reality.

That law made the world exist out of nothingness.

But that's a very primitive view of the laws of nature, isn't it?

We know that the laws of physics are actually generalized descriptions of the patterns and regularities of the world.

they do not exist outside the world

There is no ontological opacity per se.

That's why you can't create a world out of nothing by that law.

It's a very primitive view of what the laws of science are.

And if you don't believe this, listen to Stephen Hawking, who popularized a self-contained model of the universe that doesn't need any outside factors or a creator. He said the model is just an equation.

I admit that I am still at a loss

What is it that gives life to the equation and creates the world to be drawn?

He was baffled. The equation itself can't work magic.It can't solve the conundrum of existence.

And even if the laws could be solved, why this combination of laws?

Why do the laws of quantum field theory describe the world in terms of specific quantities of forces and molecules and so on?

Why not a combination of completely different laws?

There are many mathematically consistent combinations of laws.

Why are there no other laws? Why not nothing at all?

Believe it or not, this is a problem. Thoughtful physicists think time and time again, and at this point they tend to lean into metaphysics, for example, that there is only one set of laws that describe our universe, and that describes one aspect of reality, but all consistent laws describe other aspects of reality, and that all possible physical worlds actually exist and "are."

We see only a small part of reality described by the laws of quantum field theory, but many other worlds and elements of reality told by very different hypotheses are inconceivably different from ours, so unimaginably otherworldly.

Steven Weinberg, the father of particle physics in general, was fascinated by the idea that all possible realities actually exist.

And because young physicist Max Tegmark believes that all mathematical structures exist, and that mathematical existence is the same as physical existence, we have this vast and rich multiverse that encompasses all theoretical possibilities.

Now, all this metaphysics aside, these physicists and philosophers are actually going back to a very old idea - the plateau.

It's the principle of sufficiency, or fertility, or the great chain of existence that reality satisfies as much as possible.

it is moved as far away from the void as possible

So we have two extremes.

One is utterly empty, the simplest reality, and the other is the other extreme, a fullness that encompasses all imaginable worlds.

Now, what lies between these two extremes?

These are all sorts of intermediate realities, including only some and excluding others.

So we rule out one of these intermediate realities -- for example, the one that's mathematically elegant but the one that isn't -- the clumsy, asymmetric one.

Now, some physicists say we live in the most elegant of realities.

I think Brian Greene -- I think you're in the audience -- in her book "The Elegant Universe."

They argue that the universe we live in is mathematically very elegant.

Don't believe him. (Laughter) Hopefully, in my devout hope, one day he admitted to me that it's actually a clumsy universe.

It was created without much thought, too many arbitrary coupling constants and mass ratios, an unnecessary family of elementary particles. What is dark energy?

It's a strange contraption of sticks and bubblegum

It's not an elegant universe.

I ask you solemnly, because a world where sentient beings don't suffer for no reason -- a world without childhood cancer and genocide.

this is an ethical concept

Anyway, it's between the void and the fulfilled possible reality, the various special realities.

emptiness is special and simplest

And there are the most elegant possible realities

it's special

Sufficient possible reality is really special

But what are we missing here?

There is also a very general reality that is just silly and can't be special no matter how hard you try.

They are forever removed from the void, but forever short of complete sufficiency.

They're a mix of chaos, mathematical elegance, and ugliness.

So let me describe these realities as endless, second-rate, imperfect messes, all-encompassing realities, some sort of cosmic silly endeavor.

And are there divinities in these realities?

Perhaps -- but like the gods of Judaism and Christianity, no divinity is perfect.

it is not perfectly good and omnipotent

Instead, it could be 100% malicious, but only 80% effective, just like this world around us.

The reality has to come out somehow

Is it nothing at all?

So if it's really elegant, or it's fulfilling, or it's really simple, like nothingness, or it has some special characteristics, it's going to need an explanation.

But if it's just one of a capricious all-encompassing reality, there's no other explanation.

In fact, it's the reality we live in.

that's what science tells us

Earlier this week, we got some exciting information about the expansion of the universe.

I'm sure you all know

In any case, I think there is evidence that this reality has been forced upon us.

Now why should we be concerned?

(Laughter) That question, "Why does the world exist?"

It's a question of great regret, and it evokes more familiar questions: "Why do I exist?" "Why do you exist?"

The number of genetically fertile human beings is enormous, and our existence is a marvelous gift. If we estimate the number of genes and their alleles, we roughly estimate that there are about 10 to the power of 10,000 genetically fertile humans.

It's between 100 to the power of 10 and an astronomical number.

And the number of humans that actually exist, maybe 100 billion or 5 billion, it's a very small percentage, so we've all won a staggeringly vast lottery.

we are here good

What kind of reality do we want to live in?

Do we want to live in a special reality?

What if we live in the most elegant possible reality?

Imagine our existential pressure to live up to that expectation, even if it's elegant.

Or what if we live in the richest possible reality?

Then our existence would be guaranteed, because all possible things exist in reality, but our choices would not make sense.

If I really struggle morally and decide to do the right thing, what difference does it make? There are infinite versions of me, and there are infinite versions of me doing the right thing, and an infinite number of me doing the wrong things.

So my choice is meaningless

We don't want to live in such a special reality

I won't talk to you about the special reality of nothingness.

So living in this mundane, ordinary reality can be both good and bad, but we get more of the good and the less of the bad to give us something of a purpose in life.

The universe is ludicrous, but we can still have purpose, and it's a very good thing, and the sort of general mediocrity of reality resonates nicely with the mediocrity we feel at the core of our existence.

you must be feeling

You're all special, but you're kind of secretly mediocre, aren't you?

(Laughter) (Applause) Now, you might say, anyway, that the conundrum of the mystery of existence is just fueling stupid mysteries.

You are not surprised by the existence of the universe, and you are blessed with good company.

As Bertrand Russell said, "The universe is just there, that's all."

It's a hopeless fact

Sidney Morgenbesser, a great philosophical idiot and my professor at Columbia University, asked me, "Dr. Morgenbesser, why is there something instead of nothing?"

"Well, if there were nothing, you wouldn't be satisfied," I replied.

So - (laughs) - yeah yeah

I don't care if you're not surprised

But in conclusion, I'm going to tell you something that absolutely astonishes you all, and that's what surprised all the brilliant, wonderful people I've met at this TED conference -- and it's -- "I've never owned a cell phone in my life."

thank you

(applause)

Another sweltering morning has arrived in Memphis, Egypt.

As the sun begins to shine down the Nile, Peseshet checks his belongings.

honey garlic cumin acacia leaves cedar oil

I'm ready to see the patient

Peseshet is "swnu" (doctor)

To become a doctor, she trained as a scribe and studied the ancient texts of medicine at "Per Ankh" (House of Life).

She is now a teacher there.

Before class

It seems that a worker at the temple construction site injured his arm.

Peseshet examined his arm, and to make matters worse, his bones were shattered into many pieces.

Peseshet binds his arms

on my way to the house of life

Stopped by a lady on the side of the road

My son was stung by a scorpion.

Peseshet knows what to do

Cast a detoxification spell

With the power of spells, I summon Serket, Patron of the Physician and Goddess of Poisonous Creatures.

Peseshet disguises himself as Serket and casts a spell.

This rigorous approach greatly increases your chances of being rescued.

After casting the spell, the appropriate remedy is to use a knife to remove the poison.

The detoxification is over, but the lady seems to have another business.

I was wondering if I was pregnant

Peseshet explains how to test for pregnancy by planting barley and wheat seeds

On that soil, I do my business every day

if the wheat grows she is pregnant

If the barley grows there will be a boy, if the wheat grows there will be a girl

In addition, Peseshet encourages you to pray to Hathor, the goddess of fertility.

When Peseshet finally reached the House of Life, he ran into the shaman Iseth.

She greeted her politely, but in her heart she thinks the shaman is selfish.

However, Isesi's position as Nerpeft is not enviable.

The House of Life, as always, is filled with scribes, priests, doctors and students.

All sorts of things, not just medicine, are recorded on papyrus and stored here.

Peseshet's son Akesetep is busy with his writing, he is studying to be a scribe.

He's a highly sought after student, but he can learn because Peseshet is a scribe, and her father was a scribe, too.

Unless you're born into a professional family, it's hard for boys to pursue learning, and it's impossible for girls.

Peseshet oversees Memphis' female doctors and female residents.

Men have male supervisors because male doctors don't treat women.

Today Peseshet teaches anatomy.

She quizzes her students about the metu, the tubes in the body that carry blood, air, urine, and even evil spirits.

As Peseshet was leaving, he was asked to be examined by a thin, pale woman.

The inside of my arm is swollen and painful.

Peseshet notices that the swelling is cold and still hard like a green fruit.

I've learned about this disease, but it's the first time I've seen it.

There's no cure for this boil, no medicine or spells.

Any document says to leave it alone

Telling him that nothing can be done, Peseshet walks away.

She's lost in thought on the steps of the House of Life looking out over the city at dusk.

No matter how hard I try, there are patients I can't help like the lady who had a boil

I think of them, but I don't have time to think about Peseshet.

In a few weeks' time, the Nile will be flooding again this year, bringing life to the soil for next year's harvest and causing many injuries.

Just the other day, some white men and some black women swapped Twitter icons and pictures with each other.

I didn't change anything, I was just tweeting like I always do, but suddenly, white men were being called the N-word, a racist term, and they found themselves being bullied badly, while black women suddenly felt more comfortable.

Now, with my five-year-old, most of what you see on the Internet will be puppies and fairies, and sometimes fairies riding puppies.

it's true try searching

But we know the internet can be a really ugly place.

I'm not here to discuss the various debates that I believe are healthy for democracy.

I'm talking about palliative personal attacks.

Maybe you have, but if you're a woman, or a person of color, or gay -- or more than one, you're at least twice as likely to experience discomfort.

In fact, while I was writing this talk, I found a Twitter account called @SallyKohnSucks.

In my introduction, I'm "a man-hating male lesbian and the only thing I've accomplished in my career is promoting perverted sexuality."

Only a third is correct, but-

No, you're lying! (Laughter) Jokes aside, we all hate this kind of bullshit.

The question is, are you willing to make the personal sacrifices to change that?

I'm not saying stop the internet

I'm talking about changing the way we click, because clicking is a public act.

No longer is all media controlled by a few elites in power, and we are just receivers.

Increasingly, we are the media ourselves.

I used to think that I should dress up, wear makeup, and explain the news on TV.

It is a public act that shapes the media—

When you go home and browse the internet, reading Twitter is a private act of consuming media.

Of course it should be, because I'm still in my pajamas.

but it's wrong

What we blog, what we tweet, and what we click, are all public activities that shape the medium.

we are the new editors

What we focus on determines what we focus on.

This is how the media works today

There's a hidden algorithm that decides what we see more of, based on what you click on, which in turn shapes our entire culture.

More than three-fifths of Americans believe that our country is currently facing a major problem of rudeness, but at least three-fifths of Americans suspect that we're clicking on insulting, rumor-mongering and bullshit that fosters some of the most despicable impulses in our society.

The media world is getting louder and louder, pushing people to speak louder, and in a world where the tyranny of the loud voices prevails, it fosters the tyranny of meanness.

it doesn't have to be

you don't have to

You can change your motivation

First, there are two things that anyone can do.

First, if you see someone being hurt, don't be a bystander.

If someone is being abused online, what do you do?

Be a hero this is your chance

Speak up, speak up, be a good person

Let the good drown out the bad

The second is to stop clicking on the worst possible links.

If you don't like Kardashian on every show at any given time, stop clicking on Kim Kardashian's boob peeks from the sidelines.

Are you clicking? (Applause) You there too

It's a similar example, but if you don't like politicians picking on each other, stop clicking on articles about what one politician called another party's politician.

Clicking on a tragic story is like adding fuel to the fire.

Things get worse and the fire spreads

our entire culture will be burned to the ground

If the one with the most clicks wins, then we have to start creating the world we want with our clicks, because clicking is a public act.

Please click responsibly Thank you

(applause)

This photo shows a man I've tried to assassinate for years.

My father - Clinton George "Bagay" Grant.

My father was called "Bagay" because the tear bags around his eyes were always sagging.

When I was 10, my siblings and I would scrape the poison out of flypaper and mix it in his coffee, or smash glass and pour it over his breakfast, or leave the carpet on the stairs loose so he slipped and broke his neck.

But that didn't work out, and my father would always skip loose carpet runs, never get enough coffee or breakfast, and go hunched over.

For years, I feared that my father would die before I had the chance to kill him.

(Laughter) Bagay was a terrifying monster until my mother told my father to leave the house.

My father was on the verge of bursting into rage all the time, and you see, he's kind of like me.

My dad worked the night shift at Vauxhall Motors in Luton, so he wanted complete silence in the house, so when we got home from school at 3:30 p.m.

Sometimes I would keep my voice in my house under a low shhh, so low shhh, I thought it would be like a German soldier sneaking up to the surface in a U-boat, while above the surface, the Royal Navy warship Bagay was waiting to drop depth charges on anyone who would disturb the silence.

The lesson this taught me was, "Don't do anything that stands out, both at home and outside."

This may have been a lesson in being an immigrant.

We were under radar surveillance, and there was absolutely no communication between Bagay and us. The sound we were looking forward to -- when you were a child, you would have waited impatiently for your father to come home, for the door to open.

The sound we were all looking forward to was the slamming of the door, knowing that Bagay had left and would never come back.

For 30 years my father and I hadn't seen each other.

We hadn't spoken to each other for 30 years, but a few years ago I decided to look him up.

"You are seen

Really

You are being watched."

This was the mantra my father used to teach us children.

asked over and over again

This is because it was the 1970s and it was in Luton, the city where he worked for Vauxhall Motors, and he was Jamaican.

What my father was saying was, "As the children of Jamaican immigrants, you are being looked at for your behavior and your stereotypes."

"You guys are being watched, so betray their expectations."

In that sense, Bagay and his friends -- who were mostly Jamaicans -- made an impressive Jamaican impression: Show the world your best side, your good face.

If you've seen pictures of Caribbean people coming in the '40s and '50s, you've noticed a lot of men wearing trilby hats.

Jamaicans don't wear trilby hats.

You created a tradition when you came to this country.

They wanted to project the way they wanted to be seen, so their looks and the names they called themselves defined them.

Bagay had no hair and had tear bags in his eyes.

“Tidy boots” paid attention to shoes

“Anxious” was anxious

"Clock" had one arm longer than the other.

(Laughter) My favorite is the guy called "Summerwear."

"Summer clothes" came to England from Jamaica in the early '60s, and they insisted on wearing light summer suits in all weathers.

My mother said, "I caught a cold and died," (Laughter).

They may have emphasized style because they thought they were perceived as less sophisticated, and they passed that generation's attitudes and anxieties on to us, the next generation. So when I was growing up, when the TV news or the radio told us that black people were committing crimes -- snatching, murder, robbery -- we and our parents flinched because they were disrespectful.

not only do they represent themselves

I'm representing a group, and in some ways, it was terrifying to accept that I might be looked at in the same way.

So I had to face it

Our father and many of his colleagues were sending but never receiving.

They could send, but they couldn't receive.

we had no choice but to be silent

When my father came to talk to us, it was always a sermon.

I clung to my firm beliefs, and when doubts arose, they ruined me.

When I work at home and write all day and then come downstairs and get excited and talk about Marcus Garvey and Bob Marley, the words come flying out like butterflies.

(Laughter) But kids are really curious.

The time will come when we will meet

Somehow the time will come to come to my father

Children shape their lives through the lives you tell, as I learned from the lives of my father and mother, and as Bagay learned from his father.

This became very clear to me as I looked back on my father's life, and I realized that, as the Native Americans used to say, "Don't judge someone without walking in their moccasins."

In digging into my father's life, it was really easy to paint a picture of Caribbean immigrant life in England in the 1970s: plastic fruit in a bowl, a polystyrene ceiling, and the sofa that came with the delivery with the clear cover still on.

But what's even more elusive is the emotional folds between different generations, and the old adage that old age makes you wiser isn't true.

With old age comes the appearance of respectability and the appearance of uncomfortable truth.

What was true was that my parents--my mother and father--didn't trust the education my country gave me.

listen to my pronunciation

My parents decided to put me in a private school, but my father worked at Vauxhall Motors.

It was difficult to pay for private school and feed many children.

I remember going to the school to take the entrance exam and my father telling the priest -- it was a Catholic school -- that he wanted his son to get a good education, but he had never passed the pinworm test, so he didn't care about the entrance exam.

To pay for my education, my father had to take on dangerous jobs, and he sold illegal goods out of the trunk of his car to pay for my education.

My father wanted to have a car like that, but his car was a battered Mini, and he was a Jamaican who came to this country as an immigrant without a driver's license, with no insurance, no road tax, no vehicle inspection.

My father was thinking, "Why do I need a state license if I know how to drive?"

But when the police stopped us, things got tricky, and in fact, we were often stopped by the police.

My father immediately promoted the officer, which meant that in conversation you could call Officer Broggs Lieutenant Inspector and he'd hilariously get away with it.

My father was practicing what they say in Jamaica, "playing stupid to be smart."

But it also meant that the cops looked down on and belittled my father, and I understood that at the age of 10, but I also had conflicting feelings about authority.

On the one hand, they were mocking authority, but on the other hand, they were following authority. And these Caribbean people were in a way very conspicuous and very strange, because immigrants are very courageous people.

Because they're leaving their country, my parents left Jamaica and traveled 4,000 miles, and the journey made them childish.

I became withdrawn, and perhaps because of that, somehow the order of nature was reversed.

children became like their parents

Caribbean people came to this country on a five-year plan, they were going to work, save money, and then come back, but five years turned into 10, 10 turned into 15.

Still, my parents were kind of saying they were just staying there temporarily, but we kids knew that all that play was over.

I think I felt that I could not continue to live up to the ideals of life that my parents envisioned for me.

reality was much different

And so was the reality of my educational endeavor.

I started on my own, but my father gave up halfway through.

My education was in my mother's hands, and as George Raming would say, "It was my mother who played the part of my father."

Even in my father's absence, the spell was still there, saying, "You're being watched."

But that caution can lead to feelings of anxiety. In fact, many years later, when I was investigating why so many young black men were diagnosed with schizophrenia -- six times the average, I wasn't surprised to hear a psychiatrist say, "Blacks are instilled with paranoia."

Father, I wonder what Bagay would say when he hears this.

I also had a 10-year-old son, so I became interested in Bagay and decided to find him.

My father was back in Luton, and he was 82. I hadn't seen him in 30-odd years. When he opened the door, there was this little man with a soft smile in his eyes. I had never seen him smile before.

I was dismayed by my father's smile

But I sat down with him, and he was talking about old times with some Caribbean friends, and he looked at me, and the way he looked at me was as if he were going to disappear at any moment, just as I had appeared.

Then he turned to his friend and he said, "This child and I have a deep, deep bond -- a deep bond."

But I've never felt a bond like that

If there was something like a heartbeat, it was either very weak or almost non-existent.

During this reunion, I felt like I was auditioning to be my father's son.

When the book came out, it got good reviews in newspapers all over the country, but the newspaper in Luton isn't the Guardian, it's the Luton News, and the headline that the Luton News chose for the book was, "A Book to Solve 32 Years of Discord."

And this, I realized, also meant a rift between generations, a rift between people like me and people from my father's generation.

It's a tradition not to speak publicly about one's private life.

But I gladly accepted the headline, and I actually thought that the book had the potential to inspire people to say things that hadn't been said before.

This book may help bridge the generation gap.

I thought this book might become a repair tool.

And I began to feel that this book might be perceived by my father as an act of deep filial affection.

What a pathetic shallow idea

Bagay was deeply hurt by the public exposure of his shortcomings.

Hurt by my betrayal, my father went to the newspaper the next day and demanded the right to respond, and the headline read, "Bagay strikes back."

And that article brilliantly cut my betrayal.

i am not his son

My father believed that the color of his skin forced him to live a life of crawling on the ground, and he could not allow it.

He had to regain his dignity, and he did. I was disappointed at first, but I've come to respect the position.

At the age of 82, his blood was still boiling with fire.

And if this means going back to 30 years of silence again, my father would say, "If that's what it is, then it is."

Jamaicans will say that there are no facts, only opinions.

We just tell stories based on the views we most want to believe.

Each generation produces systems that are unwilling or sometimes incapable of dismantling themselves, but the stories that were told from my point of view in the book began to change and slip away from my hands.

hatred for my father is gone

I didn't want my father to die, I didn't want to kill him, and I felt free.

I wondered if this feeling of freedom could be passed on to my father.

At our first reunion, I was struck by how few pictures I had of myself as a child.

This is a picture of me when I was 9 months old

In the original picture, I'm being held by my father, Bagay, but when my parents divorced, my mother excluded him from every aspect of their lives.

With scissors, my mother cut my father out of every photo, and for years I told myself that this photo was telling me that I was alone and unsupported.

But there was another way of looking at this photo.

This is a picture of the possibility of reunion -- a picture of the possibility of reunion with my father.

During our first reunion, we had some very awkward and tense moments, and to ease the tension, we decided to go for a walk.

As we walked together, I felt like a child again, even though I was now much taller than my father.

I'm about 30 centimeters taller than my father

My father is still a big man, so I tried to keep up with his steps.

And I noticed that he still walked like someone was watching, but I was impressed with his gait.

My father's steps were like the second-place team in the F.A. Cup Finals stepping onto the stage to claim the second-place medal.

There was dignity in defeat

thank you

(applause)

i am a production engineer

The goal in life is always to make more product with the least amount of time and resources.

During my time at Toyota, all I knew was how to make a car, until I met Dr. Akira Miyawaki, who came to create a forest in the factory to make it carbon neutral.

I was so fascinated by it that I decided to join his team as a volunteer and learn this methodology.

I immediately started planting a forest in my own backyard, and this is what it looked like three years later.

This forest is growing 10 times faster, 30 times more dense and 100 times more biodiverse than conventional plantations.

Within two years of having a forest in my backyard, I noticed that the groundwater didn't dry up during the summer, and the number of bird species I saw in the area doubled.

The air is cleaner, and we've started picking seasonal fruits that grow right behind our gardens.

I want to make more forests

I was so impressed with the results that I wanted to create this forest with the same acumen as any other mainstream business, whether it's car building or software development.

But in order to make afforestation a mainstream business industry, we had to standardize the process of growing forests.

So we based our reforestation process on the Toyota Production System, which is known for its quality and efficiency.

At the heart of the Toyota Production System, or TPS, for example, is leveling, which is the production of different models of cars on one assembly line.

We've replaced cars with trees, and now we're creating a multi-layered forest of different types of trees.

The forest utilizes 100% vertical space

It's so dense you can't even walk in.

So, for example, you can create a forest with 300 trees in a small parking space for about six cars.

To reduce costs and my own carbon footprint, I started using local biomass to improve and fertilize the soil.

Coconut shells, for example, are mechanically crushed and mixed with rice straw, or with rice bran mixed with organic fertilizer, and finally sprinkled on the soil where trees can be planted.

Once the seedlings are planted, the soil is covered with rice grass or rice straw so that all the water that is drawn in does not evaporate into the air.

Using that simple improvisation, we can now create a forest at a cost as low as an iPhone.

Today, even homes, schools, and corporate factories are creating forests.

But that's not enough

There are so many people who want to take action themselves.

So now, based on the Internet,

So we put our methodology out there as "open source," so that anyone -- anyone could use our methodology to build their own forest without calling us.

With the click of a button, you can get to know all the species while you're there.

By installing a small sensor at the site, we can actually test the soil at a distance, and that can be used to give us step-by-step instructions on how to build a forest remotely.

We can also monitor the growth of this forest without visiting the site.

I believe this methodology has future potential.

By sharing our methods, we can actually restore our local forests.

Now go home and keep in mind that any barren land can become a forest.

Thank you very much Thank you

(applause)

There are more than 1 trillion galaxies in the universe

And my team discovered a very unusual galaxy, a galaxy that looks nothing like any other galaxy ever discovered.

It's so peculiar that it makes us question theories and assumptions about how the universe works.

Most galaxies are spiral, similar to our Milky Way galaxy.

We have strong theories about the formation and evolution of these ordinary galaxies.

But we don't know about the formation and evolution of rare galaxies.

A particularly baffling and rare example is called "Hogue's Object".

A central object of perfect symmetry is surrounded by a circular outer ring, with nothing to be seen between them.

Hoag galaxies are the rarest type of galaxy known today.

Less than 1 in 1000 galaxies

The mechanism by which the stars that make up the outer ring simply float in an orderly manner is shrouded in mystery.

Interesting, don't you think?

but wait a minute

There's something even more mysterious.

The galaxies my team discovered were much more rare and much more complex.

No matter how hard you try to find these objects, sometimes you find nothing.

But sometimes they pop up in the background when you're not even trying to find them.

What makes this object very similar to Hoag's object is that it has a central object and a circular outer ring.

We were so excited that we thought we had found another Hoag Object.

But upon further investigation, it turned out to be an entirely new type of galaxy, now commonly referred to as the "Boutin' Galaxy."

(Laughter) (Cheers) (Applause) We won't be visiting this galaxy in the near future.

It's about 359 million light years away from Earth.

it may seem far away

But actually this is one of the nearby galaxies.

We've examined this object in a variety of lights -- ultraviolet, visible, and near-infrared.

Just like the scars and wrinkles on your body are carved with the story of your life.

The structure of galaxies in different lights helps us trace their origins and evolution.

How can we find out the details?

By creating an image model of the bright central object and subtracting it from the image, we look for hidden features, because the glowing structures in the galaxy's interior obscure faint features, like wearing sunglasses when you're blinded by intense light.

The results were quite astonishing

This galaxy had not only an outer ring, but also a diffuse inner ring.

I had a hard time explaining the origin of the outer rings in Hoag galaxies.

Now I also need to explain this mysterious second wheel.

So far, no mechanism is known to explain the existence of such peculiar galaxy inner rings.

The discovery of the Butin galaxy sharply highlighted a gap in our knowledge of the evolution of the universe.

Further investigation of how this extremely rare galaxy formed could provide new clues about how the universe works.

What this discovery shows us is that we still have a lot to learn, and that we should keep looking deeper into the universe and looking for the unknown.

thank you

(applause)

it's like a dream

Imagine, in an empty desert, you come across a gigantic ring of skeletons. There are some heavy ropes at the base, and they tell you to pull them.

This is the furthest thing from art on the market.

(Laughter) It's huge, it's dangerous, it takes about a dozen people to move it, and there's no sofa.

(Laughter) It's very beautifully made, but it's completely impractical, and it's beautiful.

A movie like "Careon" won't make the headlines in the trade press.

These days, the topic of buying and selling artworks gets more attention than the artworks themselves.

Last year, a work by Jean-Michel Basquiat sold for $110 million, the most expensive work by an American artist, while a painting by Leonardo da Vinci sold for $450 million, setting a new auction record.

Of course, they're great and important artists. But when you see these works, and you see headlines like that, you have to ask yourself: Do I care about the work because it moves me, or because it's expensive and I think it should move me?

In today's world, it's hard to separate the two.

but what if i try

What if we could redefine the value of art and value it not by its price tag, but by the emotional connection it creates between the artist and the audience, the benefits it brings to society, and the fulfillment it brings to the artist himself?

This is the Black Rock Desert in Nevada, a far cry from the galleries of New York or London or Hong Kong.

That's exactly what we've been doing here for nearly 30 years with Burning Man.

After an initial chaotic period, Burning Man has matured.

Today, it's become something of a collective dreaming place.

In our year-round community, every August, for a week, 70,000 people turn off their high-tech gadgets and go on a pilgrimage to the desert, stepping outside the bounds of everyday life to create a society that's not a consumer society.

tough conditions await

You'll get hugs from complete strangers, and every year you'll curse that you did better last year.

Here's a picture of my brother and I from a trip to the desert last year, and as you can see, we're all at work.

(Laughter) I've spent the last few years researching Burning Man's art in preparation for an exhibition at the Smithsonian's Renwick Galleries. What fascinated me the most was not the quality of the work -- it was a good one -- but why people would go to the desert over and over again to get their hands dirty in this increasingly digital age.

It seems that we are connected to something essential as a human being.

You can think of the entire Burning Man venue as one giant, interactive piece of art, with each participant moving the piece.

One of the things that separates this work from the commercial art world is that anyone who makes it can show it.

These days, around 300 works of art and countless art activities gather in the playa.

None of the works are sold there.

At the end of the week, the work must either be burned or towed back by the artist for safekeeping.

It's a lot of hard work with love

There's certainly a Burning Man aesthetic, created by trailblazers like Kate Rodenbush and Michael Christian, but much of what sets these creations apart stems from the desert itself.

For a work to exist, it must be portable enough to be transported to the site, be sturdy enough to withstand the elements and the audience, stand out in the daytime and in the dark, and be compelling without interpretation.

Encountering this gigantic work that touches the heartstrings is like a dream

The human eye can be deceived by size

What may look huge in an artist's studio may not be noticeable in the playa, where space is nearly limitless, allowing artists to imagine the biggest thing they can create.

Some are dauntingly elegant, while others are awe-inspiring for the daring they've brought to this point.

Burning Man's irreverent humor is well represented in Rebecca Waits' "Church Trap," a small country church built on timber beams like a mousetrap, inviting participants to seek faith and step inside. Created and burned in 2013.

And Christopher Schaert's "Firmament" is about solemnity.

Beneath a canopy of dancing lights set to classical music, attendees take a break from the blaring frenetic beats and chaos of their surroundings.

At night, there are a lot of bizarre vehicles driving through the city, and these are the only vehicles that can drive through the playa.

If "Necessity is the mother of invention", then "Stupidity is the father of invention" here.

(Laughter) The vehicles that criss-cross from artwork to artwork are like a strange, whimsical public transportation system that pulsates with light and sound.

When artists stop caring about critics and collectors and start making work for themselves, these amazing toys are born.

The surprising thing is that most people don't know how to make these things when they first come to Burning Man.

Our work is made possible by a vibrant and collaborative production community.

Groups like Five Tonne Crane share their skills to come up with intricate projects that no one would ever attempt alone. There's a gothic spaceship ready to take off, a house shaped like a giant fairy-tale boot, a bookshelf lined with artist-made books, a blackbird pie in the oven, and a climbable beanstalk.

All are welcome, both highly skilled and non-skilled.

In fact, what makes the work here so appealing and novel is that many of the creators aren't artists. It's the scientists, the engineers, the welders, the garbage collectors.

In museums, the average visitor spends less than 30 seconds on a piece of art. What we often see is people wandering from narrative to narrative in search of information -- do you really think you can fit all the context around a piece of art into 80 words?

But in the desert there are no watchmen, no signboards to explain the work, just raw curiosity.

If you find a work on the horizon, aim for it with a vehicle

When you arrive, walk around and touch and try it out.

Will it be strong enough to climb? Will it stick to my body?

(Laughter) Art becomes a place of extended interaction, and even though the exhibition itself may be of limited duration, the experience remains.

In Burning Man, Temple is the epitome of that.

In 2000, David Best and Jack Hay erected the first Temple, which became a makeshift memorial after the tragedy of a team member dying in an accident shortly before the event.

It is a sublime architectural work in itself, but its shell structure eventually disappears under an overwhelmingly thick message.

"I miss you"

"Please forgive me"

"Even a broken crayon can still draw"

A profound language spells out the most universal human experience - the experience of bereavement.

The feelings that people feel in this place are overwhelming and indescribable, and eventually, on the final night of the event, the building is set on fire.

Every year something inspires people from all walks of life to come together from all over the world to go out into the desert and make art, and money doesn't matter.

Not all of the work is sophisticated, and some of it doesn't come to fruition.

It's comforting to know that in these ironic times, we can still stretch our imaginations so far. It's comforting to know that when we want to connect, together we'll build a church in the dust.

forget about the price

forget the masters

If this isn't art, what is modern art for?

thank you

(applause)

As a doctor for 10 years, I worked with homeless veterans and working-class families.

I've been treating people who are working with ailments, and their conditions are difficult if not serious, and through this work, I've realized that we have to look at the current health care system in a fundamentally different way.

What we need now is a healthcare system that can look at the root of the health condition that preceded it, rather than just looking at the symptoms of why a patient came to the clinic, and how to improve it.

The roots of health are not in the doctor's office, but where we live, work, eat, sleep, learn, and play most of our lives.

So what is this alternative health care system approach, and how is it going to fundamentally improve health?

I'll explain it through Veronica's story.

Veronica was the 17th of 26 patients I saw at a clinic in South Central Los Angeles.

She visited the clinic after suffering from chronic headaches.

This headache has plagued her for many years, and this particular headache attack was a very difficult problem.

In fact, three weeks before she visited the clinic for the first time, she visited an emergency room in Los Angeles.

The emergency room doctor said, "Veronica, I've run some tests.

The results are normal, so I'm going to give you some painkillers. Please see your primary care doctor for a follow-up, and if your symptoms don't go away or get worse, see you again."

Veronica followed these general instructions, but had another emergency room visit.

not once, but three times

She's been to the emergency room three times in the three weeks before we met.

I've been in and out of hospitals and clinics for help, as I've done many times over the years, and I still haven't gotten better.

Veronica was still unwell, despite many medical team specialists, and came to our clinic.

Our clinic examined Veronica in a different way.

Our visits began with medical assistants who had completed general education and were familiar with the area.

A medical assistant asks the general questions they usually ask

I asked what the chief complaint was

"I have a headache," was the reply

I said, "Okay, let's take your vital signs," and we're going to measure your blood pressure and your heart rate, but you're also going to ask the essential questions that are common to Veronica and other patients like her who live in South LA.

"Tell me about your current living environment.

In particular, please tell us about the housing environment.

Do you have mold? Are there any water leaks?

Will there be cockroaches? ”

Three of these questions were answered yes: cockroaches, water leaks, mold.

I read through these questionnaires, opened the door to the doctor's office, and entered.

Veronica, like many of the patients I see, is dignified, has a big presence, and a big personality.

I held my throbbing head in my hands

When she lifted her head and I looked at her face and said hello, I immediately noticed the crease in the skin that ran across the bridge of her nose.

In medicine, these wrinkles are called nasal rubs in allergic rhinitis.

It's a chronic allergy that's usually seen in children.

It's an allergic reaction, caused by chronic rubbing of the nose up and down with the palm of your hand, and the adult Veronica had apparently the same allergic symptoms.

Then I questioned Veronica, and after a few minutes of examination and questioning, I said to her, "Veronica, I know what's wrong-

I have chronic allergies, and I have migraine headaches and nasal congestion, but these problems are likely related to your environment."

She seemed relieved to be diagnosed for the first time, but I continued, "Let me tell you about the cure-

First, I'll prescribe some medicine for your symptoms, but if you don't mind, I'd like to refer you to a specialist."

It's not easy to find a specialist in South Central Los Angeles right now, so she was surprised, "Is that so?"

I said, "Veronica, the expert I'm talking about is actually a community health worker, and if it's okay with you, she'll come to your home, determine what problems you're having with leaks and mold, and help you make the living arrangements that might be causing your symptoms.

Veronica returned to the clinic a few months later.

I consented to all these treatment plans

So she reported that 90 percent of her symptoms had improved.

He said he spent less time walking to and from the LA emergency room and more time with work and family.

Veronica's condition had improved significantly.

Her sons, who had asthma in the family, had less symptoms.

Veronica was feeling better, and at the same time, her living conditions were improving.

So what was this better care, the treatments we tried that led to fewer trips to the ER and better health?

It all started with the simple question, "Where do you live?"

But more importantly, we've put in place a system in which Veronica and hundreds of other patients like her must be asked questions about their health and, unfortunately, the local conditions that sometimes cause their illness in places like South LA.

In this area, clinic staff must be aware of life-threatening conditions such as substandard housing and food shortages, while in other areas it may be inadequate public transportation, obesity, access to parks, or gun violence.

The important thing is that we've got a system in place that works, and the way I do that is what I call the "upstream" approach.

It is an expression familiar to everyone.

It comes from a well-known fable in the world of public health.

A fable of three friends

These three went to the river, but imagine that one of these three is you.

The river is very beautiful, but the cries of children echoed through it, and several children were drowning in the river and needed rescue.

so you take the right course of action

Jump into the river with your friends

The first friend says that he will help children who are at high risk of drowning or falling down a waterfall.

The second says let's build a raft

Reduce the number of people who are swept to the edge of the waterfall

They say that by bundling branches to make a raft, they can lead more people to safety.

But it's not as successful as we'd hoped

As more people flow in, you look upriver and realize that your third friend is missing.

When you think you've finally found

She's swimming upstream, rescuing children, and they're like, 'Where are you going?

Here are the children waiting for help."

"Find out what's pushing the children into the river," she replies.

Your first friends in medicine are specialists, trauma surgeons, intensive care unit nurses, emergency room doctors, and so on.

When you're in dire straits, there are people you need

Then there's a second friend who builds a raft.

It's the primary care clinician, the health care team who manages chronic illnesses, diabetes, hypertension, and so on, who not only make sure you're up to date with your annual checkups and up-to-date immunizations, but also make sure you're on the safe track to good health.

But while we have this essential rescuer, we're missing a third rescuer.

There aren't enough specialists doing upstream care.

An upstream care specialist is a health care professional who understands that health begins where we live, work and play, and who goes beyond that understanding and is able to take the necessary steps in their clinics and hospitals to create systems that will stop disease upstream, and connect them with the human resources and resources that patients need outside the clinic.

And then you might ask a question that many medical staff also ask, "Do doctors and nurses even think about transportation and housing?

Shouldn't we provide medicine and treatment and just focus on the task at hand? ”

Of course, helping people on the water's edge is an important enough job.

Who has extra time?

If you think about it scientifically, it becomes clear that a more upstream diagnostic approach is essential.

Scientists know that the environment in which we live and work affects our health more than twice as much as our genetic information, and when we consider the environment in which we live and work, the structure of our environment, the way society is organized, and their impact on our behavior, together, they have an impact on our health five times more than the combined impact of all the medicines and treatments administered by doctors and hospitals.

