



# THE FUTURES OF THE FOURTH INDUSTRIAL REVOLUTION: Implications for higher education in Malaysia

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School, USIM, and the University of the Sunshine  
Coast

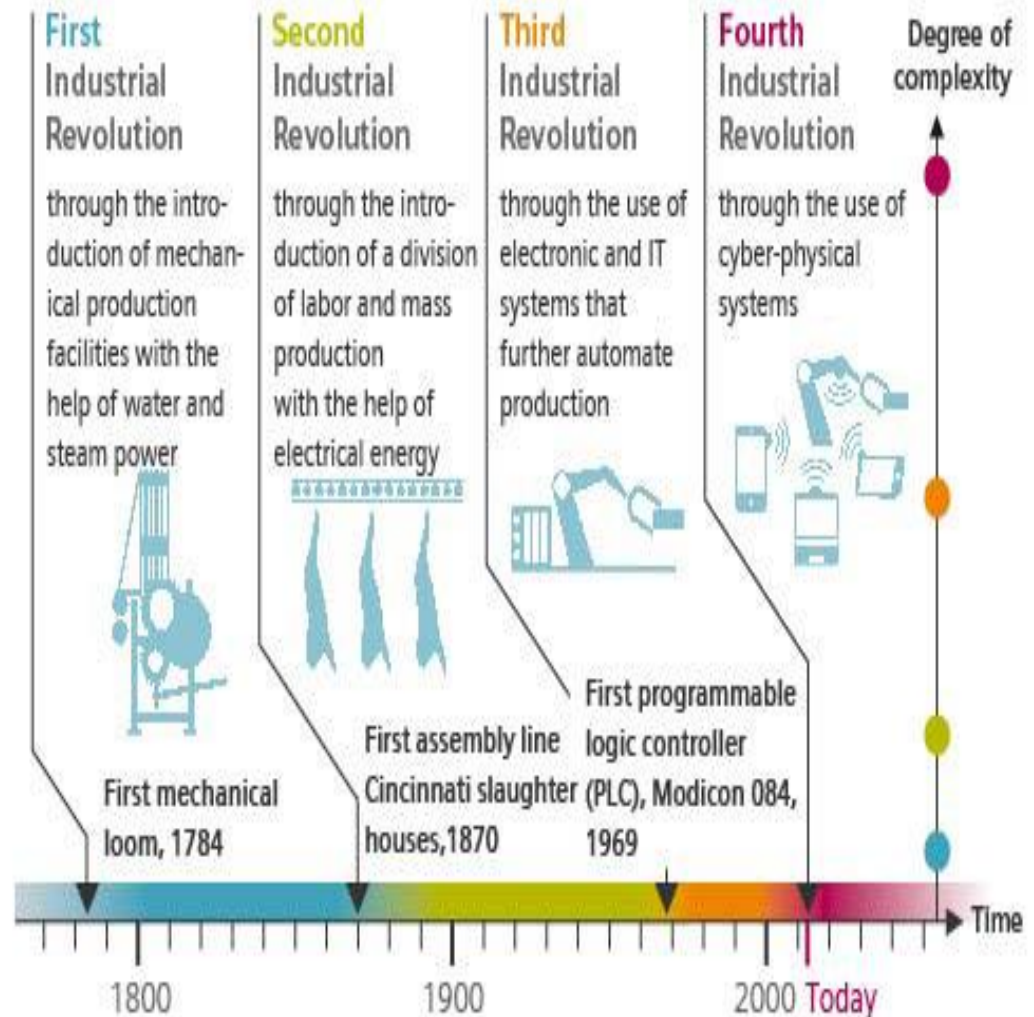
METAFUTURE.ORG

# Why futures thinking first?

- Futures thinking before strategy and policymaking
- Policymaking and strategy tends to be short term, obscure language, reinforcing what we already know
- Fails since “culture eat strategy and policy for breakfast”

# Fourth Industrial Revolution

## From Industry 1.0 to Industry 4.0



**BRACE YOURSELF**

**FOURTH INDUSTRIAL REVOLUTION IS  
COMING**

memegenerator.net



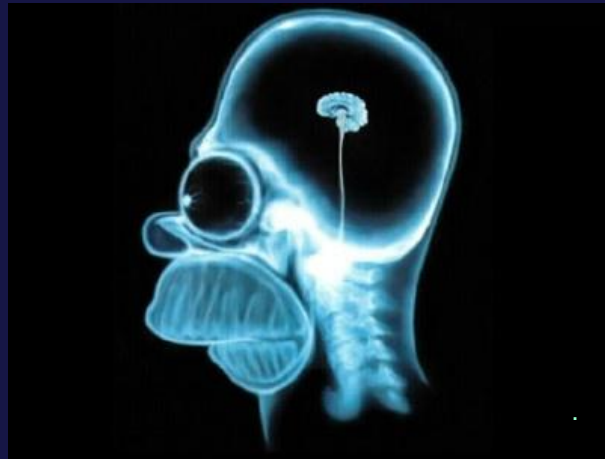
# Structure

1. How we need to learn to prepare and create the fourth industrial revolution
2. Why we don't learn about the future
3. Case studies of what works ie the practice of disruption
4. The grand waves of change of the fourth industrial revolution
5. Implications for higher education in Malaysia
6. Malaysian Higher education scenarios in response to the fourth industrial revolution
7. The new narrative

# Zero Loop – overwhelmed

## We don't learn – closed mind

More information often leads to doubling  
down on our viewpoint



# Single Loop – take away

- Incremental
- Problem solving
- Future is stable
- *Just do it!*



But what to do as change is exponential?

# Being Kodaked

- 1988 Kodak had 145,000 employees

13 employees, 30 million customers

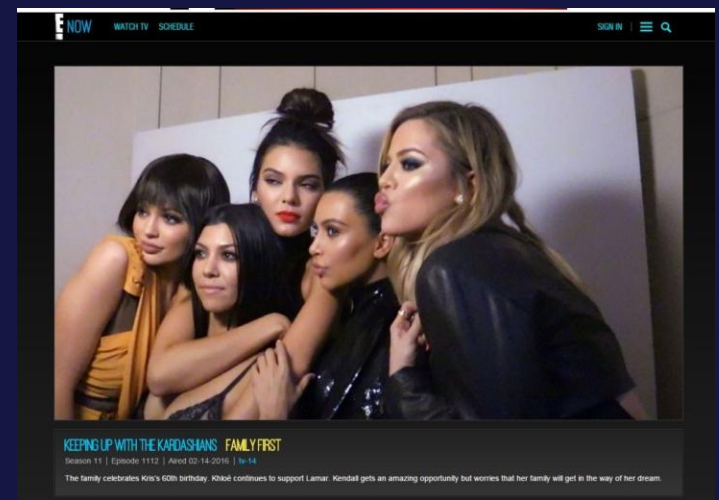
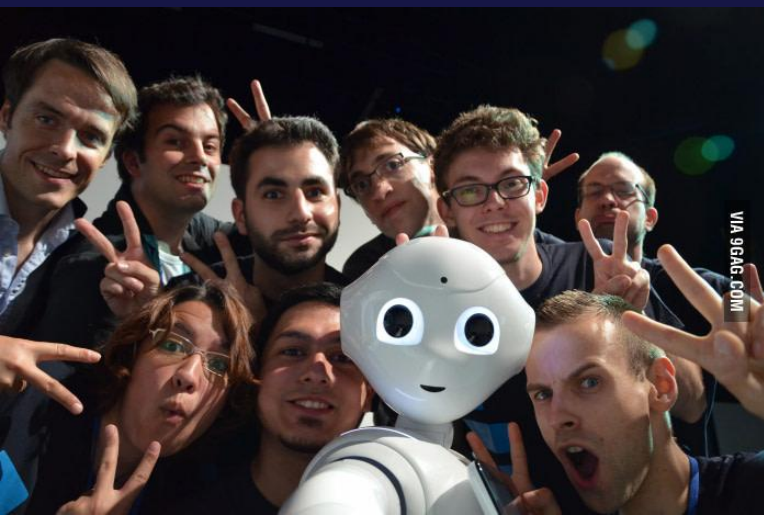
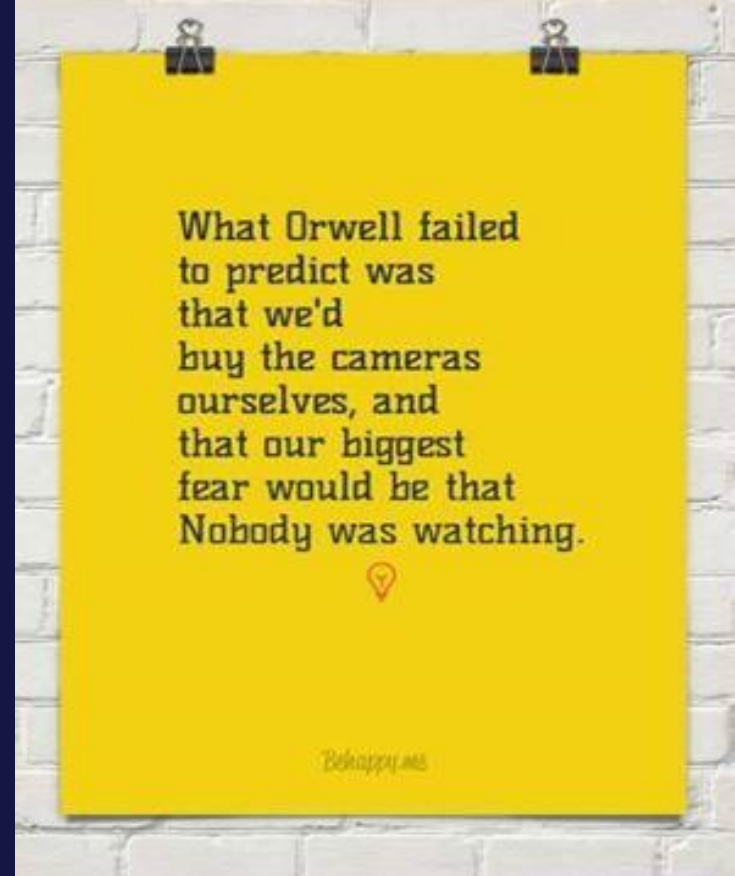