Living and working conditions combined with all these factors account for 60% of preventable deaths.

what does this mean

For example, a technology startup company says, "We have a great product.

It's a product that reduces the risk of dying from heart disease."

You may want to invest if the product is drugs or medical equipment, but what if the product is a park?

A British study, a groundbreaking study that looked at the records of more than 40 million people in the UK, analyzed several factors after adjusting for different factors, and found that proximity to trees and greenery had a significant impact on heart disease risk.

The closer people are to green spaces, parks and trees, the less likely they are to have heart disease, whether they're rich or poor.

The story of this study echoes what a friend of mine who works in public health often says these days, that your zip code affects your health more than your genes.

We're also learning that our zip code influences the formation of our genetic code.

The science of epigenetics literally looks at the complex mechanisms by which DNA is formed, and the molecular mechanisms of genes that are switched on by the environment in which we live and work, to which we are exposed.

So it's clear that these factors and upstream issues are important.

These are things that are important to our health, and medical professionals should take action on this.

Veronica's question, on the other hand, has been on my mind for a long time.

At that follow-up visit, she said, "Why didn't any of the doctors I've seen before ask me about my home?"

In the emergency room, I had two CAT scans, a needle stuck in my lower back to check my spinal fluid, and I had nearly 10 blood tests.

I made many trips to the emergency room and met with various medical staff, but none of them asked me about my living conditions."

And let's be honest, often in medicine, we just treat the symptoms without looking at the conditions that caused them in the first place.

There are a lot of reasons for that, but three main ones, one is that they don't pay for medical bills.

In medicine, we often pay more for quantity than for quality.

Doctors and hospitals are typically rewarded for the number of procedures they provide, so they are not necessarily evaluated for their recovery.

This leads to the second phenomenon, the listen-no-say-no-say attitude to problems that are happening in the upper reaches of the medical community.

Doctors don't ask patients where they live or work because they don't know how to explain when something goes wrong.

It's not that doctors don't realize this is an important issue.

In a recent survey of more than 1,000 U.S. physicians, 80 percent of them actually said they knew their patients' upstream problems were just as important as their health problems.

There's a big difference between knowing that the circumstances of a patient's life and where they live and work matter, and being able to do something about it.

This is a big issue right now, because it leads us to this question: "Who is responsible for that?"

And that brings us to that third point, the third answer to Veronica's key question.

Part of the reason this conundrum arises is because we don't have enough people to do the upstream work in healthcare.

We're throwing our kids into the river We're running out of those "third friends" to find someone

Now there are a lot of "upstream people," and I've seen a number of them in Los Angeles and other states and other countries, and I've seen a number of them in other countries.

They can be nurses, other clinicians, care managers, social workers.

It doesn't matter what degree goes after the name of the people who look upstream.

Most importantly, they all have the same ability to implement processes to transform the way they help and provide care to patients.

This process is very simple

Steps 1, 2 and 3

First, they sit in a chair in the clinic and say, "Let's identify a clinical problem in a group of patients."

For example, let's say you want to help children who are in and out of the hospital because of asthma.

After identifying what the problem is, the second step is to say, "Okay, let's find the root cause of the problem."

In healthcare causal analysis, we usually say, "Let's look at your genes." "Let's look at your habits."

"Maybe it's not a healthy diet."

"Eat Healthy"

It's too simplistic an approach for causal analysis.

If you get caught up in this way and narrow your horizons, this doesn't really solve the problem.

Causal analysis in upstream diagnosis is to tell the patient, let's take a look at your daily life and working conditions.

Perhaps for children with asthma, the environment at home plays a role, or they live near highways with very high levels of air pollution, and that's what causes their asthma.

Perhaps that's a problem that we should be concentrating our resources on to solve, because this third component, the third part of the process chain, is the next critical step in upstream diagnostics.

They're mobilizing the resources to build solutions -- from within the clinical system, and from the public health sector, from other sectors, from lawyers -- to bring together all the willingness to work together to build rational solutions, to connect those who work together on behalf of patients who suffer from disease, and to connect them with the resources they need to identify and solve the root causes.

There's certainly a lot of great work being done by people looking at upstream.

The problem is that there aren't enough of them.

By one estimate, for every 20 to 30 clinicians, you need one upstream person.

For example, in the United States, that means we need 25,000 upstream diagnosticians by 2020.

But now we only have a few thousand upstream diagnosticians, and for this reason, a few years ago, my colleagues and I said, "We need to develop more upstream diagnosticians."

I started an organization called "Health Begins." Health Begins simply trains upstream diagnosticians.

We do everything in our power to be successful, but our main focus is to change clinicians' confidence that "don't ask, don't tell" diagnosis is enough.

We're trying to equip clinicians and the systems in which they work to have the ability and confidence to solve problems in the environments in which we live and work.

And we've seen that confidence grow threefold as a result of our work.

It's nice, but the most amazing thing about working with people who look upstream is-

Every day, every week, I hear stories very similar to Veronica's.

There are many stories like Veronica's. How would you feel if you went to a hospital and found medical care that could find a solution, medical care that didn't keep you coming back for more, actually improved your health, listened to you, and made a difference in the circumstances of your life, whether you were rich or poor.

This story is powerful not only because we are so close to the medical care we want, but also because we can all contribute to achieving the ideal medical care.

Doctors and nurses will get better at asking patients about their lives, not just because it's better bedside manners, but because it's a better standard of care.

Health care systems and insurance companies can mobilize public health agencies and departments of public health and say, "Let's analyze the data together and make it work."

Let's see if we can find patterns in patient life data and identify upstream causes, and above all, can we align the people and resources to tackle the problem?

Medical schools, nursing schools, and all medical professional education programs can participate in training the next generation of "upstream caregivers."

These schools also play a role in training and qualifying community health workers to support the upstream diagnostic approach.

For our healthcare system to evolve from treating the sick to caring for health, we need more community health workers.

Finally, and perhaps most importantly, what do we do as patients?

When we go to a doctor's office, we start by asking the doctor or the nurse, "Is there anything I should know about the environment in which I live or work?"

But more importantly, when you find barriers to your health that I'm not aware of, and tell your doctor about them -- problems in your apartment or work, problems in your apartment or work, lack of access to public transportation, or the park is too far away -- you can't go jogging as your doctor advises -- and so on.

“What can we do together to improve our starting point for health?”

If we can all do this -- doctors, health systems, insurance companies, and ourselves -- together, we can improve our health.

Health isn't just an individual responsibility, it's not a random phenomenon.

Health is a universal good for all

Health comes from making an effort to realize that our lives are worthy of respect. It comes from knowing that the circumstances in which we live and where we work, and that food and sleep are factors in our health, that what we do for ourselves, we should do the same for others who live and work in harsh, if not harsh, environments.

Each of us can better allocate resources upstream in health, and at the same time, together we can prove that we can move healthcare further upstream.

Improve your health from the ground up

thank you

(applause)

What I want to talk to you about today is a project that scientists around the world are doing about a neural picture of the human brain.

Central to this research is the idea that the human mind and brain is not a general-purpose, single-purpose processor, but rather a complex of highly specialized parts, each of which makes us think holistically while solving unique problems.

To understand this, imagine the following scenario: You walk into a daycare center with your child.

As usual, there are dozens of children waiting to be picked up by their parents, but today they all look strangely the same, and it's hard to tell which one is mine.

Do you have new glasses?

Have you lost your mind?

A lot of things cross my mind quickly

No, my head is clear and my eyes are fine and I can see

Everything is fine, but the children's faces aren't.

You can see the face, but you can't tell it apart, and none of the children recognize it.It's only when you find the orange ribbon that you know it's your child.

This kind of sudden inability to recognize faces actually happens.

It's called prosopagnosia, and it's the result of damage to certain parts of the brain.

What's surprising about this is that it's just facial recognition that's impaired, and everything else is fine.

Prosopagnosia is one of a number of surprisingly peculiar brain dysfunctions that occur after brain injury.

All these symptoms and others have long suggested that the brain is divided into regions with distinct roles, but the breakthrough in research exploring these regions was the invention of brain imaging technology, especially MRI.

We can use MRI to see high-resolution images of tissue structures inside the brain.

This one

It's hard to tell, but it's an artichoke.

So what about this? I'm going from bottom to top.

It's a broccoli head!

Isn't it beautiful? I like it

One more thing, of course, this is the human brain.

actually this is my brain

go slice my brain

There's a nose on the right side.

I love this image, and I really think so, but it's just a reflection of the organization.

The truly amazing breakthrough of functional imaging came when scientists devised techniques to capture not just tissue, but activity, the firing of neurons.

it works like this

the brain is like a muscle

When it's active, it pumps more blood for that activity. Fortunately, blood flow control in the brain is localized, so if, say, a lot of neurons start firing vigorously here, the blood flow there increases.

fMRI catches that increase in blood flow and shows a high response where neurons are activated.

I'm going to tell you about one of the first studies, specifically, how fMRI experiments work, and what you can and can't learn from them.

What we wanted to know was whether there was an area dedicated to facial recognition. Its existence had already been inferred based on the prosopagnosia I mentioned, but no one had confirmed it in the brains of healthy individuals. So we set out to explore it.

I became the first test subject

I went into the MRI and I lay down, I could not move my head as much as possible, and I stared at faces and things like this for hours, and I stared at them for hours.

I think the total amount of time spent in an fMRI scanner is close to the world record, but one of the skills that really counted in this study was bladder control.

(Laughter) When it came out of the scanner, I immediately analyzed the data and looked for the parts of my brain that reacted more strongly when I saw a face than when I saw an object. And this is what I saw.

This image looks terrible by today's standards, but I thought it was beautiful at the time.

There's a spot where you can see a small lump, about the size of an olive, just below the surface of my brain, about two-and-a-half centimeters straight down from here.

What that part of the brain shows is a strong fMRI response, very high neural activity in the brain, when I'm looking at a picture of a person's face instead of an object.

It's pretty funny, but how do we know this isn't a coincidence?

So the easiest way is to run the experiment again.

I went back to the MRI scanner and looked at more pictures of faces and objects, and I saw the same kind of spots.

But it's because there's something wrong with my brain, and it might not be happening to anyone else, so many other people also scanned and looked at it, and they all had pretty much the same results, small facial areas in the same places.

So the next question is the function of this passage.

Is it just facial recognition? maybe not

Is it just facial recognition? maybe not

It doesn't only respond to people's faces, but it may respond to other body parts as well.

It may respond to things like humans, other living things, and even round objects.

The only way to be absolutely certain that the region is functioning specifically for face recognition is to rule out all hypotheses.

So over the next few years, we scanned the brains of people looking at different pictures and observed that when they saw pictures of faces, no matter what they were, that area of ​​the brain responded more strongly than when they saw pictures of non-faces.

So, have we decided that this is the region we need for facial recognition?

no it's not

Brain imaging alone does not tell us whether a particular area is required for a particular function.

With brain imaging, all we can do is watch different thoughts activate and deactivate neurons in every area.

To see if a part of the brain is necessary for a certain mental function, you have to stimulate it and see how it responds, which is usually not possible.

But recently, a surprising opportunity arose, and some of my colleagues tested a man with epilepsy, and here he is lying in a hospital bed, where electrodes have just been placed on the surface of his brain to identify the source of his epilepsy.

By pure chance, two of the electrodes were placed above the facial recognition area.

So, with the patient's consent, the doctors asked him what would happen if they electrically stimulated that part of the brain.

Patients don't know where the electrodes are, patients don't know where the electrodes are, and they've never heard of facial recognition domains.

let's see what happens

I'm going to start with the comparison condition, almost invisible "Sham" in the lower left, red, when it's not energized, and you can hear the neurologist speaking to the patient first.

Neurologist: "Look at my face, tell me what happens in these moments.

May I? ”

Patient: "OK"

Neurologist: "1, 2, 3"

Patient: "Nothing happens" Neurologist: "Nothing? Ok"

Neurologist: "I'll do it again

look at my face

１､２､３」

Patient: "I just became someone else

my face is deformed

nose down and left

I've become like someone else I've seen before, but someone else entirely.

It looks like he did it with drugs too."

(Laughter) This experiment... (Applause) What this experiment finally established is that this region of the brain isn't just responding to faces, it's critical to recognizing faces.

So the reason I've been looking at the face recognition domain in detail is to show you how you need to establish that there are regions in the brain that are involved in specific thought processes.

Now I'm going to talk more bluntly about the functionally differentiated brain regions that we've discovered so far.

This is why I spent so much time in an fMRI last month that I can show you this part of my brain.

I'll start with the right hemisphere of my brain

This is how I'm looking at my head right now

Imagine removing the skull and looking at the surface of the brain.

As you can see, the surface of the brain is folded.

may be hiding something

I want to see it all, so let's inflate it and see the whole picture

Let's look for areas of the face that respond to photos like this one that I've been talking about.

Let's rotate the brain and look at the bottom subsurface, here is my face area.

To the right of that is another area, shown in purple, that responds when it processes color information. Nearby is another area, an area that's involved in recognizing location.

There are several facial recognition areas on the outside of the other one.

There are also other areas around this area that are selectively involved in visuomotor function, like this moving lower yellow spot. Nearby are the areas that respond when you look at different parts of the body, and that area is lime green and is located in the lower part of the brain.

The areas I've shown you so far are related to specific vision.

Or are there areas that specialize in specific functions, hearing or other senses?

Yes, if you do a little spin around the brain, there's this dark blue region that we just published a few months ago, and that region is very responsive to hearing these kinds of pitched, crisp sounds.

(Siren) (Cello music) (Doorbell) In comparison, the same region doesn't respond as loudly when it hears a sound that you would normally hear—a sound that is unclear in pitch, like this:

(Chewing sounds) (Drum sounds) (Toilet flushing sounds) On the side of the region that responds to pitch definition, there's one zone that responds only when: when you hear speech.

Let's look at these areas

My left hemisphere is similar, it's not quite the same -- but most of the area is here, sometimes with different sizes.

So all the things I've shown you so far have been areas that govern different cognitive functions, like hearing and vision.

So are there also special domains for wonderfully sophisticated and complex thought processes?

yes, I have

This pink color is my language area

For a long time, it was thought that language processes took place in all parts of the brain, but only recently, we've discovered that this pink region is selective and highly responsive.

It responds when you know the meaning of a sentence, but it doesn't respond to other complex thoughts, like doing mental math, trying to remember information, or trying to understand complex musical structures.

The most surprising area that we still don't understand is this one in turquoise.

This area responds when you're guessing what other people are thinking.

It sounds crazy, but actually we do this all the time.

This is what you do when you realize your partner will be worried if you don't call and tell them you'll be late.

My brain is doing it right now, because I realize you're probably wondering what this untouched gray area does.

I've been thinking about that too, and I've been doing all sorts of experiments in the lab to see if there are many other areas in the brain that have specific functions.

I think the important thing is that the brain doesn't have special specialized functions for every thinking function, including the lethal ones.

In fact, a few years ago there was a scientist in my lab who claimed to have discovered a food-distinguishing region, and when people saw images like this, that region responded strongly on fMRI.

Further experiments were carried out, and similar responses were found in 10 out of 12 subjects in almost the same areas.

So he was pretty excited, running around the lab telling everyone, "I'm going to be in Oprah for this breakthrough."

I came up with a critical experiment, and I showed subjects images of food like this, and compared them to images of things that were similar in color and shape, but weren't food.

The region responded in the same way to both.

It wasn't a food domain, it was just a domain that responded to color and shape.

I have no choice but to give up on Oprah

And yet, of course, the question remains: How does the brain handle all the other things that don't have specialized brain regions?

The answer is that in addition to the highly differentiated components I've been talking about, there are also general-purpose domains that address all kinds of problems.

In fact, white areas have recently been shown to respond to any difficult thought activity -- any difficult thought activity -- at least in our seven experiments.

Each of the brain regions I talked about today, each of the brain regions I talked about today, are in roughly the same place in the brain of a healthy person.

If you were to put you in an MRI scanner and look at each of these areas in your brain, they would look a lot like this brain of mine, just a little bit different in size and exact location, but a little bit different in size and exact location.

What's important to me in this research is not where these areas are located, but the simple fact that our brains have had specialized areas of thought functioning since the beginning.

i.e. otherwise

The brain would have had a single general purpose function, which is more like a cooking knife than a Swiss knife.

Instead, brain imaging reveals an interesting and rich set of human thought processes.

In our minds, we have general-purpose brain functions alongside amazingly complex, specialized, and highly differentiated regions.

this research is just beginning

We're just beginning to paint a neuronal picture of mental activity.

The most fundamental question remains

For example, what do each of these areas do?

Why are three locations necessary for face recognition and position recognition? What is the distribution of these labors?

Second, how do the different regions inside the brain relate to each other?

With diffusion imaging, we can trace the bundles of neurons that connect all the parts of the brain, and with the method shown here, we can trace the connections of individual neurons in the brain, and one day we'll have a wiring diagram for the entire brain.

And third, how did this systemic structure come about during human development and human evolution?

To address questions like these, scientists are scanning the brains of other animals and even scanning the brains of young children.

Many point to the need for expensive neuroscience research that could one day help cure brain disorders like Alzheimer's and autism.

That's a very important goal, and I would be very happy if my work could contribute to that. But fixing broken things isn't the only thing worthwhile.

Efforts to understand the human mind and brain are worthwhile, even if we can't cure any disease.

What could be more exciting than understanding the fundamental functions that underlie the human experience in order to understand who we really are?

This is the greatest quest of all time in science.

(applause)

My dream is to build the world's first underground park in New York City.

Why build a park underground and in New York?

These little kids, from the left, my grandmother, who is five years old, and my grandmother's younger sister, who is 11 years old and my brother, who is 9 years old.

This photo was taken shortly before my grandmothers emigrated from Italy to America, almost a century ago.

Like many immigrants of that era, my grandmothers arrived on New York City's Lower East Side, where they encountered a melting pot.

What makes this generation so great is that not only were they building lives in new and unknown lands, but they were literally building cities.

I've always been fascinated by the history of this era, and I used to pester my grandmother for stories of old New York.

My grandmother just shrugged her shoulders and told me to eat more meatballs and more pasta, and I didn't hear much of the history I wanted to hear.

The New York City as I know it feels like it was already built.

When I was a kid, I wanted to one day make a difference in the world.

I just didn't know what to do

At first, I wanted to work abroad, so I got a job with UNICEF in Kenya.

I felt uncomfortable that I knew more about local Kenyan politics than I knew about the politics of my city.

When I got a job in New York City, I quickly became frustrated with government bureaucracy.

He also worked at Google and quickly became a staunch believer in the company, believing in his heart that technology could solve all of society's problems.

But I still didn't feel like I was making the world a better place.

In 2009, my friend and current business partner, James Ramsey, told me about an amazing place, this is it.

This was a streetcar terminus, a station for passengers traveling across the Williamsburg Bridge from Brooklyn to Manhattan, and was in use from 1908 to 1948, right around the time my grandparents lived in the area.

I learned that this place was completely abandoned in 1948.

Intrigued by this discovery, we got permission from the authorities to enter the site and when we were able to take a look around, we saw this sight.

This photo doesn't do justice to the charm

I can't convey the indescribable magical feeling I feel when I go to this place.

It's a clearing the size of a football field, right under the heart of the crowd, and it's as if Indiana Jones had come to excavate and the details of the ruins were still there.

really special scenery

It's located in the heart of the Lower East Side, and the district is still one of the busiest parts of the city today.

New York City has about two-thirds as much green space per citizen as any other big city.

And we immediately started thinking about how we could turn this land into something that could be used for public use, but also be green.

Our plan, in a nutshell, is a simple system that brings natural light from the ground level right under the sidewalks of the city, directing sunlight underground, using that light to direct sunlight underground, and using that light to grow plants.

In this way, a place like this today, in this way, a place like this today can be transformed into this.

In 2011, we released some of these images, and what's interesting is that a lot of people commented, "You look like Highline Underground."

And so the nickname for this place was born: "Lowline."

And one thing that was certain was that people were very interested in knowing and experiencing what this sunlight-harvesting technology was like.

It's an unbelievable decision, but I decided to quit my job and devote all my energy to this project.

This is us and the whole team getting ready to demonstrate the technology in the warehouse.

This is what we built to showcase the technology inside the solar canopy.

Six solar collectors can be seen in the center

This is what the warehouse looked like when the exhibit was completed.

There's a solar canopy on top that lets the sun shine in and leaves a green space on the ground.

In just a few short weeks, tens of thousands of people came to see the exhibition, and since then we've had a growing number of supporters of design lovers, both local and around the world, who have come to stand by us.

This is a map of the area just above the low line, and this is what it will look like after the major redevelopment over the next 10 years, after the major redevelopment over the next 10 years.

You can see how this area is still cramped and sparsely green.

What we're proposing is to create a green space the size of a football field directly under this area, but also to introduce a community-driven approach to this rapidly gentrifying neighborhood.

Now we're thinking about how we can work with New York City to integrate and transform the entire ecosystem here.

The entrance to this underground park is thought of as shown in the diagram.

Here is the iconic entrance that literally flips the street to reveal the underground layers of the city's history, welcoming people into this warm underground space.

In the freezing cold of the dead of winter, most people don't want to go outdoors, let alone go to a park.

Lorain has four seasons and will be a place of relaxation for the city.

I like to think that this lowline completes my family's story.

If our grandparents and parents were the generation that built and expanded the city, then ours is the generation that reclaims the space that already exists, rediscovers the shared history, and transforms the community into something more interesting, beautiful, and correct.

thank you

(applause)

"Jó napot, pacák!" I'm sure someone in the room knows, but it's the Magyar language, which means "Hey everyone!"

It's still in use. Look, "Jó napot, pacák!" There's a reason I said that someone would definitely know. There aren't that many Hungarians in the world, and not a single drop of Hungarian blood runs through my body.

I've even dreamed of scenes I remember seeing in Hungarian films, especially from the early films of Miklos Janczó.

Where does this strange affinity for Hungary come from?

Maybe it's because I'm from South Carolina, and although it's not much bigger than Hungary today, it's a state that once tried to become independent.

As a result of this arrogant thinking, my hometown was overrun by the army and turned into a charred wasteland, as this has happened to towns and villages that have been exposed to war throughout Hungary's long history of hardships.

Or was it that in the '50s, when I was still a teenager, after my uncle Henry's denunciation of the Ku Klux Klan led to constant attacks from the Klan, burning crosses in his yard and death threats, he fled his wife and children to Massachusetts, and then returned alone to South Carolina for a showdown?

Because this is a very Hungarian act, and anyone who knows 1956 will attest to that.

Of course, Hungarians sometimes created their own clan-like organizations.

Well, it's hard to explain why the Hungarians exist in my life, but I've come to the conclusion that it boils down to an admiration for a people with a complex ethic, a history of guilt and defeat combined with rebellion and bravado.

This is not the stereotypical American way of thinking, but in fact it is a necessary paradigm common to all Hungarians.

So "Jó napot, pacák!"

Well, I left South Carolina for 15 years, living in a strange land, but I came back at the end of the '60s, and the tide of the time was reckless and condescending that I was going to save my hometown.

I hope it took me a while to make you realize you needed help

After 25 years of hard work in the vineyards, I moved to a small kingdom just north of South Carolina, Wofford College, a Methodist institution of higher learning.

I don't know anything about Wofford, and I don't know much about Methodism, but the day I gave my first lecture there, I was relieved. There was a 90-year-old Hungarian in the audience in my class, surrounded by a group of middle-aged European women who huddled around like nymphs guarding the gold in The Ring of the Nibelung.

His name is Shando Tesla

He was a mischievous widower who lost his wife and children, and who lived far away from his grandchildren.

It looked like Mahatma Gandhi pulled a loincloth and added walking aid boots.

Mr. Tesla was born in 1903 in the territory of the former Austro-Hungarian Empire, which later became Yugoslavia.

Growing up, I was isolated, not because I was Jewish, because I didn't come from a fervent Jewish family, and because I had clubfoot in both feet.

Growing up, he attended a commercial high school in Budapest, a bright and quiet student, and after graduating with fairly good grades, he went into textile technology, where he continued to find success.

build factories one after another

I got married, had two sons, and had friends in the powerful, so I was pretty safe in the country's economy.

One time, after giving instructions to his subordinates and returning home, he was summoned by the night guard in the middle of the night.

Because he caught an employee trying to steal socks. It was a sock factory.

It is said that Mr. Tesla went to the factory and said to the thief, "Why are you stealing? If you want money, all you have to do is come and ask."

The security guard who was watching what was going on said indignantly, "Then we're going to call the police, right?"

But Tesla said, "No, we don't need that.

He won't be stealing here anymore."

Maybe I was too soft-hearted, and even after the Nazi annexation of Austria, and even when people began to be arrested and deported in Budapest, they didn't run away.

In case of emergency, the only simple measure was to put a hydrocyanic acid capsule in a rocket and put it around the neck of the whole family.

And then one day, it finally happened, and he and his family were captured and taken to a death camp on the Danube.

"The Final Solution to the Jewish Question", an early, direct atrocity, beaten to death and then dumped into the river.

I entered this death camp, but in the end no one came out alive.

This is where a Steven Spielberg movie takes an unlikely turn. The Nazi chief overseeing this brutal execution turns out to be the man who stole the socks from Mr. Tesla's factory.

It was a brutal flogging, and in the midst of it, Andrew, one of Mr. Tesla's sons, looked up at his father and said, "Daddy, is it time for you to take your capsules?"

And then the Commissioner came in, and by the way, he never mentioned it again, and he crouched down and whispered into Mr. Tesla's ear, "No, don't take the capsules. Help's coming soon."

I resumed flogging

And then really help came, and not long after that, a car came from the Swiss embassy.

They were relocated with their families to safety, reclassified as Yugoslav citizens, barely escaped from pursuers during the war, survived fire and bombing, but were captured by Soviet forces at the end of the war.

Perhaps Tesla had some savings in a Swiss bank after fleeing with his family to England, then to Long Island, and then to the textile capital of the southern United States.

It happened to be Spartanburg, South Carolina, where Wofford College is located.

So Tesla started all over again and was once again a spectacular success, especially after he invented a new way of manufacturing a fabric called the double knit.

Fast forward to the late 1950s, and in the aftermath of Brown v. Board of Education, the Ku Klux Klan was reviving all over the South.

He said he muttered, and he called his top staff and asked, "Where is the most racist place in the area?"

"Tesla, I don't know exactly, but I think it's King's Mountain."

"Okay, then announce that you will buy land on Kings Mountain and build a large factory there."

His men did so, and shortly thereafter the white mayor of Kings Mountain visited Mr. Tesla.

Now, I'd like to point out that at the time, the textile industry in the South was known for its terrible segregation.

The white mayor said to Mr. Tesla, "Mr. Tesla, you hire a lot of white people in your factory."

Mr. Tesla replies, "Find me the best workers in this area. If I can do the job, I'll hire you."

A pastor, a leader of the black community, also visited Mr. Tesla and said, "Mr. Tesla, you can hire black people in your new factory."

The answer was the same, "Find me the best workers. If I can do the job, I'll hire you."

Here, black pastors outperformed white mayors, not just one or the other.

8 whites, 8 blacks, 16 people were hired.

He's the person who will eventually be appointed as the director of Mr. Tesla's homegrown team.

An abandoned store near Kings Mountain is equipped with heavy machinery for a new manufacturing process, where 16 workers live and work for two months, learning the new process.

After the first day's tour of the facility, I gathered everyone together and asked them if they had any questions.

People who clear their throats, people who stutter, people who start to fidget, among them, a white employee stepped forward and said, "Well, I looked inside the facility, and there's only one place to sleep, one place to eat, one toilet, and one drinking bowl. Is this factory mixed race?"

Mr. Tesla replied, "You guys make twice as much as anyone else in the textile industry around here. That's how we do it. Any more questions?"

"No, I don't."

Two months later, the main factory opens, and hundreds of new workers, both white and black, pour in for their first tour of the facility, and are greeted shoulder-to-shoulder by 16 white and black foremen.

I took them inside and asked if they had any questions, and of course they asked the same question, "Is this factory mixed race?"

And one of the white directors stepped forward and said, "You guys get paid twice as much as anyone else in the textile industry around here, and that's how we do it.

Any more questions? ”

No one said anything, and that's how Mr. Tesla did the racial integration of the region's textile industry in one fell swoop.

It was like Mahatma Gandhi, with the ideals of a saint and the skill of a lawyer.

When Mr. Tesla turned 80, he retired from textiles and came to Wofford College, where he attended every semester. He had a habit of kissing anything that moved, so everyone began to affectionately call him "Opi," a Magyar word meaning "grandfather." To honor him, I called him a professor, partly because he had already taken all the courses in the catalog, but mostly because he was a wise man who stood out from the crowd.

What was very reassuring to me was that this person who was an elder at a small Methodist university in northern South Carolina was a Holocaust survivor from Central Europe.

A wise man, of course, he had a great sense of humor.

I was in a comprehensive class watching the opening of Ingmar Bergman's The Seventh Seal.

Medieval knight Antonius Bullock returns home from a futile expedition and arrives on the coast of Sweden, where he finds Death waiting for him. In a dark room, Mr. Tesla sat with other students. is music, especially opera

When I first visited his house, I was honored to be asked to choose the music to play.

I kicked "Cavalleria Rusticana" and chose Béla Bartok's "Bluebeard's Castle", which made me very happy.

I love Bartok's music, and so does Mr. Tesla.

It was also at Tesla's house that I first heard Bartok's Third Piano Concerto, and I was told that it was written in Asheville, North Carolina, the year before Bartok's death.

Bartok, who knew he would soon die of leukemia, dedicated this song to his wife, Ditta, who was a concert pianist.

In Adagio Religioso's slow second movement, he describes the song of the birds chirping outside his window on a day that he knew was his last spring.

These were apparently also the last words he addressed to his wife, as they were performed for the first time after Bartók's death, and were given to the world by her.

As clearly as it is a will, it also contains this message:

"I'm fine with this. The days with you were the best because I'll always be by your side when this song plays."

It wasn't until after Mr. Tesla's death that I learned that Mr. Tesla had donated Béla Bartok's tombstone in Hartsdale, New York.

Shortly before he died at the age of 97, he came to listen to a lecture on the theme of human wickedness.

He argued that history, in general, is a tsunami of human suffering and atrocities. After he finished, Mr. Tesla came and, with a gentle rebuke, said, "Listen, Doctor, human beings are inherently good."

At that time and in that place, I made a vow to myself that if this man, who had gone through such an experience as to think that humans are evil, could come to such a conclusion, I would not oppose this argument until he released me from this oath.

Now that Mr. Tesla is dead, I'm bound by this oath.

「Good day シャンドー」

With his death, I thought that the thread of my teacher-student relationship with Hungarians had been severed, and not long after that I met a Hungarian doctor named Francis Robocek, a heart surgeon in his late 70s in Charlotte, North Carolina, who had pioneered open-heart surgery.

He was also a prodigious art collector, collecting 16th- and 17th-century Dutch art and Hungarian paintings from his time as an intern in Budapest, to Spanish colonial art, to Russian icons, and finally to Maya pottery when he came to America.

Six of his seven books are about Mayan pottery.

It was he who deciphered the Mayan pictorial writings, showing scholars the connection between pictograms on Mayan pottery and hieroglyphs in ancient texts.

The first time I visited the doctor's house, I was shown around the house, and there were hundreds of museum-quality works of art.

He opened the door and entered a six-square-foot, windowless room filled floor-to-ceiling with a collection of Mayan pottery.

I really don't know anything about Maya pottery, but I wanted to make myself as nice as I could, and I said, "But doctor, this is absolutely stunning."

"Umu," said Dr. "The Louvre said the same thing.

He kept me hounding me until I did one of the tricks, which wasn't much." (Laughter) So I decided to invite him to Wofford to give a lecture on Leonardo da Vinci.

I also decided to introduce him to my longtime trustee, who studied French history at Yale some 70 years ago, and at the age of 89, he's still running the world's largest private textile empire on his own.

His name is Roger Milken. Mr. Milken said he would like to meet, and Dr. Robochek said he would like to meet.

After the lecture, I invited him to the president's house. Dr. Robochek on one side, Mr. Milken on the other.

As I was about to sit down for dinner, I realized for the first time the gravity of the situation that I had brought upon myself. These two giants. Bringing these two champions of the world together is like bringing Godzilla and Mothra together in the skies above Tokyo.

If it doesn't work out, everyone gets involved and it's going to be a lot of trouble.

But it was okay, we hit it off

We had already hit it off very well, but at the end of the dinner, we had a heated discussion.

So what the debate is about is whether the second Harry Potter movie is as good as the first. (Laughter)

Mr. Milken said that the second film was not good, and the doctor objected.In front of this scene, when these two giants and world champions couldn't believe that they were watching Harry Potter in their spare time, Mr. Milken thought he had won the argument and said, "I just like the movie because I haven't read the original."

Dr. Robochek flinched in his chair for a moment, but quickly recovered and leaned forward and said, "Yes, but you went to the movies with your grandson." "Exactly," said Mr. Milken.

"Look!" said Dr. Robochek. "I went to see it alone." (Laughter) (Applause) At that moment, I realized that what they were revealing to each other was actually the secret to their success, each of them an extraordinary success of their own making.

It was just this insatiable curiosity, this thirst for knowledge, no matter what the subject was, no matter how much it cost, even if the custodians of the Doomsday Clock said there was a 50/50 chance that humanity would be extinct in 2100, just 93 years.

Gandhi Quote: “Live each day as if you were to die tomorrow.”

"Learn as you will live forever"

My passion is exactly these words

This never-ending desire for knowledge and experience No matter how ridiculous, no matter how maniac, no matter how inflammatory it seems

This willingness to learn is our Hungarian Mr. Robocek, Mr. Tesla, Mr. Bartók and others, and myself.

And it's what will shape the future that everyone here envisions.

The only thing I would add is "Ez a mi munkank; es nem is keves."

"This is our challenge. We know it's difficult."

「This is our job; and not a few. Good morning guys!」 （拍手）

Hello

I am Yildus

I'm an artist from Russia who mainly works with photography.

I started down this path about six years ago, and through my satirical self-portraits, I've exposed a range of stereotypes about nationality, gender, and social issues. ] [Vodka = water I love vodka! ] (Laughter) I use photography to get the message across.

What I'm nervous about is balancing the rich message, the aesthetics, the beauty, the bit of satire, the work.

Today I want to tell you about my work, and it's called Desperate Romantics.

This is my work, based on a mid-19th-century British Pre-Raphaelite painting.

I took this painting and tried to give it a new and modern meaning, to tell about the issues that surround me in Russia, and I didn't shoot the models, but people with interesting stories.

This boy is only 12 years old, but he's a professional dancer. But when he was in middle school, he hid his dance lessons and acted violently, trying to fit in with his classmates.

He has dreams and goals, but he hides them for recognition in his society. It's not easy to be different, especially in Russia.

The rendition in this portrait is metaphorical

He's a security guard at a bar in St. Petersburg, Nikita.

His favorite line is, "Don't make me mad." It's from the movie Hulk, but I've never seen him get mad.

He hides his sensitive side, his romantic side, because it's uncool among Russian men.

(Laughter) Sometimes I take paintings in my work and add new meanings and new seductions.

Sometimes we add wordplay, comparing superficial features, like "irony," "iron man," "the ironer."

(Laughter) Through works like this, I talk about the problems of Russian society that surround me.

Here's an interesting fact about marriage in Russia: most girls between the ages of 18 and 9 are ready and dream of marriage.

From an early age, girls are taught that a good marriage is a good life, so girls desperately try to find a good partner.

What about me?

I'm 27 years old

In Russia, it's already considered an old mistake, and marriage is hopeless.

That's why I put on my Mexican wrestling mask, my wedding dress, and despair in my garden.

But the point is, it's ironic, because it's really about pushing girls to desperately pursue their goals and dreams and change their stereotypes.

Be brave, be sarcastic, it helps.

Let's have fun with anything and create magic

(applause)

thank you for coming

Don't worry, I feel responsible for you coming all the way because I wouldn't have let you go to your usual bar.

(Laughter) I haven't prepared my speech, but I have brought some slides.

It is a photograph that symbolizes my life and purpose in life.

I believe that images are remembered for a long time, even when people forget the words, so I hope that the pictures I'm going to show you will stay in your memory.

My story begins when I was in high school, and I grew up in Pittsburgh, Pennsylvania.

It's a place where people give up on living and die. It was one Wednesday afternoon, and I was wandering down the school corridor, thinking, and there was an artist. He was a teacher.

I entered the art room and asked, "What is this?"

The teacher said, "It's pottery. Who are you?"

I said, "My name is Bill Strickland. Can you show me how to make it?"

He said, "You'll have to get your teacher's signature for permission."

For the next two years of high school, I didn't attend a single class.

(Laughter) But I kept my composure, because I gave my pottery pottery to the teachers in my class who had skipped it.

That's how I graduated from high school

And Mr. Ross said, "You're smart. My conscience won't let you die. I'm quitting this school and I'm taking you with me."

And he took me to the University of Pittsburgh, where I applied and got provisional admission.

Now I'm on its board of directors, and I said at my inauguration, "I'm from this area, and I got into this university on a provisional basis.

Don't abandon poor children, because you never know what might happen in their lives.

I'm just going to show you a picture of a facility that I built in one of the most dangerous parts of Pittsburgh, where the crime rate is pretty high.

The first is the Bidwell Training Center, a vocational school for former steel workers, single parents and mothers on welfare.

Pittsburgh used to focus on steel, remember?

We don't make iron anymore, so the people who used to make it as a profession are now having a very hard time.

So I allowed them to start a new life.

The Manchester Craftsmen's Guild is named after my area.

During that riot, I was taken in by the Bishop of the Episcopal Church of the United States, and he donated a tenement, and I started the Manchester Craftsmen's Guild in that tenement.

(Laughter) The bishop adopted me for him.

And last year, I had the opportunity to speak at his memorial service, and I prayed for his repose.

I hired a protégé of architect Frank Lloyd Wright and asked him to build me a world-class facility in one of the most crime-ridden districts of Pittsburgh.

The building even became a scale model of the Pittsburgh airport.

Come to Pittsburgh, because you're going to land on a giant version of my building.

this is the building

It was built in the middle of a slum where people give up on living and die.

In my opinion, if you want to get involved in the lives of marginalized people, you should find solutions, not problems.

I think I can see the fountain in the courtyard

The reason I put the fountain in the courtyard was because I wanted it, and I had the checkbook, so I just bought it and installed it.

(Laughter) I started speaking at various conferences like TED, and I ended up on the board of the Carnegie Museum of Art.

At a reception in the courtyard of the museum, I noticed that there was a fountain, perhaps because fountains are considered appropriate for the kind of people who come to museums.

I think the lives of mothers on welfare, boys and girls at risk, former steel workers fit perfectly in the lives of fountains.

So the first thing that welcomes you to my facility in the spring is water. Water represents the source of life and human potential.

So I built this building out of a fountain.

As you can see, it's all top-notch art, and it's all my personal taste, because I raised the money.

(Laughter) I told my son, "When you have the money, make your walls reflect your tastes."

Everywhere you look in quilts, ceramics and calligraphy, there's something beautiful staring back at you, it's intentional.

it makes sense

In my view, a world like this can save the souls of the poor.

We also built our boardroom here, and we hired cabinet makers in Kyoto, Japan, to order 60 pieces of furniture for our building.

after that he became independent

Now I mainly make custom furniture for rich people and make a lot of money.

And we ordered 60 pieces of furniture for the school, because it's the welfare mothers, the former steel workers, and the single-parents who feel like they deserve to come to school, where handmade furniture greets them every day.

When you surround yourself with good things, your tone and attitude towards people will change accordingly.

There's even fresh flowers in the hallway. It's not made of plastic.

It's decorated with real flowers every day.

I've given so many speeches, and so many of my high school principals come to visit me, and they say, "Mr. Strickland, what a wonderful story and school.

I was especially touched by the flowers. How did you get them there?"

"Well, I drove to the flower shop, bought some flowers, went back to school, and put them there."

You don't need an expert committee or a study to buy flowers for your child.

All you need to know is about the child, and for adults, how flowers fit into everyday life.

A small amount can make a big impact

The building is full of flowers and bright sunshine, I believe in hope and the possibilities of people.

This photo is from Christmas time

And the next picture is the million dollar kitchen. Have you ever heard of Heinz?

It's a company that was very successful with that ketchup.

I happened to get to know the company well by chance. John Heinz was a senator who died in a tragic plane crash. He had heard during his lifetime that I wanted to build a new building because I was walking around Pittsburgh with cardboard boxes in garbage bags to raise funds.

He called me into his office -- it was like going to see The Wizard of Oz. (Laughter) John Heinz was worth $600 million at the time.

I only had sixty cents

"I've heard what you're doing to your children and former steel workers and wanting to help build the new building you're thinking of.

I think it would be great if a cooking course was added to the curriculum."

Because at that time we were building a commercial course.

And he said, "That's how Heinz's anti-discrimination goals are met."

I said, "Senator, I'm reluctant to dabble in a field I don't know. If you support my school, I'm going to build a new building. I'll be back here in a few years, and I'll plan the cooking course."

Senator Heinz sat down and said quietly, "So what would you say if I told you I'd give you a million dollars?"

I said, "Senator, let's start cooking education right away."

(Laughter) So John Heinz really gave us a million dollars.

And not just money, he sent in a research director from Heinz.

And they borrowed a curriculum from the Culinary Institute of America, the Harvard University of cooking, and created a cooking course for welfare mothers in a million-dollar kitchen in the middle of a slum.

we never looked back

Now, I'm going to show you a little bit of that dish, made in that million-dollar kitchen by welfare mothers.

I put it on the cafeteria menu

It's pie day Why?

The students make pie wraps and the whole school eats them every day.

The concept is to clear the stigma of food

Good food isn't for the rich - it's for the world.

So my school subsidizes a gourmet lunch course for welfare mothers in the slums, because it turns out that what's good for your stomach is also good for your brain.

I want them to know that in their time at this center, they deserve to exist.

In my school, black kids and white kids sit together, and racism is solved by creating a first-class environment, because people adapt to that environment and behave first-class.

These are examples of dishes that were prepared by welfare mothers after completing a six-month course.

It's not a question of intellectual sophistication or dignity, dignity or career.

The only thing they lack is enough money, and it's a recoverable problem.

The way we think about people changes how we behave.

This is from a student who completed a seven-month course, a very bright woman, and a pastry chef taught her.

I ate 7 of them and they were delicious.

(Laughter) And I didn't have to worry about calories.

This is the dining room

It's like your typical American town high school cafeteria.

This is how students should be treated, especially since they've been thrown out once.

We train pharmacists for the pharmaceutical industry, we train medical engineers for the medical industry, we train chemical engineers for companies like Bayer Yakuhin, Calgon Carbon, Fisher Scientific and Exxon.

And every time you come to the center in Pittsburgh -- and I hope you'll come -- you'll see 10-month-old welfare mothers doing chemical analysis on a logarithmic calculator.

There's no reason why poor people shouldn't be able to attend classes with the latest technology.

Send them flowers, sunshine, food, anticipation, and Harvey's music, and you can always cure cancer in your soul.

We are also training travel business operators for travel agencies

I will teach you how to read

The kid with the red striped shirt was in this program two years ago, and now he's an instructor here.

And some kids can't read their high school diploma.

I'm sure you're wondering, how in the 21st century can you still graduate a kid who can't read his diploma? and

Because schools get paid for the students they graduate from, not for the literate students.

In 20 weeks, I can get an illiterate child to prove he/she is capable, which is equivalent to high school level.

no big deal

This is a library full of handmade furniture

And this is the art course I started in 1968.

I told you I was a black kid whose life was saved by pottery in the '60s.

I decided to relive my experience with the children of the slums. For the poor children, flowers, food, sunshine and enthusiasm, they can come back to life.

I have 400 kids from Pittsburgh public schools who come to my art class every day.

These are the kids who have fallen behind in public schools.

Last year, 88 percent of them went on to college, and over the past 15 years, an average of over 80 percent went on to college.

I made an interesting discovery, which is that it's not the children's fault.

This earned me the prestigious and historic award Man of the Year in Education.

By treating children as human beings, setting aside other brilliant doctors, they will begin to behave like human beings.

It's still a mystery why every school, every city, every town can't set up a policy like this.

Let me show you what the art students are doing.

There's ceramics and photography, and then there's a course in digital imaging.

The kids here aren't particularly artistically gifted or imaginative, but when you have some of the world's greatest artists, Gordon Parks and Chester Higgins, as teachers, they're going to look just like their teachers.

We also have a mosaic artist from the Vatican. She's African-American, but she's a student of the historic Vatican mosaic technique.

These are kids who have been abandoned by the world and who failed public schools. They just didn't have the love, the sun, the food, the good music, the confidence.

I teach photography

This is an example of children's work.

This boy won a four-year college scholarship for this powerful photograph.

this is our gallery

A first class gallery Poor children need a first class gallery This is my design

At the opening, we had smoked salmon, and we had proper invitations and a way for their parents to come.

Fifteen years ago, you couldn't invite your parents like this, so we hired a guy who's obsessed with Jesus.

He was pulling men out of bars and saving their lives for God.

I said, 'Bill, I'd like to hire you-

You can keep your enthusiasm as it is.

(Laughter) (Applause) Otherwise we can't get parents to come to school."

He said, "I'll send them to school."

So he got in a van, went to Mr. Jones' house, and said, "Mr. Jones, you wanted to come to your child's opening, but you didn't have a ride?

That's why I came to pick you up."

So he brought in 10, 20 people.

At the end of the show, there were 200 parents, none of them came alone.

Now at the Manchester Craftsmen's Guild, not coming to support your child is becoming socially unacceptable, because people think you're a bad parent.

Statistically, there's no difference between white parents and black parents.

Mothers attend wherever their children are celebrated, anytime, anywhere.

I want you to take a look at this gallery, it's amazing

By the time they graduate from high school and apply to college, they'll have four exhibitions on their resumes, and that's the center.

We have to change the way they think about themselves, before they change their behavior.

It's been going pretty well so far

I'll show you another room in my building

new room

This slide, just in time for this TED conference.

We did this slideshow in Silicon Valley, and it was a success.

A woman came from the audience and said, "That was a great talk, and I was very impressed with your presentation.

The only criticism I have is that the computer is outdated."

I asked, "What is your job?"

"I work for Hewlett-Packard," she replied.

I said, "You work in the computer industry, right?"

she said yes

I said, "I have an easy solution to that problem."

Ladies and Gentlemen, I'm pleased to announce that HP and Steelcase Furniture have adopted us as demonstration models for computer technology and furniture.

That's this room, that's the beginning of a relationship

I finished it up to show you here. This is the world debut of our Digital Imaging Center.

(Applause) Just a few more slides, and this is where things get interesting.

Listen to me for a moment, and I'll find out why he's there and why I'm here.

In 1986, when we were building the building, we wanted to put a music hall on the north end of the building.

A guy named Dizzy Gillespie showed up and played there, and he knew this guy, Marty Ashby.

Wednesday afternoon, I stood on stage with Dizzy Gillespie at soundcheck, and I said, "Dizzy, why did you come to this black-run center in the middle of an industrial park with such a high crime rate? You wouldn't be proud to play there."

He said, "I heard you built the center, but I can't believe it.

That's why I wanted to see it with my own eyes once, and I'd like to give you a gift."

I said "you're the gift"

He said, "No, you're the gift.

I'll record the concert and I'll give it to you as a present If you want to sell it, you'll have to sign a consent form All the money will go to school grants

And I recorded Dizzy's concert, and a year later he passed away, and before he died, he told McCoy Tyner about us.

McCoy came up and said, "Wherever Dizzy goes, he's talking about you. I want to help you."

with trumpeter Wynton Marsalis

Ray Brown on bass and Stanley Turrentine, pianist Harvey Hancock and the Count Basie Orchestra, then Tito Puente, Gary Burton, Shirley Horn and Betty Carter, then Dakota Staton and Nancy Wilson.

With their permission, I have 600 recordings of these top artists, including the late Joe Williams, who passed away after making his last recording for my school.

Joe Williams came up to me and put his hand on my shoulder and said, 'God chose you for this.

I want you to keep my music by your side."

i'm doing what he says

When the Basie Band came, they were very happy about the school, and they offered to give me the rights to the songs they played.

I got an award called a Grammy for the music I recorded.

How silly I didn't go to the Grammys I never thought I'd win

When we won the award, our name appeared in Madison Square Garden.

Then the United Nations Jazz Orchestra recorded it, and it was nominated for a second Grammy in a row.

We ended up with one of the coolest jazz recording studios in America.

All this crowd of people-

Republicans. (Applause) If we drop a bomb in this room, we're going to lose all of Pennsylvania's money in the end, and it's all rich people sitting there.

My mother and father also came to see the building my son built.

As I said, there was also Daisy.

Also Tito Puente

Also Pat Metheny and Jim Hall, they recorded with us.

This is our first recording studio, originally a cleaning equipment warehouse.

We put the mops out in the hallway and redesigned it, and what we recorded there won our first Grammy.

This is a new facility, a place about video technology.

And this room was built for Nancy Wilson, and last Christmas she recorded this album in our school studio.

Has anyone seen our show on Oprah Winfrey that Christmas day, Nancy was there, and she sang some songs from this album at Oprah's show, and donated the rights to the songs to my school.

I'm fairly certain that one appearance on the Oprah show will sell 10,000 CDs.

(Laughter) We're currently number four on the Billboard charts, below Tony Bennett.

It must be a big deal

This is the building that burned down during the riots, and it's next to ours, so I made another cardboard box and went to town.

This is a model of a building, but on the right is a high-tech greenhouse, and in the middle is the Medical Technology Building.

I will report here that this building has been completed.

At $20 a foot, it's full of key tenants, three times the price of the inner city.

There is also a fountain

(Laughter) Every building has a fountain.

The University of Pittsburgh Medical Center is one of our key tenants, occupying half the building and training medical technicians through their entire system.

Mellon Bank is also one of the key tenants

I love them because they pay my rent on time

(Laughter) As a result of this collaboration, I am now a director of Mellon Financial Corporation, which acquired Dreyfus.

And as I said, this is currently under construction.

If you zoom in on the photo four times, you can see the greenhouse. It's due to open in October this year, and I'm going to grow these flowers there, in the middle of the inner city.

And I'm going to let the high school students grow a Phalaenopsis orchid in this inner city.

And we partner with big retail food companies to sell our phalaenopsis in 240 stores in six states.

Partner is Zuma Canyon Orchid of Malibu, Calif. - a Hispanic company.

Hispanics and blacks partner to grow tech orchids in the heart of the inner city

I'd like to ask a U.S. Senator, if he can find funding for this business, almost certainly we'll run a left-hand column in the Wall Street Journal, and he'll say yes.

will open this fall

You should definitely come see it because there's a lot to talk about

then this is my dream

(Laughter) You can see the brown building, and I'm going to tell you my failure story.

I had the chance to buy this whole industrial park, but I didn't because it was less than 1,000 feet from the river and it was $4 million.

And when we built the first building - what do you think happened?

The real estate value exceeded people's expectations so much that the owner of an industrial park raised it to $8 million last year and said, "Mr.

Thank you very much.”

You have to be well prepared for your dreams, because you never know when your dreams will come true.

This is the last picture

This building is in San Francisco

Why is this picture here? I did this slideshow a couple of years ago at a big economic summit, and someone came up to me from the audience.

He said, "It was a wonderful story.

I wonder if we can do it at home."

I said, "It's an honor. What do you do?"

"I run the city of San Francisco

I'm Willie Brown

And while I accepted the praise, I forgot about it.

And then I came home that weekend and Harvey Hancock was playing at the center, the night I first met Hancock.

He came and said, "What is this?"

I said, "This is the concept of a training center, for the poor."

He said, "God, I've been wanting to build a center like this for 25 years.

I want to build one too."

I asked, "Where are you going to build it?"

he is san francisco

I said, "Do you happen to know Willie Brown?" (Laughter) In fact, he did know Willie Brown.

Willie Brown said, "As long as I'm mayor of San Francisco, I want to build this building and leave a legacy for the poor in town."

And he got us five acres of land in the San Francisco Bay Area, got architects and contractors, got Harvey on board, and of course his friends at HP and Steel Case, Cisco, Wells Fargo and Genentech.

And along the way, I met this short guy at a slideshow in Silicon Valley.

After the slide show, he came up and said, "That was a great story.

I want to help you."

I said "Thank you

what's your job? ”

He is the founder of a company called eBay.

I said, "That's great. Thank you.

If you give me your business card, I may have a chance to talk to you someday."

I didn't know eBay like the water bowl on the piano, but when I got home, I remembered and asked a tech-savvy kid at the center.

"What is eBay?"

He said, "I'm doing e-commerce using telecommunications networks."

I said, "I met the man who created eBay and he gave me his business card."

And I immediately called and said, "Mr. Skoll, you were a really great person (laughs). Would you like to be my friend?"

(Laughter) And Jeff and I became friends, and he put together a team, and we're going to build this building.

I went out to a neighborhood called Bayview Hunters Point and I said, 'The mayor sent me here to work with you.

I brought some slides here,' said

There were 200 people in front of me, full of anger and disbelief. It was a summer night, the air conditioning was broken, it was 38 degrees outside, and I started showing these slides.

After seeing about 10 photos, they calmed down.

When we finished, I asked him what he thought.

And then a woman stood up from the back of the room and said, "I've lived in this remote place for 35 years, and I've never had anyone come this far and respect us like you.

i will believe you

she got the people going

I promised these people that I would definitely build this building.

We should be able to start laying the foundation for the first replica of the building we built in Pittsburgh this year.

And then I met this guy, Quincy Jones, and I showed him the slides.

Quincy said, "I want to help you

Let's build one in LA."

he gathered a lot of people

I'm in love with him as I am with Harvey and his music

Quincy said, "Where did the idea for this center come from?"

I said, "From your music

When I was 16 In my pottery class Miss Ross used to play your albums When the world was dark, your music made me shine

"As long as I have your music, I'll be fine in the sunlight

The fact that I'm here now is proof of that."

I want everyone to know that the world is a place worth living in.

i believe in you

Your hopes and dreams Your wisdom and enthusiasm

I'm tired of going from town to town with broken souls and expressionless people standing in the corner.

Unless we turn this situation around, we can't stand as a country.

In Pennsylvania, it costs 60,000 dollars to put people in jail, and it's full of people like me.

It cost $40,000 to build the University of Pittsburgh Medical School.

It's $20,000 cheaper to build a medical school

Please do the math, it's absolutely ridiculous

I'm counting on you, Harvey, Quincy, and Hackett and Richard.

I want to do this everywhere for the rest of my life

i don't think it's crazy

Please go home with this story. We can build buildings like this all over the country for less money than we spend on prisons.

I could tell this story as one of joy and hope.

what i'm doing

It's like salmon, always going backwards, there's a lot of hope, not enough money, and I'm often depressed at work.

I've found a way to deal with when I'm feeling down Make friends wherever you go and you won't be lonely

I hope I can make a few friends here tonight.

Thank you for listening to me today.

(applause)

(Hans Rosling) I'm going to ask you to answer three 3-choice questions. (Hans Rosling) I'm asking you to answer three 3-choice questions.

Please use this device to answer

Question 1 is, "The number of deaths per year from natural disasters." Question 1 is, "How much has the number of deaths per year from natural disasters changed over the 20th century?" How much has it changed over the 20th century? "is

(A) Doubled (B) Almost unchanged worldwide (C) Decreased by less than half

Please answer in ABC

We've got answers, much faster than we did in college.

Students are slow, they keep thinking

very good

let's go to the next problem

``How many years did a 30-year-old woman attend school on average worldwide?'' (A) 7 years (B) 5 years (C) 3 years

A or B or C? answer now

next problem

“How much has the proportion of people living in extreme poverty in the world changed in the last 20 years?” How much has it changed in the last 20 years? ”

Extreme poverty means lack of food on a daily basis.

(A) About doubled (B) Little change (C) Halved

A or B or C?

Here is the answer

Here's a graph of deaths from natural disasters from 1900 to 2000.

In 1900, about 500,000 people were dying a year from natural disasters: floods, earthquakes, volcanic eruptions, droughts, and so on.

how it changed

Gapminder Foundation in Sweden

I took a survey of the general public

The Swedes answered, 50% said twice, 38% said about the same, 12% said half.

This is real data from disaster researchers, and it's been up and down, but it started dropping after World War II, and it's been going down, and it's a lot less than half.

In the last few decades, the world has become much better at protecting people from disasters.

Only 12% of people in Sweden answered correctly.

So I went to the zoo and asked the chimpanzees.

(Laughter) (Applause) Chimpanzees don't watch the evening news, they give random answers, and the Swedes are worse than random answers.

How about you?

this is your answer

You're losing to the chimpanzees!

(laughs) But it's a good match.

Three times better than the Swedes, but not enough.

Don't compare yourself to the Swedes.

I have to aim higher

The next answer is about the number of years of schooling for girls.

boy is 8 years old

How many years do girls go to school?

The Swede answered, this is a hint.

The correct answer is probably the one the Swedes didn't pick.

(Laughter) let's see

Look, look, girls are almost on par with boys.

Here is an American answer

this is everyone

you did it

They're twice as good as the Swedes, but that doesn't mean they're better. How did this come about? We all know that there are countries and regions in the world where women are oppressed.

I was forced out of school. It's a terrible story.

But in most parts of the world, girls are now in school as often as boys.

This doesn't mean that the gender gap has closed.

Women still face huge restrictions, but they're evenly matched when it comes to school attendance.

you all at your worst

You're answering the criteria and overlooking the majority.

What about poverty?

It's a clear fact that poverty has almost halved, and only 5% of Americans get it right.

How about you?

Almost like a chimpanzee

(Laughter) (Applause) We're losing just a little bit.

I have a preconceived notion

People in rich countries believe that poverty will never go away.

I don't know what's going on

To think about the future, you must first know the present.

These are some of the first questions in the pilot phase of the Ignorance Elimination Project, which I'm working on at the Gapminder Foundation. This project was started last year by my boss and my son, Orla Rosling. (Laughter) He's co-founder and board member.

Already in the pilot phase, it became clear that many people's answers were much worse than random answers. We need to know more about our biases.

This is the income distribution in 1975.

It shows the number of people in each income bracket. This is a dollar a day -- (Applause) There's one hump here at a dollar a day, and another hump between $10 and $100.

The world was divided into two groups

It was a world of Bactrian camels, and there were poor people and rich people, and there wasn't much in between.

Look at how that changed. As time progressed, the population of the world grew and the two lumps became one.

The left hump merged with the right hump, and the Bactrian camel disappeared and became a dromedary camel.

the poverty rate is declining

A significant number of people still live in extreme poverty.

Almost a billion people belong to this group, and we should be able to get rid of that too.

Our problem right now is to switch our minds and understand what the majority is, and that's clearly manifested in this question.

“What percentage of 1-year-olds get basic vaccines, such as measles?” What percentage of 1-year-olds get basic vaccines, such as measles? ” 20% or 50% or 80%?

Answered by Americans and Swedes

Can you guess which of the Swedish answers is correct?

(Laughter) Who the hell is teaching global health in that country?

oh it was me

(Laughter) It's very difficult.

(Applause) Aura's attempt to measure what we know has been in the news, and these results have been published on CNN's website, where millions of people have answered questions and received about 2,000 comments, one of which is this.

"No one in the mass media will pass this exam."

So Orla said, "At a mass media conference,

you're invited

You should ask the mass media people about this."

I'm going to show you guys, here are the results from the American mass media conference.

Here are the results from a recent EU mass media conference.

(Laughter) The problem isn't that people don't watch the news.

Because people in the mass media themselves don't know

What's wrong, Aura?

Any thoughts?

(Applause) (Ola Rosling) I have an idea, but before I do, I'm sorry to all of you who lost to chimpanzees.

Let me reassure you that it's not your fault.

And in the future, I'll give you some tips on how to beat chimpanzees.

that's what i'm talking about today

First of all, why are we so ignorant - it starts here.

Houdiksvall in a town in northern Sweden

It's where I grew up, and there's a big problem in this neighborhood.

In fact, the exact same problem exists in the neighborhood where you grew up, in the neighborhood where you grew up.

that is not typical

The environment I grew up in gave me a very biased view of what the world was like.

This is the first factor in the ignorance problem.

it's a personal prejudice

We all have different experiences depending on the society we live in and the people we meet, and then we go to school, and that becomes the next factor.

I love school, but teachers tend to teach outdated knowledge, because they teach their students much later on what they learned in school, and that's no offense.

Teaching materials are rarely updated

that will be the problem

So in addition to personal bias, we have stale data.

Next comes the news

A good journalist knows what news gets attention, because it's sensational when people read it.

Unusual events are more interesting

And the object of fear will be particularly exaggerated.

If any Swede were to be attacked by a shark, it would be headlines in Swedish newspapers for weeks.

These three biased sources are hard to escape.

It rains down on us, filling our heads with strange thoughts, plus the intuition that makes us human.

This was an evolutionary convenience.

You can generalize things and draw conclusions quickly.

It exaggerates fears, finds causal relationships that don't exist, and creates illusory confidence.

I answer "I'm good" I answer "I'm good"

This was an evolutionary advantage, but it caused the opposite result in terms of how we see the world.

Making an uptrend look like it's going down and our intuition is working in the chimpanzee's favor, what should be our strength.

become a weakness

How can we solve this problem?

you have to measure first and then fix

By measuring, we can catch patterns of ignorance.

We started this project last year, and we've realized just how much people are ignorant about. Our idea is to extend this to different areas, different dimensions of global development: climate, endangered species, human rights, gender equality, energy, finance.

In each area, there are organizations that collect facts and try to spread awareness of the facts.

I've started contacting these organizations -- WWF, Amnesty International, UNICEF, and asking them what facts there are that many people don't know.

collect those facts

Make a list of, say, 250 facts, and give the public

Take a survey and see who has the lowest score

That's how you make a short list of facts that have terrible consequences, like the ones Hans gave you, and they're easy to find.

What do you do with this short list?

It's a certification exam for knowledge of the world, which could be used by large organizations, schools, universities, or the press to validate knowledge.

You shouldn't hire people with chimpanzee-level knowledge.

don't you

So, 10 years from now, if this project is successful, people will be asked about their knowledge of the world in interviews.

So let me give you some tips on how to answer

How can I get it right?

Of course, there's also the option of staying up late at night studying and reading and memorizing all these different sources.

But we all wouldn't do that

Even Hans didn't expect

we all don't have time

We all look for shortcuts, and to do that

We need to turn human intuition into power again.

should be generalized

So let me show you how to turn some misconceptions into clues.

the first misunderstanding

this is widespread

'Everything gets worse'

If you hear it, you'll think so too

Another way of thinking is that "a lot of things are going to get better."

When you're faced with a question and you don't know the answer, you guess, "I'm going to the better side."

not the bad

We should get good marks on our tests.

(Applause) Next.

“There are rich people and poor people, and the gap widens.”

there is gross inequality

It's true that the world is unequal, but if you look at the data, there's only one bump.

If you don't know the answer, "Most people are somewhere in the middle."

If you think about it, you can get the correct answer

The next misconception is that in order to progress socially, we need to be very wealthy economically, like girls going to school or being prepared for natural disasters.

but it's not

At the big hump in the middle, the girls are already in school.

If you don't know the answer, think, "I already have most of it." Electricity, girls going to school, things like that.

This is just a guideline, and of course it's not universal, but it's a generalization.

here is the last one

Dangerous stuff — yeah this is a masterpiece — that sharks aren't dangerous

No, it's certainly dangerous, but it's a global statistic that doesn't matter.

I'm actually scared of sharks

And when it comes to the things people fear -- earthquakes, other religions, terrorists, sharks -- all of those things are supposed to be exaggerated.

This is a guideline

Of course, some are dangerous and serious.

But sharks kill very few people, and that's the idea.

These four points of view probably give me a better answer than chimpanzees, because chimpanzees can't generalize.

So turn the upside-down world back

I'm sure you guys — you can beat the chimpanzees.

(Applause) This is a systematic approach.

Now, does this matter?

Understanding poverty, fighting poverty, getting girls into school, things like that are important.

You know it when you see it getting better

But does it matter to those who only think about the rich side?

I think it's very important for the same reason.

Because if you have a factual perception of the world today, you have a chance of understanding what's coming next.

Let's go back to this 1975 picture of Futacobu.

It's the year I was born. Focus on the West.

Current EU countries and North America

Let's compare the West with the rest of the world in terms of affluence.

This shows people who can fly abroad on vacation.

In 1975, 30% of people were from "other" areas.

but this will change later

Let's start by looking at the changes up to now, 2014.

It's now 50/50

Western dominance is over, that's good.

So what happens next?

Do you have big bumps? Did you see how it worked?

I experimented by going to the International Monetary Fund website

We have the forecast data for GDP per capita for the next five years.

Assuming the income inequality in each country is the same, we can predict what this will look like five years from now.

go further

What will happen if the changes in those five years proceed at the same speed over the next 20 years?

I took a look

57% will be “Other” in 2020

63% in 2025

68% by 2030, and 1975 by 2035.

According to future projections of GDP per capita

73% of the luxury consumer market is outside the West.

I think it's a good idea for companies to use this certification to make fact-based decisions about their future.

thank you very much

(Applause) (Bruno Giussani) It was Hans and Orla Rosling!

Hi everyone my name is Mac

My job is to lie to children, but it's a sincere lie.

I am a children's writer, and as Pablo Picasso put it, "We all know that art is not true.

Art is a lie that makes us realize the truth, or at least the truth that we are given to understand.

An artist must know how to convince others of the sincerity of his lies."

I was a kid when I first encountered this word -- and I loved it, but I didn't know what it meant.

(Laughter) So that's why I'm here, and I'm going to talk to you today about truth and fiction, story and reality.

Now, how do we decipher the meaning of this enigmatic word?

Let's use PowerPoint to illustrate this with a Venn diagram.

[ “truth” “lie” ] (laughs) What do you think? Boom

Truths and lies have been shown, and there's a little bit of space in the middle.

That boundary, that's art

(Laughter) (Applause) It's just not very useful.

What I found out was that Picasso's maxims and what we call art, in terms of storytelling, are related to children.

In the past, when I was in college, I used summer vacation to

I was a summer camp leader It was very fulfilling

At a sports camp attended by 4- to 6-year-olds

I was put in the care of a four-year-old, which was convenient because -- neither they nor I could compete.

(Laughter) I'm as athletic as a four-year-old. At camp, the kids practice dribbling around the cone.

For example, on weekends, I go home to spy on the Queen of England.

And soon other children will come, regardless of age, and they'll come together and say, 'Mr. Mac Barnett, right?

A spy for the Queen of England? ”

I've been waiting a long time for a complete stranger to ask me this question.

In my imagination, I'm a slender Russian woman, but in real life, I'm a four-year-old... in Berkeley, California.

And as we were talking, it dawned on me that the reality in the story was somehow familiar and exciting.

There was a little girl named Riley who brought her lunch every day and threw the fruit out of it.

The fruit in my lunch - I threw the melons my mother gave me every day to the vines, but I ate the gummy fruit, and the puddings.

Then she said, "Why?"

So I said, "Because if you throw it away like that, you're going to have melons all over the place." Ultimately, that's how I ended up becoming a children's writer instead of a children's nutritionist.

Riley retorted, "That can't happen.

Absolutely not.”

So on the last day of camp, I got up early and went to the supermarket -- I bought a big cantaloupe and hid it in the ivy. When it was time for lunch, I said to her, "Riley, go over there and see what you've done."

And then -- (Laughter) -- she trudged up to the ivy, and her eyes widened and she pointed to a melon that was bigger than her head, and all the kids ran up to her.

(Laughter) I said, "So I told you, don't throw the stickers in the ivy.

If you don't properly throw it in the trash, it will destroy nature."

Riley carried that melon with him all day - he was so proud.

She knew that melons wouldn't grow in seven days, but she also knew that she had grown them.

Adults can also be guided through art

At that time, her imagination was in full swing, in the realm of art and storytelling.

Let's call this "wonder"

Coleridge's spontaneous cessation of disbelief - or poetic artifice - wherever there is a story, however strange, there is a semblance of truth that is worth believing.

To that place, both children and adults

be guided through the story

That's why, for two days, we're going on a walking tour of Dublin in honor of Bloom's Day, to immerse ourselves in the world of "Ulysses," when nothing is actually happening.

Or go to Baker Street in London -- visit Sherlock Holmes' apartment -- even though the address 221B is fictitious -- even though you know it doesn't exist.

We can feel them, we can think of them, even though we know they don't exist.

Even though we know they're fictional characters, their existence feels real.

I write fairy tales because children are more likely to enter that world than adults.

Children are the best readers, especially for pure literary fiction.

When I was a little girl, I was obsessed with novels about secret doors, like The Chronicles of Narnia, where you open a hidden door behind a wardrobe and go to a magical realm.

I believed there was a secret door, and if there was a door, I would try it.

I wanted to imagine a fantasy world beyond reality.

It's a bit of a surprise, and I think I should let my mother know about it.

(Laughter) I was happy to report it.

My first job after college was behind a secret door.

826 Valencia

It's a building with the same name as the address, in the Mission District of San Francisco. At the time, it was the headquarters of a publishing company called Max Sweeney, and a nonprofit learning center called 826 Valencia.

It's a commercial district, and we didn't get a special permit in San Francisco, so author and founder Dave Eggers said, according to the ordinance, "Okay, let's open a pirate store."

This is the store. (Laughter) It's a beautiful wooden store.

I have tangerines in my closet drawer—so I can prevent scurvy.

The eyepatch is also colorful See, pirates tend to go wild in spring, don't they?

“Black is boring, let’s go with pastel”

You can choose the color of the prosthetic eye according to the situation.

Oddly enough, people shop at this pirate store, and the sales have grown to cover the rent for the assistance center behind the store. But what's important to me is the quality of the work we do, because kids come here to learn to write, and moving from this quaint space into the world of writing has a profound effect on the content of the work.

Passing through a secret door - that's what it feels like

So I decided to run 826 Los Angeles, and I thought this was my job.

And I made "Echo Park Time Travel Mart"

Our motto is "When a customer comes, we are always there"

(Laughter) In a building on Sunset Boulevard in LA, on the main street.

The kind staff who came across time and space

Corresponding, the man on the far left came from the 1980s, very recently.

This is the “Employee of the Month List” Genghis Khan to Charles Dickens

Great people also ranked

This is a so-called pharmacy

We also sell patented medicines. "Kanopic jars" to accompany the mummies. "Communist soap." The tagline was -- "This is the soap of the year."

One staff member is covered in strawberry syrup

It was like a bloodied murderer.

“What should I do? Even though it’s my favorite”

I had no choice but to cover it up with a poster saying, "Please come yesterday because it's out of order."

“Mammoth meat” one 7kg

"Primitive Repellent Spray" Salad and Potpourri Things Primitives Don't Like

[ “Latin” “Coptic” ] Obsolete

(Laughter) "Hill," nature's little doctor.

The "viking smell" comes from a variety of sources: toenails, sweat, rotten vegetables, and wood stove ash.

Look, AX's body spray is something you use on the battlefield, right? Not armpits.

The hit product is "other people's misfortune" This was unexpected

(Laughter) I didn't expect that.

In the back of the store, there's a support center. Children walk through a "staff-only" door -- and they come to this place, where they do their homework, write stories, and even make movies.

It's a quarterly magazine that collects their work, and if you come here after school -- write a story every day, celebrate with cake -- present your story to your parents -- and have a glass of champagne and a toast of milk.

It's a special space, because the front store influences it.

no longer a joke

There's no seam between the two spaces, and it's a veritable little story that merges into the real world.

It's a so-called three-dimensional book.

This is called "metafiction," which means "a story about a story."

Modern literature continues today with stories from the 1960s by John Barth and William Gaddis.

It's like an old story

There's also a trick that allows you to "break the fourth wall."

And then the actor thinks of the audience and says, ``I'm acting, it's all about acting.''

The problem is that even though the space is true, it's seen as a false service.

I wish it was the opposite

If I break the fourth wall - from the story to the real world - I lead the reader.

A story that opens a secret door and invites you to the real world-I wish it was a book

I tried there

I'll give you an example

It's my debut

The book "Billy Twitter and the Blue Whale Problem"

It's about a kid taking care of a blue whale, but as a punishment, Billy's life is turned upside down.

One day a whale is delivered by FedUp

(Laughter) Anyway, I'm going to take the whale to school.

In San Francisco, where he lives, it's pretty reckless.

Premium properties on countless hills

unthinkable

When I wrote this book, I did something, and under the cover of the book, I put an ad that said, "With a 30-day trial of peace of mind, you can keep blue whales."

Enclose a self-addressed stamped envelope and I'll send you the whale."

Then the children write letters

Let me introduce you, "Hey guys, I'm betting you $10 that you won't get a blue whale.

From Elliott Gannon, Age 6”

(Laughter) (Applause) So this is what Elliott and the other kids are writing and receiving -- a letter from a Norwegian law firm in small print. (Laughter) A letter from a Norwegian law firm in small print.

(Laughter) But at the end, I'll say, "Your whale wants to talk to you.

So please call this number and leave a message."

When children call a whale -- they hear a message -- it's a whale call and a beep, and that sound is more like a whale.

The children then imagine their own whale.

This is Randolph. Randolph's owner is Nico. He was the first to call.

this is the first message

(Audio) Nico: "Hello, I'm Nico.

I'm your master, Randolph, hello.

It's my first time talking to you. I'll call you next time. Goodbye."

Mac: And an hour later I got a call from Nico.

(Laughter) Another message from Nico.

(Audio) Nico: "Hello, I'm Nico Randolph.

I haven't spoken to you in a long time But I spoke to you on Saturday or Sunday It was Saturday or Sunday So I called you today How are you? what are you doing now? I'll call you again tomorrow or today See you later bye"

Mac: And a few hours later, I got a call from Nico.

Nico left Randolph 25 messages in four years.

Do you remember Nico? Let's take a look at his favorite granny, or a granny he doesn't like very much.

Christmas message from Nico

(beep) (audio) Nico: "Hi Randolph sorry I haven't been on the phone for so long.

School has started so I've been very busy You're a whale You probably don't know But today I wanted to tell you Merry Christmas

Have a Merry Christmas - Goodbye Randolph"

MAC: Nico hasn't called in 18 months.This is a message I left two days ago.

His voice is completely different, but - on the phone with his babysitter - he was speaking very sweetly to Randolph.

Nico is the best reader

I want my readers to really feel the stories I create.

I'm lucky to have readers like Nico, they deserve the best of the best.

thank you

(applause)

cancer

It's a devastating disease that brings deep sorrow.

Not only for patients, but also for their loved ones

The fight against cancer is a battle that humanity has been fighting for centuries.

We've made some headway, but we're still unbeatable.

2 out of 5 Americans will get cancer in their lifetime

Of those, 90% die from cancer due to metastasis.

Metastasis is the spread of cancer from the source to distant locations through the blood circulation and lymphatic system.

For example, women with breast cancer don't just die from a lump in their breast.

Cancer spreads to the lungs, liver, lymph nodes, brain, and bones, where it can damage and die without treatment.

metastasis is a complex process

I have been doing research for several years

Our team recently discovered that cancer cells exchange information with each other and coordinate their movements based on how tightly they are packed into the tumor.

Cancer cells communicate through two signaling molecules, interleukins 6 and 8.