55 employees, 450 million customers, bought for 19\$ billion





**BIG BROTHER  
IS WATCHING  
YOU**



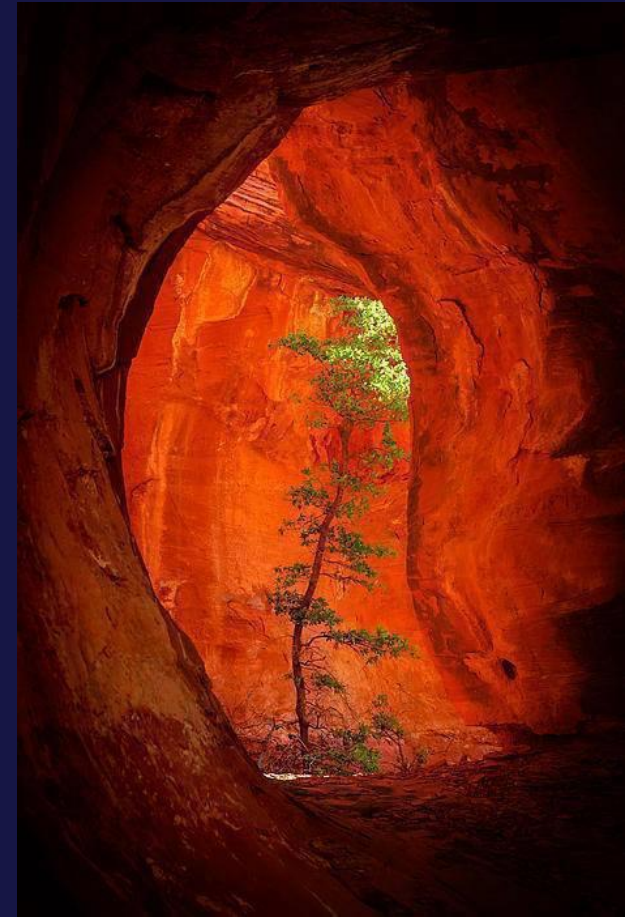


Double Loop – outside  
of paradigm learning –

Challenging core  
assumptions

The new idea,  
process, product

*What don't I know?*



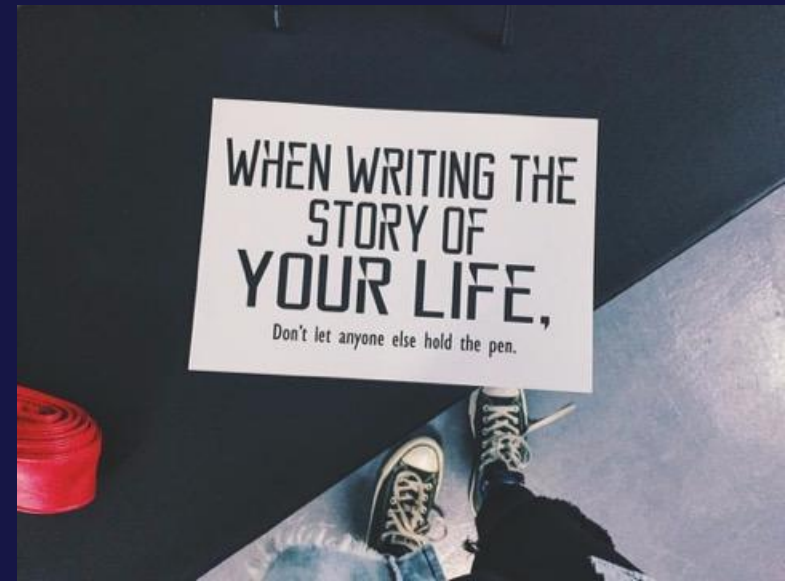


Narrative learning,  
finding and creating  
your story

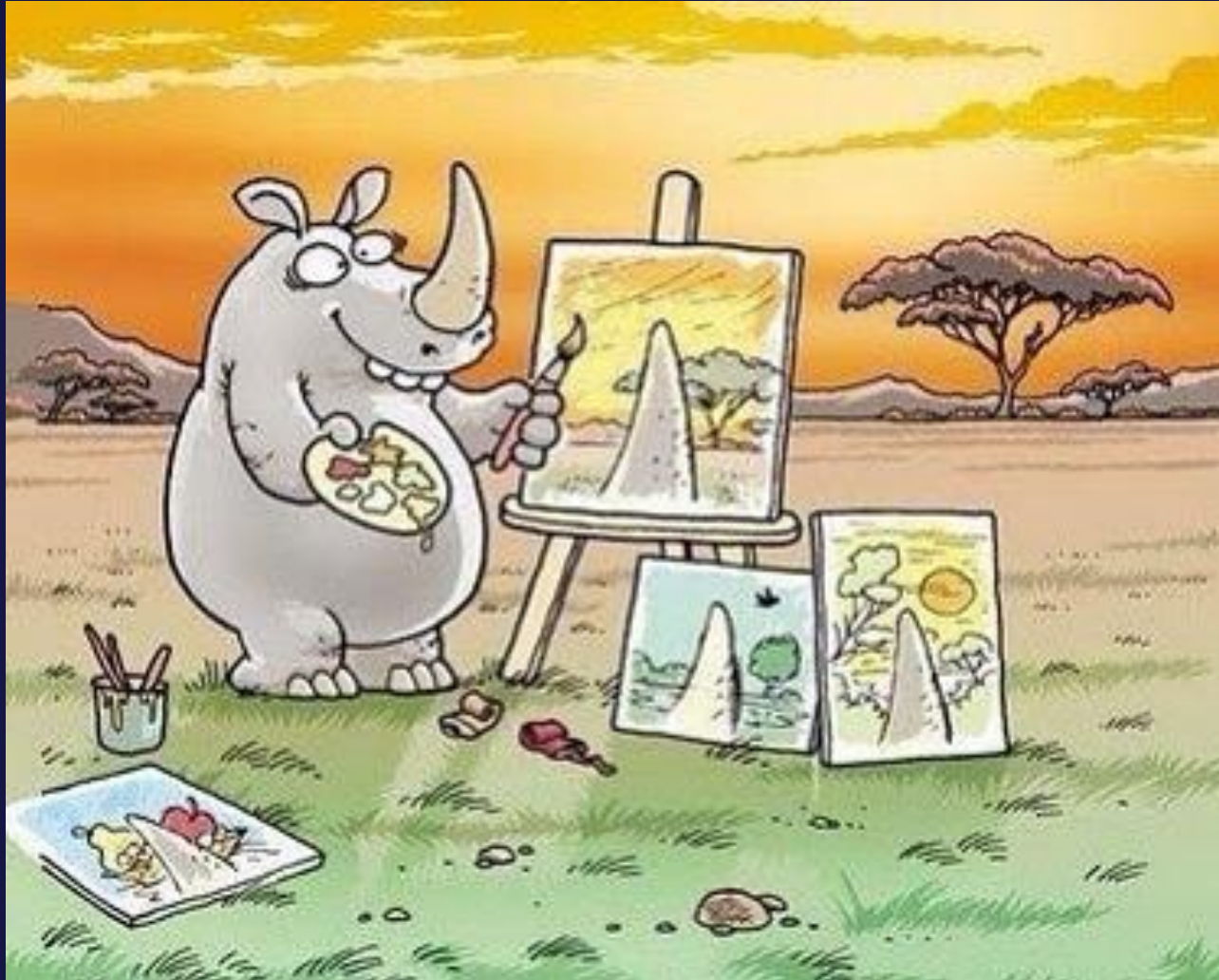


What are the  
narratives I use to  
make sense of the  
changing world?

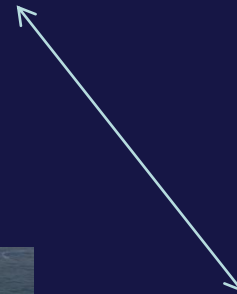
Not just consumption  
but the production of  
knowledge

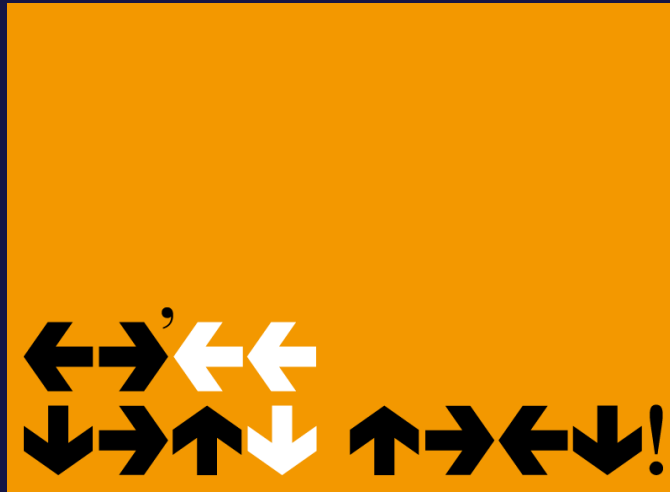


# The critical - reflective practitioner



# From the Queen Elizabeth - difficult to turn ship - to patrol boats





# EPISTEMIC SHIFTS CHANGING IMAGES OF THE FUTURE



# Changing images of power/health

113,597 DOCTORS FROM COAST TO COAST WERE ASKED!



Family doctors, surgeons, diagnosticians, nose and throat specialists... doctors in every branch of medicine were asked: "What cigarette do you smoke, Doctor?"

Three nationally known independent research organizations did the asking.

The answers came in by the thousands. Actual statements from doctors themselves. Figures were checked and re-checked! The results? Camels... convincingly!

According to this recent Nationwide survey:

## MORE DOCTORS SMOKE CAMELS THAN ANY OTHER CIGARETTE!

This is no casual claim. It's an actual fact. Based on the statements of doctors themselves to three nationally known independent research organizations.

**T**HE question was very simple. One that you...any smoker... might ask a doctor: "What cigarette do you smoke, Doctor?"  
After all, doctors are human too. Like you, they smoke for pleasure. Their taste, like yours, enjoys the pleasing flavor of costlier tobaccos. Their throats too appreciate a cool mildness.

And more doctors named Camels than any other cigarette!

If you are a Camel smoker, this preference for Camels among physicians and surgeons will not surprise you. But if you are not now smoking Camels, by all means try them. Compare them critically in your "T-Zone" (see right).

CAMEL-COSTLIER TOBACCOS

### THE "T-ZONE" TEST WILL TELL YOU

The "T-Zone" is the taste and throat area... your own knowing ground for any cigarette. Only your taste and throat can decide which cigarette tastes best to you... how it affects your throat. On the basis of the experience of many, many millions of smokers, we believe Camels will win your "T-Zone" to a "T."



takes about double the time it took to smoke it off the end of their lives.

People who sue tobacco companies find themselves the focus of wider public discourses about the intertwined themes

Trust me, I'm a tobacco industry stooge:  
a 1956 US magazine ad sends a reassuring message to Camel smokers.

# Changing images, changing demographics



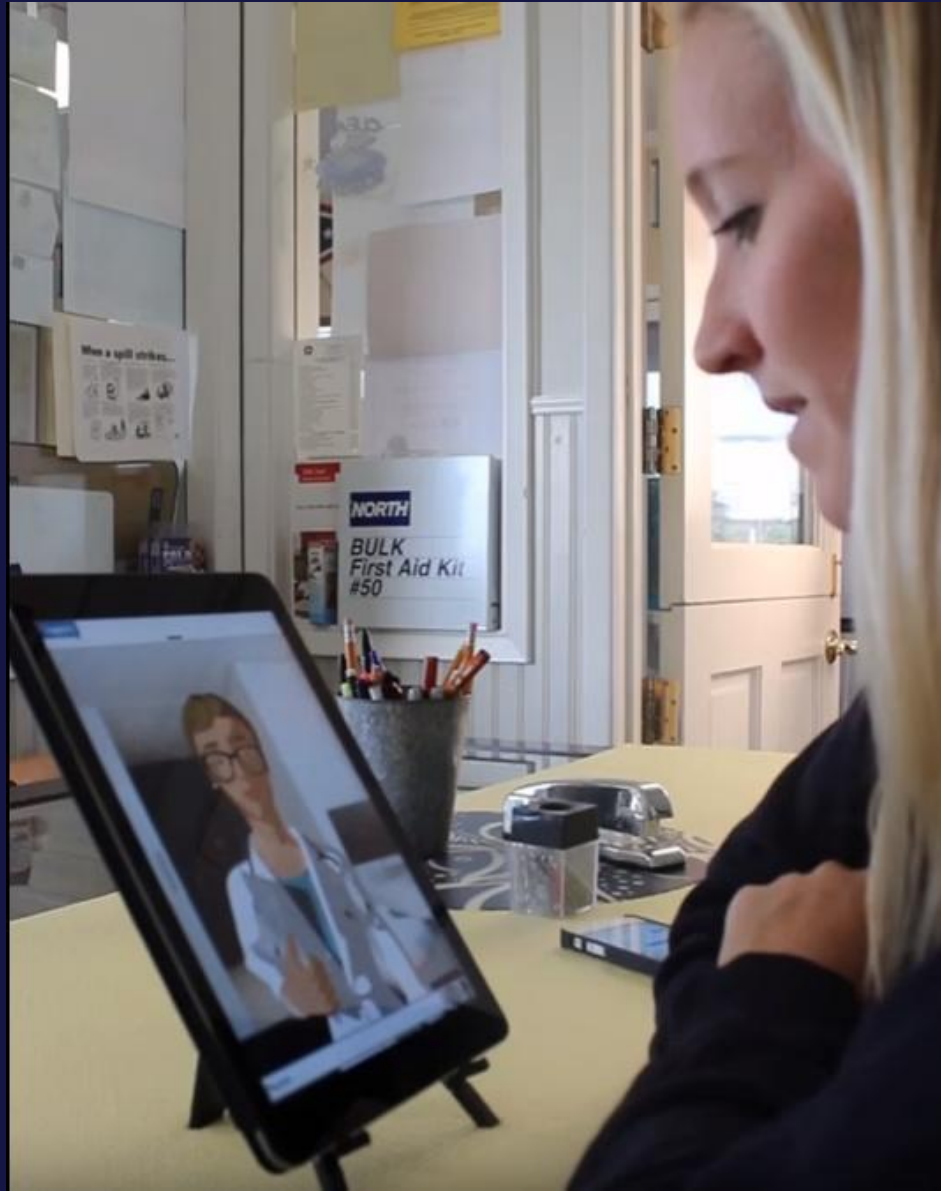
Thirty-four percent of Victoria GPs have trained in meditation and seventy-seven believe it should be federally funded.

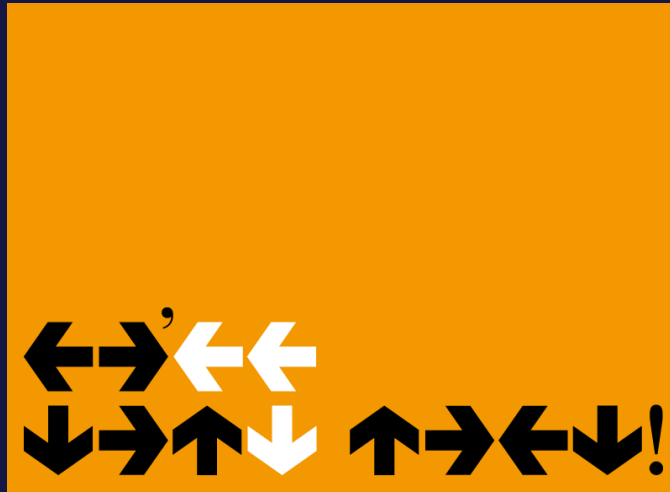
Eighty percent of Australian GPs have referred patients to complementary medicine.

- 87% less heart disease, 55.4% less tumours, 50.2% less hospitalization, 30.6% less mental disorders
- 30.4% less infectious diseases
- 42% Less Hospital Resource Use

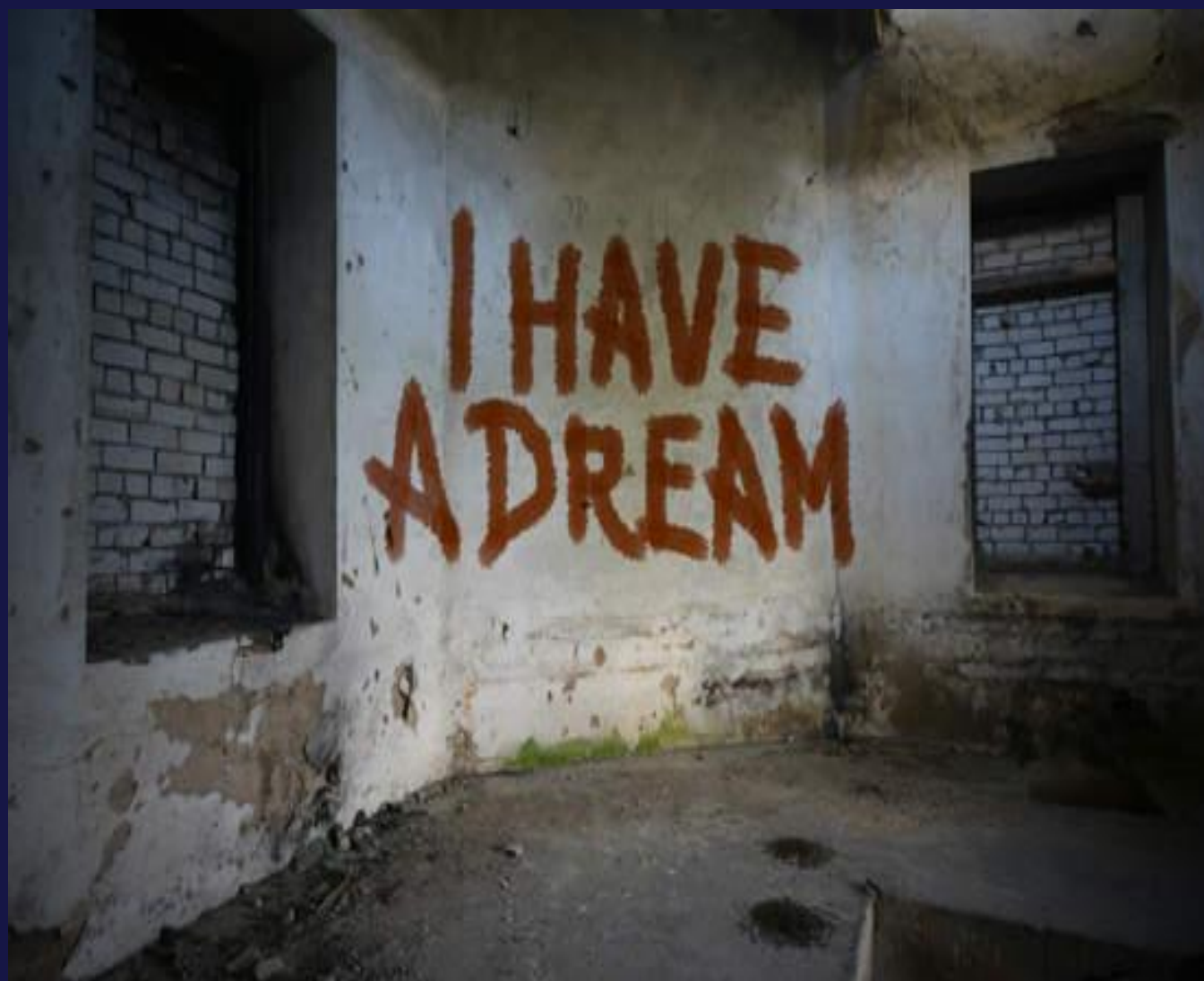


# Using emotionally intelligent Avatars for health – [https://youtu.be/o9eG\\_Gmm1LE](https://youtu.be/o9eG_Gmm1LE)





THE DESIRED VISION  
IMAGINING THE DREAM





© Rex

*One day I  
will be the  
first black  
president of  
South Africa*

Nelson  
Mandela,  
1952

Nelson Mandela: From Prisoner to  
President . Apartheid Museum,  
Johannesburg, South Africa, 2008, p.44.

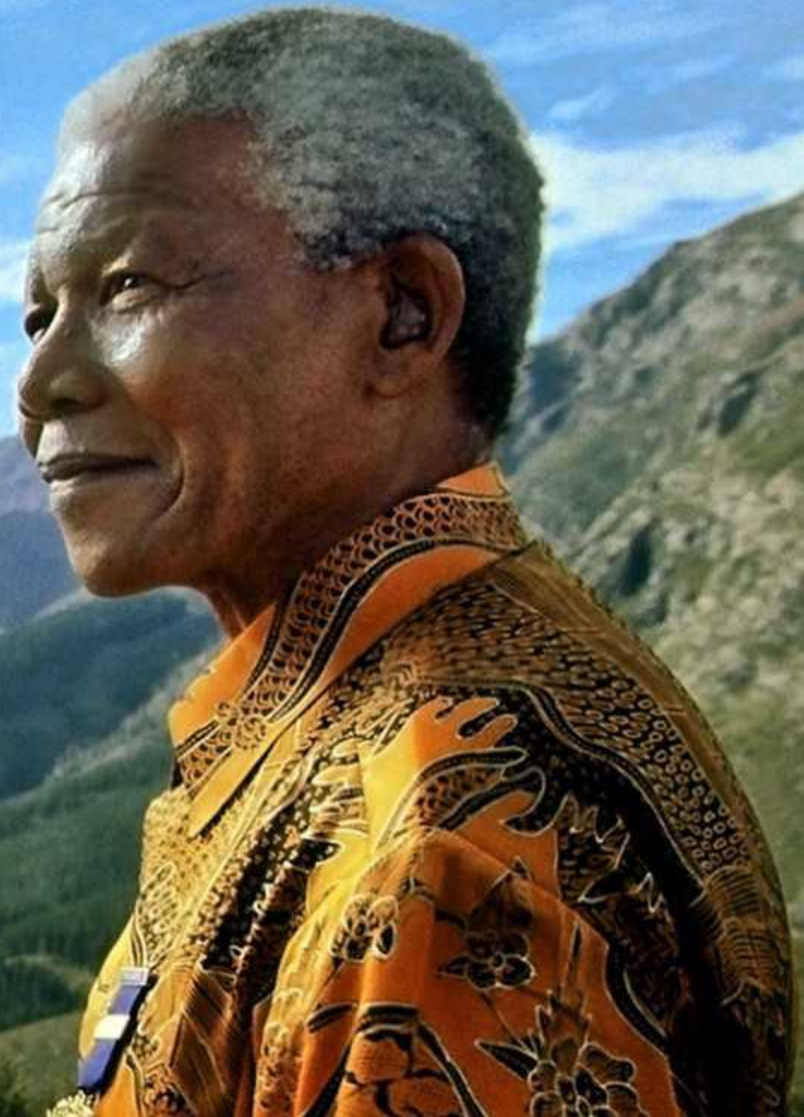




Nelson Mandela, President of South Africa, 1994-1999

"IT ALWAYS SEEMS  
IMPOSSIBLE UNTIL  
ITS DONE."

~NELSON MANDELA





# Three Horizons

1

CURRENT PROJECTS –  
“We are busy”

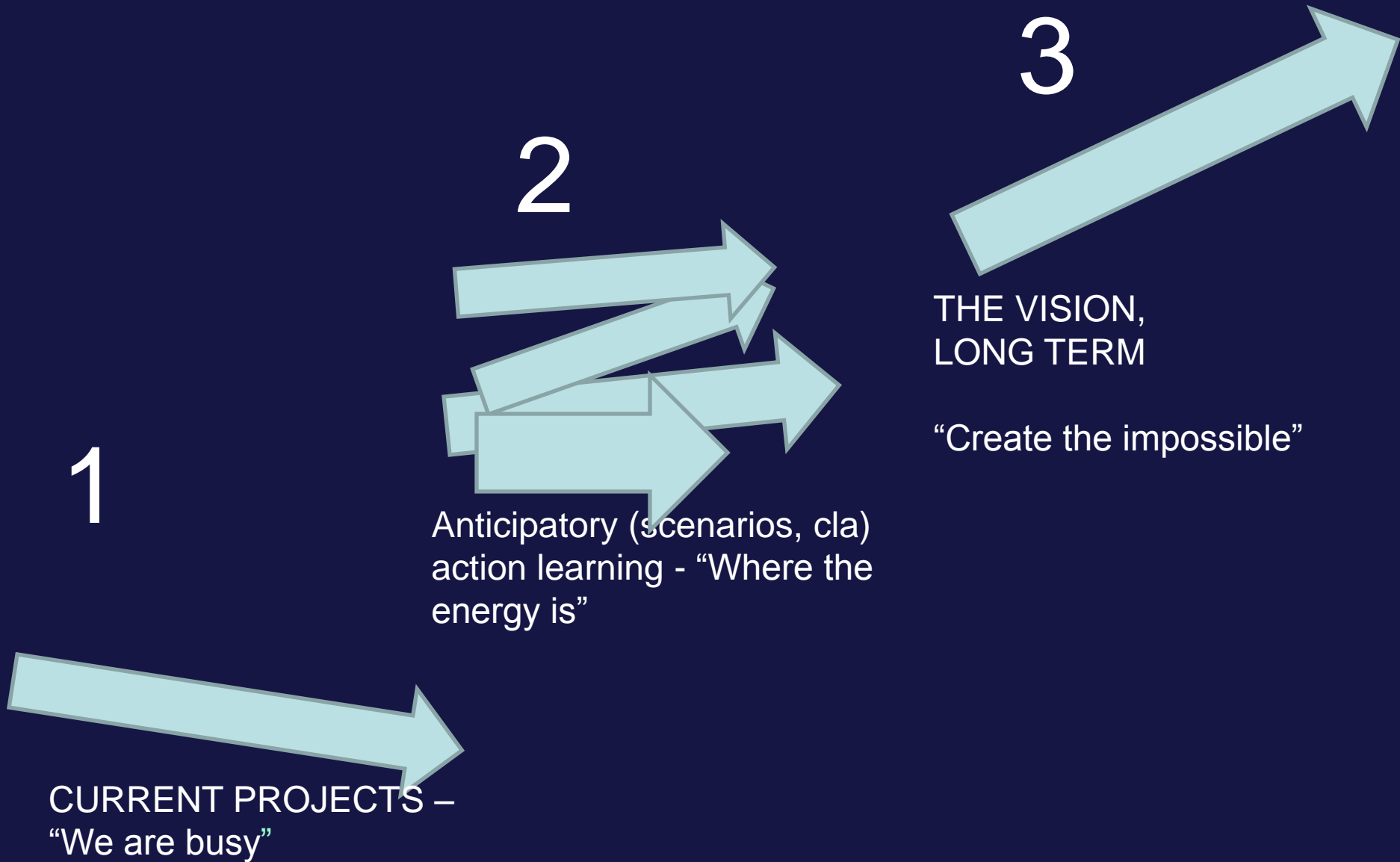
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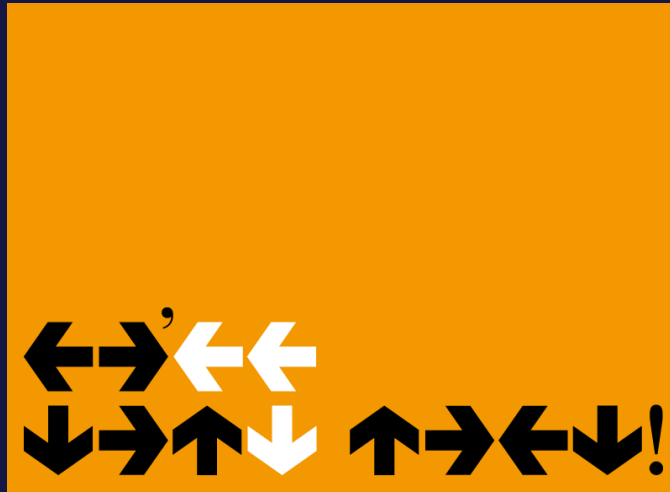
Anticipatory (scenarios, climate action learning - “Where the energy is”

3

THE VISION,  
LONG TERM

“Create the impossible”





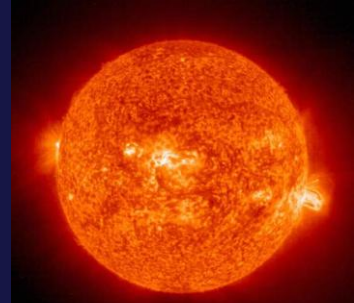
WHY DON'T WE?  
FUTURES FALLACIES

# 1. We are stupid

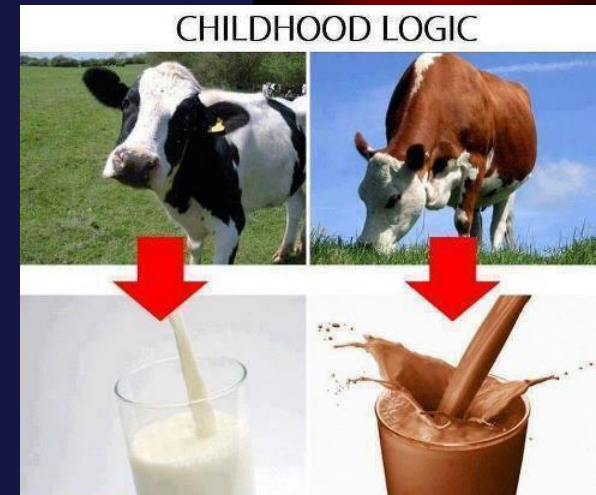
30% of American Republicans believe that Aladdin's homeland, Agrabah, should be bombed



25% believe that the sun goes around the Earth (33% Europeans)



6% believe chocolate milk comes from cows that are brown



## 2. Piecemeal strategies instead of systemic change - Dr. Ivana Milojevic



Slavonski Brod, Serbia/Bosnia/Croatia floods, May 2014

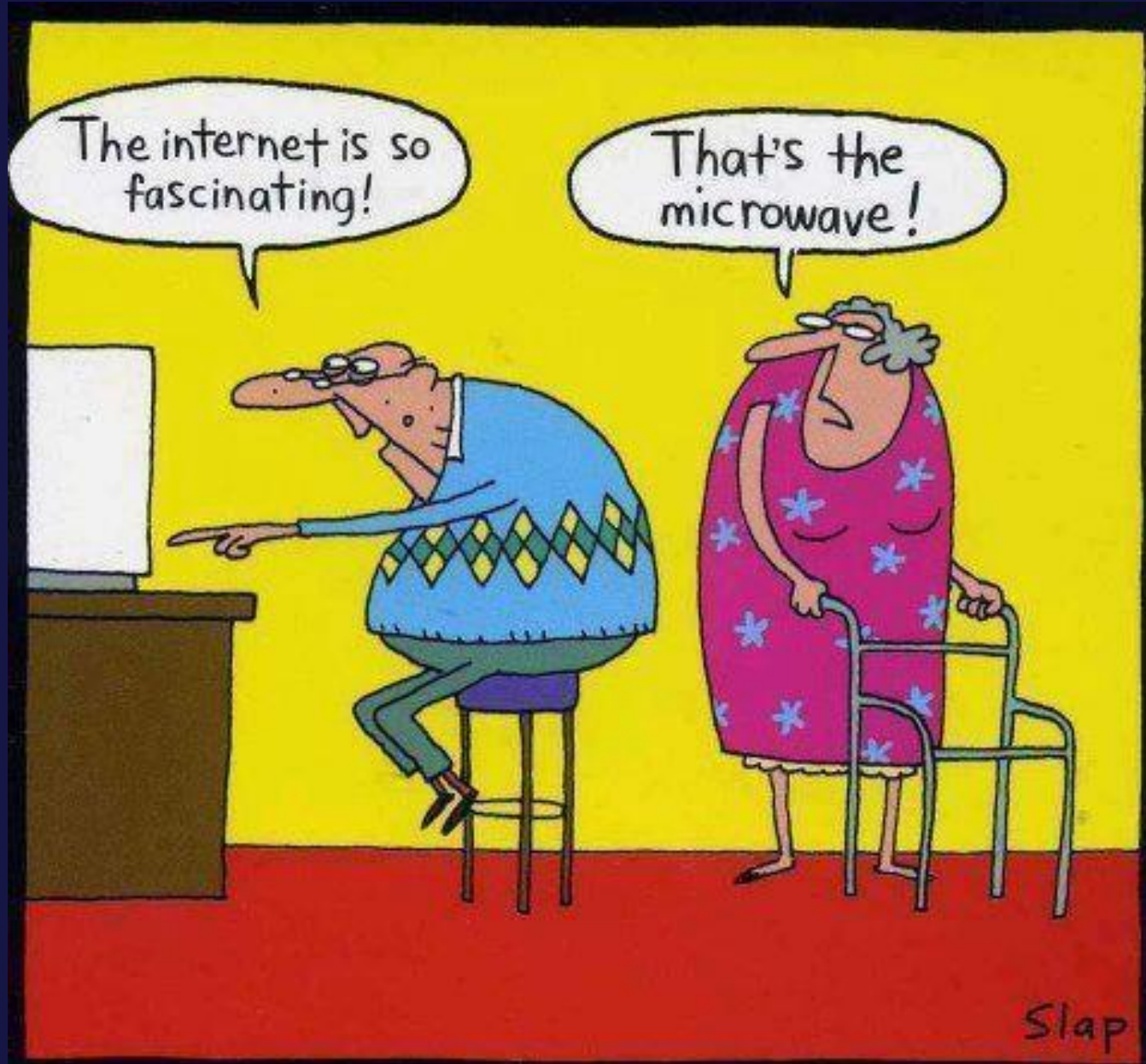
3. We misinterpret the data -  
*can't see the forest for the trees*