Now, like everything else in nature, constriction enhances the signal, causing cancer cells to move away from their primary site and spread to new sites more quickly.

So if we block this signal with a cocktail we've developed, we can block the communication between cancer cells and slow the spread of cancer.

Let's take a moment to take a breather and go back to 2010, when it all began for me. I was a sophomore in college.

I was just starting out in Dr. Danny Wertz's lab at Johns Hopkins University.

To be honest, I was still a young, naive Sri Lankan girl (Laughter) and had no research experience at all.

They were instructed to observe how cancer cells moved through a three-dimensional matrix of type I collagen recreated in culture dishes, the same conditions that cancer cells are exposed to in the body.

It was new and exciting to me, because my previous experiments had been done in two-dimensional, flat plastic dishes that didn't exactly replicate what cancer cells look like in the body.

The truth is, cancer cells in the body aren't sitting on a plastic dish.

Around that time, I attended a seminar by Dr. Bonnie Bassler at Princeton University, where she talked about how bacteria communicate with each other and take specific actions based on their density.

At that moment, a light bulb flashed in my head, and I thought, "Oh, speaking of motion, I see cancer cells every day."

The idea for my project was born like this

We hypothesized that cancer cells could communicate with each other and coordinate their movements based on how tightly packed they were in the tumor microenvironment.

I became obsessed with pursuing this hypothesis.

And luckily, I'm working with someone who can afford to go along with this quirky idea.

So I immersed myself in this project

However, I could not have done this research alone.

i need help

I desperately needed help

So we enlisted undergraduates, graduate students, postdoctoral researchers and professors from different institutions and diverse departments to work with us on this idea that came to me in my sophomore year.

After several years of experimenting with them and fusing different concepts and perspectives, we discovered a new signaling pathway that controls how cancer cells communicate with each other based on density and move.

Some of you may have heard of this, because on social media this is called the "Hasini effect."

(Laughter) (Applause) It wasn't the end.

Then we decided to block this signaling pathway and see if we could slow the spread of cancer.

We did this as a preclinical animal study.

We came up with a cocktail that included tocilizumab, which is currently being used to treat rheumatoid arthritis, and reparixin, which is currently in clinical trials for breast cancer.

Also, interestingly, it turns out that this cocktail actually targets metastases directly, even though it has no effect on tumor growth.

This was an important discovery, because currently there are no FDA-approved treatments that directly target the spread of cancer.

In fact, cancer spread -- metastasis -- is thought of as a by-product of tumor growth.

So we think that if we can stop tumors from growing, we can stop them from spreading.

However, I know this is not true

On the other hand, we've come up with a cocktail of drugs that target metastasis not by targeting tumor growth, but by targeting the complex mechanisms that govern it, targeting the Hasini effect --

(Laughter) This work was recently published in Nature Communications, and our team has received overwhelming response from all over the world.

No one on the team expected this kind of reaction.

It has captured the hearts of many researchers.

Looking back, I am very grateful for the support, not only from academics, but from patients around the world who are afflicted with this terrible disease.

When I think of this success of encountering the Hasini effect, I am always reminded of the people I was lucky enough to collaborate with.

College students who have shown superhuman strength through their hard work and dedication

Graduate students, postdoctoral fellows, my fellow Avengers who taught me new skills and kept me on track.

Professors, who are my Yoda and Obi-Wan Kenobi, have contributed their expertise to this research, and this is where I am today.

Support staff, friends, family—they are the people who have motivated us to never give up on our ambitious work.

The best companions we could ever ask for

It was the community that helped me to do metastasis research.

Without community, I would never have come this far.

Today, our team has grown to use the Hasini effect to develop combination therapies that effectively target tumor growth and metastasis.

We're trying to create new anticancer drugs that reduce drug toxicity and reduce drug resistance.

In addition, we are developing a groundbreaking system that will help develop better human clinical trials.

It's amazing to think that all of the incredible research I'm currently exploring, and the fact that I'm standing on this stage today to talk to you all, was born out of a tiny idea I had in the back seat of a seminar when I was only 20 years old.

Right now, I am on an amazing journey that allows me to pursue research that I am very passionate about and that inspires me every day.

But, without a doubt, the thing that I love most -- apart from, of course, being able to tell you all here -- is the fact that I've worked with a diverse group of people who have made my research more robust and, above all, much more interesting.

So I have to say, cooperation is my favorite superhuman power.

The reason I like this power is that it's not unique to me

it's something that's in all of us

My research has shown that even cancer cells work together to invade the human body and spread the damage.

It is this superhuman power that has produced incredible discoveries for us humans in the medical and scientific fields.

It is this superhuman power that we can all rely on to inspire us to create something greater than ourselves and help make the world a better place.

Cooperation is a superhuman force that I can rely on to help me fight cancer.

I believe that with the right cooperation, we can beat cancer.

thank you

(applause)

In the 1960s, still a student, I got a fellowship to study residential architecture in North America.

traveled to america

I've seen public housing estates and skyscrapers in major cities, New York and Philadelphia.

There lived people who had no choice but to live there.

And then I toured from suburb to suburb, and on the way back, I realized that we should rethink apartment architecture.

There must be another way than that

If it's impossible to recreate the rich life in the suburbs, I thought, why don't we design a building where each unit has the quality of being called a home?

The theme of the work "Habitat" is not gardens or closed corridors, but contact with nature and open paths.

We took economics into account by building each unit in advance, and here's what it looks like 50 years after we built it.

It's a very livable house

It's now part of the architectural heritage, but the style never really caught on.

I went to China for the first time in 1973.

It's time for the Cultural Revolution

I traveled and met architects and city planners.

As you can see, there were no skyscrapers in Beijing or Shanghai at that time.

Shenzhen city didn't exist yet

The car was barely running.

30 Years Later - This is Beijing Today

this is hong kong

If you're rich, you live here. If you're poor, you live here.

In São Paulo, you can take a 45-minute helicopter ride and watch skyscrapers swallow up 19th-century low-rise residential areas.

Congestion can lead to traffic jams, loss of mobility, and so on.

So a few years ago, we decided to revisit "Habitat."

Could this be made cheaper?

Can we have the same quality of life in today's high population densities?

And then I realized that what we need is light, sunlight, nature, to fractalize.

Is it possible to open the surface of the building so that it can be more in touch with the outside?

We've come up with a variety of models: the economy model is more compact because it's less expensive to build; the box-unit module allows people to design their own homes and build their own gardens.

So I looked at Lower Manhattan, using New York as a test case.

And we mapped every building in Manhattan.

On the left is present-day Manhattan, blue for residential buildings, red for office buildings and retail stores.

On the right, we've transformed it into an office on the lower floors, and 75 floors above that are apartments.

There's an aerial walkway on the 25th floor, it's a community walkway.

there is a connection with the outside

There are gardens and open spaces for the community, and almost every unit has gardens, and community spaces are everywhere.

Most importantly, it's an open space with flow.

Instead of building walls and adding barriers to the city, light is permeating everywhere.

In the last couple of years, for the first time, we've been making Habitat's quality of life a reality through actual projects across Asia.

This is Qinhuangdao City, Hebei Province, China. It's a middle-class residence. All apartments are guaranteed three hours of sunshine per day by ordinance. Three hours of sunshine per day.

when measured at the winter solstice

Being built in Singapore, these are middle class homes, gardens, community roads and parks.

this is in colombo

And one more thing I want to touch on is public space design.

After 100 years of building skyscrapers, we still don't fully understand how skyscrapers are the building blocks of cities and the public spaces within them.

What we did in Singapore — with a very high population density of 930,000 square meters

Incorporating both outdoor and indoor concepts, we integrated walking paths and parks into the busy city life.

So these are both outdoor spaces and indoor spaces, where you can move freely between the two and be in touch with nature. Most importantly, on every floor of the building, there are public gardens and open spaces. Looking up at the tower from the lower level rooftops.

That's what I was able to talk about in 5 minutes.

thank you

(applause)

we are about to have an amazing moment

In the next 20 years, we will face two fundamental changes that will determine whether the next 100 years will be the best century or the worst.

Let me explain with an example

Twenty-five years ago, I came to Beijing to teach at Renmin University of China.

At that time, China was working on developing a market economy and higher education, so they decided to invite foreign experts.

In Beijing, like many people, I used my bicycle to get around.

Except for the occasional motor vehicle, the bicycle was a safe and convenient means of transportation.

But recently in Beijing, the situation is completely different.

Roads are jammed with cars and trucks

The air is heavily polluted with coal and exhaust fumes.

Last spring, there was a notice to people my age, that is, over the age of 65, to stay indoors and not go out.

how did this happen

It's because of the way Beijing has grown as a city.

In 25 years the population doubled from 10 million to over 20 million.

It was an unplanned urban sprawl that relied on polluting fuels and energy, especially coal.

China consumes half the world's coal fuel each year, which is the main reason why China is the world's largest emitter of greenhouse gases.

At the same time, it's also true that during that time, China achieved phenomenal growth.

and became the second largest economy in the world.

Hundreds of millions of people have been lifted out of poverty

it's very important

But at the same time, people in China began to ask themselves: Is this growth worth it if the environment becomes uninhabitable?

They analyzed and concluded that this was not a path of sustained growth and development.

And China started using less coal.

It seems that urban development is trying to proceed in a different way.

China's growth has brought about dramatic and fundamental changes in the structure of the global economy.

Just 25 years ago, the developing world -- the poorest countries in the world -- had most of the world's population, but only one-third of the world's output.

Over the next 25 years, countries that were considered developing countries 25 years ago will account for two-thirds of production.

this is an amazing change

I would like to draw your attention to the fact that every country in the world, rich or poor, faces two fundamental changes.

The first of these changes is the change in the underlying structure of the economy and society, which I have already explained with the example of Beijing.

Now 50% of urban areas

By 2050, it will account for 70%

Over the next 20 years, energy demand will rise by 40 percent, economic and population growth will put pressure on land, water resources and forests.

This is a serious structural change.

If we don't care about these changes, and if we only think about the short-term, it will lead to problems like increased waste, pollution, overpopulation, destruction of land and deforestation.

If we do poorly on the three fronts that I've shown you in numbers -- cities, energy, and land -- it could impoverish and destroy the lives and livelihoods of people around the world.

What's more, greenhouse gas emissions will increase, posing great danger to the climate.

Concentrations of greenhouse gases in the air are much higher than they were in previous millions of years.

If we continue to emit gas like this, we're going to increase the risk of warming over the next century, something that hasn't been seen on this planet for tens of millions of years.

We are Homo sapiens, which is a better term than human beings, and have lived on Earth for 250,000 years.

We're increasing the risk of warming in just a century, a risk that hasn't been seen in tens of millions of years.

Humanity's relationship with the planet will change.

It accelerates desertification, redirects rivers and hurricanes, and causes sea levels to rise. Hundreds of millions, no, billions of people will be displaced. If we don't learn from history, conflicts will deepen and escalate.

you can't stop it

We can't make a peace treaty with Earth.

The laws of physics cannot be negotiated

just stand there

To survive, we have to decide on the second change: climate change, the transition to a low-carbon society.

The first structural change is now inevitable.

You have to decide whether you're going to handle economic and structural change well or poorly.

But we have to address the second change, climate change.

We will face these two changes in the next 20 years.

The next 20 years is the time to decide what we should do.

The more I think about these two changes coming at once, the more convinced I am that this is a once-in-a-lifetime opportunity.

Is it an opportunity for us to take advantage of the future, or an opportunity for us to lose it?

Let's start with the three points that I've introduced so far: cities, energy, and land.

Let's start with the city

I've already touched on Beijing's problems: air pollution, overcrowding, waste.

We see similar problems in many cities around the world.

Now let's think about city life in particular.

Cities that are being built, and cities that are getting bigger, we have to think about how we can design compactly, so we can save travel time and save energy.

Ancient cities need a way to regenerate and rehabilitate, to strengthen the relationship with those cities, to move people into these cities and to allow people to live close together in the heart of the city.

There are many examples around the world that we can work on.

The Bogotá bus system in Colombia is a great example of a clean, safe and fast way to get around. There are frequent buses in the city.

Some things take time to incorporate into the city

But some things can be done quickly.

in london where i live

In 1952, 4,000 people died from smog, and many people were seriously affected.

and went on forever

people living outside London

I even called London "smoke"

it was london

Within a few years, the smog problem came to an end as coal was regulated.

I remember smog well

I could only see a few meters ahead, so I had to stop the bus and walk.

it was in the 1950's

I walked three miles from school to home.

Even breathing was a dangerous act.

But I made a decision that changed

Good decisions lead to good results, with surprising and immediate results.

In addition, London introduced a congestion charge, which also took effect quickly, and the bus system has also seen great improvements, making it more environmentally friendly.

So you've seen two changes, structural change and climate change coming together.

But we need to invest in our cities, we have to invest wisely, so that we can make those cities cleaner, quieter, safer, more inviting, more productive, and cities with stronger communities -- public transportation, recycling, reuse -- all in the community.

But here we have to think, we have to invest, we have to plan.

let's see the energy

Energy has increased by about 50% over the last 25 years.

80% of it comes from fossil fuels

An additional 40% increase is expected over the next 20 years

So we should invest heavily in energy, and use it more effectively and in a cleaner way.

What should I do

Let's take the example of California

If California were an independent country, it would be number 10 in the world.

(Laughter) California is a big place.

(Laughter) In the next five or six years, we'll take wind, solar and other renewables from about 20 percent to 33 percent. By 2020, California will have as few greenhouse gas emissions as it did in 1990. California's economy has at least doubled since then.

an amazing achievement

you know what to do

New governments in California, as well as India, are pushing ahead with plans for solar technology to light the homes of the 400 million people who still don't have electricity.

We have set a goal of 5 years

I thought it would be a great opportunity to do

But what you're seeing right now is even more than the population of the United States.

400 million people moving much faster.

It's kind of ambitious. People are putting themselves in a fast-changing stream.

I repeat, good decisions produce quick results. Two changes, economics and mechanics, climate and low carbon, are inextricably intertwined.

The first mechanism and the second climate are becoming easier to work with.

Let's take a look at the land, the land, especially the forest

home to precious plants and animals

It stores water in the soil and absorbs carbon dioxide from the atmosphere, which is fundamental to our response to climate change.

but forests are declining

In the last decade, we've lost an area of ​​forest the size of Portugal, and we've damaged more.

But as we've seen, there's a lot we can do.

You can recognize the problem and understand how to tackle it.

In Brazil, deforestation has decreased by 70 percent in the last decade.

how? Engage your community, invest in your local agriculture and economy, watch closely, and follow the law strictly.

It goes beyond curbing deforestation

In addition to the first important basics, there's also the issue of degraded land -- regenerating and reviving degraded land.

I went to Ethiopia for the first time in 1967.

It was hopelessly poor, under severe food shortages for several years, and under severe and devastating conflict.

In recent years, Ethiopia has grown rapidly, even before that.

For 15 years, we had the ambition to become a middle-income country, a carbon-neutral country.

It's a strong ambition, but it's a good ambition.

there is a sense of responsibility

see what's possible

Ethiopia is investing in clean energy

It also works to revive the earth.

In Hanbo, in the southwest, there's an amazing project going on: replanting degraded land, working with local communities to sustainably manage forests, and greatly improving living standards.

So, looking at it from Beijing to London, from California to India, from Brazil to Ethiopia, I think you've got a better understanding of how to manage two changes: social structure and climate.

how to deal with these

Technology is changing rapidly

I don't even need to give them to everyone here. There are electric cars and batteries made of new materials.

You can also control your electrical appliances remotely using your smartphone.

It also has high performance insulation.

more will be produced

But if you look at the world as one big, one lump, it moves very slowly.

We can't cut emissions like we think

We're not managing structural change as we would like.

We don't yet have a deep understanding of the immense dangers of climate change.

What we might be able to do, the appeal of the possibility is still not deeply understood.

Political pressure is needed for that

We need leaders to take us to the next level.

We can have better growth, a better climate, a better world.

By managing these two changes well, we can make the next 100 years the best century ever.

If left untouched, if we all let pollution go unchecked, if we don't manage these two changes well, the next 100 years will be the worst century.

Here's a rundown from the Economy and Climate Report, chaired by the former president of Mexico, Felipe Calderón. I was the vice chair.

we know we can

Two weeks ago, I became a grandpa to my fourth grandchild.

My daughter- (baby crying) (Laughter) (Applause) She gave birth to Rosa here in New York. Helen Rosa over here.

(Applause) This is a two-week-old baby.

Look at our grandchildren Tell them you know the challenges And the crisis and the chance to recover Why not do it yet?

That's right, let's make the next 100 years a better century together

(applause)

What is America's favorite pie?

AUDIENCE: "Apple pie." Of course it's apple pie.

How do you know?

because there is data

Consider supermarket sales

Regarding the sales of 30 cm frozen pies Apple pie is the number one by far

Most of the sales are apple pies

But when supermarkets started selling tiny 11 cm pies, apple pies suddenly dropped to fourth or fifth place.

Why? what happened?

please think about it

When buying a 30 cm pie, choose a pie that meets the wishes of the whole family. Apple pie is the family's second choice.

(Laughter) But when I buy a 11-inch pie for personal use, I buy the pie I want.

You can buy your first choice

when there is a lot of data

You learn things that you didn't know when you had less data.

So the more data you have, the more you see, but the more you know from what you're seeing.

The more data you have, the more new things you learn

a better view

you will be able to see differently

What this example tells us is that the popular pie in America is not apple pie.

You've probably heard the term "big data" before.

Maybe you've heard enough to get calluses in your ears.

Big data is partly hyped, which is very unfortunate, because big data is a very important tool for the progress of society.

In the past, we used to try to understand the world from a small amount of data, but now we have a lot more data than we could have imagined before.

We're starting to see that with a lot of data, it's fundamentally possible to do things that weren't possible with a smaller amount of data.

Big data is important, it's new. When you think about big data, it's the only way we can address global challenges -- food, health care, energy and electricity -- and we need to use data efficiently so that it doesn't burn to a crisp as a result of global warming.

What are the new things in big data, what are the big things?

To answer that question, let's think about what information looks like and how it looked physically in the past.

In 1908, archaeologists found a clay disk on the island of Crete.

4.000 years ago, 2,000 BC

This disk has writing on it, but it's virtually unreadable.

It's a total mystery, but I want to tell you what the information was like 4,000 years ago.

This is how society stores and communicates information.

Well, society didn't make that much progress.

We still store information on disks, but we can store a lot more information than we used to.

Easier to search and copy

Easier to share and process

When you collect information, you can also reuse information in ways that were once unimaginable.

At this point, data is moving from being a static thing to being a fluid thing, from being a static thing to being a changeable and dynamic thing.

In other words, information is fluid.

The 4,000-year-old disc found on Crete is heavy, doesn't contain much information, and can't be rewritten.

By contrast, all the files that Edward Snowden took from the US National Security Agency can be stored on a fingernail-sized USB and shared at the speed of light.

data is inflated

Now, the reason we have so much data in today's world is because we're collecting things that are collecting information all the time.

As an example, let's think about location.

Take Martin Luther for example

If you wanted to know where Martin Luther was in the 1500s, you'd have to keep following him around, carrying a quill and an inkpot, and recording his whereabouts. But what about today?

Your telecommunications carrier's database will tell you where you are, and there will always be a spreadsheet or a database entry that records information about your whereabouts.

If you have a mobile phone, it has a GPS function, so even a phone without a GPS function can record your information.

In other words, places are digitized.

As another example, let's think about posture, and you're all sitting right now, the way you're sitting, the way you're sitting, the way you're sitting.

It's all different. Leg lengths, backs, curves, etc. If you put 100 sensors on the chair you're sitting in right now, it could classify your unique sitting traits like your fingerprints, not your fingers.

What can I do with this?

Researchers in Tokyo think it could be used as an anti-theft device for cars.

The idea of ​​having a thief in the driver's seat is what we're trying to do to prevent crime. If an unauthenticated driver sits in the driver's seat, they may have to enter a password on the dashboard to say, "I'm an authorized driver."

What would happen if every car in Europe had this technology?

What can you do then?

Perhaps if we collect the data, we might be able to pinpoint exactly what a car crash will happen in the next five seconds.

It then compiles data on driver fatigue, and when the car senses that the driver's posture is getting worse, it automatically sets an internal alarm, vibrating the steering wheel, or saying something like, "Wake up, pay more attention to the road."

By digitizing various aspects of our lives, we can categorize what we can do.

So what is the value of big data?

please think about it

you have more information

I can do things I couldn't do before

One of the most striking areas where this concept arises is in the area of ​​machine learning.

Machine learning is part of artificial intelligence, part of computer science.

The concept is that instead of telling the computer what to do, you just throw it at the data in question and the computer figures it out on its own.

It's easy to understand if you trace its origin

In the 1950s, an IBM computer scientist named Arthur Samuel liked checkers, wrote computer programs, and he played against computers.

he fought and won

he fought and won

He played and won because the computer only knew the formal rules.

Arthur Samuel knew great things

he knew the strategy

He created a subprogram that ran in the background, and the subprogram recorded the odds of winning and losing for each move given the layout of the board.

he played against the computer and won

he played against the computer and won

he played against the computer and won

And Arthur Samuel made the computer itself play the game.

Computers played games on their own and collected more data.

The more data you collect, the more accurate your predictions will be.

And Arthur Samuel went back to the computer and played it and lost it. He played it and lost it. He played it and lost it.

The idea of ​​machine learning is everywhere.

How do you think self-driving cars were made?

Is it a richer society to write all the road rules into software?

No Is storage cheap? no

Is your algorithm faster? No Better processor? no

They're all important, but that's not why

because it changes the nature of the problem

What we're trying to say is, like, "There's a lot of information around cars, and you understand that. You understand traffic lights, because they're red, not green.

must stop

It changed the nature of the problem I was trying to articulate to the computer that "I can't move forward."

Machine learning underlies a lot of what we do online, from search engines to Amazon's personalization algorithms to automatic translation to speech recognition.

These days, researchers are looking at biopsies and cancer biopsies, and they're trying to use data and viability to tell a computer to identify whether a cell actually has cancer. Sure enough, when you feed it the data, the computer, via a machine learning algorithm, identifies 12 signs, and predicts that a biopsy of a breast cancer cell is cancer.

The problem is that the medical literature only knows nine symptoms.

Three of the traits were things we didn't need to look for, but the computer found them.

Now, big data also has a downside.

It makes our lives better, but there are also issues that we have to be aware of. The first issue is that the police might use big data for their purposes, like Minority Report, and predictively punish.

Now, the term predictive policing, or algorithmic criminology, is the idea that if you have a lot of data about, say, where past crimes happened, you know where to patrol.

That's true, but of course there's also the problem of not just stopping at the location data, but going down to the individual level.

What about using your personal high school transcript data?

You might use things like whether you're unemployed, your credit score, your internet surfing patterns, whether you stay up late.

With Fitbit's biochemical information, we can even see that users are thinking positively.

There are algorithms that can predict our actions, and they may actually hold us accountable before we act.

Privacy was a central issue in the era of small data.

In the age of big data, the challenge is to protect free will, moral choice, human decision-making and agency.

And there's another problem: big data is taking jobs.

Big data and algorithms will challenge white collar and professional jobs in the 21st century just as factory automation and assembly lines challenged blue collar workers in the 20th century.

Think about a laboratory technician who uses a microscope to examine a cancer biopsy to determine if it's cancer.

The laboratory technician received a college education

buying a real estate property

to vote

also an investor in society

And the lab technician job, like a bunch of similar professions, like a bunch of similar professions, changes radically or disappears altogether.

After a brief hiccup, think about how technology has created jobs over the years.

But one thing that analysis forgets is that there are jobs that are gone and never came back.

The Industrial Revolution wasn't so lucky if you were a horse.

So we have to be very careful with big data and calibrate it for our very human needs.

We must become owners of this technology, not servants.

The age of big data is just beginning, and to be honest, we're not doing very well with all the data that's being collected right now.

It's not just the National Security Agency's problem.

Companies are also collecting and misusing a lot of data, and it's going to take time to get good at it.

It's a bit like the challenge faced by primitive man and fire.

It's a tool, but it's a tool that will burn us if we're not careful.

Big data will change the way we live, work and think.

It's going to take care of our careers and lead us to happy, hopeful, happy and healthy lives.

It's not clear, but it's pretty important in some respects.

Humanity can finally be learned from the information we gather as part of our timeless adventure to understand the world and our place in it, and that's why big data matters.

(applause)

I started this job at the age of 19, becoming the first female photojournalist in Gaza, Palestine.

A career as a female photojournalist was seen as a grave affront to local customs, and it brought an enduring stigma to me and my family.

In this male-dominated field, they've done everything they can to keep me out of existence.

I was told sternly that women should not do men's work.

I was refused training by the Gaza press photography industry because I was a woman.

I was told flatly "no"

Three of my co-workers took me to the site of the airstrike, and all I could hear was an exploding explosion.

The ground shook so much that dust rose up and my feet wobbled.

I realized I wasn't here for work when three of my co-workers ran back in their armored jeeps and left me in the middle of an airstrike, giggling and waving at me.

For a moment, fear and misery and regret overwhelmed me.

There have been other life-threatening threats similar to those of my colleagues, but the horrors on this occasion were nothing compared.

Women's position in Gaza is weak

Until recently, many women were denied employment or education.

In the double battle between the social constraints imposed on women and the Palestinian question, the stories of women, good and bad, fade away.

Women's stories were seen as insignificant to men.

I started paying attention to the way women in Gaza lived.

Being a woman, I was able to go where my colleagues were forbidden.

Beyond the visible pain and struggle, there are times when you can hear laughter and feel a sense of accomplishment and feel refreshed and healthy.

During the first battle in Gaza, in front of a police station, Israeli airstrikes destroyed the building and broke my nose.

At that moment, all I saw was a bright white light, just like this light.

In my mind, I thought I was blind or I went to heaven.

I caught this moment when I could barely open my eyes.

Muhammad Qadar was a Palestinian laborer who worked in Israel for 20 years.When he retired, he decided to build a four-story house, as he had planned.It collapsed during the first battle near his home.

All that's left is the pigeons he raised and the Jacuzzi bathtub he bought back from Tel Aviv.

Muhammad put his bathtub on top of the rubble and let his children enjoy bubble baths every morning.

My job is not to hide the wounds of war, but to reveal the daily lives of the people of Gaza that no one else knows.

As a Palestinian-born female photographer, she finds strength in her daily struggles and survival to overcome social taboos and report the untold side of the battle and its aftermath.

As a witness, I have to choose: run or stay.

thank you

(applause)

For the past seven years, I've worked as an EMT in Suffolk County, New York.

I have a lot of experience as an emergency worker, from a car accident to the Hurricane Sandy catastrophe.

I think for most people, dying is the most terrifying experience.

Some people can anticipate death, some can't.

In a little-known medical term—

There is a word impending doom, which means a sudden misfortune.

this is like a symptom

As a health care provider, I'm trained to deal with a wide variety of conditions, so if a heart attack patient looks me in the eye and says, "I'm going to die today," I'm trained to reassess the patient's condition.

In my work in critical care, I've been there many times when this patient was only a few minutes away, and there really was nothing we could do about it.

Then you have to face the dilemma of whether to tell the person that he or she is dying or to lie and comfort him or her.

Early in my career, I simply chose to lie.

because it was scary

If you tell the truth, that person will die in terror.

But an event changed everything

Five years ago, when I was dealing with a motorcycle accident.

Motorcycle rider was fatally injured

When I saw the patient, it was clear to me that there was nothing I could do to help him. Like all my patients, he looked me in the eye and asked, "Am I going to die?"

Make a different choice

At that moment, I wanted to tell you the truth.

I decided to let him know that he was going to die and that there was nothing I could do about it.

I was very shocked by his reaction

I still can't forget that.

The fear and anxiety that I had imagined wasn't there in his face.

When I looked into his eyes as he lay there still, I knew that he was accepting of his inner peace and destiny.

In that moment, I decided that lying and trying to comfort me wasn't something I should do.

Many times over the years, I've witnessed patients in their final moments -- most of the time, just as helpless, but everyone reacted the same way when I told them the truth.

I've experienced this kind of situation many times, and I've noticed that there are three patterns.

The first pattern that shocks me whenever I encounter it

A pattern of asking for forgiveness regardless of religious or cultural background

Some people perceive it as guilt, others regret it, but guilt is universal.

I once cared for an elderly man who had a very serious heart attack.

I was on the verge of cardiac arrest, and I prepared myself for the equipment, and I told them that the moment was just around the corner.

And he had already guessed from the tone of my voice and my gestures.

As I prepared for the impending moment with the defibrillator pad on my chest, he looked me in the eye and said, "I wish I had spent more time with my children and grandchildren - I spent too much time on myself."

At the moment of his death, what he asked for was forgiveness.

Next, about the second pattern, the second is a wish not to forget.

In my thoughts and in the thoughts of those I love, that man never perishes.

In the hearts and minds of the people I love, whether it's me, the staff, or anyone else around me, I want to be sure that I will continue to live in someone's heart forever.

Countless patients have looked me in the eye and said, "Don't forget me."

And finally, the third pattern, every time it weighs heavily on my heart, it's a pattern that resonates deeply in my soul.

What do they really want to know when they die?

It means that their lives have meaning and they have never spent their lives in vain.

early in this work

There was a case that rushed over the phone

Because the car crashed at high speed in a traffic accident

My body was tied up in the car, it was a desperate situation.

After the fire brigade arrived and started to get me out of the car, I climbed out of the car to try and get some help.

At that time, the girlfriend in the car said, "There were so many things I wanted to do while I was still alive."

She felt that she had left no proof that she was alive.

As we talked, I learned that she had two adopted children, and that they were both going to medical school soon.

She gave these two children opportunities they never would have had without her, and they decided to go into medicine to become doctors and save lives.

I tried my best to get her out of the car

She died before it could

I used to think that the moment of death was like that, because the last moments that I see in movies are full of fear and anxiety.

But no matter what the circumstances, I realized that the very small things you can do in the very short time frame of someone's last moment, the insignificant little things that make them feel at ease, can bring peace and acceptance of their destiny in their final moments.

thank you

(applause)

I teach engineering at a university I've been teaching feces for 14 years this way

(Laughter) It's not that I'm a bad teacher. What I've learned and taught is human waste, how it travels through sewage plants, how it travels through sewage plants, and how to plan and design wastewater treatment plants to protect surface waters like rivers.

During my scientific career, I've used cutting-edge molecular techniques based on DNA and RNA to study the biological microbial community in my facility and aim to optimize the system.

Over the years, I've developed an unhealthy obsession with toilets, and I've been known to sneak into toilets all over the world and take pictures with my cell phone camera.

And what I've learned along the way is that there's not just a technical side of things, but also cultural shit.

Let me give you an example. Are you a wash person or a wipe person?

(Laughter) You can imagine.

If you're a wash person, use water. Anal cleansing is the technical term.

If you're a wiping person, use toilet paper, or if you don't have access to toilet paper in some part of the world, use newspaper, a piece of cloth, a corn cob.

This is more than just trivia, it's a very important aspect of solving hygiene problems.

The big problem is that 2.5 billion people in the world lack access to adequate sanitation.

there is no modern toilet

Of those, 1.1 billion have toilets in public spaces, such as roadsides and riverbanks.

If you live surrounded by faecal matter, you will get sick.

Drinking water, food, and familiar objects

The United Nations estimates that 1.5 million children die each year from poor hygiene.

1 death every 20 seconds 171 deaths per hour 4,100 deaths every day from preventable causes

So it is imperative that local governments and cities build infrastructure like drop latrines in peri-urban and rural areas to prevent open defecation.

For example, the KwaZulu-Natal province of South Africa has installed tens of thousands of drop latrines.

But when you scale it up to the tens of thousands, the problem arises: What happens when the toilet fills up?

It actually happened

I started defecation around the toilet.

At school, children were urinating on the floor, leaving dirt outside the building, and urinating around the building, so the latrines had to be cleaned and manually emptied.

Who will do this work?

The school hires workers and they sometimes go down to the bottom of the hole and manually remove the contents.

It's dirty and dangerous work

As you can see, I don't have any protective equipment or even work clothes.

See the worker on the bottom right

can you see

I'm wearing a mask over my face, but I'm not wearing a shirt.

And in countries like India, people from lower castes are further socially discriminated against forcing them to do this work.

So ask yourself, how can we solve this problem, and why can't we have Western-style flush toilets for 2.5 billion people?

the answer is impossible

These areas don't have enough water, they don't have electricity. It costs tens of trillions of dollars to build sewers. You have to build them, operate and maintain them, and if you don't do it right, flush toilets go directly into rivers.

Is this really the solution?

So what we're doing here is using clean water to flush the toilets, take it to the sewage treatment plant, and then discharge it into the river, which is also drinking water.

So we need to rethink sanitation and rebuild our sanitation infrastructure, and to do that, I would suggest adopting systems thinking.

We need a bird's-eye view of the public health system.

Starting with the human interface, we have to think about how waste is collected, how it is transported, how it is processed, how it is reused.

First is the human user interface

It doesn't matter if you're a wash person, a wipe person, a sitting person, or a squatting person, the human user interface should be clean and easy to use, because it should be pleasant to use.

(Laughter) When we expand the possibilities for understanding public health systems, if the back-end technology from accumulation to reuse doesn't become too much of a burden, then we can adopt community-based solutions that are best suited for local communities.

This opens up a lot of possibilities, and makes it fun to use a toilet like this toilet with two holes.

It has holes in the front and back to collect urine in the front and feces in the back.

What we're doing here is urine sorting. Urine is 80% nitrogen and 50% phosphorus. Chemicals like struvite are formed in the downward sedimentation process and become a highly nutritious fertilizer.

Or, as our research demonstrates, we can recycle water through domestic sanitation systems, creating plant boxes and wetlands.

So when you break out of the existing paradigm of flush toilets and wastewater treatment plants, all kinds of possibilities open up.

Now, who's going to pay for this?

I think governments should spend money on sanitation infrastructure.

NGOs and aid groups try their best, but it's not enough.

Just as governments build infrastructure like roads, schools, hospitals, and bridges, so should public health. According to a study conducted by the World Health Organization, for every dollar we spend on sanitation infrastructure, we can get anywhere from $3 to $34 in benefits.

Let's get back to talking about cleaning drop latrines.

At North Carolina State University, we had our students come up with a simple solution, and I'd like to share with you their idea. We've built a simple cone-shaped conveyor that can take excrement up from under the hole and into a collection drum.

It's been tested in South Africa, and it's working.

Now we're going to take this even further, and we're going to do more experiments in Malawi and South Africa next year.

Our idea is to turn this into a professional cleaning service, to create a profitable and job-generating small business, and what we hope is that by rethinking hygiene, we can keep our existing drop latrines working longer, so we don't have to rely on short-term solutions that don't pay off.

I believe that having adequate sanitation facilities is a basic human right.

The practice of having lower castes and people of low social status clean toilet holes must stop.

It's our moral and social imperative and our environmental imperative.

thank you

(applause)

To escape slavery, to protect his family, to face all dangers, to lead military raids, to defend the suffrage movement, these are just a few of the achievements of the most valiant American greats.

Harriet Tubman was born in Dorchester County, Maryland in the early 1820s and was named Araminta Ross.

Araminta, nicknamed "Minty," was the fifth of nine children born into a slave family.

Minty's two older sisters were sold as chained slaves.

Even as a child, Minty was employed by various slave owners and subjected to flogging and corporal punishment.

Young Minty's life changed forever at a local shop where he was sent.

At the store, a 1kg weight was thrown at the fugitive slave, and it missed its target and hit Minty.

The injuries I sustained during that time, resulting in bouts of falling asleep, a condition now known as narcolepsy, will haunt me for the rest of my life.

The slave owner tried to sell her, but the dozing slave had no buyer.

Instead, I was forced to work with my father, Ben Ross, who taught me how to cut trees.

Logging gave me strength, and I got to know the free black sailors who brought the timber up north.

From them Minty learned the secret transmission methods used on this trade route, which proved invaluable later in life.

In this environment of free blacks and slaves working together, I met the free black John Tubman and married him in 1844.

After her marriage, Minty took her mother's name, Harriet, and changed her name.

1849 Harriet Tubman's slave master died.

When the widow tried to sell her slaves, Harriet feared being separated from her loved ones.

She's heard of the Underground Railroad, a secret society of safe houses linked by a secret network of captains and wagon drivers to help shelter slaves fleeing north.

Tubman ran away with his brother Ben and Harry.

They were afraid of getting lost and eventually turned back.

But one day, while asleep, Harriet had a dream that she could fly like a bird.

I looked down and saw the road to freedom

Then, in the fall of 1849, she set off alone, using the North Star as her landmark on her way to Pennsylvania and freedom.

Tubman returned to the South 13 times to free his nieces, brothers, parents and many others.

Nicknamed "Moses the Negro," she worked hard with the abolitionists, first to the North of the United States and later to Canada.

Harriet Tubman worked as a nurse for the Union Army during the Civil War, as a scout, and as a spy.

In 1863, she became the first woman in American history to plan and lead a military raid that liberated nearly 700 slaves in South Carolina.

After the war, the 13th Amendment to the United States Constitution officially abolished slavery, the 14th expanded civil rights, and the 15th gave suffrage to former enslaved black men.

But she was undaunted and insisted

He raised money for enslaved people and helped build schools and hospitals for them.

In 1888, she became even more active in her pursuit of women's suffrage.

1896 Attended the founding meeting of the National Association of Black Women in Washington, D.C.

I later attended a women's suffrage conference in Rochester, New York.

So she said to the participants, "I was the leader of the Underground Railroad, and I can say things that many others cannot.

She never strayed from her route or lost a companion." As her name became known, friends and associates helped her with her Civil War-era pension appeals.

1899 US$20 monthly pension finally granted

Befitting a life of adversity, in 2016, the U.S. Treasury Department announced that Tubman's portrait would appear on the new $20 bill.