We can't see the fourth because we live in the  
second industrial revolution





## 4. We wait until it is too late?

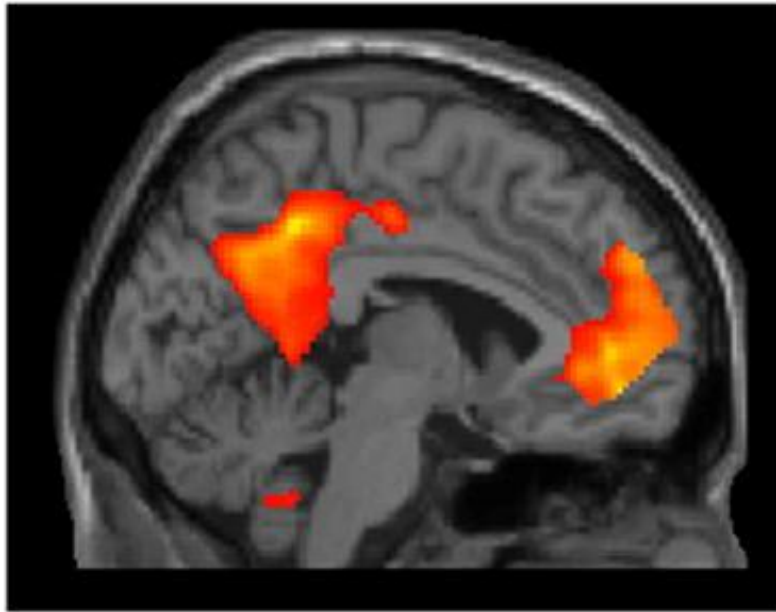




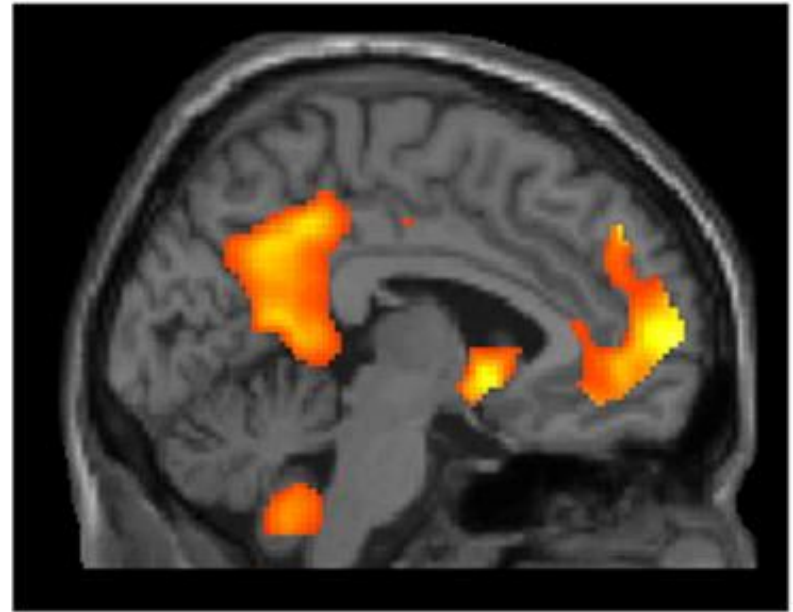


# 5. Our brains are wired for the past

## PAST AND FUTURE EVENT ELABORATION



PAST EVENT > CONTROL

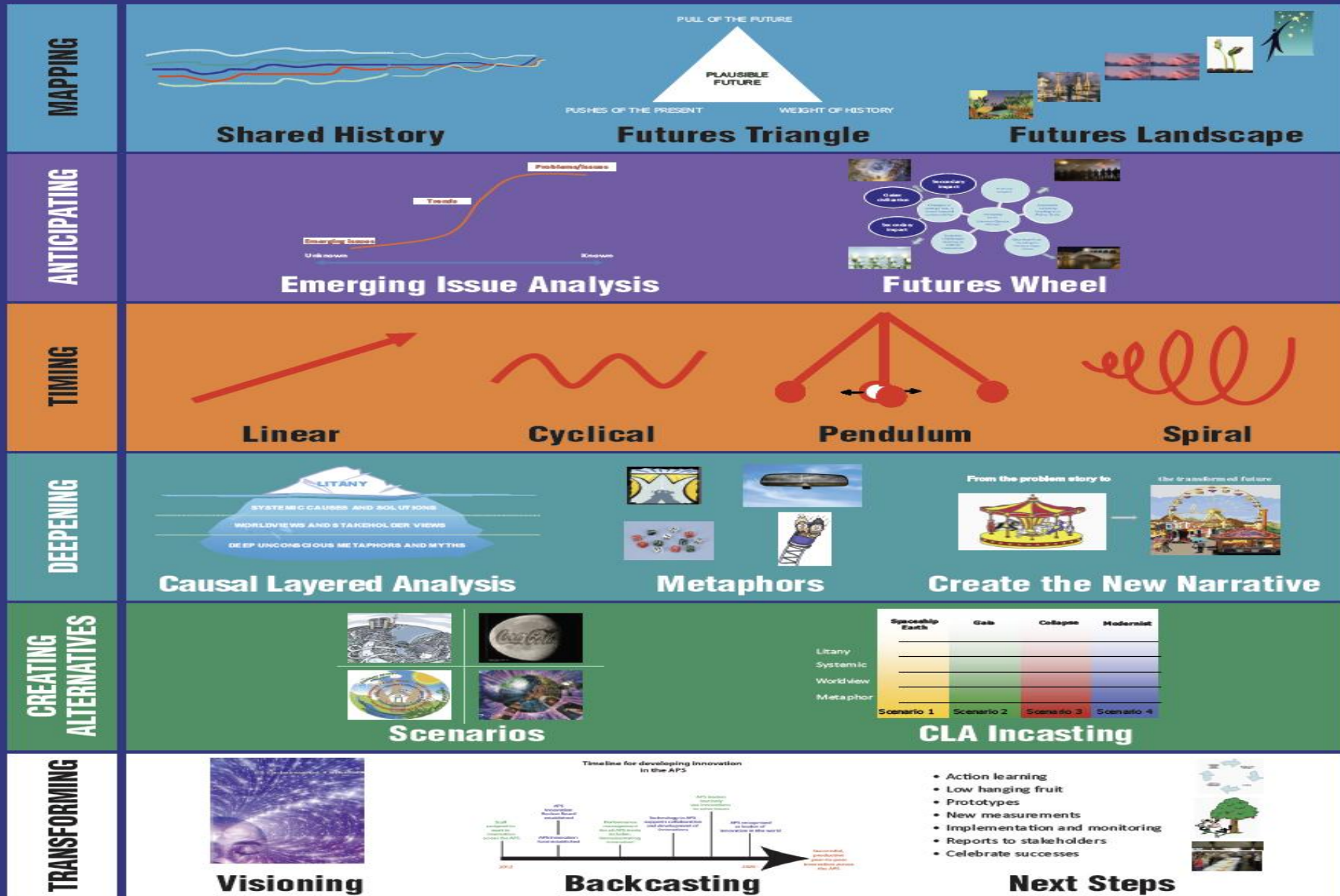


FUTURE EVENT > CONTROL

Donna Rose Addis, Alana T. Wong, and Daniel Schacter,  
Remembering the past and imagining the future, *Neuropsychologia*,  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1894691/>

# FUTURES STUDIES

Sohail Inayatullah and Ivana Milojević





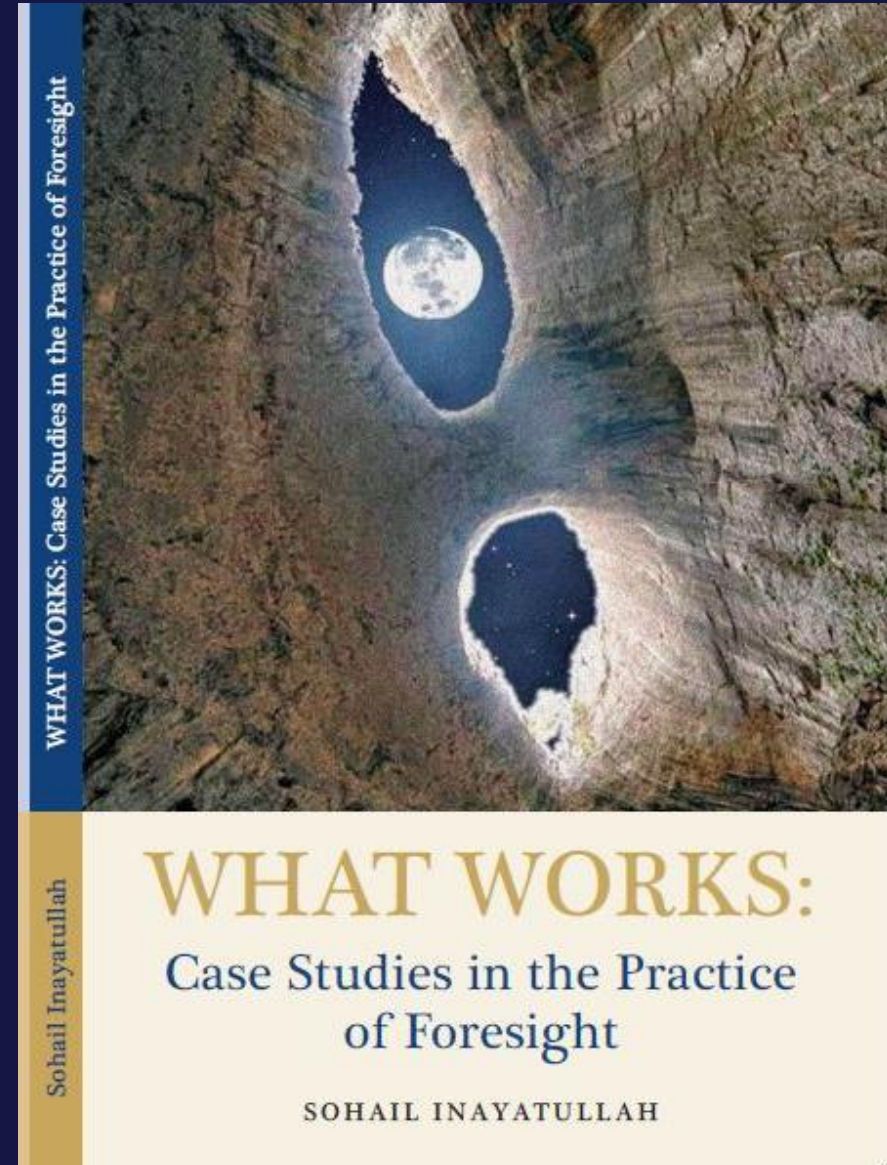


# CASE STUDIES

## DISRUPTION IN PRACTICE – LIVING THE FOURTH INDUSTRIAL REVOLUTION



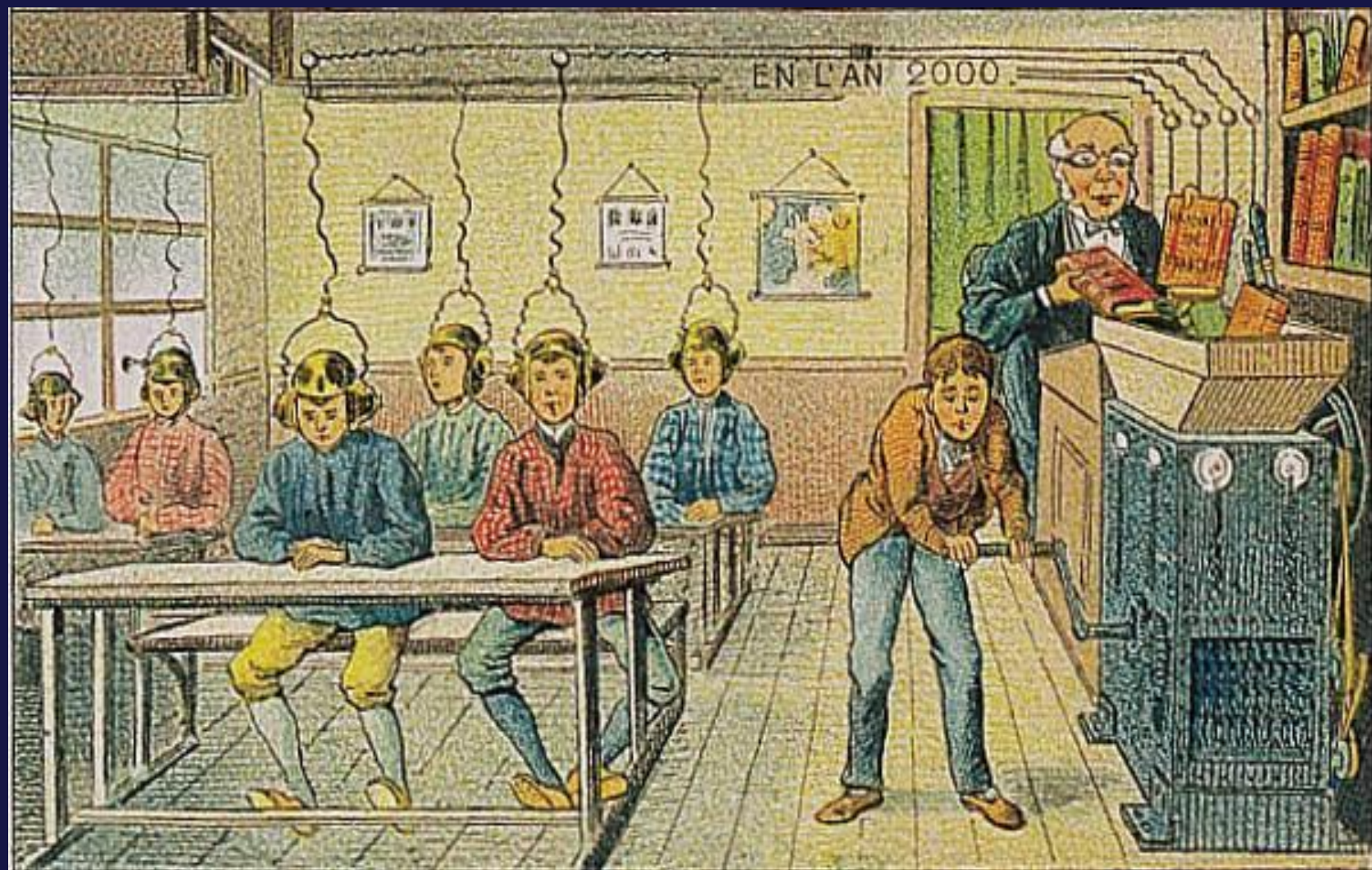
1. Challenge the default/used future
2. Scan the environment for emerging issues
3. Create alternative futures
4. Link story to strategy



# 1. Old behavior dies hard – the used future

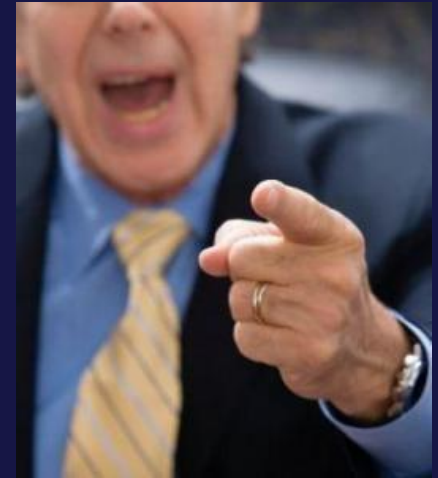






# Challenge the “factory”

- Creating digital pedagogies with students as stakeholders instead only principal “in charge”
- Redesign spaces, and
- We are all learners – an ecology of insight and foresight





# Technical response or adaptive challenge



Drive around  
aimlessly –  
symbolic  
security








Predict hot spots and use  
monitoring plus  
education and community  
engagement –

Create an IOT



# Hierarchy to capability based

Year of Service	Rank	Shoulder insignia
2 Years	Asst. Superintendent of Police	
4 Years	Superintendent of Police	
14 Years	Dy. Inspector General of Police	
18 Years	Inspector General of Police	
30 Years	Director General of Police	





# Thin blue line





[Blindly] following ancient customs and traditions does not mean that the dead are alive, but that the living are dead.