Harriet Tubman died March 10, 1913

At the age of 91, on her deathbed, she was still concerned about people's freedom.

He left the following words at the end, "I'm going to prepare a place for you guys."

Listen, 20,000 bright young people from over 100 countries 20,000 bright young people from over 100 countries have arrived in Cuba and are transforming health care in their communities.

More than 90% never left the country More than 90% never left the country Got a scholarship to study medicine in Cuba and decided to one day go back to where they came from - rural farms and mountains and ghettos There rural farms and mountains and ghettos To be a doctor for people like themselves "walk as they should" - to do what they had to do

The Latin American Medical University in Havana is the largest medical school in the world. Since it opened in 2005, it has trained 23,000 young doctors, and is yet to graduate with another 10,000.

Our mission here is to build doctors for the people who need them most, the billion people who have never been to a doctor, the people who live and die under every poverty line.

Individual students challenge all "common sense"

They are the school's most dangerous risk and hope They are the school's most dangerous risk and hope

They've been recruited from the poorest, most desolate places on the planet, not just brilliant, but entrusted with the expectations of schools that believe they'll be the doctors their communities sorely need, in poor and dangerous neighborhoods where many doctors don't go, in poor and dangerous neighborhoods where many doctors don't go, carrying antidotes in their rucksacks, drugs, gangs and bullets in their hometowns. These are the doctors who pass through these neighborhoods.

The expectation rests with them to transform access to healthcare, to redefine health in impoverished communities, to transform the way healthcare itself is learned and practiced, and to pioneer the expansion of our universal health care system around the world.

Two big storms in 1998 and this "walk as you should" led to the establishment of ELAM.

Hurricanes George and Mitch hit the Caribbean and Central America, killed 30,000 people and left 250 million homeless.

Hundreds of Cuban doctors volunteered to be disaster relief volunteers, but when they got to the scene, they saw a greater disaster. Entire communities had no access to medical care, the doors of local hospitals were slammed for lack of supplies, and too many babies died before their first birthdays.

What will happen when these Cuban doctors leave?

New doctors were needed to make treatments sustainable, but where would they come from?

Where should I train?

So in Havana, the former Naval Academy was turned over to the Cuban Ministry of Health to become the Latin American Medical College ELAM.

Hundreds of students from countries hardest hit by the storm were given tuition, dormitories and expenses.

As a journalist in Havana, I witnessed the arrival of the first 97 Nicaraguans in March of 1999. They moved into their barely renovated dormitories, where they helped professors sweep the classroom floors and move in desks, chairs, and microscopes.

In the years that followed, governments across the Americas demanded scholarships for their own students, and the Congressional Black Congress won hundreds of scholarships for America's youth.

Today, 23,000 alumni come from 83 countries in the Americas, Africa and Asia, and that number has grown to 123 countries.

More than half of the students are young women

They are made up of 100 ethnic groups and speak 50 different languages.

WHO Director-General Margaret Chan said, "If you're poor, female, and of indigenous origin, that's a distinct advantage, because you're part of the people that make this school unique."

Luther Castillo is from San Pedro de Tocamacho on the Pacific coast of Honduras.

There's no running water there, no electricity, hours of walking to get to the village, or like me, I'll take the plunge and let the truck run along the shores of the Atlantic Ocean.

Luther was one of the 40 children of a black indigenous ethnic group called the Garifuna, who make up 20 percent of the population of Honduras, to go to school.

The nearest hospital was miles away, the difference between life and death.

Luther walked three hours every day to get to middle school.

only 17 go to school

Five went on to high school, only one went on to college, and Luther, who went to ELAM, was one of the first Garifuna graduates.

Before that, there were only two Garifuna graduates in the history of Honduras.

Thanks to ELAM, we have 69 people today.

Big problems require big solutions, big ideas, imagination and boldness, but also useful solutions.

Without any pre-prepared materials, the ELAM professors worked hard to guide their students, making course corrections through trial and error.

Even the brightest students from poor communities didn't know enough for six years of medical training, so science classes were arranged for them.

What is needed next is language education for natives who learned Spanish as a second language, such as Mapuche, Quechua, Guarani, and Garifuna, and Creole-speaking Haitians.

Spanish was integrated into the pre-undergraduate curriculum.

Everything was different in Cuba, the music, the food, the smells, but the teachers became family, and ELAM became our home.

Religions ranged from indigenous beliefs to Yoruba, Muslims, Christianity, and evangelicals.

Accepting the alien has become a way of life there.

Why did so many countries seek this scholarship?

First, we don't have enough doctors, and if we do, they don't reach the poor, because the global health crisis, which is getting worse because of the scarcity of human resources.

We're short of 4-7 million health care workers just to meet basic needs, and this problem is everywhere.

Doctors live in half the world's population Doctors are concentrated in cities with half the world's population, not enough in the ghettos and South LA.

In America, we have healthcare reform, but we're short of healthcare workers.

By 2020, there will be a shortage of 45,000 primary care doctors.

we are part of the problem

America is also the number one importer of doctors from developing countries.

The second reason students flock to Cuba is the island's unique health report card, which relies on robust primary care.

The Lancet magazine's panel ranks Cuba as one of the best performing middle-income countries in health.

The NGO Save the Children ranks Cuba as the most mother-friendly country in Latin America.

Cuba has a life expectancy similar to that of the United States, a lower neonatal mortality rate, relatively low regional variability, relatively low regional variability, and per capita healthcare costs that are 20 times less than the United States.

ELAM's education is rigorous, but 80% of students graduate.

The subjects are very general — basics, clinical sciences, etc. The big differences are:

The training takes place outside the ivory tower, and the classes are hands-on practice in neighborhoods, where most of our graduates will actually work in the future.

Of course, they also have lectures and hospital shifts, but community-based learning starts on day one.

The students then engage with the patient as a whole -- mind and body -- in the context of family, community and culture, and examine the patient.

Third, they study sanitation, to assess the water their parents drink, their home conditions, their social and economic conditions.

Fourth, they have a good history and four, they can get most of the clues they need to make a diagnosis through a good history and a thorough clinical examination, so they don't have to do expensive technical confirmation.

Ultimately, they are taught over and over again the importance of prevention, especially as chronic diseases are plaguing healthcare systems around the world.

This kind of on-the-job training, along with the team approach, teaches you how to work as a team, how to lead a team, and the need for a little humility.

After graduating, these doctors share their knowledge with nurses, midwives, and community health workers to train them to do better work, not replace them with new replacements. They also work with traditional witch doctors and healers.

ELAM Alumni—Demonstrating This Bold Attempt Right?

I know from dozens of projects that it seems likely to demonstrate that.

Garifuna graduates

Not only did they return to work in their hometown, but they also mobilized their own community, building Honduras' first indigenous hospital.

With the help of architects, the locals literally built from scratch

The first patient stepped through its doors in December 2007, and since then the hospital has recorded nearly a million visits.

The government took notice, and set up the hospital as a public health model for rural Honduras.

ELAM graduates are bright, strong and enthusiastic

Haiti January 2010

pain hit the country

People were buried under 30 million tons of rubble

It was an overwhelming sight

340 Cuban doctors were already working there for a long time.

There was an increase planned, but we needed more doctors.

At ELAM, students were in contact with 2,000 alumni around the clock.

As a result, hundreds of people arrived in Haiti, ranging from Mali in 27 countries in the Sahara to Saint Lucia, Bolivia, Chile, and the United States.

Everyone spoke to each other in Spanish, and thanks to a Haitian medical student from ELAM in Cuba, I heard patients speak Creole.

Many of them survived the cholera epidemic for several months.

Hundreds of Haitian graduates picked up pieces of rubble and decided to overcome the heartache and shoulder the burden of building Haiti's new public health system.

Today, dozens of new medical centers have been built with the help of governments and organizations from Norway to Cuba to Brazil, 35 of which are headed by ELAM graduates, 35 of which are headed by ELAM graduates.

But this Haitian story paints a picture of a bigger problem facing many countries.

Look, when cholera hit in 2012, there were 748 Haitian graduates, half working in the public health sector, a quarter unemployed, and 110 leaving Haiti.

In the best-case scenario, these graduates will continue to find jobs and strengthen the public health system, and they are often the only people who become doctors.

In the worst case, there are not enough jobs in the public health sector, where the poorest people are treated, there is not enough political energy, there is not enough resources, there is not enough of everything - there are just too many patients to get care.

Graduates also face pressure from their families, who, desperate to make ends meet, and unable to find work in the public sector, tend to settle on private practice or migrate abroad to make money.

Worst of all, in some countries, medical societies are influencing licensing bodies to deny them ELAM degrees, and they're so frustrated that they're stealing their jobs, their patients, and their livelihoods.

this is not a question of ability

Here in the United States, after rigorous scrutiny by the California Medical Board, ELAMs are accredited, and new medical graduates continue to pass scrutiny and are accepted into clinical residency in prestigious locations like New York, Chicago, and New Mexico—making Cuba's big bet pay off.

200 of those graduates have returned to America, motivated and frustrated at the same time.

As one of our graduates put it, in Cuba, "We doctors are trained to provide quality care with minimal resources, so it's hard to believe that we can't do that with all these resources. That's wrong.

Not only have I seen them do it, but I've done it myself."

ELAM graduates came from very poor families in Washington, D.C. and Baltimore, from very poor families in Washington, D.C. and Baltimore, to bring health care, education and voices to their communities.

they have tried their best

Now, we need to help them grow beyond 23,000. It's time for all of us -- foundations, clinical training program directors, media entrepreneurs, politicians, ordinary people -- to stand up.

More globally, we should give these new doctors a chance to use their mettle.

They must be able to take the qualifying examinations of their respective countries.

They should be working in places like the public health sector and nonprofit health centers where they can apply their learning and dedication.

They need a chance to become the doctors that patients want.

In order to move forward, we may also need to go back to the beginning.I remember when I was a kid, the pediatrician who knocked on our door in the poor neighborhood south of Chicago, the doctor who was a public servant for us, who visited the homes of his patients.

These aren't really new ideas for what healthcare should be.

What's new is the program's growth and evolution, and the pool of doctors, because ELAM graduates are more likely to be women -- doctors from indigenous groups in the Amazon, Belu, Guatemala, or doctors of color in the United States who speak fluent Spanish.

These female doctors are well-trained and dependable, and they share the same look and culture as the patients she sees, and they're the people we really need to support, because they're on the subway, on the donkey, and in the canoe, and they're telling us how to walk.

(applause)

Women make up 50 percent of middle management and professional positions, but less than a third of that number occupy top management positions in organizations.

People who hear this statistic ask why there are so few women in top management positions.

If you believe, as I do, that leadership can be done at all levels, then you're going to turn your eyes to the fact that we have some really great female leaders in middle management and ask a different question: Why are so many women stuck in middle management, and how do we push them up to the top?

Maybe some of you are women in middle management positions like this who are trying to move up the corporate ladder.

This time as a good example of such a woman

I'm going to tell you about Tonya. I met her two years ago.

She's a vice president at one of Fortune's top 50 companies in America, and said with great frustration, "I've worked very hard to improve my self-confidence and assertiveness and develop a great brand. I've received very good performance reviews from my bosses, and my 360-degree evaluations show that my teammates enjoy working for me. I've taken every management course I can find. My boss knows that I'm ambitious for promotion, and that I'm even interested in international assignments.

I don't understand why people are passing up opportunities for promotion under these circumstances."

And what Tonya doesn't realize is that there's a missing 33 percent of the talent that women need to be promoted, and understanding that missing 33 percent is what it takes to close the gender gap in the top management.

To get promoted in an organization, men and women, you have to be known for your leadership excellence, which means you're doing what's great about you.

You have to be recognized for bringing out the best in others and achieving and sustaining extraordinary achievements.

In other words, you must use your skills, talents and abilities to help your organization achieve its strategic financial goals while working effectively with people inside and outside the organization.

All three of these leadership elements are very important, but they're not equally important when it comes to getting promoted in an organization.

So as we move forward, please pay attention to what's in the green box on the slide.

Skills and competencies related to the green box are weighed twice as much as the other two leadership factors when searching for and identifying high-potential employees who have the potential for top-level leadership.

These skills and competencies can be summarized as business, strategic and financial acumen

So this skill is understanding where the organization is headed, what its strategy is, what its financial goals are, and understanding what role you have to play in the development of the organization.

This is the missing 33 percent that prevents women from advancing, and the reason we don't have this 33 percent is not because we're incompetent, but because we've been given poor advice.

This is what it means

Five years ago, I was asked to moderate a public forum for company executives, and the topic that day was, "What qualities do you look for in a promising candidate?"

So to summarize what they said, I want you to think about the three elements of leadership that I just talked about.

They said, "We want smart, hard working, dedicated, trustworthy and flexible people."

What leadership elements are these related to?

the beauty you have

And they said, "I want to be an overall good communicator who can build great relationships with clients, energize my team, negotiate effectively, and handle conflicts and conflicts well.

Which leadership element does this apply to?

Bringing out the best in others

That's almost the end of your speech.

So I said, "So, let's understand your company, where it's headed, and what their roles are in order to reach that goal.

What about people who understand -- and who can see risks and opportunities in the context of the external environment, strategize, and give strategic advice?

And what about someone who can read your company's financial statements, understand the context behind the financial data, and then act and advise accordingly?"

They unanimously said, "That's normal."

I turned to an audience of 150 women and asked, "How many of you have heard that it takes business, strategic, financial acumen to get the chance to get promoted, and all the other big things I mentioned above are important to set yourself apart in your talent pool?"

Only three women raised their hands. I've been asking this question to women all over the world for the past five years, and the proportion of women who have never heard this kind of advice hasn't changed much.

Now the problem is clear

But why

There are three main reasons for this missing 33 percent of the career advice given to women.

First, when organizations offer women employees the traditional advice we've heard for over 40 years, there's a striking lack of advice on business, strategy, and financial acumen.

Most of the advice focused on advice that Tonya has cultivated over the years, such as being more assertive, being confident, developing a personal brand, and working with others, such as how to promote yourself, use mentors, and network.

This is not to say that the advice that has been given so far has not been important.

It's the advice you need to start your career and get promoted to middle management, but it's not the advice you need to push women, who make up half of middle management, into leadership roles.

So 40 years of conventional advice given to women hasn't narrowed the gender gap in rising to the top management, and it won't.

And the second reason, which Tonya mentioned, is related to things like good performance reviews, great feedback from teammates, taking as many management courses as possible.

You would think, of course, that she's been informed through the company's development program and performance appraisal program how important it is to develop business, strategic and financial acumen, but again, the percentage of green boxes is very small.

On average, the HR and performance review systems at the companies I've worked for focus three to one more on the two elements of leadership outside the green box than on business, strategic, and financial insights. This is why the typical HR and performance review system has never been able to close the gender gap we see in the top management, and never will.

Now, Tonya said she's been coached by a mentor, and that's very important. If organizations, personnel and performance systems generally don't communicate to every employee the importance of business, strategic and financial acumen, how do male employees make it to the top management?

There are two main methods

One, by being assigned a job that involves senior management;

So what is your experience with mentoring women?

The following comment from an executive I worked with recently illustrates that experience.

He was very proud to have supported and mentored two protégés last year, a man and a woman.

And he said, "I coached the woman to be confident, and I coached the man to learn about business, and I never thought I was treating them any different."

he was very honest about this

What this means is that whether we are managers, men or women, we have different stereotypes of men and women when it comes to leadership roles, and because we unconsciously hold onto these stereotypes, we are unable to close the gender gap in the top management.

So how do we take this lost 33 percent mentality and put it into action?

For women, the answer is clear: we need to focus more on developing and demonstrating the skills to show that we understand our companies, where they're headed, and our roles.

That's the breakthrough for promoting women from middle management to top management.

But you don't have to be a middle manager to do that.

A young female scientist at a biotech company used her insight into the missing 33 percent and used financial impact data to report on her project, and she was very well received by the executives present.

But we don't want to put all the blame for this lost 33 percent on women alone, and it's not wise to do so, because executives understand that if a company is to achieve its strategic financial goals, it should have all its employees on the same page.

In other words, in business terms, there has to be a strategic alliance.

Executives are well aware of this, but according to the National Industry Council, only 37 percent of companies believe this strategic partnership is in place.

Achievement of the remaining 63% of strategic financial targets is in doubt

Considering what I just said, that 50 percent of middle managers have never heard that the promotion to the top management should focus on understanding the company, understanding where it's headed, and what role you need to play in reaching those goals, it's no surprise that so few executives feel so confident about strategic alliances.

It's important for directors to expect that when they discuss business succession once a year, they should expect women to be included in senior management in proportion to men.

I wonder why? Because if they don't have that mindset, it could be a red flag that the company isn't as strategically aligned as it could be.

It's important that CEOs also expect to achieve this balanced gender mix. If someone says, "She's inexperienced in business," ask, "What should we do about it?"

It's important for HR executives to make sure that the missing 33% mindset I mentioned earlier is being conveyed with proper emphasis, and it's important for men and women in management positions to examine the views we have of men and women in careers and careers, and to make sure we're creating a level playing field for everyone.

Finally, I'd like to conclude with Tonya's recent story.

She emailed me two months ago to let me know that she had been interviewed for a new position. During the interview, the interviewer had reviewed her strategic acumen on the business and industry, and she was very happy to announce that she now has a new position that reports directly to the Chief Information Officer.

I hope some of you can learn about this missing 33 percent and act on it, and I hope that you will see this as an idea worth promoting in order to make organizations more efficient, to build careers where women can advance, and to close the gender gap in the top management.

Thank you

(applause)

Over the past few days, as I was preparing my speech, I was very nervous about what I was going to say and about this stage where other amazing people were speaking.

Standing on the same stage as Al Gore, the first person I voted for

And then -- (Laughter) And I was nervous, and I didn't know Chris was sitting offstage, which is another source of tension.

But I think about my family there

I started thinking about my father and grandfather, my great-grandfather, and I realized that Ted was in my blood (Laughter) -- that's me -- think of it as my ingredient.

So who am I?

As Chris already said, I started a company with my husband.

There are now 125 people worldwide

I was shocked when I opened the book

you will see this

(Laughter) I saw some great presentations in the past that used graphs and things like that, and to impress myself, I made a moving graph, too, and I decided to talk about my make-up.

(Laughter) And on top of all this weirdness, here's my science slides, mathematics.

And this is the science of genetics

This is my grandmother, from where my mouth was born

(Laughter) So I'm a blogger, and that means a lot to most people here.

You've probably heard about the Kryptonite key. A blogger made a fuss by saying that he could break Kryptonite's key with a ballpoint pen.

And we had to publicize it to reassure consumers.

You may have heard of the Lazargate incident, which happened when bloggers realized that the 'th' behind the number 111 was written in Word, not an old typewriter.

We have put a lot of effort into making it public

Blogs are scary.

I agree and I'm scared too I can assure you - blogs are terrible, they're not friendly.

But some blogs are changing the way we read news and advertising media, and here's a good example: these people reach thousands or millions of readers.

It's making an impact, and that's very important.

Even when the hurricane was coming, MSNBC was updating frequently about the hurricane on their blog, which was

Due to the ease of use of blogging tools

A friend of mine has a blog about digital devices -- recording devices.

I earn enough money to support my family in Oregon just by running ads.

Now he does just that, and it's made possible by blogging.

There are also things like Interplast

This is an organization of lay people and doctors who go to developing countries and do plastic surgery for people who need it.

So a child suffering from a cleft palate gets the surgery they need and records their story, which is great.

I don't have that kind of compassion

(Laughter) I'm going to tell you about myself. That's me -- a blogger.

I've always wanted to be an expert on one thing, and I'm an expert on this person, and I decided to write about it.

And my blog in a nutshell: It started in 2001 when I was 23.

I used to be a designer, but I wasn't very inspired and I wasn't happy with my work.

I majored in English Literature in college, but I never got to use it.

I missed writing, so I decided to start writing a blog.

And I started making small stories like this

This is a picture of my camping experience when I was 11 years old, how I got to a YMCA camp -- a Christian camp.

So -- it's okay to laugh

this is me

this is what happened to me

This was my goal when I started blogging, and I realized it and said, I'm not going to be a celebrity in the world, but I can be a celebrity on the internet.

And I set a goal, I said I'd get a prize.

I've never won an award in my life.

And I said I'm going to take this award, the South by Southwest Weblog Award.

And I won, I got readers, and I had tens of thousands of people read my life.

I wrote a post about banjo

I wrote a post about wanting to buy a banjo -- a $300 banjo, which is expensive.

I don't play an instrument and know nothing about music.

I like music, I like the banjo, and maybe I heard Steve Martin play it and said I could do it, and

I asked my husband, "Ben, can I buy you a banjo?"

This is my husband, this is my very attractive husband, and he has won an award for being attractive.

(Laughter) He said, 'You can't buy a banjo, it's

It's like your father who buys and collects musical instruments."

And I wrote a post about how angry I am with him What a tyrant he is and won't let me buy a banjo

People who know me know this joke, that's how Mena jokes about people.

Because the joke here is that he's not a tyrant, he's kind enough to let me dress myself up and post a picture of it on my blog.

(Laughter) -- If he knew he was going to use this photo here today, he would have been killed.

The thing is, I wrote this post and my friends read it and they thought I wrote a new post about Mena wanting shit and doing shit.

But I got emails from other people saying, "Oh my God, your husband is an asshole.

how much money does he spend on beer in a year

You can buy a banjo with that money

What if I create another account? ”

I've been with him since I was 17 -- never had separate accounts.

They said, "Separate accounts and use your money and his money."

Others said "break up with him"

So

Who are they?

and why are you reading this?

And then I realized: I don't want people to read it.

I don't want to write for a general audience.

And I closed my blog little by little

I don't want to keep writing this anymore.

Little by little, I occasionally wrote personal things

This post is because today is Einstein Day

I think it's choke, because this was my first pet, who died two years ago.

And I decided to discontinue "I won't write about my normal life" because I wanted to commemorate her.

Anyway, this kind of personal story. You read blogs about politics, the media, gossip.

The more personal things that interest me, that's who I am

Reading about Norman Rockwell, art critics say Norman Rockwell is not art

Norman Rockwell paintings hang in living rooms and bathrooms, and it's not what you'd call high art.

And I think this is the most important thing for us humans.

And that's the kind of thing that resonates with us. When you think of a blog, you might think of it as a high art form of blogging, like a biblical historical painting.

This is what interests me: people who simply talk

And one story was about a baby named Odin.

his father is a blogger

I started blogging one day when his wife had a baby at 25 weeks.

he didn't expect that

That day was a normal day -- the next day was hell

This baby weighs less than 500 grams

Odin recorded daily

Photographed daily, day 1, day 2

On day nine, he started talking about apnea, and on day 39, he had pneumonia.

This baby is so tiny, and I've never seen a picture that makes me feel so -- so anxious.

You're reading what's going on right there. On the 55th day, everyone was reading. He had respiratory failure and heart failure and it was declining.

But then things got better, and on the 96th day, I was home.

and see this post

This isn't something you see in newspapers and magazines, but this is what this person is feeling, and everyone was excited about this.

28 Comments It wasn't read by that many people, but it was important to 28 people.

Today, he's a healthy baby, and if you're reading this blog -- Snowdeal.org is his father's blog -- he's still taking pictures because there's a parent-child bond.

It's a blog

What is it? I'm sure you've heard this before

I've talked about the WELL community, and it's been talked about in the history of online.

But I think blogging is an evolution, and that's where we are today.

It's a record of who you are, it's your personality.

You will ask what is a mena trot in the search window of google

And find something like this, be happy or be unhappy

But you'll also find blogs, and that's what people are documenting every day -- it doesn't have to be on the same topic, but it's something they're interested in.

They say the world is flat like this panel. I'm very optimistic. When I think about blogging, I always want to reach out to tens of thousands, tens of millions, hundreds of millions of people.

We're in China, we want to be there, but a lot of people don't even have access to blog.

But $100 PC's are great because the software for blogging is simple.

By jumping on the bandwagon and by persevering, we've built a successful company, but that's simply not rocket science.

I think it's amazing when you think about it

That's why I think blogging is so important to documenting one's life.

I started this talk with my slide about Ted, and I had to add this slide because as soon as I showed this, my mom -- she's looking at this deck, she's reading my blog -- she's going to say, "Why no pictures of me?"

That's my mother.

But this is largely just an extension of my immediate family.

I just showed you a Norman Rockwell painting, which I saw growing up, and I saw all the time.

I spent hours looking at these connections and saying, "Oh, the little one at the top has red hair, just like the first family over there."

Little things like this, this

It's not science, but it was enough for me to be interested in how we evolved and how we traced our ancestry.

and it always affects me

I have this record, this -- my maiden name is Grabowski -- from the 1910 census, with Theodore,

This is all I have I have someone's facts

Their date of birth and age If they could speak English, what kind of household chores they would do That's all I know about them

It's sad, five generations back.

And that's it, my mother's side doesn't even know what happened, because she's from Cuba and there's not much of it.

For this, I had to spend time in the archives -- that's why my husband is a saint, while I'm sitting in the Washington Archives looking for stuff like this, and now I'm online.

he was there until the end

I have records like this, this is my great-great-grandmother.

this is just one picture of me and

When you think about what a blog can do; when you think about people using a $100 PC to share their personal stories about who they are, this is incredible.

Another series of photographs that has had a big impact on me is this project by an Argentinian man and his wife.

He photographed his family every day, from 76 to 20, oh my god I'm 77 --

29 years? for 29 years

Here's a joke about graphs that I didn't post: if there were a lot of equations written and I could add up to 100

that's my skill

So here people are getting older, this is the latest or last year

It's a very powerful thing that you can use to reflect on yourself.

I wish my family had something like this

One day my children, or my grandchildren -- maybe my great-grandchildren, if they have children -- what I do -- will think about what kind of person I was, and then I do very narcissistic things.

I'm a blogger -- this is great for me because I keep track of my time each day.

I take a picture of myself every day -- I've been doing this since last year -- every day

And the pictures are the same This is the same person

Only a few people have seen this.I'm not writing for the people here.

I'm showing it now, but if it's really released, I think I'll go insane.

There are probably four people looking at this, and they say -- they haven't updated --

I think that it will probably be said that other people have not updated

But this is great, because you can go back in time, back in April of 2005. What were you doing this day? you can tell by looking at it

This visual cue is important to whatever you do.

And there are bad photos, and I'm posting them too.

(Laughter) It immediately reminds me: I was in Germany -- had to take a day trip.

I was sick and I was in a hotel room and I didn't want to be there I know these things

I don't smile all the time.

I have this same face on my driver's license, which is pretty upsetting, but it's really important.

The last thing I really want to talk about is this, because it's probably the most important thing I do.

I think it's probably choking, which tends to happen when I tell this story.

So this woman, her name is Emma, ​​she was a blogger using our service called TypePad, she was a beta tester.

She's been involved since we started, and there are about 100 --

she wrote about her cancer

She kept writing all the time, and people started reading it, because there weren't that many blogs yet, so I was able to keep track of people.

She was writing as usual, but disappeared for a moment.

Then her sister came and said that Emma

I told her that she had passed away, and all the support staff I spoke with -- they were all very emotional. It was a very difficult day for the company.

And that was the moment I realized how blogging was affecting our relationship and how flat the world was.

This woman was in England and she was there talking about herself and what she was doing.

But the big thing that really impacted us was when her sister reached out to me and wrote about this blog -- in the last few months of Emma's life, blogging was probably the best thing she'd ever done, being able to talk to people, share what was going on, write and receive comments.

It's amazing that we can help her find that blogging is comfortable for her, that blogging doesn't have to be scary, that she doesn't have to suffer from blogging bouts all the time, that we can help her open up and talk to people.

It's amazing

And I printed her blog -- no, I sent the PDF file to her family -- and they handed it out at her memorial service. Besides her obituary, they talked about her blog because it was such a big part of her life.

This is her legacy, and I think what I'm going to say here to you is think about blogging, what it's all about, think about what you knew about blogging, think about what you thought about blogging, and go for it, because it's really going to change our lives.

thank you

(applause)

As a contemporary artist, I hold solo exhibitions at galleries and museums.

I show photographs and videos, but I also make TV shows, I write books, I make advertisements, and it's all the same concept.

An interest in celebrities and celebrity culture, and the importance of image.Celebrities were born from photography.

First, let me explain how I started this concept when Princess Diana died seven years ago.

At the moment of Princess Diana's death, England seemed to stand still, and the people decided to mourn her death.

I was fascinated by this phenomenon and wondered: Is it possible to rudely and physically wipe out the image of Princess Diana?

So I shot a picture of her with a gun, but I couldn't erase the image, and of course, the civilian population as well.

It was gaining momentum

I felt that the way the media described her death had a pornographic element to it, like what blood vessels and what body parts were left behind.

And how he died in the back seat, I was very interested in this kind of public voyeurism, and it created this kind of brutal image.

And then I thought, 'Is it possible to swap her image?'

People thought Was she going to marry Dodi?

Was she in love with him?

was she pregnant? Did she want his child?

Was she pregnant when she died?

I created this image of Diana and Dodi and their imaginary half-breed, and when this image came out, it caused a huge outcry from the public at the time.

I continued to comment more and more on media and press imagery.

This is an image of Diana looking at Camilla kissing her husband, and this was a series of images.

Shown as a series of exhibits in an art gallery

Another art gallery exhibit with childish images of Diana and Dodi.

I'm particularly interested in how people can't rely on their own perceptions.

For example, this is Jane Smith and Joe Broggs, but you'll think it's Camilla and the Queen.

And the camera is fascinated by the fact that it tells lies, and how it's so easy to tell untruths when you're bombarded with images.

I've been working on a project about how photography seduces us.

And at the same time, the picture distracts us from the real thing, which acts as a kind of excitement.

Photos are teasers, they provoke desire and voyeurism. The more you don't have, the more you want.

There is no real subject in the photograph; the photograph makes the person more interesting.

I think that's why celebrity magazines work so well. The more pictures you see about a celebrity, the more you feel you know them, but you don't know them, and you want to know more about them.

The Queen often goes out to see her stallion do....

To really see horses (laughs)

At that time, I was creating a kind of image

In England we have an expression, "I can't imagine the Queen sitting on the toilet."

So I thought I'd smash it

here is the image

This image got a huge reaction, and I was cited as an annoying artist, and the press wrote about it, and they spent entire pages about how bad this was.

I thought it was interesting that my relationship with the media came full circle like this. I made a comment about the media, and only through the media do we know facts and information, because we don't know real people. Very few of us know real people.

All these newspapers, tabloids, controversies were all about this movie. The movie was banned before people could actually see it. Politicians got involved.

And all of a sudden it started coming to the fore.

I was asked if I could be on the cover, and I was paid for the publication.

I was kind of suddenly recognized, which was also interesting.

How -- it's sickening -- how journalists lied to hear from me, or to take pictures of me, saying that my work was great, and the next minute they were making terrible headlines about me.

But this changed quickly

I got to work for magazines and newspapers

Here's a photo from Tatler, for example.

This is a photo in another newspaper

This was April Fool's Day, but some people still think it's true.

I was sitting next to someone at dinner one day, and they were talking about having a nice picture of the Queen sitting outside William Hill.

they thought it was true

At the time, I was exploring hyperbole about people we idolize, Diana and Marilyn, and the importance of celebrities in our lives.

How do they win common ground when we don't even realize how does it all happen

I actually tried to dress like a celebrity

This is me dressed as Diana I look like the mass murderer Myra Hindley (Laughter)

I'm the one dressed as a queen

I've done a lot of work about Marilyn, and I've tried to make her my biggest idol, Marilyn, more exciting by photographing her through doorways and shutters.

This is a Marilyn look-alike. It took a lot of work.

At first she doesn't look like Marilyn at all But by the time you get her ready and put on her wig and put on her make-up, she looks just like Marilyn So much so that her husband doesn't realize it's her From these pictures I find it very interesting

This work is exhibited in the art gallery

and i made a book

At that time, I was also making a TV series for the BBC.

Pictures from the TV series were used in this book

I've got a legal problem because the photos look so real.How do you get over this problem?

Because it's clearly making a comment about our current culture that we can't tell what's true.

When we see something, how do we know it's real?

In my view, it's important to publish this, but it also creates confusion, and on my part, it's intentional -- and that confusion is a problem for any of the exhibition halls where I work.

Everything I do comes with a long disclaimer, and I've added descriptions of every European or British celebrity and commented on the public figures I deal with.

What Tony Blair does in private with his fashion stylist

As for the rumors, Bin Laden and Saddam Hussein were linked before the war in Iraq.

And what happens to the British royal family

I think the British public would clearly prefer William to the throne over Charles.

I think my work deals with that wish or desire.

I don't really care about celebrities themselves

I'm interested in how celebrities are perceived

And the result of making a piece of work with a few lookalikes is that it's a real lookalike, and you can't tell if it's real or not.

I did an ad campaign for Coca-Cola's Schweppes, which is very interesting from a legality point of view.

it's so commercial

But it was difficult for me, because it's my work of art, should I do advertising?

I made sure that the work was not compromised in any way and that the work remained consistent.

But when the logo comes in, the meaning of the work changes, and all interpretations are narrowed down to selling the product, and that's all you're doing.

If you take the logo, you can open up the possibility of interpretation, and it puts the work back into indeterminacy, because advertising is deterministic.

This image is pretty interesting I made it three years ago

It's Camilla in a wedding dress, and again, the image was nearly reused before her recent wedding.

Tony Blair and Charlie, I had to be very careful about legality.

It's obviously a very big company, and we're small, and I'm like, "Shhh, you know it's not real," I added next to the image.

And Margaret Thatcher is visiting Jeffrey Archer in prison.

I was asked by Selfridges to do a series of windows. I built a sauna bath in one of the windows and created a scene.

Here's Tony Blair reading his speech and rehearsing it.I got him to do yoga with Carol Kaplin.Here's Sven flirting with Ulrika Jonsson, who was flirting with him at the time.

It was a huge success because the image was published the next day in all the newspapers and tabloids.

It was a bit of a roadblock, because the police had to direct the crowd, but it was a lot of fun. It was great for me to perform.

And people were taking this picture, and this image was quickly distributed around the world.

The press was interviewing me and I was signing books. (Laughter)

And here's another image: I'm working with Taschen Publishing on a new book I'm working for a kind of global market My previous book was for the UK I think the new book is humorous

I'm originally from a non-humorous background, but I'm a serious person.

It doesn't matter if your work is humorous or not, because it's important to deal with the importance of the image and how you get all the information out of the image.

It's a very fast way to get information from video.

It's very difficult, given that the images are constructed correctly, and that it takes a certain skill to construct the images of the idols.

This image, for example, is apt in some ways because it captures exactly what Elton would be doing in his private life, and also because it represents what happens to Saddam Hussein and George Bush reading the Quran upside down.

For example, George Bush is in shooting practice, practicing shooting bin Laden and Michael Moore.

And when you change the picture of what you're shooting at, it suddenly becomes something creepier and maybe even more unfamiliar. (Laughter)

Here's Tony Blair being used as a springboard. Rumsfeld and Bush laughing with a picture of Abu Ghraib Prison in the background. How serious is Bush's intelligence?

He's commenting on what's going on behind the scenes, although now we know what happened in prison.

In fact, George Bush and Tony Blair were having fun the whole time.

We are commenting based on our perceptions of celebrities.

What Jack Nicholson is going to do with his celebrity life is that he recently got angry while driving and hit the driver with a golf club.

These look-alikes are very hard to find, so I always approach people on the street and ask them to follow me and be in my pictures and movies.

Sometimes I mistakenly think it's someone who looks like the real thing and asks a real celebrity, which is really embarrassing.

I also work with The Guardian on topical issues, and it's very interesting to have one page a week in their newspaper.

Jamie Oliver and school lunches Bush and Blair finding it difficult to get along with Muslim culture All the hunting issues Where the royal family refuses to stop hunting The tsunami issue and Harry I found it very interesting Blair's take on Gordon Brown Condi and Bush

This image that I was wondering whether to show

We made this a year ago, but the meaning has changed.

So this image was made a year ago, and it's relevant now.

Let me show you some more footage at the end. Chris Anderson: Thank you.

Recently, I played the music of Georg Friedrich Handel above a large Brazilian audience.

Again, driving through the streets of Amsterdam, we played music by the same composer again.

Please look

(Music: Georg Friedrich Handel "Allegro" Performed by: Daria van Berken) (Video) Daria van Berken I live here on the third floor.

(Dutch) I live around the corner

I really live around the corner

heartily welcome

(Dutch) Sounds like fun, doesn't it? Child (Dutch) Yes!

(Dutch) "The Handelhaus concert." (Applause) This is all a genuinely mesmerizing experience for a variety of reasons.

You may ask why I am doing this

It's not very representative of the everyday life of a musician.

Well, it's because I fell in love with music, and I wanted to share it with as many people as possible.

this started a couple of years ago

I was at home with the flu, sitting on the couch, and I was browsing the Internet for a bit, and then I realized that Handel had written a piece for the keyboard.

Yes, I was surprised because I didn't know that

So I downloaded the sheet music and started playing.

Then I entered a state of pure, unbiased amazement.

It was an experience I hadn't felt in a while in complete awe of music.

Listening to this, it may be easier to imagine

The first part of the song I played begins like this

(Music) Sounds very melancholic, doesn't it?

When you turn the page like that, the next thing is like this

(music) You're so energetic, aren't you?

In the space of a few minutes, before the song was over, I experienced two very contrasting characteristics: beautiful melancholy and sheer energy.

I think those two elements are extremely important human expressions.

And because of the purity of the music, it can be heard very effectively.

I've given a lot of concerts for children aged 7 or 8. Bach, Beethoven, even Stockhausen, even jazz.

When 11- or 12-year-olds, who are just a few years older than you, come into class, sometimes they feel like they're just getting there.

The complexity of music is certainly a problem, but the reality is that other people's opinions -- your parents, your friends, the media -- start to have an effect.