Ibn Khaldun



An example of a used future in your university or the Ministry (or someone else's university or Ministry)

- A practice that continues even though it is no longer linked to the broader vision or strategy or the changing world.

## 2. SCAN THE FUTURE: MAKE THE CHANGE

For a better start in life  
start **COLA** earlier!



**How soon is too soon?**

Not soon enough. Laboratory tests over the last few years have proven that babies who start drinking soda during that early formative period have a much higher chance of gaining acceptance and "fitting in" during those awkward pre-teen and teen years. So, do yourself a favor. Do your child a favor. Start them on a strict regimen of sodas and other sugary carbonated beverages right now, for a lifetime of guaranteed happiness.

**The Soda Pop Board of America**  
1515 W. Hart Ave. - Chicago, ILL.

- Promotes Active Lifestyle!
- Builds Personality!
- Gives baby essential sugars!

Are colas the new tobacco? Become the  
world's largest wellness company by 2035  
Personalize, Predict, prevent, and  
participate



PepsiCo's CEO was right. Now  
what?



<http://fortune.com/2016/11/22/pepsi-co-acquires-probiotic-kevita/>

## Exclusive: PepsiCo to Acquire Probiotic Drinks Maker KeVita

by John Kell

@johnnerkell

NOVEMBER 22, 2016, 7:00 AM EST



**Years ago Indra Nooyi made an audacious strategy shift beyond unhealthy snacks and drinks. She was prescient—as well as disciplined and tough—but the challenges are still daunting.**

# ENERGY AND THE FIR

- EACH HOUSEHOLD A PRODUCER OF SOLAR ENERGY
- CREATE COMMUNITY ENERGY COOPERATIVES
- USE AI-PLATFORM SHARING
- UBER OF ENERGY



# TNB

## OPPORTUNITIES/ ISSUES

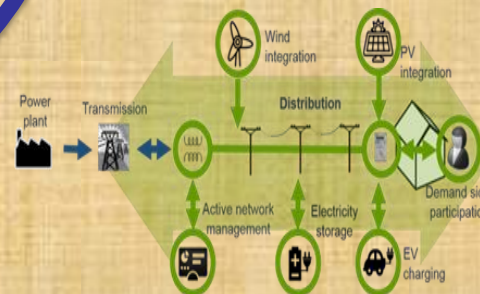
### Opportunities

- Un-regulated Income
- Acquire Competitors
- Lifestyle Solutions Providers

### Issues

- Flat & Declining Demand
- Acquired by Competition
- Asset Rationalisation – Stranded Assets

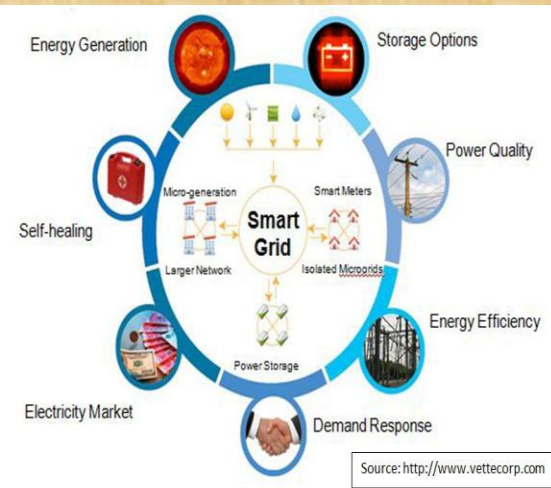
## TRENDS



## EMERGING ISSUES

Time

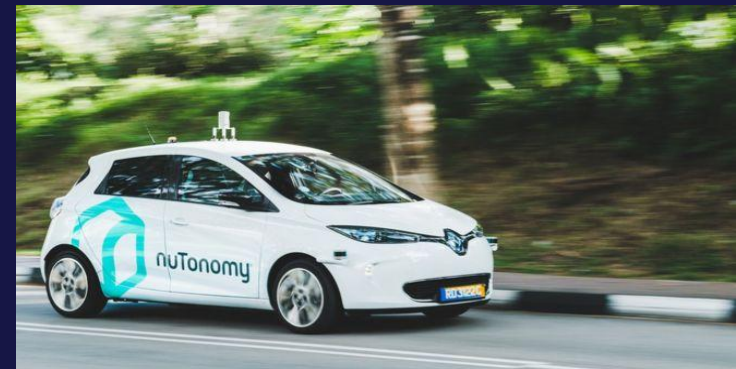
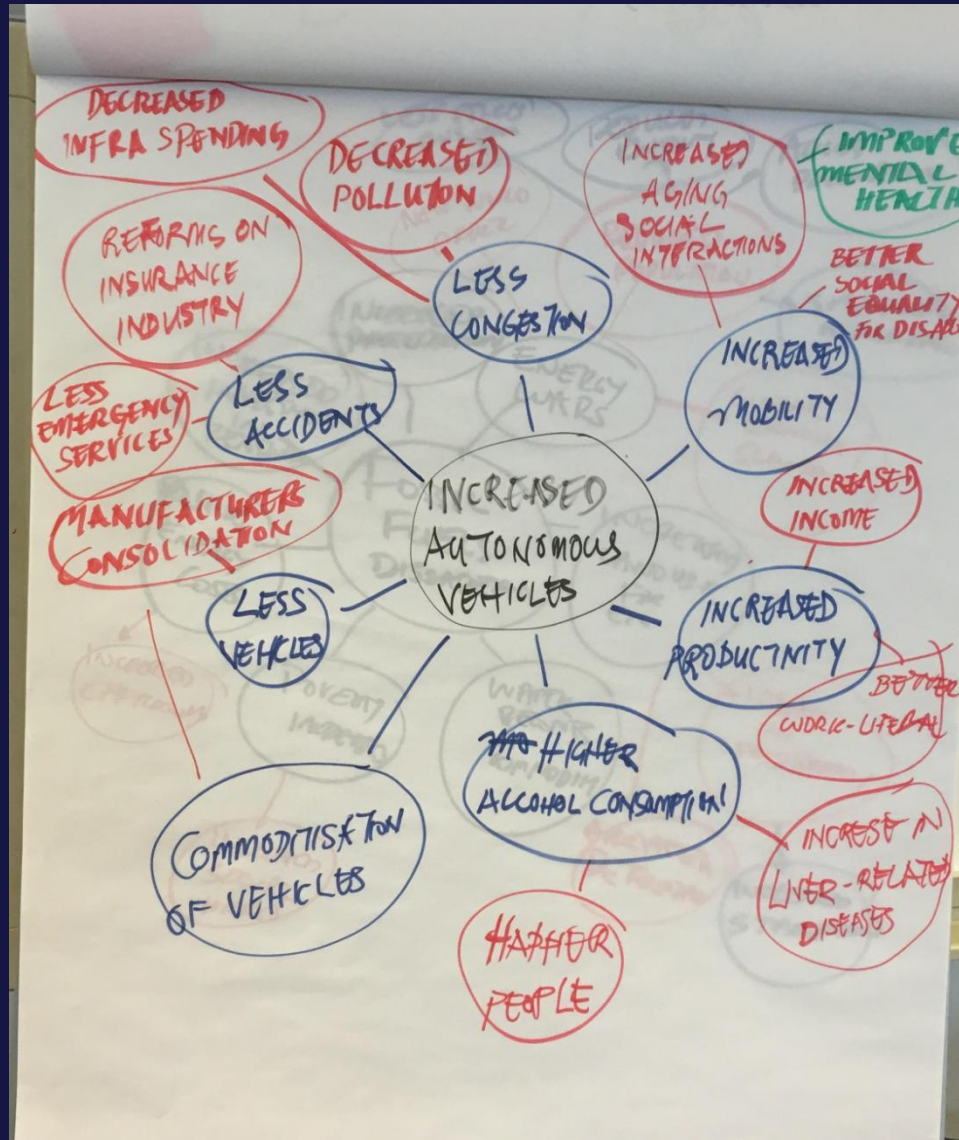
- Internet of Things
- Battery Storage
- Predictive Analysis
- Affordable renewables



- Personalised Power Options
- Photo Voltaic
- Smart Bricks
- Networks
- Unlimited Battery Storage
- UBER Energy



# Cast away to Casting networks – driverless cars to 3d printed avionics





# Insurance to Bio-informatics



Self-driving cars could cost America's professional drivers up to 25,000 jobs a month, Goldman Sachs says

Anita Balakrishnan | @MsABalakrishnan  
Monday, 22 May 2017 | 2:45 PM ET

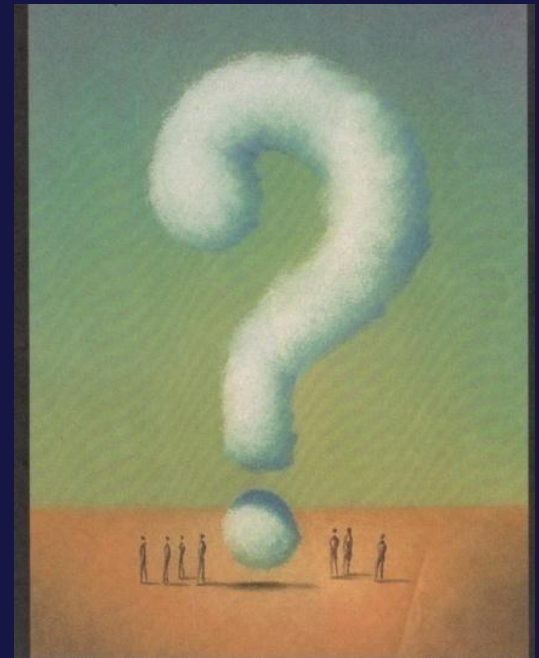
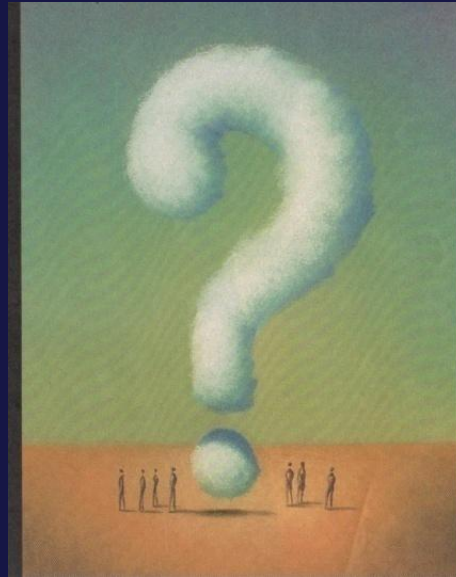
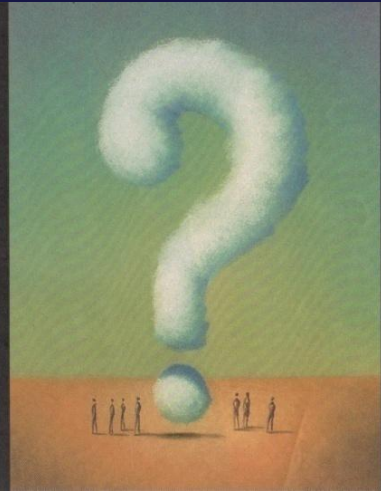
CNBC



Alexandria Sage | Reuters



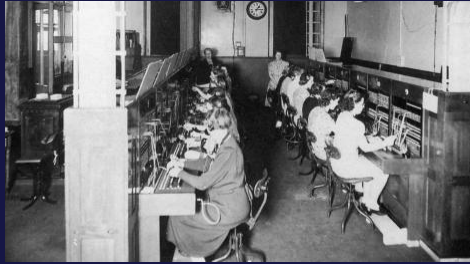
# The major disruption in higher education in Malaysia?



# 3. Creating alternative futures

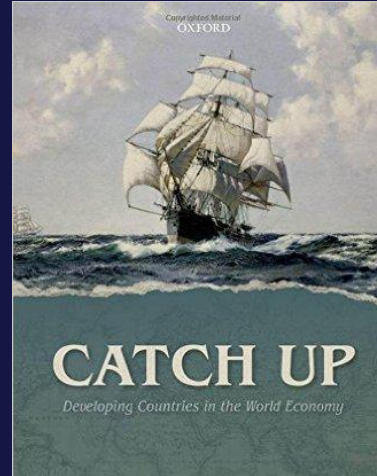
## No Change

*For jobs that  
no longer  
exist*



## Marginal Change

*Catching up*



## Adaptive change

*How well do  
you get along  
with your  
robot?*



## Radical change

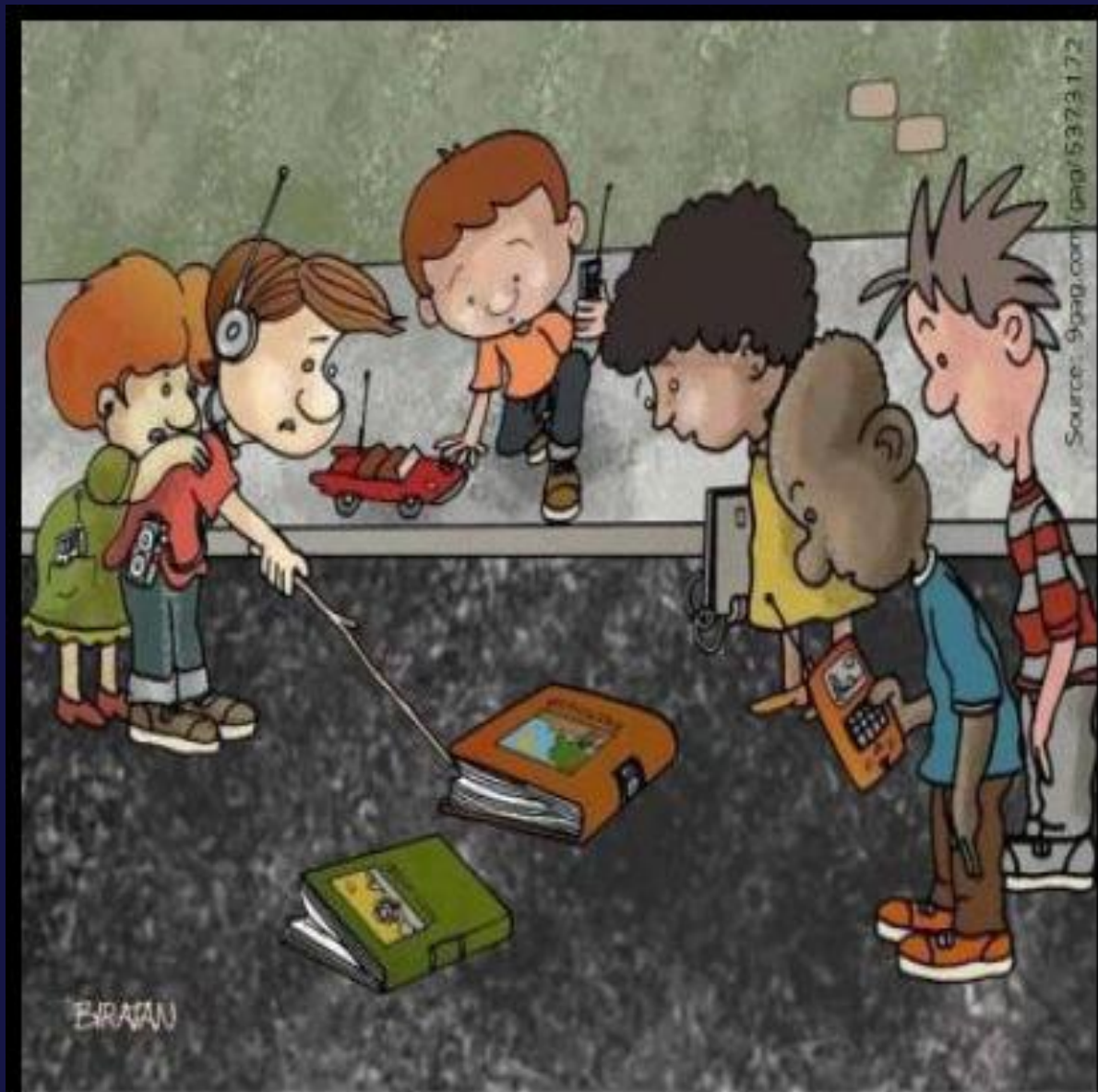
People, Planet,  
prosperity, and  
purpose

*A world after jobs*





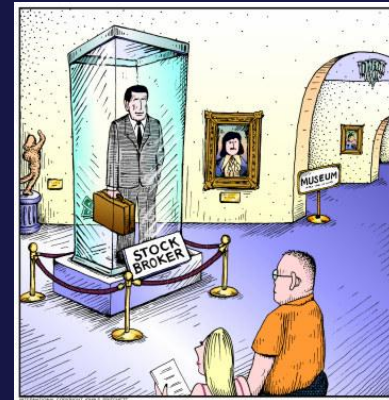
# In the future: teenagers find a book





# World Economic Forum, ILO

- *44 per cent of jobs will be automated in the next 10 years*
- *60 per cent of students are chasing careers that won't exist*
- *Young people will have an average of 17 different jobs*



# 1 billion to enter labour force by 2030

Friday 21 April 2017



FINANCIAL TIMES

3

## Youth Employment

# Job insecurity is a fact of life for young people

### COMMENT

Kristalina Georgieva

Shortly after graduating from university in Sofia, Bulgaria, at the age of 23, I was hired as an assistant professor. It was everything I had hoped for – intellectually challenging with a predictable career path all the way through retirement. Such were the certainties of the 1970s.

I wish it were as easy for today's 23-year-olds. But, sadly, it is not.

One of the ironies of our times is that the world has never been wealthier – global GDP topped \$75tn in 2016 – and yet there has never been so much anxiety over the future of work. It is particularly tough for the under-25s; they are about four times as likely to be unemployed as their elders. As life expectancy rises, so does the need for people of my generation to keep working, which is a further block to younger job seekers.

With the nature of work changing continuously, job insecurity is now a fact of life. Artificial intelligence and automation are eliminating a range of blue and white-collar jobs, from trucking to banking, affecting people in both rich and poor countries.

Achieving the UN's sustainable development goal of full and productive employment and decent work for all by 2030 will be a tall order. We need to create at least 600m more jobs before that deadline to keep up with new entrants joining the market – and at least two-thirds of these jobs need to be in the developing world, where the youth population is growing fastest. If we fail, we will squander what ought to be a demographic dividend for developing economies.

It is important to note that jobs not only provide income, they also help workers connect to the society around them. This is especially important for

young people in poorer countries and in regions torn by conflict.

At the World Bank Group we have invested in understanding country employment dynamics and how they affect youth. We know from our analysis that to tackle youth unemployment we have to create the right kinds of jobs in the right places, through investments that are both economically and socially profitable.

For example, while manufacturing and services were once routes out of poverty for millions of young workers, technological innovation is making those paths more difficult to take. Likewise, investment that is concentrated in capital-intensive industries that generate few jobs, like oil and gas, leaves workers trapped in temporary or informal labour.

In the parts of the world where youth unemployment is highest, agriculture is still the biggest employer. Two-thirds of Sub-Saharan African workers work in the agricultural sector, where productivity is low and earnings stagnant. They might improve their job prospects by moving to the city but

'The world has never been wealthier, yet there's never been so much anxiety over the future of work'

without education and access to technology they have little hope of advancement.

What can we do to help?

The starting point should be education. All children need to go to – and stay in – school. Research shows the ability to learn throughout life, to adapt and to work flexibly, will be vital, as will technical, social, and critical thinking skills. Education has to adapt to help people become life-long learners.

To enhance the employment prospects of the young – and meet the wants of the local market – we also need to improve the design of training

programmes. In Argentina, the World Bank is helping the government strengthen and expand training for disadvantaged young adults. A programme we are supporting in Ivory Coast matches first-time workers to internship schemes that lead to permanent jobs with full benefits.

Second, governments need policies that encourage the private sector to generate more jobs. This includes investing in transport and digital infrastructure. We find that young companies are normally the most dynamic in creating good-quality jobs, but they also need the most help to get going. Governments should help young people start their own enterprises and link small businesses and farmers to larger markets.

Third, because it will take time to bring all businesses into the formal sector, for the foreseeable future many jobs for young people in developing countries will remain informal.

The challenge is to help informal workers and enterprises diversify and increase their productivity, and to connect them to marketing expertise and innovation to help their businesses grow. Universal social safety nets will also be critical so that benefits are not limited to workers in the formal sector.

There are clear steps we can take, but we have to work together – governments, the private sector, academia and civil society. As former UK prime minister Gordon Brown's 2016 education commission report on financing global education noted: "Economies will rise or fall depending more on their intellectual resources than their physical resources."

Preparing for the jobs of the future depends on the actions we take today, so that the defining technological, economic and demographic trends of this century will create opportunity rather than trench inequality.

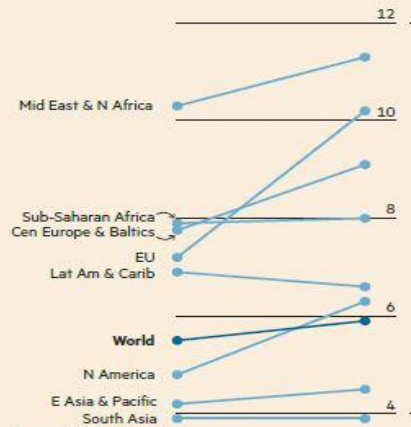
I want the 23-year-olds of tomorrow to feel the same hope for their future as I did when I left university.

Kristalina Georgieva is chief executive of the World Bank

### Out of work

Unemployment rose after the financial crisis ...

Unemployment rates, 2007 v 2014 (%)



Sources: World Bank

In emerging countries, over 150m young people are working and living in poverty ...

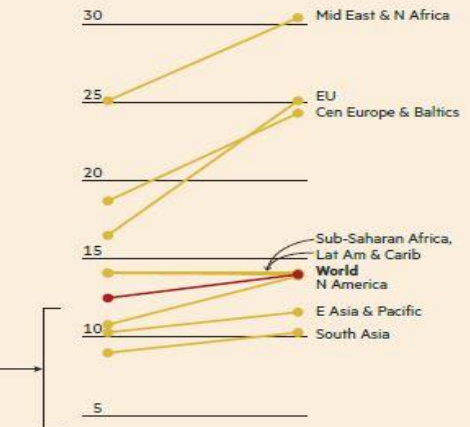
Young workers (aged 15-24) in extreme and moderate poverty (less than \$3.10/day PPP)



Sources: ILO, OECD

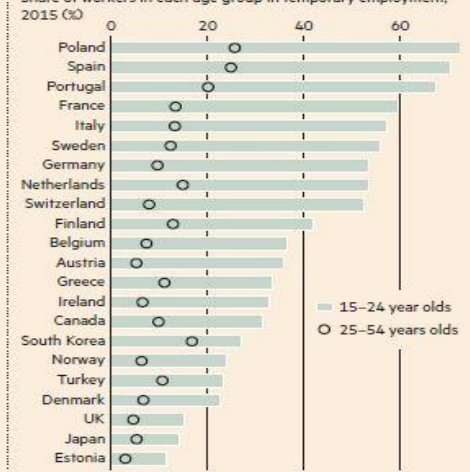
... particularly among young people

Unemployment rates of 15-24 year olds, 2007 v 2014 (%)



... while in many developed countries the majority of young employees are on temporary contracts

Share of workers in each age group in temporary employment, 2015 (%)



# NO CHANGE

TEACH AND  
TRAIN FOR THE  
1950S

ONE JOB

ONE CAREER

“for jobs that no  
longer exist”



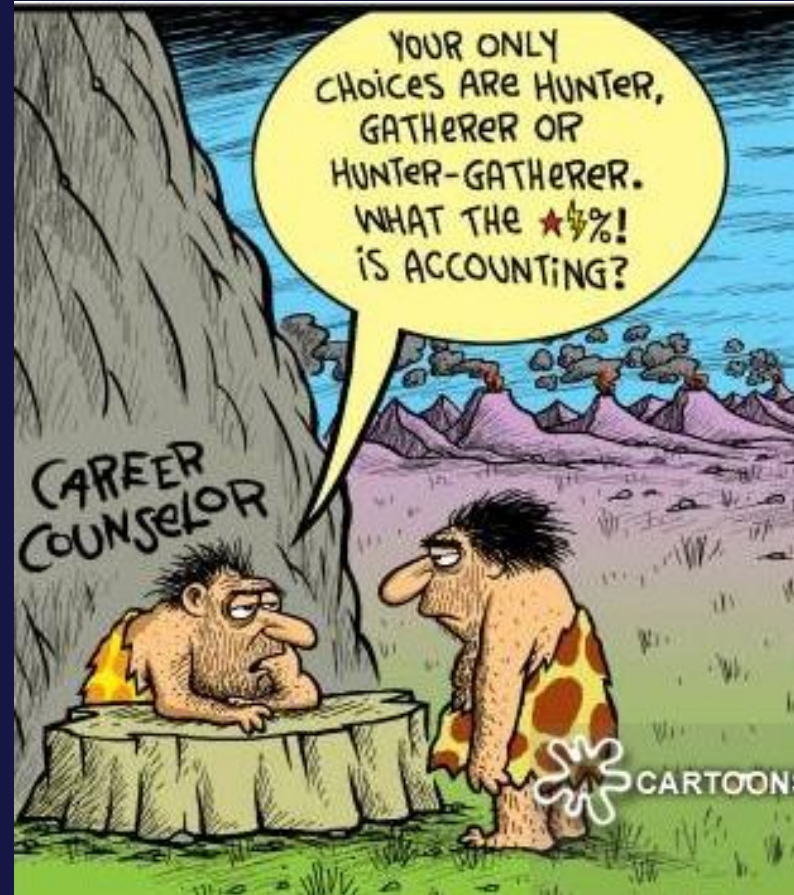


# MARGINAL CHANGE

ADD A FEW COURSES  
ON COMPUTERS, TALK  
ABOUT  
SUSTAINABILITY

KEEP THE OLD  
INFRASTRUCTURE

“catching up”





# ADAPTIVE CHANGE

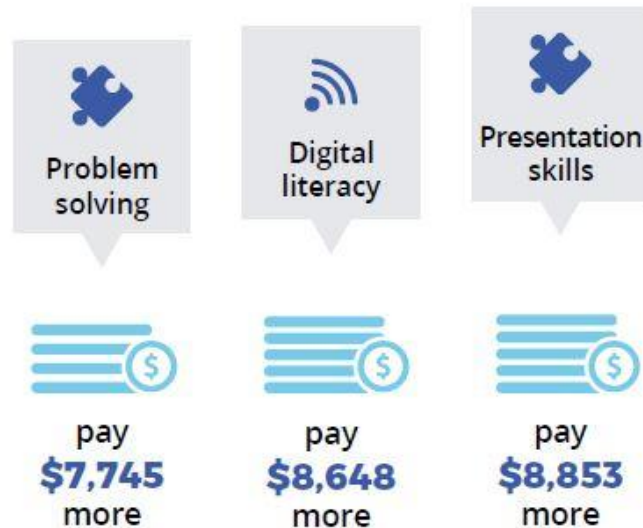
## TEACH AND TRAIN FOR THE FOURTH INDUSTRIAL REVOLUTION

- ROBOTICS
- BIO-INFORMATICS
- 3D PRINTING
- IOT
- CARE FOR THE AGED
- PEER TO PEER

“how well do you get along with  
your robot”



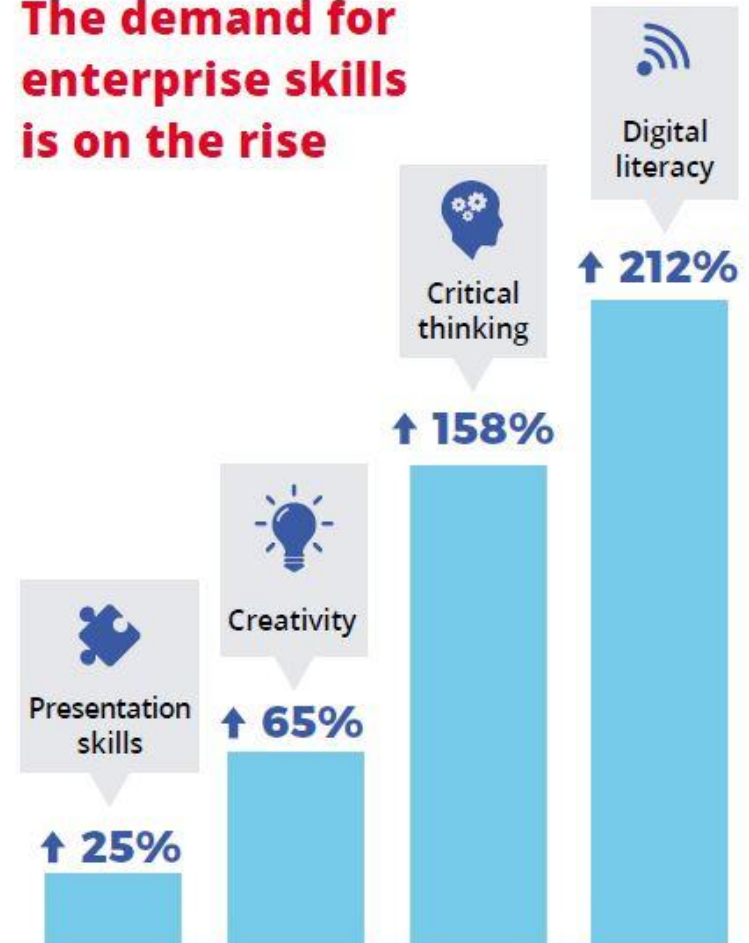
## Wages are higher for young job-seekers with enterprising skills



...as compared with similar earlycareer job ads that don't request these skills.