But young children don't doubt their own opinions.

They're in a state of constant wonder, and I'm a firm believer that even when they grow up, they'll still be listening to music like this seven-year-old.

That's why I don't just give concerts in concert halls, but on the streets and online, in the air, to feel the state of wonder, to truly listen, and to listen to music without preconceptions.

I would like to invite you to experience it now.

(Music: Georg Friedrich Handel, Chaconne in G major, performed by Daria van den Berken) (Applause) Thank you.

(applause)

I am honored to be invited.

I've been studying the history of income and wealth distribution for the past 15 years, and one of the most interesting lessons to be learned from this historical evidence is that in the long run, the rate of return on capital exceeds the rate of economic growth, and this tends to lead to the concentration of wealth.

Wealth concentration does not occur without limit, but the greater the divergence between the rate of return on capital and the rate of economic growth, the greater the disparity in wealth (asset disparity), and society in general tends to converge on this phenomenon.

This is the main economic driver that I want to talk about today. I want to emphasize that this is not the only important driver in the dynamics of income and wealth distribution, but that in the long-run dynamics of income and wealth distribution, many other driving forces play an important role.

Various types of data still need to be accumulated.

Today, we understand a little better than we used to, but there is still too much we don't know, and the impact of economic, social, political processes -- economic, social, political -- needs to be studied.

I'm going to focus on this simple dynamic today, but that's not to deny the existence of other important dynamics.

Most of the data I'm going to present to you comes from the World's Top Income Database, which is available online.

It's the largest historical database of economic inequalities in existence, built with the contributions of more than 30 academics from dozens of countries.

So let me give you some facts from this database, and then let's go back to the fact that the rate of return on capital exceeds the rate of economic growth.

The first fact is that the order in income inequality between the United States and Europe has been reversed over the past century.

In the 1900s and 1910s, income inequality was higher in Europe than in the United States, but today it's reversed.

And I want to be clear on this point, the reversal is that the rate of return on capital exceeds the rate of economic growth.

It has nothing to do with changes in the demand and supply of skills, the synergistic development of education and technology development, globalization and perhaps -- more pronounced in the United States -- inequality in access to skills development.

So there are other factors at play, but I'm not going to talk about that today, but I'm going to focus on wealth inequality.

I'm going to give you a very simple indicator of income inequality. I'm going to give you a very simple indicator of income inequality.

This is the top 10% share of total income. This is the top 10% share of total income.

A century ago in Europe, it was 45 to 50 percent. In the United States, it was a little over 40 percent. In the United States, it was a little over 40 percent.

Then there was a steep decline in the first half of the 20th century, and in recent decades, income inequality in the United States has surpassed that in Europe.

The second fact, about wealth inequality, is that it's always been greater than that of income inequality. While the degree of wealth inequality has increased in recent years, it's still modest today compared to a century ago.

Now let's take a look at the graphs that show the second and third facts.

So if you look first at the level of wealth inequality, this is the share of total wealth held by the top 10 percent of wealth holders. This is the share of total wealth held by the top 10 percent of wealth holders.

A century ago, wealth concentration was comparatively greater in Europe than in the United States, and now it's reversed.

And two more facts emerge: In general, wealth inequality is always greater than income inequality, and in general, wealth inequality is always greater than income inequality.

Remember, when it comes to income inequality, the top 10% account for 30% to 50% of the gross national income share, and the top 10% account for 30% to 50% share of the gross national income, while in terms of total household wealth they always account for 60% to 90% share.

This is fact number one, and this is a very important premise for what follows.

Wealth concentration is always a much higher proportion than income concentration.

Fact number two is that wealth inequality has risen in recent decades.

The picture is very different today. Wealth inequality is still very large, with the top 10 percent wealth share accounting for 60 to 70 percent of the total.

It's a lot better than it was a century ago, when it was 90 percent. Today, people who aren't in the middle 40 percent, who aren't in the top 10 percent, and who aren't in the bottom 50 percent. So the middle class people make up 20 to 30 percent of the national wealth, the national net worth.

So this is an important change, and it's interesting to note that while total wealth levels have recovered, wealth inequality has not returned to pre-World War I levels.

All right, the total wealth/total income ratio, all right. The total wealth/total income ratio is back to pre-World War I levels, especially in Europe.

There are two different points in this story.

First of all -- the wealth that we accumulate -- there is, of course, nothing wrong with accumulating wealth, especially if it's not concentrated, it's widely distributed.

What I want to focus on here is what the future holds for the development of long-term wealth inequality.

So how can we predict the future while also pointing out what caused the wealth inequality that was so high up until World War I that it seemed even wider?

First, I'd like to explain a little bit, and then speculate about the future prospects.

First of all, I would like to say that the best models for how wealth is much more concentrated than income are dynamic, and they assume that individuals accumulate wealth over the long term for all purposes, including the accumulation of wealth through inheritance.

If people were to accumulate the minimum amount of wealth that they normally need for the rest of their lives, say, to prepare for old age, say, to prepare for old age, then the level of wealth inequality should be much closer to the level of income inequality, much closer to the level of income inequality.

But it's hard to explain that wealth inequality is much greater than income inequality, that wealth inequality is much greater than income inequality, in a purely life-cycle model -- in terms of the amount of accumulation you need for a lifetime -- so you should think of people accumulating wealth for other reasons.

People usually want to leave their wealth to the next generation, to their children, and sometimes they hoard it for the prestige it brings.

There must be a variety of reasons for accumulating more wealth than we need in our lifetimes that explain what we're seeing in the data.

All kinds of shocks intervene in dynamic models of wealth accumulation that take into account the incentives to accumulate for inheritance.

For example, some families have so many children, for example, some families have so many children, and the property is further divided among them.

Or some families have fewer children

There is also a return on capital shock

There are households with large returns on capital,

Or some families fail to invest

So wealth processes always have some degree of mobility.

Some people go up (wealth levels) some people go down

The important point is that in any of these models, the level at which wealth inequality is balanced under fluctuations from these shocks is a function of r-g that increases exponentially.

Intuitively, the reason why the difference between the wealth return on capital and the economic growth rate matters is that the initial wealth gap grows at an accelerated rate due to the larger r-g.

Let's look at this in a simple example: if r is 5% and g is 1%, then if the wealthy reinvest only one-fifth of their capital return, their wealth will grow at the same rate as the size of the economy.

This is good for building and perpetuating great wealth, because without tax, you can spend four-fifths of it, and only one-fifth must be reinvested.

Of course, some families will spend more, and some will spend less, so there's some mobility in the distribution of wealth, but on average they only have to reinvest one-fifth of it, and this is how large wealth inequalities persist.

Don't be surprised to hear that r is always greater than g, because this has happened almost constantly in human history.

And in a way, this was obvious to everyone, for the simple reason that economic growth has been close to zero percent most of the time in human history.

Economic growth rates were around 0.1, 0.2, 0.3 percent, and population growth and output per capita were growing very slowly, but the return on capital was, of course, not 0 percent.

It was typically 5% for land wealth, which was the traditional form of wealth in pre-industrial societies.

Any reader of Jane Austen knows

To have an annual income of £1,000 5% of 20,000 is 1,000, so you need a capital value of £20,000 You need a capital value of £20,000

And in some ways, this is the foundation on which society is built, because r is greater than g, because it has allowed the holders of wealth and assets to live on capital returns alone, to look beyond the bare necessities of a lifetime and to engage in other surplus activities.

One important conclusion I've drawn from my historical research is that modern industrial growth has had less impact on this basic fact than we thought.

Of course, post-industrial economic growth, of course, generally went from 0 to 1 to 2 percent, but at the same time the rate of return on capital went up.

During the 20th century, a very unique series of events occurred.

First, the war shocks of 1914 and 1945, the very low returns on capital, the destruction of wealth, inflation, bankruptcies during the Great Depression, all of which reduced the return on capital from private property to absurdly low levels between 1914 and 1945.

And after the war, partly due to reconstruction, we saw very high growth rates.

Germany, France, Japan grew 5% between 1950-80.

Clearly this won't last long, at least population growth will decline in the future, and the long-term growth rate will be closer to 1-2% rather than 4-5%.

So these are the best current projections of global GDP growth and return on capital, the average return on capital. As you can see, for most of human history, economic growth has been very small, much lower than the return on capital, and there was population growth during the 20th century, especially in the post-war years, and the post-war reconstruction process pushed economic growth to a level that was close to the return on capital.

I'm going to use the UN's population projections here, but of course these are just projections with errors.

In fact, in the future, fertility rates may be higher, and economic growth may be higher, but for now, this is the best forecast we have right now, and it predicts global economic growth will slow and the gap between the return on capital and the rate of return on capital will widen.

The other weird thing in the 20th century, the other weird thing in the 20th century is, as I said, the destruction of wealth, the taxation of wealth, this is the pre-tax profit margin.

And the after-tax rate of return, after the wealth destruction happened, and because of this, after the wealth destruction, the average after-tax return on capital was below economic growth for a very long time.

But without wealth destruction and property taxation, this wouldn't have happened.

So what this means is that the balance between capital returns and economic growth is affected by a variety of hard-to-predict factors, such as the development of technology and capital-intensive technologies.

The most capital-intensive sectors in the economy today are the real estate sector, the housing sector, the energy sector, but perhaps in the future many sectors will have a large number of labor robots, which will represent a larger share of total capital than they do today.

We're still a long way off, and what's happening in the real estate sector and the energy sector is far more important for total capital and capital distribution.

Other important issues are the effects of scale in portfolio management, the complexity of finance, and the liberalization of finance, which makes it easier for large portfolios to generate higher returns, which is particularly beneficial to billionaires and large endowments.

To give you an example, here's the Forbes Billionaires Rankings from 1987 to 2013. Those at the top of the list have outpaced inflation by 6 to 7 percent per year in real terms, while average global income and average global wealth are rising by only 2 percent per year.

Even with large endowments, we see the same phenomenon: the higher the initial amount, the higher the return.

So what do we do?

First, we need more economic transparency than we do now.

We are so ignorant of global wealth dynamics that we need to share bank account information internationally.

We also need a global register of financial assets, and a co-ordination on wealth taxation. Introducing a wealth tax with a small tax rate and generating information from it would be a way to adapt policy based on reality.

And to some extent, the movement against tax havens and the movement towards automated information sharing is pushing us in this direction.

There are other ways to redistribute wealth, seemingly tempting.

This is very attractive because it's much easier to increase the money supply than it is to change inflation or tax laws, but often we don't know what to do with money.

this is the problem

(Forcible) expropriation is also attractive

Sometimes, when some people feel that they have become too rich, they expropriate their assets.

But this is not an efficient way to adjust wealth dynamics.

War is even more inefficient, so I tend to prefer progressive taxation over them, but of course history -- (Laughter) history will always come up with the best policy at the moment, and all of these factors will be intricately intertwined.

thank you

(Applause) Bruno Giusani: Thank you, Thomas Piketty.

Thomas: Let me ask you a couple of questions. Your handling of the data is excellent, but what you're saying is that the increasing concentration of wealth is a natural tendency of capitalism, and if left unchecked, it could threaten the very fabric of society.

How realistic is it in the current political context?

What are the odds that these economic policies will actually be implemented?

Thomas Piketty: Well, if you look back in time, the history of income, wealth and taxation is full of surprises.

So when people say they know what's going to happen and what's not going to happen, that doesn't really matter.

A century ago, many people said a progressive tax on income would never happen, but it did.

Five years ago, many people thought that Swiss banking secrecy would never change, that Switzerland had too much power over the rest of the world. Then suddenly a big change came when the United States imposed sanctions on Swiss banks. And now we are moving towards greater economic transparency.

I don't think it's going to be that hard to get better political cooperation on this one.

Now, if the United States and the European Union negotiate a treaty that will cover half of the world's GDP, if it covers half of the world's GDP, what will be missing to reduce economic uncertainty and promote minimal taxation of the profits of multinational corporations?

These are not technical difficulties.

I believe that we can move forward by taking a more pragmatic approach to these challenges and adopting appropriate economic sanctions against those who benefit from economic uncertainty.

Giusani: One of the arguments against your view is that economic inequality is not just a factor of capitalism, but actually one of its driving forces.

So, as we try to reduce inequality, we have the potential to stifle economic growth.

How would you answer this?

Piketty: Inequality itself is not the problem.

Because inequality contributes to innovation and development to some extent.

the problem is that

When inequality becomes extreme, it loses its value for economic growth, and what's worse, the result tends to be long-lasting inequality and stagnation of people's economic mobility.

For example, the kind of concentration of wealth that we saw in all European countries from the 19th century to World War I was not beneficial to economic growth.

This was destroyed by tragic events and policy changes, but it didn't stop the economy from growing.

Extreme inequalities can be bad for the foundations of our democracy, inequalities in access to political representation, the political influence of private money in America, and those are the very things that worry us right now.

So we don't want to go back to that extreme pre-World War I world of inequality.

A good share of the national wealth for the middle class is not bad for economic growth.

It's a very useful situation in terms of fairness and efficiency.

Giusani: I said at the outset that your writing has been criticized.

some data

There was criticism about your selected dataset

If you're picking and using data that's good enough to support your hypothesis, what about this?

Piketty: I am happy that my book has stimulated discussion.

this is one of the perspectives

The reason I publish all of my data online, along with the detailed formulas, is that it creates an open and transparent discussion.

Now I can answer all your doubts one by one.

If I were to rewrite the book today, I would say that the rise in wealth inequality, especially in the United States, is actually more intense than I wrote before.

A recent study by Saez and Zachman, using data that wasn't available at the time I published, proved that the concentration of wealth in America is accelerating more than it was when I wrote.

More data will come out in the future

And another hypothesis may arise

We update the World Top Income database with new and recent data almost every week, and we will continue to do so in the future.

In fact, I certainly believe that there is not enough transparency in the dynamics of wealth, and to get better data -- so that we can come to a consensus on this important evolution -- we have to start by taxing wealth at small rates, taxing wealth at small rates first, and then adapting policies to what we observe.

So taxation is a source of knowledge, and that's what we need most right now.

Giusani: It was Thomas Piketty. Thank you.

(applause)

I've spent nearly 20 years observing what makes people lucky and helping people to become lucky.

I teach entrepreneurship. We all know that most new ventures fail. Innovators and entrepreneurs need all their luck.

But what is luck?

Luck is defined as a success or failure that seems to happen by chance.

"I can see"

this word is important

Luck seems like a coincidence, because we rarely see anything that pushes us to be lucky.

But I've been observing for a long time and I've noticed that luck is usually not as exceptional and dramatic as lightning strikes.

It's more like the wind that blows all the time.

Sometimes it's gentle, sometimes it blows through like a gust of wind, sometimes it blows in directions you never even imagined.

So how can you catch the wind of luck?

It's not hard, but it's hard to understand

I'm going to tell you three ways to build a sail that catches the wind of fortune.

The first thing you should do is reassess your relationship with yourself.

It's about stepping out of your comfort zone and taking small risks.

That's what we all used to do when we were kids

If you want to learn anything, you have to learn how to walk, how to speak, how to ride a bike, even quantum mechanics.

I have to start from not being able to ride a bike and be able to ride it within the next week.

To do that, you have to step out of your comfort zone and take risks.

The problem is that as we get older, we stop doing that.

I've fixed who I am as a person and I don't try to extend it anymore.

I've spent a lot of time encouraging students to step out of their comfort zones and take a few risks.

How?

We start by having them write down their own risk criteria.

This is a fun activity we developed in class where you write down the risks you're willing to take.

It's easy to see that taking risks is not a binary choice.

There's intellectual risk, there's physical risk, there's financial risk, there's emotional risk, there's social risk, there's moral risk, there's political risk.

After writing it out, the students compare each other's risk lists and realize that their risk perceptions are really different.

And then I encourage everyone to take risks that will push them out of their comfort zone.

For example, I might say, take an intellectual risk and try to tackle a problem you've never tried before, or take a social risk and talk to the person sitting next to you on the train, or take an emotional risk and tell someone you really care about how you feel.

I practice it myself all the time

About 10 years ago, I was on a plane on a very early morning flight to Ecuador.

Normally, I would just put on my headphones, sleep a little, wake up and go to work, but I decided to take a little risk and started a conversation with the man sitting next to me.

I introduced myself and found out he worked in publishing.

it was interesting

As a result, we can have great conversations

I learned a lot about the future of the publishing industry.

With a quarter of the flight remaining, I decided to take another risk. I opened up my laptop and showed him an idea for writing a book.

He politely finished reading, and said, "Tina, this isn't for our publisher, but thank you for showing it."

It's okay, the risk just didn't work out.

i closed my laptop

At the end of the flight, we exchanged contact information.

A few months later, I called him, "Mark, would you like to come to my class?

I'm working on a project on the future of publishing that is inventing new forms of books."

He said, "That's great. I'd love to hear from you."

we had a great time

A few months later I contacted him again.

At that time, I sent a lot of videos of other projects that my students had done.

He was very interested in one of the projects the students had done, and he thought it might be possible to turn it into a book, and he wanted to meet the students.

To be honest, I was a little hurt.

(Laughter) It was the students that he wanted to publish, not me, but that's okay.

I told him to come, and he and his colleagues came over to Stanford to meet the students, and then we had lunch together.

One of my editors said to me, "Have you ever thought of writing a book?"

I said, "Well, what a coincidence."

And I pulled out the exact same writing proposal that I had shown to his boss a year earlier.

Less than two weeks later, we signed a publishing deal, and within two years, the book had sold over a million copies worldwide.

(Applause) Now, you might say, "You were lucky."

I was lucky, of course, but I got lucky because of a series of small risks I took, and it all started with saying hello.

It's something that anyone can do, no matter what situation they're in in their life, no matter where they are in the world, even if they think they're the most unlucky person in the world, they can do it by stepping out of their comfort zone and taking small risks.

Let's start building a sail to grab your luck

The second thing to do is reassess your relationships with other people.

Realize that everyone who helps you along your life journey plays a big part in helping you achieve your goals.

If you don't show them your appreciation, you're not just not completing the conversation properly, you're missing out on opportunities.

If someone does something for you, you're giving them time they could have spent on themselves and others, and you should be grateful for what they're doing.

I manage three fellowship programs at Stanford University.

Some discouraged students write complaints.

Some people ask me how I can do better next time.

And sometimes people write to me thanking me for giving me the opportunity.

seven years ago

A young man named Brian sent me a wonderful letter saying, "I was turned down twice for this program, but I still want to thank you for giving me the opportunity.

I learned a lot during the application process.”

I was so touched by the gracefulness of his message that I invited him to meet.

We chatted for a while and came up with the idea of ​​doing an independent research project together.

He was on the football team at Stanford University, and he decided to do a project about his leadership.

He and I got to know each other very well over the course of the semester, and he continued the project he started in his independent research, eventually starting a company called Play for Tomorrow. He teaches disadvantaged children how to build the life of their dreams.

The point of this story is that we were able to catch the wind of luck as a result of his thank you letter.

I didn't expect that wind from the beginning.

Over the last few years, I've developed several ways to really cultivate gratitude in my life.

My favorite way to do this is at the end of each day, I look at my calendar and look at the people I met that day and send everyone a thank you note.

It only takes a few minutes, but at the end of each day, I feel a strong sense of gratitude and gratitude to people, and this has definitely improved my luck.

The first is to step out of your comfort zone and take a little risk.

The second was to express gratitude.

The third is to reassess our relationship with ideas.

Many people evaluate new ideas when they come out.

"That's a great idea," or "That's a terrible idea."

But actually there are more subtleties

It's not just good or bad

In fact, sometimes the seeds of bad ideas can become really great fruits.

One of my favorite exercises I do in my creativity class is to encourage people to look for potential in bad ideas.

I give my students an assignment to come up with an idea for a completely new restaurant.

I have to come up with the best ideas and the worst ideas for a new restaurant.

The best ideas are, for example, a restaurant on a mountaintop with a beautiful sunset, or a restaurant on a boat with a spectacular view.

The worst ideas are, for example, a restaurant in a garbage dump, or a restaurant with filthy, bad service, or a restaurant that serves cockroach sushi.

(Laughter) I collect all the pieces of paper that students have written ideas on, and when I read out a good idea, I tear it up and throw it away.

Then I hand out papers with bad ideas to everyone.

Each team receives an idea that the other team judges to be terrible, and their task is to turn it into something great.

what will happen

Within 10 seconds someone will say, "This is a great idea."

They have three minutes to pitch their idea to the whole class.

What happened to the dumpster restaurant?

They take leftovers from Michelin-starred restaurants that would otherwise be thrown away and serve them to other restaurants at much lower prices.

very nice isn't it?

How about a restaurant with dirty and bad service?

It's become a training ground for people who want to open a restaurant in the future to learn how to avoid all sorts of potential pitfalls.

So where's the cockroach sushi restaurant?

It became a sushi restaurant with very interesting and unusual ingredients.

If you look at the truly innovative startups around you -- the ones that have changed people's lives and are now taken for granted?

It all starts with a crazy idea.

It's an idea that, if you tell other people, most people will say, "That's stupid, it won't work."

Sometimes people are born into terrible circumstances, and sometimes luck, like lightning, brings great things and bad things.

But the wind of luck is always blowing, and if you're willing to take a little risk and act to show your appreciation, and if you're willing to see the possibilities in ideas, even if they're crazy, then you can build a bigger sail to catch the wind of luck.

thank you

(applause)

this is my niece stella

He's just a year old and just started walking.

It's the best way to toddle like a 1-year-old child.

that's nice

Her favorite thing to do now is look at herself in the mirror.

i love how i look

Raise a shout of joy toward the mirror

It's the best

All little kids are like that, and my mom says I used to be like that, so I thought, when did I stop doing that?

When did you stop loving yourself like that?

because everyone is like that

10,000 people a month google "Am I ugly?"

This is a 13 year old girl from Fay Denver.

Like any teenager, I want everyone to like me.

sunday night

While preparing for the week of school starting tomorrow

I feel a little depressed because her mom always tells her she's beautiful, but every day at school someone says she's ugly.

I don't know who to believe because what my mom says is different from what the kids at school say.

So I took a selfie and put it on YouTube, so I asked someone to tell me if I was cute or not.

I received over 13,000 comments.

There are some terrible things that you don't even think about

But this is a healthy, average teenage girl, during the most sensitive period of her life.

Thousands of kids are posting this, mostly teenage girls.

but why

Today's teenagers are rarely alone

Chatting, messaging, liking, commenting, sharing, posting - it's endless.

Never before have I been so "connected", from such a young age, momentarily, continuously.

It's like partying in my room every night

without privacy

That social pressure is relentless

These always-online kids measure their worth by the number of likes they receive and the content of their comments.

No switching between online and offline

It's hard to tell the difference between what's real and what's not.

It's hard to tell what's real and what's made up.

Happy events in someone's life and mundane events of the day

Where on earth do they get their inspiration from?

The news feeds of kids these days are filled with stuff like this.

Models with outstanding style occupy the stage of the fashion show

image editing is normal

Skinny legs called “Thinness Desire” and “Thigh Gap” Skinny body with a gap in the bikini line “Bikini Bridge”

The trend of pro-ana, “a way of life that makes anorexia good”

It's these trends that stereotype and objectify women in today's pop culture.

Girls self-evaluate based on these

boys are no exception

I want to have a defined jaw and ripped abs like athletes and popular artists.

But what are these problems?

We want our children to grow up to be healthy, balanced human beings.

But in an image-first culture, it's like telling you to put more time and effort into your appearance, even at the expense of all your other personalities.

That's why relationships, physical development, schoolwork and so on go awry.

Six out of 10 girls are demotivated just because they don't look good.

it's not a trivial activity

They are unable to perform the basic activities necessary for their own growth as human beings and as contributors to society and the workplace.

One-third of teens refuse to participate in class discussions because they're insecure about their looks and don't want to be the center of attention.

1 in 5 people don't come to school on a day they're disgusted with how they look

On tests, kids who think they're not good-looking, who don't think they're skinny, score lower than those who don't.

This is the same in Finland, America, China.

Actual weight doesn't matter

Now, let me tell you, this isn't about how you actually look, it's about how you "think" you look.

Lack of confidence in one's appearance affects grades

also affects health

Teenagers who lack self-confidence are less likely to exercise, eat fewer fruits and vegetables, follow unhealthy diets, and are more prone to eating disorders.

they have low self esteem

It's easy to be influenced by the people around you, it's easy to get depressed

These are also major triggers that lead to alcohol and drugs: unhealthy diets, cosmetic surgery, unprotected sex from a young age, and self-harm.

The insatiable quest for the perfect body also strains the health care system, costing governments hundreds of millions of dollars each year.

and it has no end

Women who think they're fat, they say over and over, are more likely to be habitually absent from school or work, whether or not they are.

A whopping 17% of women don't show up for job interviews on days when they don't feel confident about how they look.

Think about the impact this will have on our economy.

If you can even overcome this, how the possibilities will expand

Unlocking this potential is beneficial to each of us.

but how can i

First of all, you talk about it.

but that's not enough

If you really want change, you have to do something.

There are three ways to do that. One is by educating people to feel more confident about their appearance.

Teach children how to defy the pressure of their appearance and build self-esteem.

The good news is that there are now many programs for that.

Unfortunately, most of them are useless.

What struck me was how many of these worthy programs actually made things worse without even knowing it.

So we have to make sure that the programs that our children receive are not only having a positive effect, but also whether that effect is sustainable.

Research shows that the best programs focus on six key areas: the first is the impact of family, friends and relationships.

The second is about media and celebrity culture, how we deal with teasing and bullying, how we compete and compare our physical appearance, what we call "body talk," "fat talk," and disparaging conversations about our physical appearance.

These six things are important starting points for anyone who joins this program as they strive to regain their body confidence.

Education is extremely important, but tackling this problem requires that each of us first grow up and behave in a way that sets a good example for the women around us.

Changing the way women are seen and talked about around me

A politician's goodness or badness shouldn't be determined by his hairstyle or chest size.

We should start judging people by what they do, not how they look.

Start by taking responsibility for the photos and comments you post on your social media.

Compliment someone for their effort and deeds, not their looks.

Let me ask you, when was the last time you kissed a mirror?

Ultimately, changing this practice will require a concerted effort by local governments, governments, and corporations to help children appreciate individuality and differences, and learn to love who they are.

We need to push people who can make that kind of change in the real world.

Give them a chance to present, and the world will change.

A society where children can be the best models of themselves A society where children can be the best models of themselves A society where the way they look doesn't get in the way of who they are and what they want to do in life

Think about it and apply it to your own life.

Who comes to mind?

is your wife?

is your sister

are you a daughter?

Or are you a niece?

Your friend? It could be the woman near the seat you're sitting on today.

What if she could be freed from her inner critics about her legs not being long, her thighs not flat, her stomach not flat, her feet too big?

What would happen if you let her potential go unnoticed?

Right now, this culture of appearance supremacy is really holding us back.

But let's tell our kids the truth

I'll show them that their looks are just part of their personality and that I love you because of who you are and what you do and what makes you happy.

Make self-esteem a part of your school curriculum

Let each of us change the way we talk about ourselves and compare ourselves to others.

Together, as a community, we will make a difference, from the grassroots to the national level, so that today's happy one-year-olds can confidently become tomorrow's change makers.

Let's change together

(applause)

to sleep

We spend about a third of our lives sleeping, but does anyone really know what sleep is?

2,000 years ago, Galen, one of the most famous ancient medical researchers, proposed the theory that when we are awake, the fluid that powers the brain circulates throughout the body, energizing each part of the body and drying up the brain.

Now, this all seems utterly silly, but Galen was just trying to give us some kind of explanation about sleep, just trying to give us some kind of explanation.

We all know from experience that when you sleep, you feel refreshed, and when you don't sleep, you feel dizzy.

We now know much more about sleep than we did in Galen's time, but what we still don't quite understand is why, of all activities, only sleep has the amazing restorative function of the brain.

So I'd like to talk to you about a study that may shed new light on this question.

What we've learned is that sleep may be one of the most basic of our brains, and that sleep may be the brain's most ingenious, demanding and inflexible need that we don't have in any other organ.

You can think of most of the biology we observe as a series of problems and solutions. The first problem that every organ must solve is to keep the cells throughout the body nourished.

Especially in the brain, it's a matter of life and death. The brain uses a quarter of the total energy of the body for electrical activity, but only 2% of the body's mass is mass.

The circulatory system delivers nutrients and oxygen to all parts of the body through blood vessels, solving the problem of nutrient distribution.

you can see it in this video

This shows the blood vessels in the brain of a living mouse.

A complex network of blood vessels fills the entire brain.

It originates at the surface of the brain, penetrates into the tissue itself, and spreads there, supplying nutrients and oxygen to the individual cells of the brain.

Just as individual cells need nutrients to function, all cells also produce waste products as by-products, and the elimination of that waste product is the second fundamental problem of any organ.

This is a diagram of the human body's lymphoid tissue, which evolved to eliminate waste.

A parallel network of ducts, one after another, spreads throughout the body.

It can pick up proteins and other waste products from between cells, put them into the blood, and excrete them.

If you look closely at this diagram, you'll see something that doesn't quite make sense.

If you zoom in on this diagram of the human body, one of the things you'll see is that there are no lymphatic vessels in the brain.

this is totally ridiculous

The brain is very active, but at the same time it has to efficiently get rid of the waste products it produces in large quantities.

But there are no lymphatic vessels, which means that the way waste is removed in the brain is different than in the body.

So how does the brain solve this problem?

When our group first dived into this seemingly innocuous question, we looked inside the brain, and what we found was, between the neurons and the blood vessels, there was a waste clearance solution that we never imagined.

It's well done and it's beautiful

I will tell you what we discovered

The brain has this big pool of clear, colorless fluid called cerebrospinal fluid (CSF).

there is liquid

CSF fills the area around the brain, and waste products from the brain are absorbed by CSF and excreted into the blood along with other waste products.

Its excretion method is exactly like the lymphatic system.

But the interesting thing is that these fluids and waste products are coming from inside the brain, and they don't just seep into the CSF, they don't just seep into the CSF.

There's a special circulatory system that organizes this process.

you can see it in this video

A projection of the brain of a live mouse A projection of the brain of a live mouse

What you see in the left frame is what's happening at the surface of the brain.

The blood vessels are in red, and the CSF surrounding the brain is in green.

What's surprising is that the CSF outside the brain doesn't stay there.

Instead, CSF flows along the outer walls of the blood vessels into the brain, along the outer walls of the blood vessels, into the brain, through the outer walls of the blood vessels, into the brain, through the outer walls of the blood vessels, into the brain, a process that helps remove waste products from between brain cells.

When you think about it, using the walls of these blood vessels is a really clever solution, because the brain is tightly surrounded by a skull, and it's packed with cells, and there's no room for extra space inside, and there's no room for lymphatic tissue in addition to the blood vessels.

But blood vessels extend from the surface of the brain to all the cells in the brain, and the fluid that flows along the outer wall of the blood vessel can easily access the entire brain.

The amazing thing is that no other organ is cleared of waste in this way.

So this is a completely brain-specific way of processing.

The most surprising discovery is that all I've told you is this fluid that flows through your brain, and you're only awake when your brain is asleep.

If you look at the video on the left, you can see how CSF moves in the brain of an awake mouse.

hardly moving

If you wait until this same animal is asleep, you can see the CSF rushing through the brain, and what we've also learned is that when the brain sleeps, the brain cells shrink and the spaces between them widen, allowing CSF to flow more easily and expel waste products.

So Galen's theory didn't seem all that far off the mark, because, as he said, it's when you're asleep that fluids circulate in your brain.

Now, 2,000 years later, our research shows that when the brain is awake, when it's most active, it puts off the elimination of waste products from between cells, and during sleep, the brain quiets down, goes into a cleansing regime, and removes the waste products that have accumulated during the day from the spaces between brain cells.

It's kind of like what we do. We're busy at work during the week, and we put the housework on the back burner.

We've talked a lot about waste elimination, but what hasn't been very specific is what waste products we eliminate during sleep to keep us healthy.

The main focus of recent research, the waste product amyloid beta, is a protein that's made in the brain all the time.

I'm building my brain right now, and so is yours.

In the brains of people with Alzheimer's disease, amyloid-beta builds up between brain cells. Amyloid-beta builds up between brain cells, which should be eliminated.

So when we measured the rate of amyloid-beta clearance in the awake and in the sleeping brain, what we found was that amyloid-beta was cleared much faster from the sleeping brain.

So if sleep is part of the solution to the brain's waste elimination problem, this could change the way we think about the relationship between sleep, amyloid beta, and Alzheimer's disease.

A series of recent clinical trials have shown that poor quality and duration of sleep in people without Alzheimer's disease are associated with greater accumulation of amyloid-beta. But it's worth pointing out, none of these studies have shown that poor sleep quantity or quality is a factor in Alzheimer's disease. It seems that if elimination is not successful, Alzheimer's-like symptoms will occur.

What this new study shows is that one of the things you already knew about sleep, that even Galen understood, that sleep restores and cleanses the brain, is probably the most important part of everything about sleep.

You and I sleep every night, but our brains don't rest.

Even though our bodies are motionless, our brains are walking somewhere in a dream -- a graceful machine that works quietly, cleansing and sustaining this machine of unimaginable complexity.

It's dirty, thankless work, like housework, but it's important.

If you don't clean up the kitchen in your house, it can quickly become completely uninhabitable for a month.

But the result of failing to clean up in your brain, but the result of failing to clean up in your brain is far from an embarrassing messy kitchen counter.

thank you

(applause)

This photo is me when I was 7 years old

this photo is me too

(Applause) (Cheers) It's so surreal to be in Kakuma Refugee Camp.

This is the very place where I was born and spent the first seven years of my life.

A lot of people would be surprised to hear that I had a wonderful childhood here in Kakuma.

But I was happy, I was good at my studies, I had friends, and most of all, I had hope for a bright future.

I'm not saying there were no obstacles.

Of course there were many struggles.

I had malaria once, and there were times when I didn't even know where my next meal was coming from.

But the sense of community here in Kakuma and the pride that everyone here has is unmatched.

I remember when I was little, there were conflicts between residents.

This is what often happens when people from different backgrounds come together and don't have a common language.

In the end, Swahili—the main language here—became our common ground.

I became friends with the kids in the camp, and I became more accepting of their own culture, and even though I grew up Muslim, I celebrated Christmas, for example.

Similarly, other children embraced my culture and sometimes prayed alongside me.

It was easy for a child to come together and blend our different faiths to create our own unique multicultural environment.

My name is Halima Aden, I'm black, Muslim, Somali-American from Kenya.

(Applause) Some people call me a trailblazer. I was the first Muslim homecoming queen in high school, the first Somali student government officer in college, and the first woman to wear a hijab in many places.

As you can see, I'm not afraid to be the first to step forward, to take risks, to challenge myself, because that's what minorities are supposed to be.

It's about using yourself as a vehicle for change and being a representative of the power of diversity.

And from where I am now, I'm spreading an important message of acceptance.

But it wasn't always smooth

When I first moved to America and settled in St. Louis, Missouri, I remember asking my mother, "Is this really America?"

There were things that were sadly familiar, like gunshots in the middle of the night and poverty-stricken streets.

But it was also very different.

For example, when I entered first grade, I noticed how children played in groups.

In America this is called a "faction"

We all played here together.

Gender didn't matter, race didn't matter.

I remember wondering, 'Why don't we use Swahili?

Swahili is the language that brings people together."

And to make matters worse, the school I went to didn't have an intensive English program.

So I wake up every morning, go to school, sit at my desk, and learn nothing.

By this time I was starting to lose hope and wanted nothing more than to return to Kakuma, even if it was a refugee camp.

Eventually my mother learned that many Somalis had found a home in a small town in Minnesota.

So when I was eight years old, we moved to Minnesota.

I met a Somali-speaking student, and my life changed forever.I went to a school with an intensive English program, and I met a teacher who went above and beyond the call of duty for me.They spent time with me after school and at lunchtime.They worked so hard to help me get good grades.

As a child of refugees, I've learned that everything can be taken away from us: food, shelter, clean drinking water, even friendships, but one thing no one can take away is education.

So I prioritized studying above all else, and soon I was starting to be successful in the classroom as well.

As I grew up, I began to worry about other people's existence and how they would perceive my race and background.

Especially since I started wearing a scarf called a hijab.

At first, I was also excited to wear the hijab.

I admired my mother's hijab, so I tried to emulate her beauty.

But when I entered middle school, other students teased me for not having hair, and I started showing my hair to show that I didn't.

At that time, I just wanted to blend in.

Looking back on issues of race, religion and identity brings back a lot of painful memories.

It's easy to blame people from other cultures for the pain I had in those days, but when I think about it more deeply, I also realize that the most positive and transformative events in my life were due to people who were different from me.

At that point, I decided to step out of my comfort zone and put on a hijab and a burkini and enter a beauty pageant.

I saw it as an opportunity to be a voice for women in the same situation as I was feeling, who were in the minority and were unable to express themselves.

I didn't win the championship, but this experience gave me a lot of potential.

I received emails and messages from women all over the world who told me that they resonated with me just being true to myself.

Another "first" event followed

Fashion icon Carine Roitfeld invited me to shoot my first feature in New York.

Around the same time, I became the first model to wear a hijab, and in my first year of modeling, I was on the covers of nine fashion magazines.

It's not strange to say that it was a dizzying turn of events.

In the midst of overnight success, one thing hasn't changed, and it's the thought that maybe this will bring me back to Kakuma, to the place I call home.

Just a few months ago something amazing happened

In New York City, where I was staying for a photo shoot, I met South Sudanese model Adu Akech, who happened to be born here in Kakuma.

This coincidence is truly a manifestation of hope.

Think about it, two women born in the same refugee camp meeting for the first time on the cover of British Vogue.

(Applause) (Cheers) I was honored to partner with UNICEF.

I want you to remember here that even if they are refugees, they are still children.