The trend is  
**here to stay**

## The demand for enterprise skills is on the rise

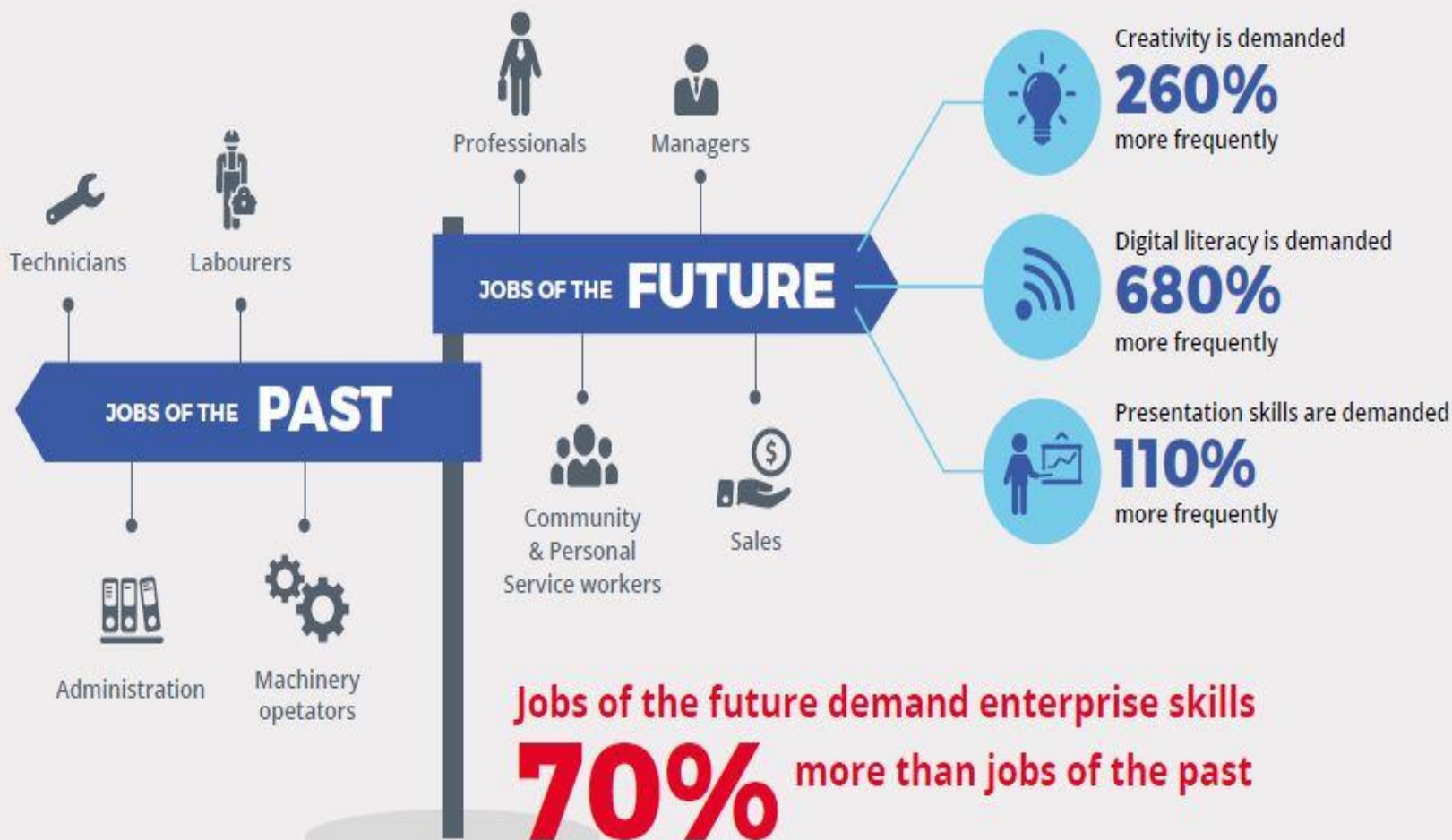


...as observed in earlycareer job ads over the past 3 years

JOBS OF THE **FUTURE**

## Exhibit 5: Demand for enterprise skills, by jobs at risk of automation

*Difference in proportion of jobs demanding enterprise skills, by occupation, early career jobs, 2015, %*



# RADICAL CHANGE

TEACH AND TRAIN FOR A  
WORLD AFTER JOBS

POST-SCARCITY  
COLLABORATIVE  
EFFICIENT  
GUARANTEED INCOME

EMOTIONAL, SPIRITUAL AND  
NEW FORMS OF  
INTELLIGENCE

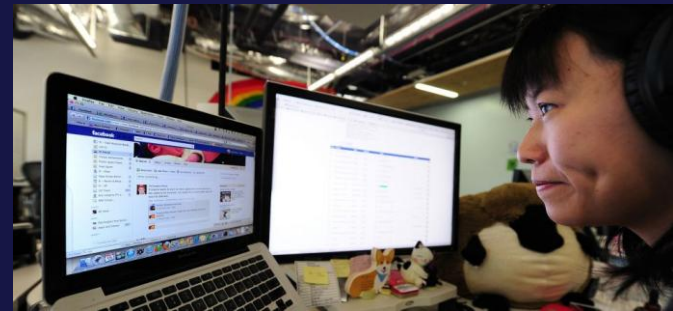
"People, planet, purpose, and  
prosperity"





# The work week, David Graeber

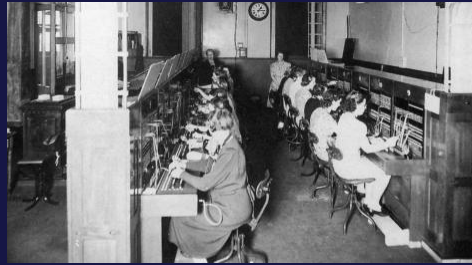
- More and more employees find themselves working 40 or even 50 hours weeks on paper, but effectively working 15 hours since the rest of their time is spent organizing or attending motivational seminars, updating their Facebook profiles...
- Healthier and more productive to work less and from different places -



# 3. Creating alternative futures

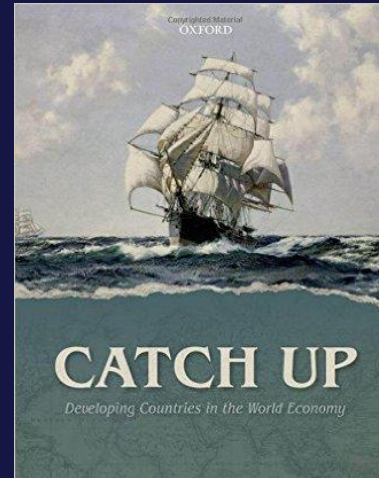
## No Change

*For jobs that no longer exist*



## Marginal Change

*Catching up*



## Adaptive change

*How well do you get along with your robot?*



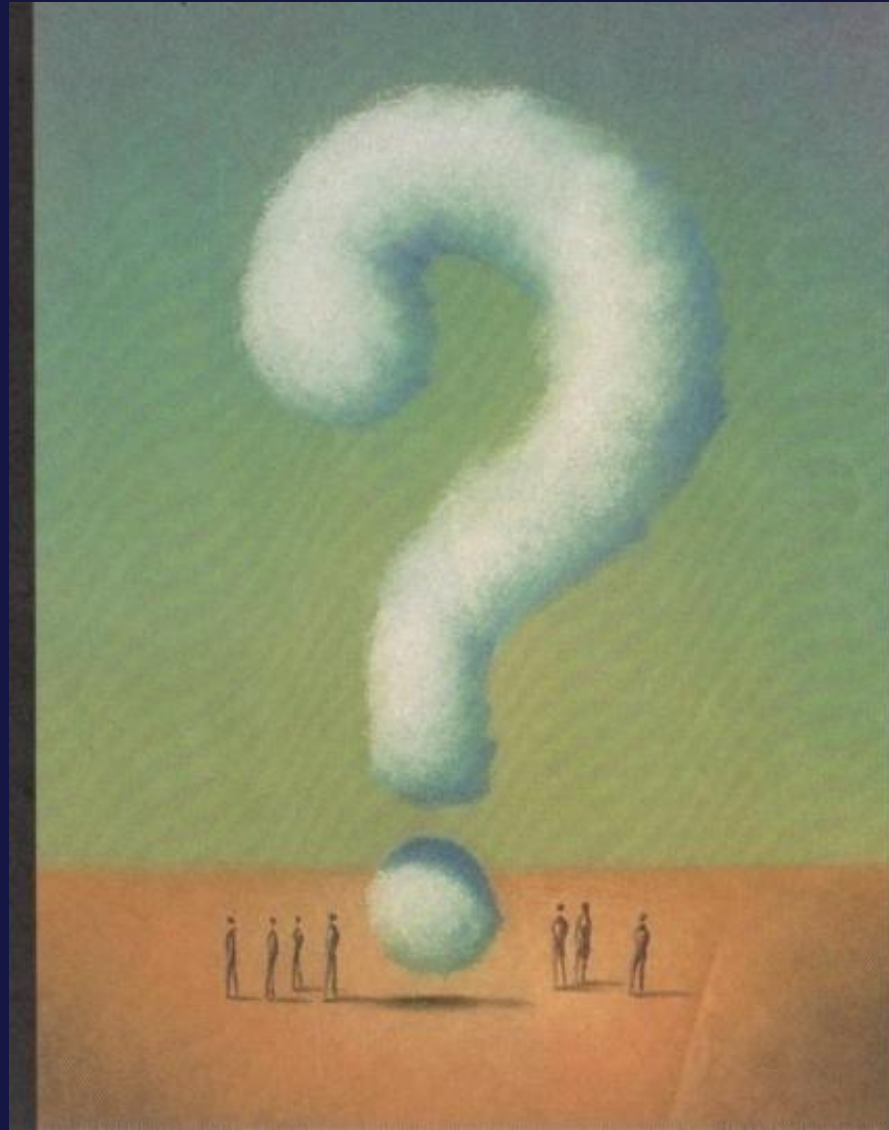
## Radical change

People, Planet, prosperity, and purpose

*A world after jobs*



# Another scenario?



# 3. MALAYSIA TEACHING AND LEARNING 2025

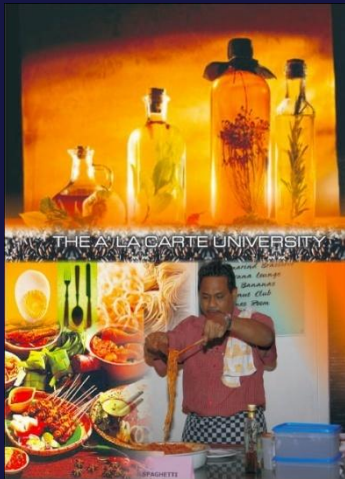
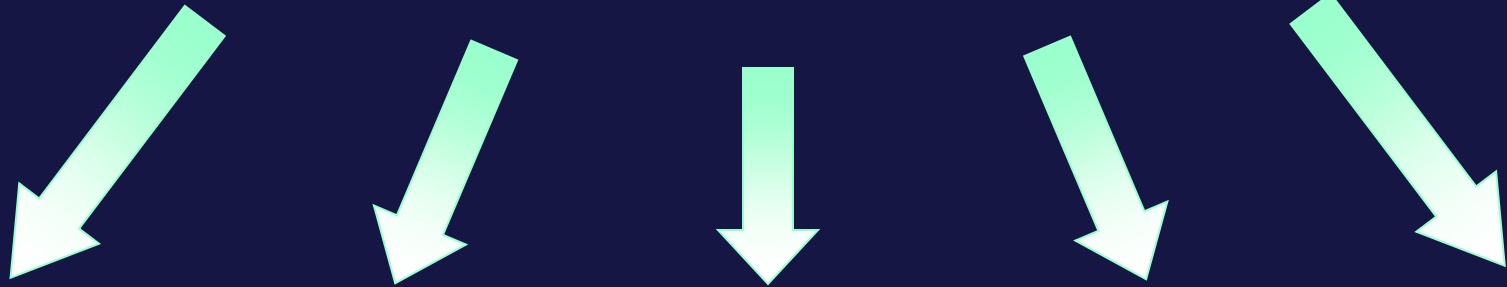
LECTURE	LEARNING FROM EVERYWHERE	SMART PEDAGOGY	WISDOM OF CHOICE
EXAM BASED	SELF-DIRECTED	PARTNERSHIPS	DIRECTED PARTNERSHIPS
CONFORMANCE AND CERTIFICATION	DEMOCRATIZATION	BLENDED LEARNING	WHOLESOME
FORCE FEED	EAT ALL YOU CAN (Ala Carte)	OMNIVORE	NUTRITIOUS BUFFET







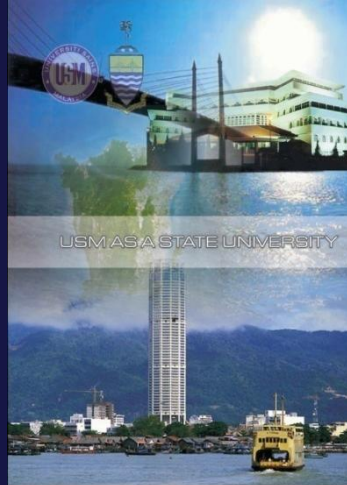
# The Five Scenarios



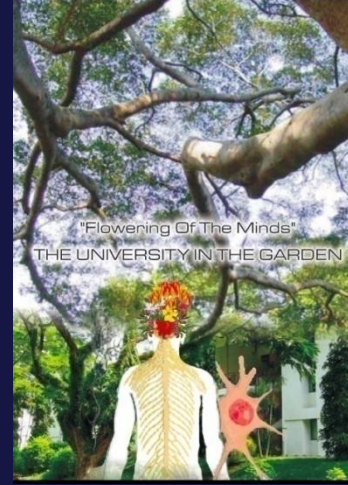
Ala Carte



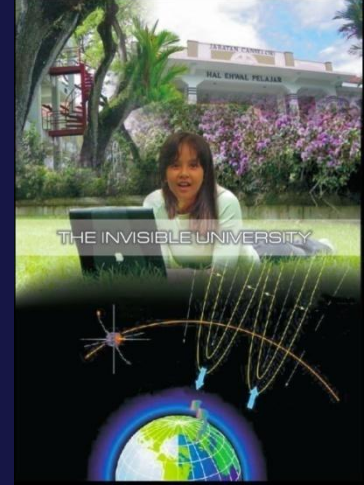
USM Inc.