They deserve every opportunity, every chance to act, to hope, to dream, to succeed.

My life began right here in Kakuma refugee camp, in this place of hope.

thank you

(applause)

I think we all think that nations and societies are moving to a new model.

But nobody really understands what that model is or what it should be.

Perhaps what we need is a conversation about democracy in this day and age.

Let's think about it this way: we, the citizens of the 21st century, are somehow coping with the institutions that were created in the 19th century, but the information technology that underpins them is from the 15th century.

Let's take a look at the features of this system.

First, the system is built around information technology that is more than 500 years old.

Even if the best possible system is put in place for this purpose, the few will make the daily decisions for the many.

Most people only vote once every few years.

And second, it's pretty expensive to be a politician.

Either you have a lot of money and influence, or you devote your whole life to politics.

You have to belong to a political party and work your way up the ladder, and maybe one day you'll be able to make it to a position where you make decisions.

And finally, and last but not least, the language used in this system is esoteric.

It's a language by lawyers for lawyers, and it's incomprehensible to everyone else.

So in this system, we can choose our representatives, but we have no idea how those in power make decisions.

If new information technologies allow people from all over the world to participate in any discussion, the barriers to information will be much lower, allowing us to communicate our wishes and concerns better than ever before.

The political system hasn't changed in the last 200 years, and it's good to accept it as it is.

So, inevitably, there are only two outcomes of this system: silence or noise.

"Silence" means not getting involved, not wanting to participate in the discussion.

It really pisses me off, but people often tell me that we citizens are apathetic and apathetic.

But should we be blamed for not going out of our way to the center of town on a weekday to attend a public hearing that has absolutely no impact? Should we be blamed?

The inevitable result is discord, a system that lacks politicians to represent its voice and no room for dialogue, while citizens increasingly seek to make their voices heard.

The result is "noise." Chile, Argentina, Brazil, Mexico, Italy, France, Spain, United States, all democracies.

Citizens have the right to vote, but they feel it's not enough.

"No taxation without representation," the 18th-century slogan that became the foundation of modern democracy.

we would like to participate in the discussion

it is reasonable

But to participate in the debate, we need to know what to do next, because political action can move from incitement to construction.

My generation has taken advantage of new networks and technologies to organize demonstrations, to pose challenges, to thwart bad legislation, and even to overthrow authoritarian governments.

you should be really proud of this

At the same time, I have to admit that our generation is not good at some things. Even though we use the same networks and technologies, we weren't able to propose alternatives, seek consensus, and build coalitions to make it happen.

So the risk that we face is the emergence of a huge power vacuum, which will be seized by those with de facto authority, such as the military or strong-motivated established institutions that often take extreme positions.

But our democracy isn't just about voting every few years, it's not just about voting every few years.

It's not about sending millions of people to protest.

So the question I want to pose -- the most important question we have to answer -- is this: If the Internet is the new printing press, what is democracy in the Internet age?

What kind of system is necessary for society in the 21st century?

by the way i don't have the answer

i don't think anyone can answer

But I can't help but face this question.

So let's take a look at the experiences and lessons we've learned so far, and I hope my story helps.

Two years ago, my friends in Argentina and I started thinking about how we could get our legislators to represent us.

In the words of Marshall McLuhan, politics is about solving today's problems with yesterday's tools.

So we thought, can't we use the tools we use every day to solve today's problems?

The first thing I did was design and develop a piece of software called DemocracyOS.

DemocracyOS is an open-source web app that aims to bridge the gap between citizens and elected officials, making it easier for us to participate in politics as we go about our daily lives.

So when a new bill is introduced to Congress, the app will notify you, and will immediately paraphrase the bill for you on this platform and explain it to you in plain language.

But it's clear that just knowing more information is not enough to create social change, we need to act with information.

Easier access to information leads to conversations about next steps, and DemocracyOS makes that happen.

A democracy should not simply be a stack of wishes, one after the other, but healthy and active public debate should still be one of its core values.

The purpose of DemocracyOS is to persuade and persuade—

It's about reaching consensus, and it's also about finding the right way to communicate dissent.

You can also vote on what you want your elected representatives to vote for.

If you don't want to vote on an issue, you can delegate your vote to someone else, leaving room for powerful social leaders to emerge.

All of a sudden, it's very easy to compare the poll results on DemocracyOS with the poll results in Congress.

And it's become clear that technology isn't the key.

What we need to do is find people with knowledge that is distributed across society, and use that knowledge to make better and more impartial decisions.

So we reached out to traditional parties and offered DemocracyOS.

I told them that this platform would allow them to have a two-way dialogue with voters.

As you can guess, the attempt failed.

it was a big mistake

Rejected too easily

First of all, I was told it was a naive idea.

In retrospect, I have to say that it is.

Because the problem that confronts us is not so much a technical one as a cultural one.

Political parties never wanted to change the way decisions were made.

And that's when I realized that if we want to push our ideas forward, we have to do it ourselves.

We took the plunge and founded our own political party in Buenos Aires last August called the Net Party.

And even more boldly, I ran for election last October with a promise: "If we win a seat, our candidates will vote for what the people decide on DemocracyOS."

It's a political party where citizens cast their votes based on their decisions on an online platform on each bill submitted to parliament.

In a way, you could say it hacks the political system.

If you want to participate in dialogue or participate in decision-making, you have to do it the right way, and the only way to do that is by following the rules of the system.

But it was meant to be a hack in the sense of fundamentally changing the way political parties make decisions.

For the first time, we're making decisions together with the people who are directly affected by the decision.

It was a very bold move for a party in Buenos Aires that was only two months old.

Attention has been gathered

We got 22,000 votes, 1.2% of the total votes, and came in second in Buenos Aires.

It wasn't enough votes to win a seat, but it was enough to entice them to participate in the debate. Next month, Congress will become the first organization in Argentina to launch a dialogue with citizens using DemocracyOS.

Of course, our elected representatives won't say they're going to vote according to the people's decisions, but they're willing to try the tools.

I hope you're willing to open up new avenues for civic engagement, and hopefully you're open to listening.

Political institutions can be changed, and instead of overthrowing them or destroying them, we can change them with the tools that are available to us thanks to the Internet.

But the real challenge is finding and designing -- creating and empowering the points of contact that drive innovation, transforming noise and silence into signals that bring our democracy into the 21st century.

I wouldn't say it's easy

From my experience, I think it's possible.

And I think it's definitely worth trying.

thank you

(applause)

I live in Washington, D.C., but I'm originally from India, and I grew up in a village called Cinderella in Orissa.

father was a government official

My mother was illiterate, but she often said to me, "A king is respected only in his own country, but a poet is respected beyond his borders."

So when I grew up, I wanted to be a poet.

With some financial support from my aunt, I managed to go to college.

The university in Sambalpur, the largest city in my hometown.The university in Sambalpur, the largest city in my hometown.I watched TV for the first time in my life after entering university.

After college, I dreamed of continuing my studies in America.

When the opportunity arose, I borrowed money to pay for my flight and crossed two oceans with only one $20 bill in my pocket.

In the United States, I worked part-time at a research center while taking a graduate school economics class.

With the little money I earned that way, I made my own living and sent money back home to my father and brothers.

my story is nothing special

Millions of people migrate each year

With the help of my family, I migrate across oceans, deserts, rivers and mountains.

They don't even risk their lives to make their dreams come true, even if that dream is to get a decent job that will allow them to send money to the family that helped them.

There are 232 million international migrants in the world

People living in a country different from their country of birth People living in a country different from their country of birth

If there is a country with only international immigrants If there is a country with only international immigrants, that country has more people than Brazil It has more people than Brazil

The economy will be bigger than France The economy will be bigger than France

Of the international migrants, 180 million are from developing countries and regularly send money home.

This money is generally called "overseas remittance."

You might be surprised, but the figure of $413 billion is the amount that migrants sent to developing countries in the last year.

Immigrants from developing countries are sending money to developing countries -- $413 billion.

That's a really huge amount of money, three times the total development aid money, three times the total development aid money.

And yet, folks, I -- my colleagues in Washington -- go on and on about development aid, and go on and on about development aid, while ignoring remittances as a minor change.

Even if you send, on average, $200 a month, and millions of people keep repeating it every month, and millions of people keep repeating it every month, all of that adds up to a huge amount of foreign currency.

For example, last year's remittances to India were $72 billion, which is more than India's IT exports.

The amount of remittance to Egypt is three times the toll revenue of the Suez Canal The amount of remittance to Egypt is three times the toll revenue of the Suez Canal

Remittance to Tajikistan equals 42% of GDP

In even poorer countries, smaller countries, fragile states, and conflict-affected countries, like Somalia and Haiti, remittances become a lifeline.

Greater impact on the national economy and the poor Greater impact on the national economy and the poor

Unlike private investment funds, overseas remittances do not flow out even if there are bad signs domestically.

act like insurance

It's only when family problems arise and you're faced with hardships that the amount you send increases and becomes insurance.

Immigrants increase remittances

Also, remittances go directly to the poor and families, without the need to go through public institutions or governments, unlike development aid funds, and they often have business tips.

In Nepal, 42% of the population was poor in 1995. In 1995, 42% of the population was poor.

10 years later, in 2005, Nepal was in a political and economic crisis 10 years later, in 2005, Nepal was in a political and economic crisis, but the poverty rate dropped to 31 percent.

Remittances from India, a poor country, are thought to contribute about half of the poverty reduction.

In El Salvador, school dropout rates are low among children whose families receive overseas remittances.

In Mexico and Sri Lanka, children from families receiving remittances are found to be heavier at birth.

Overseas remittance is "money wrapped in compassion"

Immigrants send money to buy groceries, necessities, and homes. Immigrants send money to buy groceries, necessities, and homes;

And we send more money for special occasions, such as surgeries and weddings, which we experience a lot if we're immigrants, and we also send money for unexpected funerals that we can't attend, which we experience a lot if we're immigrants.

While overseas remittances have many of these advantages, they also present barriers to moving $400 billion. There are barriers to moving $400 billion.

The biggest barrier is the exorbitant cost of sending money abroad.

International remittance companies squeeze money transfer fees from the poor

International remittance companies will say, "A flat rate of $30 for transfers of $500 or less." "A flat rate of $30 for transfers of $500 or less."

Even if you're poor and want to send only $200, you still have to pay a $30 fee.

The global average cost of remittance abroad is 8%

So if you send $100, the recipient family will get $92.

For remittances to Africa, the cost is much higher, 12 percent.

When it comes to sending money between African countries, the cost is even higher, over 20 percent.

For example, sending money from Benin to Nigeria.

There are cases like Venezuela, because of exchange controls, if you send 100 dollars, you'll be lucky if 10 dollars reaches the recipient's family.

Of course, no one sends money to Venezuela through official channels.

Everything is brought in a suitcase

If remittance costs are high, funds will always go through the dark route.

And to make matters worse, many developing countries have a total ban on sending money abroad, and a total ban on sending money abroad.

Many developed countries also have a total ban on sending money abroad to certain countries.

So isn't there a better and cheaper option for overseas remittances?

I have a choice

With M-Pesa in Kenya, you can send and receive money at a flat rate of 60 cents per transaction.

The Federal Reserve Bank of the United States has launched a program that allows international money transfer companies to send money to Mexico for a flat rate of only 67 cents per transaction.

These efficient, cheap and better options cannot be deployed internationally because of money laundering concerns.

Many international banks are taking a cautious stance on managing accounts of overseas money transfer companies, especially those with ties to Somalia.

Annual income per capita in Somalia is only $250 Annual income per capita in Somalia is only $250

Monthly average remittances to Somalia are higher

Overseas remittance is the lifeline of Somalia

But in this example, on the one hand, we're giving a lot of support, but on the other hand, we're imposing regulations that cut the lifeline of the economy.

Consider the case of the rural poor, and I was one of them.

The only place where you can receive money in the village is the post office The only place where you can receive money in the village is the post office

In many countries around the world, post offices have exclusive partnerships with international money transfer companies.

If I send money to my father in my home village If I send money to my father in my home village I need to send money through a specific remittance company even if the cost is high I need to send money through a specific remittance company even if the cost is high

No other cheaper option

this must change

So what can international organizations and social entrepreneurs do to lower the cost of sending money abroad?

First, relax restrictions on small remittances of $1,000 or less.

Governments should recognize that small transfers are not money laundering Governments should recognize that small transfers are not money laundering

Secondly, to abolish the exclusive partnership between post offices and money transfer operators Second, to abolish the exclusive partnership between post offices and money transfer operators

And more to the end of the exclusive partnership between the post office and any financial institution with poor customers, and even more, the post office and any financial institution with poor customers.

When governments encourage competition and allow open partnerships, governments encourage competition and open partnerships can reduce costs. Telecommunications is a good example.

I'm sure you all know

Thirdly, a large-scale charity establishes a remittance platform Thirdly, a large-scale charity establishes a remittance platform on a non-profit basis

Create a non-profit platform that can be used by international remittance companies to enable low-cost remittances and meet complex regulations around the world.

The development community should set a target to reduce the cost of remittances from the current 8% to 1%.

A 1% reduction in costs would save $30 billion a year.

$30 billion - more than the total annual bilateral aid to Africa $30 billion - more than the total annual bilateral aid to Africa

Nearly equals or exceeds the total aid budget of the US government, the world's largest donor country

The real savings are more than $30 billion, because remittance vehicles are also used for aid, trade and investment.

Another major obstacle to getting remittance funds to families is the high and illegal recruitment fees that migrant workers pay labor brokers.

A few years ago when I went to Dubai

visited a worker's camp

8pm in the dark and hot

As the workers were returning to their camp after a hard day's work, I spoke to a Bangladeshi construction worker I spoke to a Bangladeshi construction worker.

He's been sending money back home, and he's been sending it for months now, but he says he's very worried that most of the money he sends goes to the labor broker who found him a job.

Hearing that story, I thought in my heart that my wife, who was looking forward to the monthly remittance,

when the money arrives

I imagined handing it over to a labor broker with children watching.

this should not happen

It's not just about Bangladeshi construction workers. It's a story about every worker. Millions of migrant workers are suffering. It's a story about every worker. Millions of migrant workers are suffering.

The average Bangladeshi construction worker pays $4,000 in recruitment fees, but earns only $2,000 a year.

So you're spending two to three years of your life just to pay the recruitment fee, which means you're spending two to three years of your life.

My family at home doesn't understand this plight.

It's a dark side, not just in Dubai, but in every big city in the world.

It's not just about Bangladeshi construction workers, it's about workers around the world.

not only men

Women are particularly vulnerable to employment-related violations.

One of the interesting recent efforts in the field of international remittances is leveraging immigrant savings and giving through innovation.

Immigrants don't just send money back home, they save a lot of money there. They save a lot of money there.

Annual savings are estimated at $500 billion.

Most of my savings are kept in non-interest-bearing savings accounts.

If a country pays 3% or 4% interest on that money, and the money goes to the immigrant's country of origin to build schools, roads, airports, railways, etc., then many immigrants will also be interested in using their savings, not only for financial gain, but also for the opportunity to remain involved in the development of their home countries.

You can sell these bonds to immigrants using the medium of remittances.

Same for immigrant donations Same for immigrant donations

If I were you, I'd invest in India's high-speed rail infrastructure, or I'd donate money to fight malaria in my village.

International remittances are a great way to share the prosperity of different places by targeting those who need it most.

International money transfers empower people

To make remittances and immigrant labor recruitment safer and cheaper To make remittances and immigrant labor recruitment safer and cheaper, we need to do everything we can.

it is feasible

It's been 20 years since I left India It's been 20 years since I left India

my wife is venezuelan

my kids are american

I feel more and more like a global citizen.

On the other hand, nostalgia for the place of birth deepens.

I want to stay in both India and America.

my parents are no longer there

brothers and sisters go their separate ways

No urgency to send money home

Still, I occasionally send money to my friends, relatives and villagers back home. I send money to friends, relatives and villagers back home.

I still try to be a poet for hardworking immigrants and their struggle to break out of the cycle of poverty.

thank you

(applause)

There's a bunch of videos on YouTube that deal with a certain kind of experience, and I'm sure everyone here has had a similar experience.

What you're seeing is a person doing some kind of expressive act, thinking that no one else is there. They're chanting, they're dancing crazy, they're doing a little bit of sexual activity... but they're actually not alone, they're seeing someone secretly watching them, and they're terrified and stop doing what they've been doing.

You can clearly see the shame and humiliation on your face.

It's a feeling like, "If I had known someone was watching, I would never have done this."

This is the core of what I've been working very hard on over the last 16 months: "Why does privacy matter?" This question has been raised in the wake of Edward Snowden's revelations -- a global debate. Unbeknownst to anyone around the world, the United States and its allies have transformed the Internet, previously hailed as an unprecedented tool of liberalization and democracy, into an unprecedented arena for indiscriminate mass surveillance.

One of the most common statements in this discussion, even among people who don't like mass surveillance, is that there's no real harm coming from this massive violation of rights, because only the bad guys have the incentive to stay out of the public eye and care about their privacy.

This worldview is implicitly based on the idea that there are two kinds of people in the world: good people and bad people.

Bad actors orchestrate terrorist attacks and commit violent crimes, which is why they are motivated to hide their actions and to seek privacy.

Good people, on the other hand, are people who go to work and come home to raise their children and watch TV.

They use the Internet to read the news, share recipes, schedule Little League games, and not plan bombings, and because they do nothing wrong, they have nothing to hide, and they have no reason to fear government surveillance.

But people who say things like this are in a state of extreme self-contempt.

In fact, I'm actually saying, "I've agreed to be a harmless, non-hostile, uninteresting person, and I have nothing to fear if the government finds out what I'm doing."

I think the purest expression of this kind of thinking comes from a 2009 interview with longtime Google CEO Eric Schmidt. When asked about the various privacy issues that Google is bringing to hundreds of millions of people around the world, he said, "If you're doing something that you don't want others to know about, then maybe you shouldn't be doing it in the first place."

There's a lot to be said for this line of thinking. First of all, the people who claim that privacy isn't that important actually don't think so.

I put passwords on my email and social media accounts, lock my room and bathroom doors, and do everything I can to make sure that no one else can touch things that I consider private or that I don't want others to know.

Eric Schmidt himself instructed Googlers not to contact CNET when the online magazine CNET published an article about his private information, and that information was only obtained using Google Search and other Google products.

But last year, Zuckerberg and his newlywed wife bought four adjoining houses in Palo Alto, in addition to their own home, for a total of $30 million, so that they could have private space to keep their private lives private.

In the last 16 months, I've been discussing this issue all over the world, and every time someone says, "I have nothing to hide, so I don't worry about invading my privacy."

I say the same thing each time

Take out a pen, write your email address, and say,

"This is my address

When you get home, please send me the passwords to all your email accounts, not just the proper ones in your name, but all of them.

After all, if you're not a bad person and you haven't done anything wrong, you shouldn't have anything to hide."

No one has ever responded to this

I — (Applause) I check that email account all the time.

no one can send

There's a reason for that, because as human beings, we know that, deep down, we know that privacy is important, even if we verbally deny it's importance.

It's true that we humans are social animals. We have a desire to make people aware of what we do, what we say, what we think, and that's why we voluntarily put information about ourselves online.

But equally essential to being a free and content human being is having a place where you can escape the judgment of others.

There's a reason we want those places, and it's because all of us -- not just terrorists and criminals, but all of us -- have things we want to hide.

There are so many things we do and think about that we can tell our doctors, lawyers, psychoanalysts, spouses, and best friends, but would be embarrassed if the world found out.

Every day, we make judgments about what we say, think, and do, and what we don't want others to know.

It's easy to say, "I don't care about privacy," but when you look at your actions, you realize you really don't.

There's a reason privacy is so universally instinctive.

It's not just a reflex, like breathing or drinking water.

The reason is that our behavior changes dramatically in situations where we may be monitored and watched.

The feeling that someone is watching us severely limits what we can do.

It's a fact of human nature, and I'd say it's accepted in all areas of the social sciences, literature, religion, and so on.

Dozens of psychological studies have proven that humans are significantly more compliant and submissive when they know they might be monitored.

Shame is something people want to avoid, and it's a very powerful motivator, which is why people make decisions based on other people's expectations and societal demands rather than their own will when they're being watched.

One of the most successful and practical uses of this perception was the 18th-century philosopher Jeremy Bentham. He sought to solve a major problem posed by the industrial age, when facilities became so large and centralized that they could no longer monitor or control individuals. The facility manager could monitor any inmate from the tower at any time, but it's just not possible to monitor everyone all the time.

The core of this design is that the humans in containment cannot see the inside of this tower, so there's no way to know if it's being watched, or when it's being watched.

When Bentham realized this, he was thrilled, because without knowing whether there was surveillance or not, he was forced to assume that inmates were constantly being watched, and that would be the ultimate method of enforcing submission and obedience.

The 20th-century French philosopher Michel Foucault realized that this model could be applied not only to prisons, but to any institution that seeks to control human behavior: schools, hospitals, factories, workplaces.

According to Foucault, this idea that Bentham discovered is the key tool for social control in modern Western society. Western society no longer needs the weapons of blatant reign of terror.It doesn't need to punish, imprison, or kill dissidents, it doesn't need legally enforced allegiance, because mass surveillance creates a prison in the human mind. It's much more discreet and much more effective than

Perhaps the most famous literary work on surveillance and privacy is George Orwell's "1984," which we all learn in school, so it feels corny.

In fact, in any discussion of surveillance, this novel can easily be dismissed as irrelevant to the current situation: "In 1984, every home had a surveillance device that was being watched at all times, but that's nothing like the surveillance state we face."

But that fundamentally misunderstands Orwell's warning in "1984."

What he warned us about is not a surveillance state where everyone is under surveillance all the time, but a state where people feel they can be under surveillance at any moment.

The narrator, Winston Smith, describes what the surveillance system in front of them looks like: "We had no way of knowing when we were being watched."

He continues, "Either way, they could connect to the surveillance equipment whenever they wanted.

I had to live, and I lived, on the assumption that every sound I made was eavesdropped, and that my every move was observed unless it was in the dark. Habit became an instinct."

Judaism, Christianity, and Islam all presuppose an invisible, omnipotent, omnipotent God. Because God is omniscient and omnipotent, God is always watching everything humans do, and humans don't have a single moment of private time.

All of these seemingly disparate things admit and come to a common conclusion: a society in which people can be monitored at all times is a society that creates conformity, submission, and servitude.

Conversely, and this is even more important, it is only when we are in a realm of privacy, a place where we can think, think, interact and speak, away from the judgments that others throw at us, that we can create, explore and argue.

One last thing I want to say is that only people who do bad things have things to hide and motivations to care about their privacy. Through this view, two very dangerous messages are instilled, two dangerous ideas.

This conclusion should be avoided at all costs, and one of the main reasons is that when we say "evildoer," we generally mean someone who is involved in plotting terrorist attacks or committing violent crimes, which is much narrower than "evildoing" as used by those in power.

For those in power, "bad deeds" usually refer to actions that interfere with the exercise of power.

Another dangerous idea that arises from this view is far more subtle. Those who accept this view have unknowingly made a deal, a deal that says, "You can only escape the danger of being monitored if you agree not to harm or threaten those who exercise political power.

The only people you should worry about are dissidents and those who oppose authority."

This kind of thinking should be avoided at all costs

You may not want to oppose or resist now, but there may come a time when you will want to.

The fact that there are people willing to defy authority and protest against it, even if you're determined not to get involved in it -- dissidents, journalists, activists -- that's good for society as a whole, and we all want to keep it that way.

Equally important, a society's degree of freedom is determined not by how it treats its good, obedient, submissive citizens, but by how it treats dissidents and those who resist power.

But the most important reason is that the mass surveillance system suppresses all aspects of our freedom.

Mass surveillance prohibits all behavioral options without us realizing it.

In the words of the famous socialist activist, Rosa Luxembourg, "He who does not move does not know that he is in chains."

The shackles of mass surveillance can be invisible, they can go unnoticed, but that doesn't make us less bound.

thank you

(Applause) Thank you.

(Applause) Thank you.

(Applause) (Bruno Giussani) Thank you Glenn.

I think your argument is very convincing, so let me ask you a few questions as we reflect on the past 16 months and Edward Snowden.

The first is about yourself.

I've read about the detention of my partner, David Miranda, in London, and all the other hardships, but I can imagine that the pressure of being personally involved and taking risks facing the world's largest nation can be overwhelming.

can you talk a little bit about this

Glenn Greenwald: One of the things that's happening right now is that there's an outpouring of courage among people through this. I and the journalists I work with certainly feel a sense of danger. America is the most powerful nation in the world, and if thousands of national secrets were put on the Internet without permission, you wouldn't like it. It inspired me, other journalists, and people around the world, including future whistleblowers, to realize that they could do the same.

Giussani: I'm interested in your relationship with Snowden. You and him have spoken a lot, and you will continue to do so, but why do you refer to him by his last name, "Snowden," in your book instead of referring to him affectionately by his first name?

Greenwald: That's probably something that a psychologist should look into. (Laughter) I don't know. I just have a hunch. It has to do with what he considered to be his most important goal, his most important strategy.

He has kept his private life out of the press, so by calling him "Snowden," I treated him as a historical figure, as an individual, to avoid distracting from the nature of the revelations.

Giussani: His revelations, your analysis, and the journalists' articles have fueled a lot of discussion. Many governments, including, for example, Brazil, are interested in projects and plans to reshape the Internet a little bit.

In that sense, you can say that a lot of things are happening.

But what will the end be like for you?

At what point do you decide that the hands of the clock have moved forward?

GR Greenwald: As a journalist, the end game is pretty simple: make sure that every document worth telling -- every document that should be public -- is public, and every secret that shouldn't be hidden is public.

For me, that's what reporting is all about, and that's what I've been working on.

As a person who hates mass surveillance, I believe that for many reasons, including the one I just mentioned, it's not going to end until governments around the world can't target their entire populations for interception and surveillance.

I believe this is the only way to bring privacy back to life.

Giussani: As I've seen at TED before, Snowden has made it very clear that he stands by the values ​​and principles of democracy.

On the other hand, many people don't think his motives are solely that.

They say they can't believe there's no money involved, or that they haven't sold any classified information to China or Russia, because neither of those countries is America's best friend right now.

I'm sure many of you here have the same question.

Do you think it's possible that Snowden has a side that we haven't seen yet?

(Greenwald) No, I think that's silly.

(Laughter) I know you're being critical, but if you were to sell secrets to another country, Snowden could have done it, he could have been a millionaire, but he would never have handed those secrets over to journalists and made them public, because that would make the secrets worthless.

If you're trying to make money, you secretly sell it to the government. I want to point out one important point. Those accusations come from people in the U.S. government and from people in the media who support various governments. has only ulterior motives, which is why they believe that everyone else is afflicted with the disease called meanness, just like they are, but that's speculation.

(Applause) (Giussani) Thank you Glenn (Greenwald) Thank you very much.

Giussani: It was Glenn Greenwald.

(applause)

54% of the world's population lives in cities

In developing countries, one-third of the urban population lives in slums.

Cities consume 75% of the world's energy, and emit 80% of the gases that cause global warming.

The things that we think of as global problems -- things like climate change, the energy crisis, poverty -- are, in many ways, urban problems.

Unless we, city dwellers, actually take action, these problems will never be solved. So far, we haven't done much.

It's clear when you look at three dimensions of urban life: first, whether residents are willing to participate in the democratic system, second, whether all residents are enjoying the benefits, and finally, whether people are living contented and happy lives.

As for "involvement," the data is very clear.

Global voter turnout peaked in the late '80s, and since then has declined at a pace never seen before.

In the last two years, there have been nationwide local elections in two of the most established countries in the world, the United States and France, which have the longest democratic histories.

French voter turnout hits record low

About 40% of voters abstained

American voter turnout was even lower.

In some cities, voter turnout was around 5%.

let's think about that for a moment

We're talking about democratic cities, and 95 percent of people don't think it's important to elect their representatives.

In Los Angeles, a city of four million people, the mayor was elected with just 200,000 votes.

It was the lowest vote share in the last 100 years.

Here in Rio de Janeiro, where I live, voting is compulsory, but in the last mayoral election, about 30 percent of voters chose to either void their vote or stay home and pay a fine.

In terms of "enjoyment," cities aren't a success story either. Again, we don't have to look far to prove that.

Rio de Janeiro is incredibly unequal.

this is lebron

Rich people live in lebron

And this is the Complexo de Alemán

More than 700,000 poor people live here.

Revlon's Human Development Index (HDI) is 0.967 Revlon's Human Development Index (HDI) is 0.967

This number is higher than in Norway, Switzerland and Sweden.

The HDI of Complexo de Alemán is 0.711

Located between Algeria and Gabon

Rio de Janeiro, like many cities in the Global South, is only a 30-minute drive from the size of northern Europe to the size of sub-Saharan Africa.

It's only about 30 minutes away by car.

It takes two hours by public transportation.

And finally, and perhaps most importantly, a city that allows for an incredible wealth of relationships can be an ideal place where people's happiness can flourish.

we like to be with people

we are social animals

But in countries that have passed the peak of urban growth, cities can no longer make their citizens happy.

The overall number of Americans who feel happy has declined over the last 30 years, and that's the main reason.

Good public spaces have virtually disappeared in many cities because of American-style urban planning, and as a result, we've lost the relationships that make us happy.

A lot of research shows that loneliness is increasing, but people's solidarity, loyalty, and civic engagement are declining.

How can we start building cities that we love?

A city that values ​​its greatest asset, the rich diversity of its residents

How can we build a city that makes its citizens happy?

If you want to change the way cities work, you'll have to change the policy-making process, because the status quo is the result of policy-making.

We need change for civic participation, and we need it soon.

It no longer fits the status quo that citizenship can only be exercised when you vote.

We're all sick and tired of being treated as individuals with rights only when it comes to delegating rights, which comes every few years.

If there's one thing we've learned from the June 2013 Brazilian protests, it's that if you try to exercise your rights outside of an election, you get beaten up, humiliated, and arrested.

This needs to change, because it will not only make people start choosing their own representatives again, but it will also complement the existing system with direct and effective collective decision-making. This is the type of decision-making that is inclusive of all people, eradicating inequalities and transforming cities into better places to live.

But there's an obvious pitfall. Participation and redistribution of rights over a wide range of people can be physically challenging, and that's where technology plays a very useful role, making it easier for people to organize and talk to each other.

Unfortunately for us, cities are not using technology effectively in fostering democratic processes.

So far, the only time city governments have used technology effectively is when they use citizens as human sensors, such as potholes, downed trees, broken lamps, and other data about the city that they report back to city hall.

Less commonly, we also seek public participation to improve the outcomes of policies that have already been decided, but it's like when you were eight years old, your mom told you that if you go to bed by eight, you can choose between pink pajamas or blue pajamas.

That's not participation. The reality is that governments do not do a good job of using technology to encourage public participation on important issues, whether it's how they allocate budgets, how they occupy land, how they manage natural resources.

It's these kinds of decisions that have a real impact on global issues that manifest themselves in cities.

The good news is -- my story isn't all bad -- we don't have to wait for the government to take action.

There's reason to believe that citizens themselves can build their own mechanisms for participation.

Three years ago, I co-founded an organization called Meu Rio, which allows the people of Rio de Janeiro to organize around a particular purpose or place and influence that purpose or place every day.

Over the past three years, My Rio has grown into a network of 160,000 Rio de Janeiro citizens.

40% of our members are young people aged 20-29 40% of our members are young people aged 20-29

That's 1 in 15 people of this age group living in Rio de Janeiro today.

One of our members, Bia, the pretty girl on the right, was 11 when she started a campaign to save her exemplary public middle school from demolition, using the tools we provided.

Her school was one of the best public middle schools in Brazil, but the state government of Rio de Janeiro, no joke, was going to tear it down to make way for a parking lot for the football World Cup.

Bia started a campaign, and we monitored the school with webcams 24 hours a day, 7 days a week.

Bia's school survived being demolished.

This is Jobita

Jovita is an amazing person and has been looking for her ever since she disappeared 10 years ago.

And the first thing she realized was that she wasn't alone.

Last year, 2013 alone, 6,000 people went missing in the state of Rio de Janeiro.

Nevertheless, she realized that Rio de Janeiro did not have a centralized information system for missing person searches.

Other Brazilian cities use the system to solve up to 80 percent of missing person cases.

Jobita started a campaign, and after more than 16,000 citizen emails calling for a centralized information system for the sheriff's chief, finally a police force dedicated to missing persons cases began to be created.

It was announced to the public at the end of last month, and you can see Jobita in it, and she's doing an interview, and she's doing great.

Here is an example from Leandro

Leandro is an amazing guy who lives in the slums of Rio de Janeiro and started a recycling project in the slums.

But late last year, on December 16th, Leandro received an eviction order from the state government of Rio de Janeiro, ordering him to leave the place he had been working for two years in two weeks.

The site was to be handed over to a developer to build on it.

Leandro started a campaign using a website called Pressure Cooker, which Bia and Jobita used, and before Christmas Eve, the state government changed its attitude.

Stories like this make me happy, but not because they have a happy ending.

what makes me happy is that it's a happy beginning

Beer's school teachers and PTA are looking for other ways to add value to the place.

Leandro works to spread his methods to other low-income communities in Rio de Janeiro, and Giovita volunteers with the police force she helped found.

Bia, Giovita and Leandro are living examples that citizens and governments around the world need to know.

As citizens, we are ready to decide the fate of a community of destinies. Because how we distribute power really shows how much we respect each other, and because we understand that participating in local government is a sign that we really care about our relationships with each other. Cities around the world are ready to do this right now.

Using the My Town Network, the My Rio team wants to share what they've learned with others who want to take the lead in doing something similar in their cities.

We've already started it in São Paulo, and it's been very successful, and I hope that we can do it in cities around the world, through citizen-centered, citizen-led organizations, which inspires us, motivates us, and encourages us to really participate in urban life.

It's up to you to decide Do you want a school or a parking lot? Community-led recycling project or construction site? Solitude or solidarity? Private car or bus? It's our responsibility to do it now, for ourselves, for our families, for the people who make our lives meaningful.

Obrigado thank you

(applause)

Imagine a plane on the verge of crashing, with 250 children and babies on board. If you knew how to prevent it from crashing, would you do it?

Now imagine that 60 planes full of babies under the age of five crash every day.

The same number of children will not reach their fifth birthday.

6.6 million children don't live past the age of 5

But most of these deaths are preventable. I feel not only sadness, but also anger, and it forces me to face the problem.

Diarrhea and pneumonia are the top two killers of children under the age of five, and what we can do about these diseases is not the latest smart innovation.

Soap is one of the world's oldest inventions.

Handwashing with soap, which we all take for granted, can cut diarrhea in half and respiratory infections by a third.

Washing your hands with soap can go a long way in reducing the spread of influenza, trachoma, SARS, and more recently, cholera, influenza, trachoma, SARS, and more recently, cholera and Ebola.

Children can go to school by washing their hands with soap

save a baby from death

Handwashing with soap is the most cost-effective way to save children's lives.

more than 600,000 lives could be saved each year

We can prevent 10 jumbo jets full of babies and children from crashing every day.

It's a very effective public health measure.

take a moment

Get to know your neighbors

let's shake hands

try to shake hands

let's get to know each other

everyone is nice

Then

What if the person I just shook hands with said they didn't wash their hands when they left the bathroom? (Laughter) It doesn't feel good anymore.

you will feel sick

Statistics show that, in fact, four out of five people around the world don't wash their hands when they leave the bathroom.

And it's the same thing that countries that have clean toilets, running water, soap, and high child mortality are doing the same thing.

What does this mean? Is there no soap available?

soap is available

Soap is found in 90% of households in India and 94% of households in Kenya.

Even in Ethiopia, where soap is said to be the least widely available, 50% is available.

why

So why don't people wash their hands?

Mayank, a little boy I met in India, why doesn't he wash his hands?

Mayank families use soap for bathing, washing clothes, and washing dishes.

His parents kept soap in the cupboard as a valuable common item.

I don't want him to waste

On average, Mayank families wash their hands with soap once a day at best, and sometimes use soap once a week.

What are the results?

Children fall ill in the homes that are supposed to be the place to protect and nurture them.

Think about where you learned to wash your hands

Have you started washing your hands at home?

Have you started washing your hands at school?

Behavioral scientists will tell you that it's very difficult to change the habits you develop at an early age.

But we copy what each other does, and local cultural norms are shaped by what we do differently, and that's where the private sector comes in.

Every second in Asia and Africa, 111 mothers buy soap to protect their families.

Many women in India say they learned a lot about hygiene and disease from Lifebuoy soap.

Iconic brands like this have a responsibility to contribute to society where they sell their products.

That's why big companies like Unilever keep us activists educating mothers about handwashing with soap and hygiene.

Big companies and brands can change social norms and change stubborn habits.

Think about it, companies are always trying to force you to change brand after brand.

They know how to put science and fact into their products as a message.

Think for a moment that they were as committed to that message as they were to the power of handwashing with soap.

This profit motive will change the world's hygiene.

It's been happening for centuries, lifebuoys were born in Victorian England in 1894 to fight cholera.

Last week, I was in Ghana, and I spoke with the Minister of Health, and if you don't know, there's a cholera epidemic in Ghana.

After 118 years, the solution remains the same: how to make sure they use this soap, because their use of soap is the number one way to stop the spread of cholera.

I think this motivation for profit is extremely powerful, sometimes stronger than even the most dedicated charities and governments.

Governments are doing what they can, especially in the face of current pandemics like cholera and Ebola, but they have other priorities.

budget is not always guaranteed

When you think about this, you're probably wondering what it takes to make handwashing a regular practice.

So the battle for public health really depends on soap companies continuing to educate people about hand washing with soap.

Our partners, such as the United States Agency for International Development, Global PPPHW (Public Private Partnership for Handwashing), University of London School of Hygiene and Tropical Medicine, Plan WaterAid, believe in partnerships that benefit all three.

In the public sector, help reach the target

In the private sector, we train future generations to practice hand washing.

And most importantly, it benefits the weakest.

On October 15th we celebrate Global Handwashing Day

Together with our schools, our communities, our public sector peers, our private sector peers and our rivals, it's a day where we all come together to celebrate the world's most important public health measure.

What we need is that the private sector can make a big difference, so that it can be the big creative idea that drives the movement.

If you look at the Help a Child Reach 5 campaign, you'll see that we've created some amazing videos that everyone can relate to, promoting handwashing with soap.

Played over 30 million times

Although many of these discussions still take place online,

Please take five minutes to watch these videos.

I come from Mali, one of the poorest countries in the world.

I grew up in a family where every dinner was a conversation about social justice.

Trained at one of Europe's leading public health schools

I'm probably one of the few women in my country to have a higher education in health, and the only one to get a doctorate in handwashing with soap.

(Laughter) (Applause) Nine years ago, I decided that the best contribution I could make in public health work was to market and promote one of the greatest public health inventions in the world: soap.

We run the world's largest handwashing program by any standard of public health.

Reaching more than 183 million people in 16 countries

My team hopes to help 1 billion people by 2020

Over the last four years, the business has continued to grow by double digits, and child mortality rates have fallen in all regions where soap use is increasing.

It may sound hard to hear for some people, but growing a business and saving lives can be synonymous.

We can't achieve the change we need without talking about it.

Last week, our team visited mothers who had a common experience: the death of their newborn baby.

I'm a mother too, and I can't think of anything more intense and painful than losing a child.

This mother is from Myanmar

It's a very beautiful smile, but a smile like this is what you get when life gives you another chance.

Her son Myo is the second child.

Our first child, a daughter, died three weeks after birth. Most of the babies who actually die die within the first month of life, and if the professional birth attendant who attends the birth is given a bar of soap and uses it before touching the baby, these deaths can be reduced.

That's what motivates me to this mission, to give her what she needs so that she can do the most beautiful job in the world, raising a newborn baby.

If you're sending a congratulations to a new mother or family member, all you have to do is give them soap.

Soap is public health's most beautiful invention.

I hope all of you will make handwashing a part of your life, a part of ours, and help children like Myo reach their fifth birthday.

thank you

(applause)

Almost a year ago my aunt started suffering from back pain.

She went to the doctor, and the doctor's diagnosis was that it's common for people who've been playing tennis for nearly 30 years.

Several treatments were recommended to her, but after a while her condition did not improve, and the doctors decided to do more tests.

X-rays were taken, and they discovered damage to her lungs, which doctors at the same time thought was the result of overstretching the muscles and tendons between her ribs, but after weeks of treatment, her condition was still not improving.

Finally, they decided to do a biopsy, and two weeks later the biopsy results came back.

It was stage 3 lung cancer

Her lifestyle meant she had little risk of getting cancer.

She never smoked, she didn't drink, and she'd been playing sports for almost half her life.

Maybe that's why it took almost half a year for her to be properly diagnosed.

Unfortunately, this kind of story is familiar to almost everyone.

One in three of you will be diagnosed with some form of cancer, and one in four will die of cancer.

Not only was that cancer diagnosis life-changing for our family, but the sheer amount of stress and frustration involved in going through new tests and explaining symptoms to dozens of doctors and changing names from one disease to the next, especially my aunt.

The process of diagnosing cancer is ancient and still unchanged.

We have 21st century medicine and drugs to treat cancer, but the procedures and diagnostic processes are still the same as last century.

Most of us today are diagnosed only when we have symptoms.

Today, most people still lack access to early detection of cancer, even though we know that detecting cancer early is the closest to a silver bullet that exists.

We believe we can change this, so our team decided to do this research, to make early-stage cancers, early-stage cancers, to better monitor their responses at the molecular level, to make them easier, cheaper, and smarter to detect.

What makes this possible is that we live in an era where technology is revolutionizing everything at an explosive rate, and biology is no exception.

Today, biotechnology is said to be advancing at a rate six times faster than the growth rate of computer processing power.

And progress is not only accelerating, it's being democratized.

Just as the use of personal computers, the Internet or smartphones in entrepreneurship, politics, and education has spread, its influence has recently extended to biotechnology, which has allowed multidisciplinary academic teams like ours to approach this problem in new ways.

Based on recent scientific discoveries, our team of scientists and engineers from Chile, Panama, Mexico, Israel and Greece believes that they have discovered a reliable and accurate method for detecting several types of cancer at very early stages from blood samples.

We do that by extracting small miRNAs that are freely circulating in the blood, called micro(mi)RNAs.

To explain what miRNAs are and their important role in cancer, we need to start with a description of proteins. Protein mutations are observed in all cancer cells when cancer is present in our bodies.

As you may know, proteins are biological macromolecules that have different functions in the body, such as catalyzing metabolic reactions, responding to stimuli, and replicating DNA. But before a protein is expressed and synthesized, the critical information that resides in the DNA that encodes that gene is transcribed into messenger (m)RNA, which carries the information that is translated into a specific protein, potentially synthesizing hundreds of proteins.

miRNAs are small molecules that regulate gene expression

Unlike DNA, which remains largely unchanged, miRNAs can change shape at any given time, depending on internal and environmental conditions, and can tell us which genes are actively being expressed at that particular time.

This makes miRNAs promising cancer biomarkers because, as we all know, cancer is caused by mutations in gene expression.

Because it's a disease that's caused by unregulated genes.

Another important thing to consider is that no two cancers are the same, but there are patterns at the miRNA level.

Several scientific studies have shown that the level of miRNA aberrant expression varies and that each cancer produces specific patterns that are unique to each cancer, even in the early stages.

The problem, however, is that existing DNA-based technologies cannot be applied to reliably detect miRNAs, because miRNAs are very short sequences of nucleotides that are much smaller than DNA.

And miRNAs are all very similar to each other.

Imagine trying to distinguish between two very similar, very small molecules.

We believe we have found a way to do this, although this is the first public release.

I will try the demo

Now imagine the next time you go to the hospital to do a routine blood test. Imagine the next time you go to the hospital to do a routine blood test.

Each well of these plates runs a separate biochemical reaction, looking for a specific miRNA, and if it finds a miRNA in that sample, it traps the miRNA like a trap and emits a green glow.

To do that test, you put a plate inside a device like this, and you put your smartphone on top of this.

If you could show this up close--you could see this screen--

A smartphone is an internet-connected computer with a built-in camera, so it's good enough for that purpose.

A smartphone is taking a picture, and when the reaction is complete, the picture is sent to our online database for processing and analysis.

This process takes about 60 minutes, and when it's done, each miRNA is detected in a luminous well, and the miRNA is analyzed by its luminescence intensity and blink rate.

And when this whole process is finished it will look like this

This chart shows how specific miRNAs present in a sample reacted over time.

If you compare this pattern of miRNAs detected in this person's sample to the existing scientific record of miRNA correlations with certain diseases, this is what pancreatic cancer looks like.

Inside this is the sample itself, from which we have now detected pancreatic cancer.

(Applause) Another important aspect of this approach is the ability to spot trends from data collection in the cloud, so that you can get real-time results and analyze them against the contextual information at hand.

To analyze diseases like cancer to better understand them, we need to stop thinking of them as acute or single episodes and continuously measure and understand everything that affects our health.

This platform is a working model

Based on state-of-the-art molecular biology, low-cost 3D-printed devices and data science, we're trying to tackle one of humanity's most intractable challenges.

We believe that early cancer detection technology should really be democratized, so the total cost of this whole system will be about 1/50th of what is currently available. We also know that people in the community will help us accelerate this even further.

(Applause) Let me be clear, we're in the very early stages, but so far we've successfully identified miRNA patterns in pancreatic, lung, breast and liver cancers.

We are currently conducting a clinical trial in breast cancer with the German Cancer Research Center, involving 200 women.

(Applause) This is a single, non-invasive, accurate and inexpensive test that could dramatically change procedures such as cancer diagnosis.

Because we can always look for miRNA patterns in our blood to identify cancer types.

No need to wait for symptoms

All it takes is one milliliter of your blood, and a relatively simple set of tools.

Today, cancer detection is primarily done when symptoms appear.

At that point, the cancer is stage 3 or 4, and it's too late.

it's too expensive for a family

too high a price to pay for mankind

But we can't afford to give in to the battle with cancer.

Not only does it cost billions of dollars, but the lives of those we love are at stake.

My aunt is still fighting cancer valiantly, and is very positive about the treatment process.

But I want to stop fighting like my aunt.

I would love to see the day come when cancer can be easily treated because it can be diagnosed routinely and very early. I truly believe that in the very near future, these and other breakthroughs will come one after another in the life sciences, fundamentally changing the way we look at cancer.

So cancer will be detected earlier, better understood, better treatments will be found, better understood, better treatments will be found.

thank you very much

(applause)

TED is a conference where you play a leading role, so you have a right to know who's running TED at this time of change.

so i decided to come out here

At a TED talk two years ago, I concluded that I may have been caught up in a strange assumption.

Subconsciously, I thought I was some kind of business hero.

I had a company called Future that I spent 15 years building, a magazine publisher.

I had just gone public a while ago, and the market was valued at something like two billion dollars, which is a lot of money that I can't comprehend.

Also, the magazine "Business 2.0" that I launched a little while ago was thicker than a telephone directory, and it was blowing enthusiasm into the bubble economy.

(Laughter) -- And I owned 40 percent of a dot-com company that was about to go public and was worth billions of dollars.

All of this was built from scratch

Fifteen years ago, I was a science journalist, and people laughed at me when I said, "I really want to start a computer magazine."

But 15 years later -- 100 magazines -- my company has 2,000 employees -- it's been a hot day.

It was February 2000.

I used to think my business life was like Moore's Law, it was going to keep going up and down.

It had to be, right? I was surprised myself

My dot-com company, ironically named Snowball, was the last consumer web company to go public before the Nasdaq crashed the following month, and I had 18 months of hell.

Everything I had built up was collapsing before my eyes.It felt like everything was going to die, like 15 years of work had come to nothing.

I felt like my heart was going to burst

First, it took eight years of blood and sweat to grow our workforce to 350 people, and I was very proud of that.

In February 2001, I laid off 350 people.Before the bleeding stopped, 1000 people at my company lost their jobs.It felt terrible.

My net worth was dwindling down, losing $1 million a day for 18 months.

Worse than that, my self-esteem disappeared.

I had a big "loser" mark on my forehead

(Laughter) Looking back, the worst thing about it all was how I linked my personal happiness to my business to such an extent.

In the end, I was able to save Future and Snowball, but by then I was thinking of moving on.

And, in short, here we come

I'm telling you this because I've talked to a lot of people, and I've found that a lot of people here have gone through a similar upheaval -- an emotional upheaval -- over the past few years.

It's a time of great transformation, and the TED conference is going to play a big role in helping us all move on to the next stage, whatever that next.

Next year's theme will be "playback"

Two years ago at TED, I reached an agreement with Richard about the future of TED.

Around the same time, and perhaps because of it, I started doing what I had forgotten about in my work: I started reading again.

And while I was at work, I realized that there was an incredible amount of change taking place in many fields -- cosmology, psychology, evolutionary psychology, anthropology -- everything was changing.

It's been very exciting to see such a radical change in the way we see ourselves as one race and one planet.

The most exciting thing, Richard Wurman realized 20 years before I did, is that everything is connected.

we are connected to each other

We talked a lot about this, and I thought I could set an example. As is well known, Madame de Gaulle, the wife of the President of France, was once asked, "What do you want?"

I replied "Penis"

If you think about it, it's true. The thing we all want most is a penis, or, in English, happiness.

(laughter) Well, Japanese translation room, please do your best to translate.

(Laughter) (Applause) Something as basic as happiness, which 20 years ago was only discussed in churches and mosques and synagogues, now there are dozens of TED questions that are really interesting.

We can also ask biochemical questions about what causes it: neuroscience, serotonin, that sort of thing.

We can also ask what the psychological causes are: is it nature, the result of education, or the current situation?

The research on this was really amazing

You can think of it as a computer problem, an artificial intelligence problem.

In geopolitical terms, you could also say, why are a billion people on the planet so desperately poor that they have no chance of being happy, and that most other people, regardless of how much money they have, are, on average, almost as happy, even if it's $2 a day?

Or you can take an evolutionary psychology view: Why did our genes make us behave in certain ways? Could it be that the brains of the ants were parasitized and made to behave in certain ways in order to reproduce our genes?

Are we victims of mass assumptions?

etc

To understand even something as important as happiness, you have to traverse in all these directions, and TED is the only place where you can ask so many questions in so many different directions.

So what Richard said is really important. To understand something, you have to understand a little bit of everything that surrounds it.

In the last three days, you're slowly beginning to understand why you're asking these irrelevant things.

By the end of the fourth day, your brain will be revitalized, energized, alive and excited, because all these pieces have connected.

it's a whole-brain experience

It's a whole body massage from the heart.

(Laughter) It works on all mental organs, really.

Enough about the theory, you want to know what I'm actually going to do.

This is TED's vision

The first - do nothing. TED isn't bankrupt, so there's nothing to fix.

Jeff Bezos said to me, "Chris, TED is a really great conference.

If you don't do something really bad, it won't be bad."

(Laughter) So, there's a reason why I call myself TED Curator. Now I can promise you that the core values ​​that make TED so special will never change.

No truth, curiosity, diversity, commercial or corporate bullshit, no trend chasing or political speech.

Just pursue your interests, whatever they may be, and pursue them across all the areas expressed here.

it will not change from now on

Second - I'm putting together a great line-up of speakers for next year.

The timescale on which TED operates is a big plus for someone coming from the world of magazines with monthly deadlines.

We've got a year to spare, so I'll hopefully be able to tell you a little bit about it later, but we've got about 25 amazing speakers signed up for next year.

And there's also a huge amount of help from the TED community -- it's a really great community -- and when you put that together, we're reaching out to pretty much everyone doing interesting things in this country -- if not the whole planet.

It's true

Third - if possible, I'd like to see if we can make the TED experience available throughout the year.

Book clubs are one way to do that.

Books have saved me these past few years, and I want to carry on that gift.

Those who sign up for TED2003 will receive a package every six weeks with a book or two and an explanation of why they're connected to TED.

A book could be from a TED speaker, so we can keep the conversation going all year long, and take the same intellectual and emotional journey back here next year.

i think that is amazing

Fourth -- I'm going to talk about the Supling Foundation, the new owner of TED.

Being owned by the Supling Foundation means that all of TED's proceeds go to the causes it supports.

Also, and I think more importantly, the ideas expressed and realized at TED can have a wonderful synergy with the Sapling Foundation.

Already, in the last few days, we've talked to so many people about what they care about, what they're passionate about, and what they're doing to change the world.

I'm really excited about that

In fact, I've never been more excited in my life

I will be involved with TED for a long time, and I would be very honored if you could join me on this journey.

The reason I started working with refugees was because I wanted to make a difference, and I think that improvement starts with telling you their stories.

When I first meet a refugee, I always ask the following question.

who bombed your house

who killed your son

Have you been able to confirm that your family is safe?

how do you live as a refugee

But there's one question that always blows my mind: What did you bring with you?

When the bombs went off in your town and the gunmen approached your house, what was the most important thing you kept close to you? is that

A Syrian refugee boy said he didn't hesitate to pick up his high school diploma when his life was in danger.

He didn't hesitate to pick up his high school diploma, he later told me why.

"I grabbed my high school diploma because it defines my life."

he risked his life to get his diploma

On his way to school, he dodged a sniper quickly.

At times, the classroom shook with the sounds of bombs and artillery fire. His mother said, "Every morning, I told my son, Honey, please don't go to school."

But he said to his mother, "We all have the same fears, but our determination to graduate is stronger than our fears."

But one day the family received horrifying news.

Honey's aunt, uncle and cousin were killed as a result of refusing to leave the house.

they had their throats slit

I have no choice but to run away

They quickly drove off that day, and Honey hid in the backseat because a checkpoint with fearsome soldiers was approaching.

And I crossed the border to Lebanon, where I believed I could live in peace.

But a drastic and monotonous life awaited me.

They had no choice but to build a humble hut in a muddy field This is Honey's brother Ashraf playing outside.

On that day, they became part of the world's largest refugee camp, and Lebanon is a small country.

It has a population of only four million people, and there are one million Syrian refugees living there.

There was not a single town, city or village that did not welcome Syrian refugees.

This generosity and benevolence is wonderful.

Think about it in a comparison like this

It would be like the entire population of Germany, 80 million people, fleeing to America in just three years.

Half of Syria's total population is now displaced, most of them internally displaced.

6.5 million people fled for their lives

Well over 3 million people have crossed borders to find refuge in neighboring countries, and as you know, only a small minority have emigrated to Europe.

What worries me most is that half of Syrian refugees are children.

this is a picture of a girl i took

Here she is, just two hours after she arrived, having walked the long way from Syria to Jordan.

The biggest problem is that only 20 percent of Syrian refugee children go to school in Lebanon.

And yet, Syrian refugee children, all refugee children, say that education is the most important thing in their lives.

That's because education helps them think about the future instead of the nightmares of the past.

You'll learn to think about hope instead of hate.

I remember a recent visit to a Syrian refugee camp in northern Iraq.

"Okay," she replied, but refused to laugh.

I think it wasn't funny, because she knew she represented a lost generation of Syrian refugee children, a segregated and frustrated generation.

Look at the places they've been behind completely destroyed Buildings Industries Schools Roads Houses

Honey's house was also destroyed

This will need to be rebuilt by architects and engineers and electricians.

Communities will need teachers, lawyers and politicians willing to reconcile, not revenge.

Shouldn't this be rebuilt by refugees who have been forced from their homes and are in danger?

Refugees have plenty of time to prepare for their return.

You might think that being a refugee is a temporary condition.

Not like that

The civil war continues and the average number of years a refugee spends abroad is 17 years.

When I went to see Honey recently, he was in his second year of refugee life in a state of uncertainty, and we spoke in English.

We had a bright and happy time together with my beloved brother Ashraf.

I will never forget what he said at the end of our conversation that day.

He said, "If I'm not a student, I'm worthless."

Honey is one of the 50 million people displaced in the world today.

So many people are forcibly displaced from their homes at levels not seen since World War II.

While we've made tremendous progress in medicine, technology, education, and design, we're doing perilously little to help victims, and far too little to stop or prevent the wars that are pushing them out of their homes.

the number of casualties is increasing

On average, every day, 32,000 people are forcibly displaced from their homes. 32,000 people.

They're fleeing across the border like this.

I recorded this on the Syrian side of the border towards Jordan, and this is the way it is.

Sometimes they flee in overcrowded ships that are not seaworthy, risking their lives just to reach the safe zone of Europe.

This young Syrian man is one of the people who survived the capsized ship.

I think it's the bare minimum

What about a place of healing, a place of learning and a place of opportunity

People in the United States and Europe have the impression that relatively large numbers of refugees are coming to their countries, but the reality is that the vast majority of refugees, 86 percent, live in developing countries, where they still struggle with the help of their own people and with the instability of their own countries of poverty.

Wealthy countries of the world should recognize the benevolence and generosity of countries that host large numbers of refugees.

And all countries should ensure that no one fleeing civil war or persecution should be held back by closed borders.

(Applause) Thank you.

But we should be able to do more than just save the lives of refugees.

we can help them live well

We don't think of refugee camps and communities as just temporary enclaves where people live miserably while waiting for civil wars to end.

Rather, it should be seen as a place of excellence where one can overcome trauma and prepare for homecoming day, and an agent of positive change and social transformation.

It makes a lot of sense, but I am reminded of the terrible civil war in Somalia that has been going on for 22 years.

Imagine living in this camp

i visited this camp

It's a country called Djibouti, which is next to Somalia.

It was dusty and terribly hot.

So I went to a school, and I was talking to some kids, and I saw a little girl across the classroom, who looked as old as my daughter, and I walked over and talked to her.

And I asked the question that adults often ask children, and I asked the question that adults often ask children, "What is your favorite subject?"

"What do you want to be when you grow up?"

Then he got a blank look on his face and said to me, "I don't have a future.

My school life is over."

Thinking that there must be some misunderstanding, I turned to my colleague, and she explained to me that there was no financial support for secondary education in this camp.

In that moment, I thought, how nice it would be if I could say, "We're going to build a school for you."

At the same time, what a waste

I thought she should be the future of Somalia, and she really is.

A boy named Jacob Atem had his chances, but his first experience was a terrible tragedy.

This is his village, Sudan, and when he was only seven years old, he saw the place burn down, and he learned that his mother, his father, his entire family had been killed that day.

Only my cousin survived, and the two of them walked for seven months, and these are boys like him, chased and stalked by wild animals and armed groups, until they finally reached safety in a refugee camp, where they spent the next seven years in a refugee camp in Kenya.

But his life changed when he got the chance to be resettled to America. When he got the chance to be resettled to America, he changed.

(Applause) I was on Skype the other day, and he's enrolled in a new college in Florida to get a PhD in public health, and he proudly told me how he raised enough money from American citizens to go back to his village and set up a clinic.

Now back to honey

When I told him that I had the opportunity to speak to you on the TED stage, he allowed me to read a poem, which he emailed to me.

It read, "I miss myself, time for my friends to read novels and time to write poetry, morning birds and tea.

I miss my room, my books, myself and everything that makes me smile

Ah, I've had so many dreams, dreams I've been waiting to come true

My point here is that not investing in refugees is a huge opportunity loss.

Left alone, they risk exploitation and abuse. Leaving them immature and uneducated delays the return of peace and prosperity to their countries by years.

I believe that the future of the world will be determined by how we treat refugees.

Victims of war hold the key to lasting peace, and it's refugees who break the cycle of violence.

Honey is at a tipping point

We want to help him go to college and become an engineer, but we're prioritizing our funding for the basics: tents, blankets, mattresses, kitchen utensils, food rations, a little medicine.

going to college is a luxury

But leave him to suffer in a muddy field and he will be part of a lost generation.

Honey's story is a tragedy, but a tragedy shouldn't end as a tragedy.

thank you

(applause)

I know someone who soars every night

He twirls in his dreams His toes kiss the earth

Everything is in motion, he says, even his paralyzed body.

this man is my father

Three years ago, my father had a severe stroke. It was in the brainstem. When I walked into his room in the ICU at the Montreal Institute for Neurological Disorders, I found him on a ventilator, motionless, dead.

Paralysis slowly took hold of my father's body, starting at his fingertips, his legs, his torso, his fingers, his arms.

And when it reached my neck, it took my breath away and stopped just below my eye.

so there is consciousness

Rather, I could feel my body becoming immobile from the inside, watching the paralysis go from the limbs to the muscles, from the limbs to the muscles.

In the ICU room, I approached my father's body and muttered the alphabet in a trembling voice through tears.

A､B､C､D､E､F､G H､I､J､K

My father blinked when he whispered "K"

i repeated again

A､B､C､D､E､F､G H､I

This time I blinked at "I", then "T", "R" and "A" Kitra

My father said, "Kitora, beautiful girl, wipe your tears.

This is a gift from God."

Even though I couldn't make a sound, my father yelled out my name forcefully.

Only 72 hours after his stroke, my father had already come to terms with the whole situation.

Even with this crippled body, my father was still there, guiding me, encouraging me, perhaps more fatherly than ever.

Locked-in syndrome is a nightmare for many people.

In France, the disease is called “maladie de l'emmuré vivant”.

It's called the "living walled disease."

For many people, most of us, numbness is an indescribable terror. But what my disabled father experienced was not a feeling of being trapped. Instead, he turned to his inner heart, shutting out the outside noise, and facing his inner voice. Deep inside, he was in love with a new life and a new body.

As a religious leader and spiritual being, moving between mind and body, life and death, paralysis brought a new awareness to my father.

I realized that I didn't need to see the physical world to find God.

"Paradise is in this body

It's in the world of this body."

For the first four months, I slept next to my father, and I did everything I could to try and understand the deepest fears in the human mind that made him feel uncomfortable and couldn't even ask for help.

I wrapped my father in a healing space with my mother and brothers and sisters.

We became the voice of my father, chanting the alphabet for hours each day, his heart whispering back, poetry being spun in the blink of an eye.

My father's room became a temple of healing.

By my father's side, it became a healing space for those who sought warm words.

Everything around us slowly became gentler, the hustle and bustle of the hospital wards, the human drama, and death faded away.

Here's what we transcribed for the first time the week after my father had a stroke.

My father wrote a letter to the synagogue congregation, which ended with the verse: "Paralysis from the neck down led me to another world, an imperfect, semi-terrestrial, primeval world.

the universe is constantly opening and closing

There are many people who stop growing when they are depressed.

I was so down last week But I felt God's hand around me God called me back

When we couldn't be our father's voice, we became his hands and feet.

I moved my father's limbs the way I would want them to move if my limbs were stuck all day.

I've even held his hands close to my face and bent them one by one to soften the joints.

Many times, I asked my father to visualize the movement and let his mind's eye see how his fingers bent and stretched and moved.

After a while, before my eyes, my father's body was wriggling like a snake, and unconsciously, spasms were passing through my body.

At first I thought I was hallucinating because I had been nursing my father for so long and wanted to see him like this.

But my father said, "My body is tingling, and there's an intermittent electrical current just under my skin."

The next week, I started to show a little bit of muscle resistance.

my body started to react

Little by little, slowly, I began to wake up, my limbs, my muscles cramping.

As a documentary photographer, I knew I had to capture my father's first movements like a mother taking a picture of a baby.

I photographed him in moments of spontaneous breathing, his first moments of muscle resistance, and his spontaneous movements as he embraced new technology.

I photographed the care and love that surrounded my father.

But my photos told a vague story of a man lying on a hospital bed, hooked up to a ventilator.

Unable to capture the story in my father's mind, I sought new ways to capture a slice of his spiritual experience.

And finally, I'd like to show you a video I've been working on that captures the slow-moving interstitial world that my father went through.

As he began to regain the strength to breathe, I began recording his thoughts, and the voice in this video is his voice.

(Video) Ronnie Kahana: You have to believe you're paralyzed to play the role of a quadriplegic.

i am different

In my mind, in my dreams, night after night, I'm Chagall's aviator Flying over the city Twirling, my toes kissing the earth

I know nothing about people who say they can't move

everything has movement

the heart beats

the body swells

mouth moves

never stop

Life has peaks and valleys

Kitora Kahana: Most of us move our muscles without even realizing it, but my father tells me that it's his privilege to live beyond human comprehension.

Like an astronaut who sees a view most of us don't know, I stare at my first breath, feel moved, and dream of crawling back home.

Dad says life started at 57

Little children don't claim its existence, but adults claim their world every day.

Most of us don't have the physical disabilities that my father experienced, but we all have moments in life when we're paralyzed.

I often face walls that I can't climb at all, but my dad says there are no dead ends.

Instead, he invites me into a two-way healing space where he lets me reclaim myself, and my father gives his all.

For my father, paralysis was a new beginning.

It was an opportunity to rise again, to reawaken the dynamism of life, to look quietly at myself, to fall in love with a world full of creation.

now my father is not locked up

I can move my neck freely, my gastric fistula has been removed, I breathe in my own lungs, I speak slowly in my own quiet voice, and I strive every day to give my paralyzed body more movement.

his work will never end

My father says, "I live in a broken world, and there is a sacred work to do."

thank you

(applause)

What I want to talk about is first principles and the communities that I care about, especially in East Palo Alto, California, where there are so many wonderful people.

It's also an area unnaturally divided by Route 101, which cuts through Silicon Valley.

Also in Palo Alto, across the highway, on the west side, lives the "haves" -- in terms of education, income, water supply, anything you can think of.

The "have-nots" live on the east side of the national highway.

If you don't know East Palo Alto, you may be familiar with a similar divide between East and West.In East Pittsburgh, railroad tracks line the city.In East Detroit, Gross Point Gate is the boundary.East St. Louis,East Oakland,East Philly.

Why are the socially, economically and environmentally marginal areas often located on the east side of the city?

Turns out it's because of the wind

If you look at the Earth from the North Pole, you'll see that it rotates counterclockwise.

Because of this, winds in the northern and southern hemispheres are blowing in the same direction as the earth's rotation, which is eastward.

Think of it like a campfire.

Ten people will be seated, but we need to keep everyone warm.

The question here is who gets a smoky wind in their face? is

The answer is someone without power

We see this campfire dynamic not only in the United States, but in cities all over the world, in East London, on the east side of Paris, in East Jerusalem.

Even down the street from this venue — even in vulnerable East Vancouver.

I'm sure I'm not the only one who noticed

I've been gathering information like an otaku for years

I finally found a group of economic historians in England who modeled the spread of noxious gases during the industrial age.

Their mathematical conclusion was the same as my conclusion as an anthropologist: wind direction and pollution are pushing poorer areas eastward.

The thinking that dominated the industrial age was centered around inequality.

It's a story of haves and have-nots, and it's become part of our culture.

So if I say, "The man on the other side of the tracks," you know exactly what I mean.

It's an expression that derives its name from the downwind direction from which the foul smoke from trains blows, most often to the east.

I'm not trying to say that the east is always poor, or that the poor are always on the east side, but I'm trying to broaden my horizons a little and talk about the disparities that urban design creates.

Now, when we talk about directions from highways, rivers, and railroad tracks, we're always talking about the region on the east side.

Wind direction is obviously a natural phenomenon

The way cities are designed to separate people is not natural.

Given the fact that all Eastern communities in America were created during the segregation era.

We obviously weren't aiming to design for everyone, and that's what caused problems like "redlining."

He even mapped out areas where the government shouldn't lend to financial institutions.

part of a real map

You can see that in each city, the red areas tend to cluster to the east.

Such financial policies have actually created poverty. In areas where there is no access to credit, property tax collections are lower, and the quality of education goes down in proportion to tax revenues, resulting in fewer well-educated workers and, surprisingly, lower incomes.

So that means you don't qualify for a loan.

It's really a vicious circle

Now it's all about financing

Equally bad design has happened in many areas, whether it's deciding whether to build water infrastructure, a fresh food store, or a liquor store, or even deciding who to design high-tech products for and how to invest in them.

All of these harms are a product of our human immaturity.

I don't think it's what we want to go down in history, but it's what we've done to communities in the East over the last 100 years.

But the salvation is that you don't have to stay like this forever

We found ourselves in the East's dilemma because of bad design, but good design can get us out of it.

I think the first principle of good design is actually very simple: start by deciding to design with everyone in mind.

Looking back at the campfire analogy,

Maybe to care for everyone is to sit in the shape of a horseshoe so that nobody's face is covered with smoke.

I should also mention urban redevelopment. The meaning of this image is by no means that you can move into the eastern region and move people away. (Applause)

What I'm trying to say is that if you start with the first principle of thinking about everyone, the simple and straightforward solutions will become more commonplace than you think.

What are some straightforward solutions to bridge the gap between Palo Alto and East Palo Alto in Silicon Valley?

I'd like to start thinking about the more difficult city, East Palo Alto.

It's located in the heart of Silicon Valley, the epicenter of innovation and wealth.

If we're going to solve this problem, we'll start with this town

Now that we can solve the East Palo Alto problem, we can apply that solution to the rest of the East.

If you think about it, this is actually a huge investment opportunity, an opportunity to push for policy change and philanthropy.

But at its core, it's a matter of design principles, a matter of choosing whether or not to make a decision that cares for everyone.

dear ones this is our choice

we have capital

We have technology at our fingertips, and it's constantly evolving.

Today, this building and the TED community are home to some of the world's greatest entrepreneurs.

But the fundamental question is, "What is the purpose of designing a city?

To increase the haves and have-nots? To widen the gap?

Or do we choose to reduce the gap and live together?"

Because in the real world, we're no longer in the industrial age.

We're not living in an era of racial segregation.

Let's tell the truth, there is no "the other side of the tracks"

I'm saying that we should design economic institutions and regions with this fact in mind.

thank you

(applause)

Technology has brought us so much, from the moon landing to the internet to the sequencing of the human genome.

But it also creeps into many of our deepest fears. About 30 years ago, the cultural critic Neil Postman put this aptly in his book "Amusing Ourselves to Death."

In his book, he compared the dystopian (anti-utopian) ideas of George Orwell and Aldous Huxley, writing:

"Orwell feared a culture that would hold us captive.

Huxley feared a culture in which we indulge in trivialities.

Orwell feared the truth would be hidden from us, Huxley feared we would drown in a sea of ​​indifference."

It's basically either being watched by "Big Brother" or watching "Big Brother."

(Laughter) But it doesn't have to be.

We're not just passive consumers of data and technology.

We shape the role data and technology play in our lives and the way we make sense of them, but to do that we must pay as much attention to how we think as how we code.

In order to not only count things, but to make sense of them, we have to ask esoteric questions.

We are constantly asked how much data there is in the world, but when it comes to big data and the complexity of deciphering it, quantity is not everything.

The speed at which the data moves matters, and there are many types of data -- images, text, video, audio, just to name a few.

What these different types of data have in common is that they're human-made and require context.

Now, there's a group of data scientists from the University of Illinois at Chicago, called the Health Media Collaborative, who worked with the Centers for Disease Control to try to better understand how people talk about quitting smoking, how they talk about e-cigarettes, and how they can work together to help them quit.

Interestingly, to understand how people talk about smoking, you first have to understand what is meant by the word "smoking."

There are four main categories on Twitter: 1) "smoking" cigarettes 2) "inhaling" marijuana 3) "smoking" ribs 4) "smoky hot" hot chicks.

(Laughter) And then we have to think about how people talk about e-cigarettes.

There are so many different examples of this, and as you can see from the slide, this is a complex question.

And this reminds us that language was created by people, that humans are messy and complex, that we use metaphors and slang and jargon, and that humans do this 24 hours a day in many languages, and as soon as they understand it, they change the language itself.

So, this television ad from the Centers for Disease Control showing a woman with a hole in her throat is very graphic and unsavory, but did this ad actually encourage people to quit smoking?

The Health Media Collaborative acknowledges the limitations of the data, but their conclusion is that these advertisements, which you may have seen, have led people to thought processes in which their future behavior may be influenced.

What I admire and appreciate about this project is that, apart from the fact that it's based on real human needs, and the fact that it's based on real human needs and all that, it's a great example of courage to face a sea of ​​indifference head on.

But big data isn't the only thing that's hard to understand, because think about it, we humans have a rich history of screwing up data, both big and small.

You may remember many years ago that former President Ronald Reagan was heavily criticized for saying, "Facts are absurd."

That was a mistake, but to be fair

He meant to quote John Adams, in defense of a British soldier at the Boston Massacre Trial, that "facts are solid."

But I think Reagan's fallacy, incidentally, has a point, because the facts are solid, but they're also absurd at times.

I'd like to share a personal story about why this is important to me.

let me take a breather

My son Isaac was diagnosed with autism when he was two years old. He was a smiling, funny, loving, kind boy, but his developmental level was at the level of a nine-month-old baby because the metrics for evaluating his development focused on things like the number of words he could speak, which was nil at the time, and the gestures he made to communicate and make eye contact.

This diagnosis was factually correct, but it didn't tell the whole story.

About a year and a half later, when Isaac was about to turn four, I caught him one day in front of his computer doing a Google image search for a woman, spelled "w-i-m-e-n."

Like any overbearing parent, I clicked the "back to previous page" button to see what else I was searching for.

The other searches were "men," "schools," "buses," and "computers," in that order.

I was stunned. I didn't know that Isaac knew how to spell, much less that he could read. So I asked my son, "How did you do that?"

Isaac looked at me seriously and said, "I just typed into the box."

He was learning how to communicate on his own, and we were looking at the wrong parts, and this is what happens when assessments and analyzes overestimate one metric -- in this case, verbal communication -- and underestimate others, like creative problem-solving ability.

Communicating with others is difficult for Isaac, so he found another way to find out what he needed.

When you think about it, it makes sense. Composing a question is a really complicated process, but Isaac just puts a word into the search box and finds the answer on his own.

This small moment made a huge impact on me and my family, because it changed the way I saw what was going on with Isaac.

Facts are stupid

And facts are easily misused, either intentionally or unintentionally.

I have a scientist friend, Emily Willingham, who recently wrote an article in Forbes called "10 Weirdest Things That Have Been Associated With Autism."

this is a nice list

Everything is blamed on the internet Hey?

Of course my mother is also in it.

There's more, actually, within this "mother" category.

It's an interesting list with lots of different elements, isn't it?

My favorite is "When I was pregnant, I lived by the highway."

The last one is also interesting. The term "refrigerator mother" came from the original hypothesis about the cause of autism, and meant someone who was cold and unloving.

At this point, you might be thinking, "Okay, once you measure the data, you can make any sense of it."

Yes, that is absolutely true, but the difficulty is that we are given the opportunity to create that meaning for ourselves, and we create the meaning, not the data itself.

As business people, as consumers, as patients, as citizens, we all have a responsibility to spend more time exercising our ability to think critically.

Why you ask?

Because, as we've heard over and over again, we can now process exabytes of data at breakneck speeds in recorded history, and we can make bad decisions faster, more efficiently, and with more impact than ever before.

Isn't it amazing?

So what we should do is spend a little more time on the humanities, sociology, social sciences -- rhetoric, philosophy, ethics, etc., because they give big data an important context and enable us to think more critically.

After all, if you can find a problem that exists in a particular argument, it doesn't matter if it's expressed in words or numbers.

In other words, it's self-discovering confirmation biases, false correlations, and being able to spot emotionally explicit ways 30 meters ahead, because just because something happens after an event doesn't necessarily mean it's related. To take a little nitpick, the Romans put it this way: "post hoc ergo propter hoc."

So it calls into question disciplines like demography.

Why you ask? Because demographics are based on assumptions based on gender, age and where we live, not what we actually think and do.

And then, once we have the data, we have to treat it with proper privacy and consumer intent, and we have to be clear about our hypotheses, the methodology we use, and the certainty of our results.