State



Autonomous



Invisible

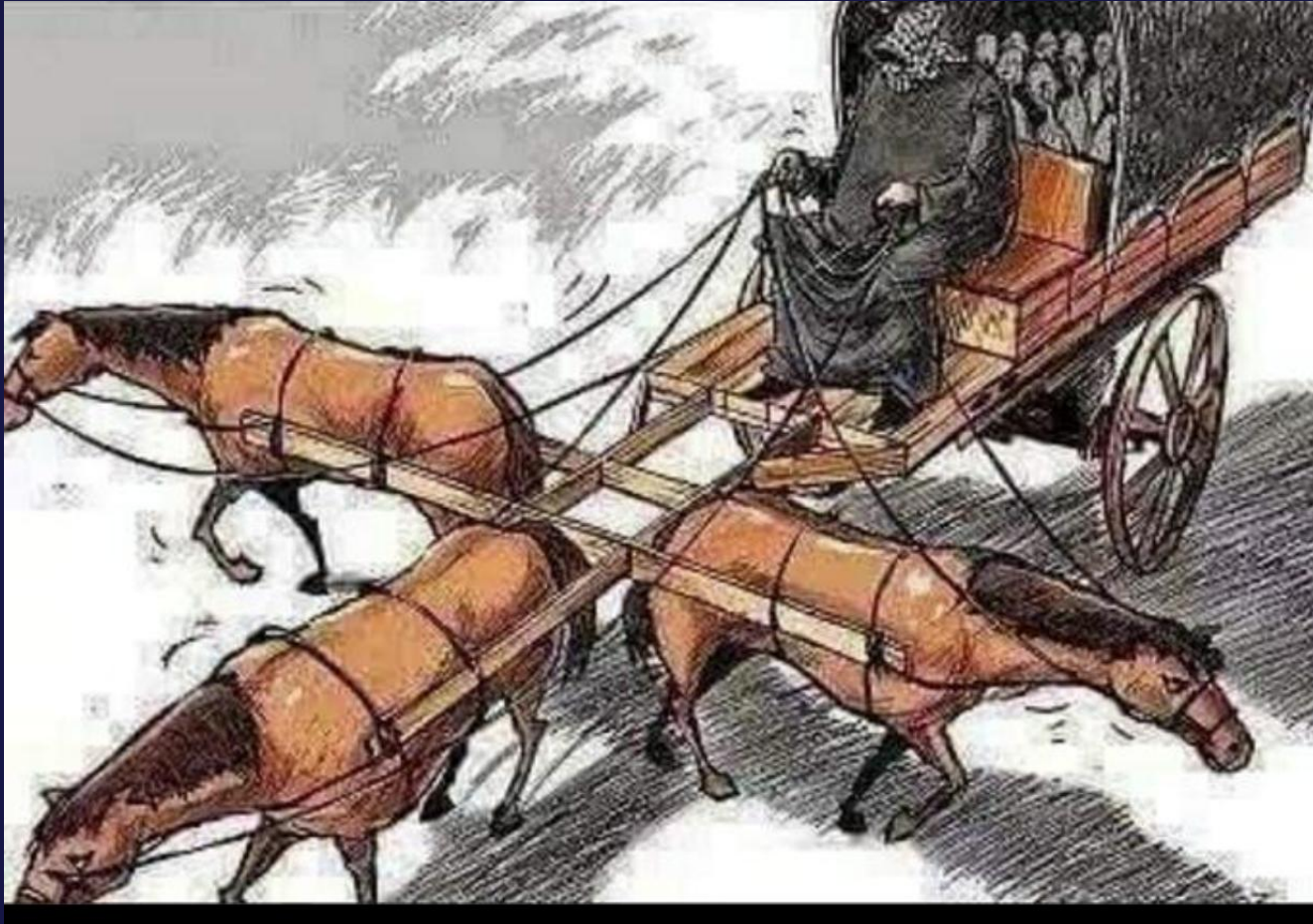
the five scenarios represent an analytic range, describing the nature and scope of the vision in detail

# 4. LINK STORY TO STRATEGY

- Narrative not linked to strategy or vision
- Culture eats strategy for breakfast
- Transform inner story and link it to vision-strategy



# Horses in different directions

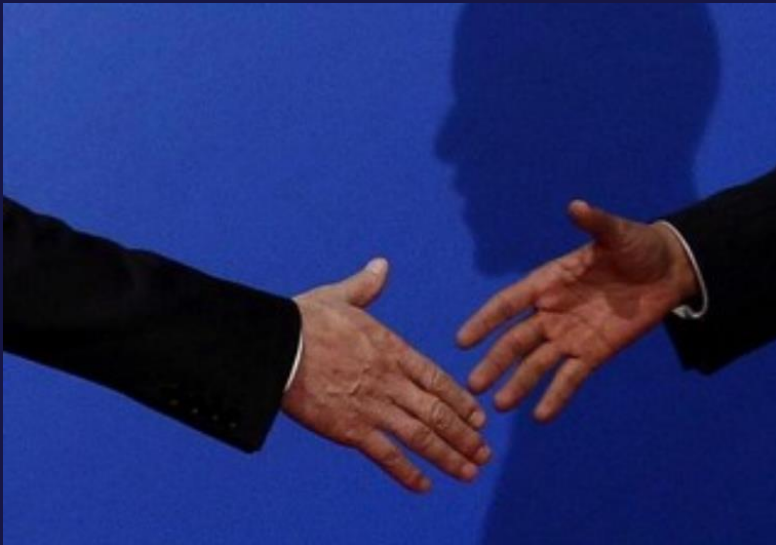




# The mismatch



- Vision statement: become center of knowledge excellence in the region in banking & finance
- Knowledge not important to our core functions – *who you know not what you know.*





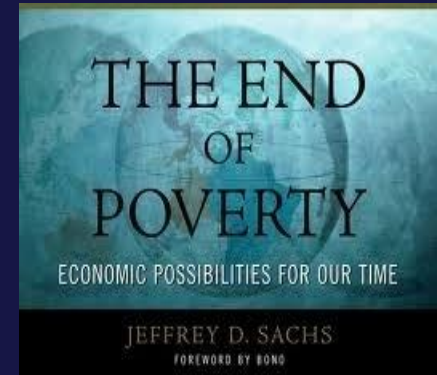
# Metaphors and crime

CRIME DATA PRESENTED REMAINS THE SAME WITH EACH METAPHOR

Catching and  
jailing  
criminals



Education and ending poverty



Crime as a  
beast



Crime as a  
virus



# Crime and metaphor

<http://news.stanford.edu/news/2011/february/metaphors-crime-study-022311.html>

- In one study, 71 percent of the participants called for more enforcement when they read: "Crime is a beast ravaging the city of Addison." That number dropped to 54 percent among participants who read an alternative framing: "Crime is a virus ravaging the city of Addison."
- When the 485 participants in that study were asked to highlight what they thought was the most influential part of the report, only 15 identified the metaphor, while almost everyone else said it was the statistics that swayed their decisions on how to curb crime.

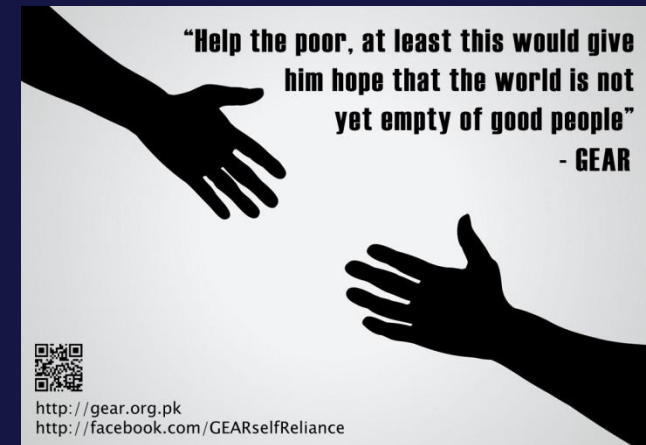
**MOST OF US ARE  
HARD-HEADED  
REALISTS.**

QUOTEHD.COM

Gail Sims

# Narrative and policy

- In American surveys about government's role in poverty the mere word, "welfare" act like a poison pill. Questions that mention welfare reduce support for such programs by almost 40% compared with questions that use the phrases "assistance to the poor" or "caring for the poor."



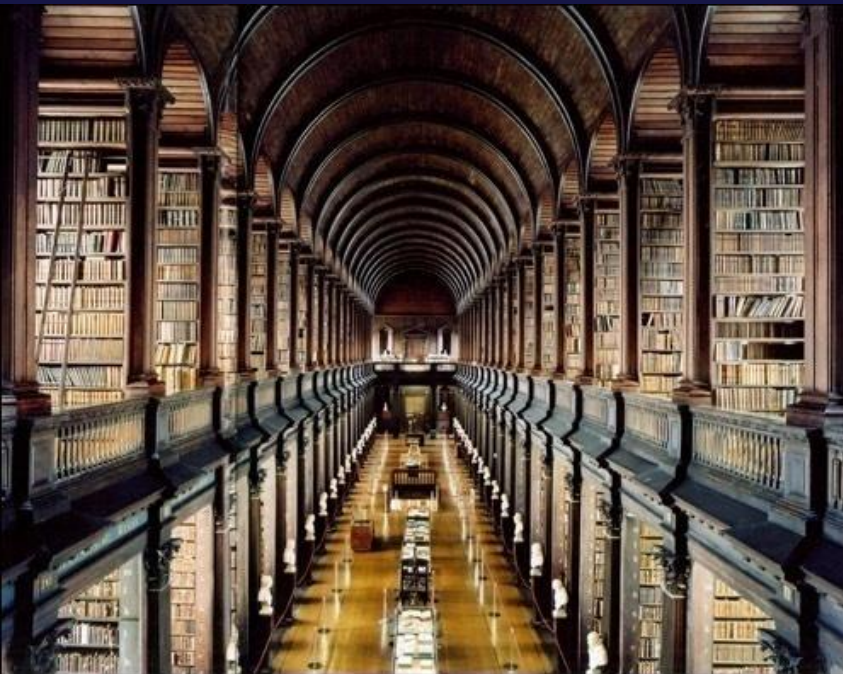


# Castle surrounded by hungry wolves

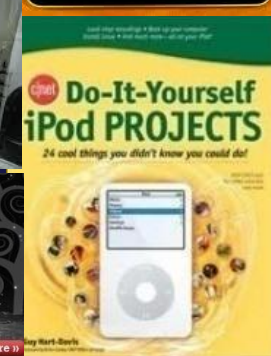
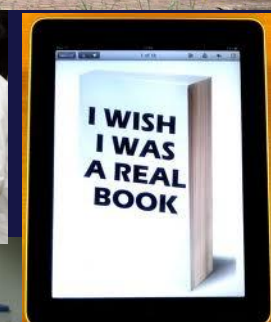
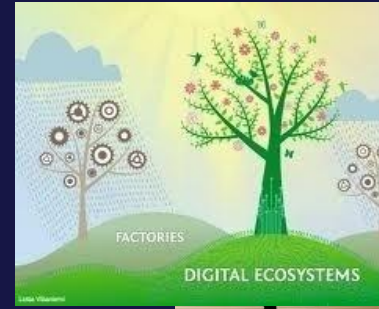




# From the “collection” to the ecosystem of alternatives



Keeper of the collection



Innovator of the gardens

# Science and innovation in South Africa



Slow Elephant





Agile  
Band - social  
Can see the emerging future

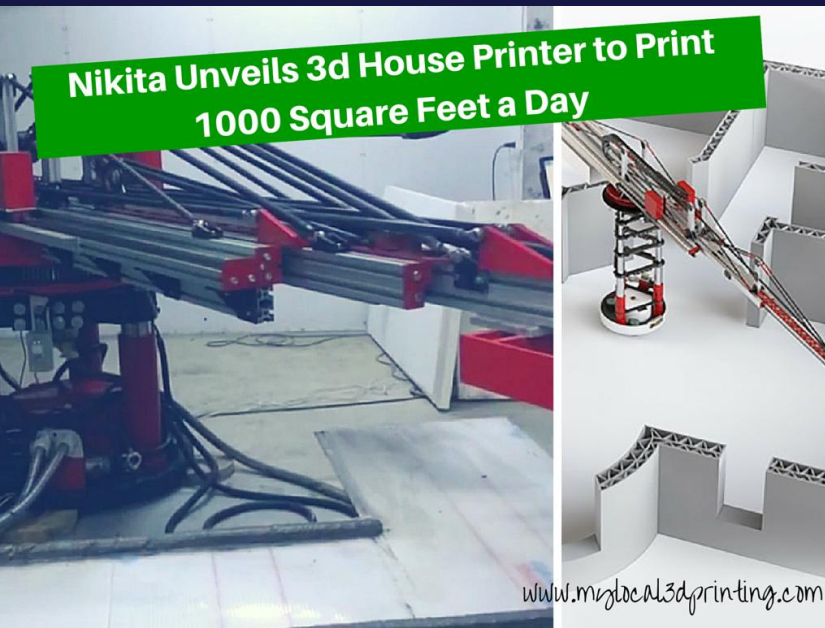


# THE FUTURES OF ROOFS

## Mark Grouios

	Current	Transformed
Litany	"Roofs provide a single service – They keep me dry"	"Roofs provides essential services"
System	Builders Architects Affordability of housing Government regulations	3D printing Photovoltaic Technology available Government incentives to build sustainable houses
Worldview	Roofs are just part of the house  The main purpose is keep on dry  And safe from the elements -	Safety plus utility,  efficiency, energy,  They drive the home
Metaphor		

# Print your house in a day





# 3d printed everything:

*You are the maker*



**WE ARE  
ALL  
MAKERS.**



# Tesla roof as solar tiles with an infinite warranty





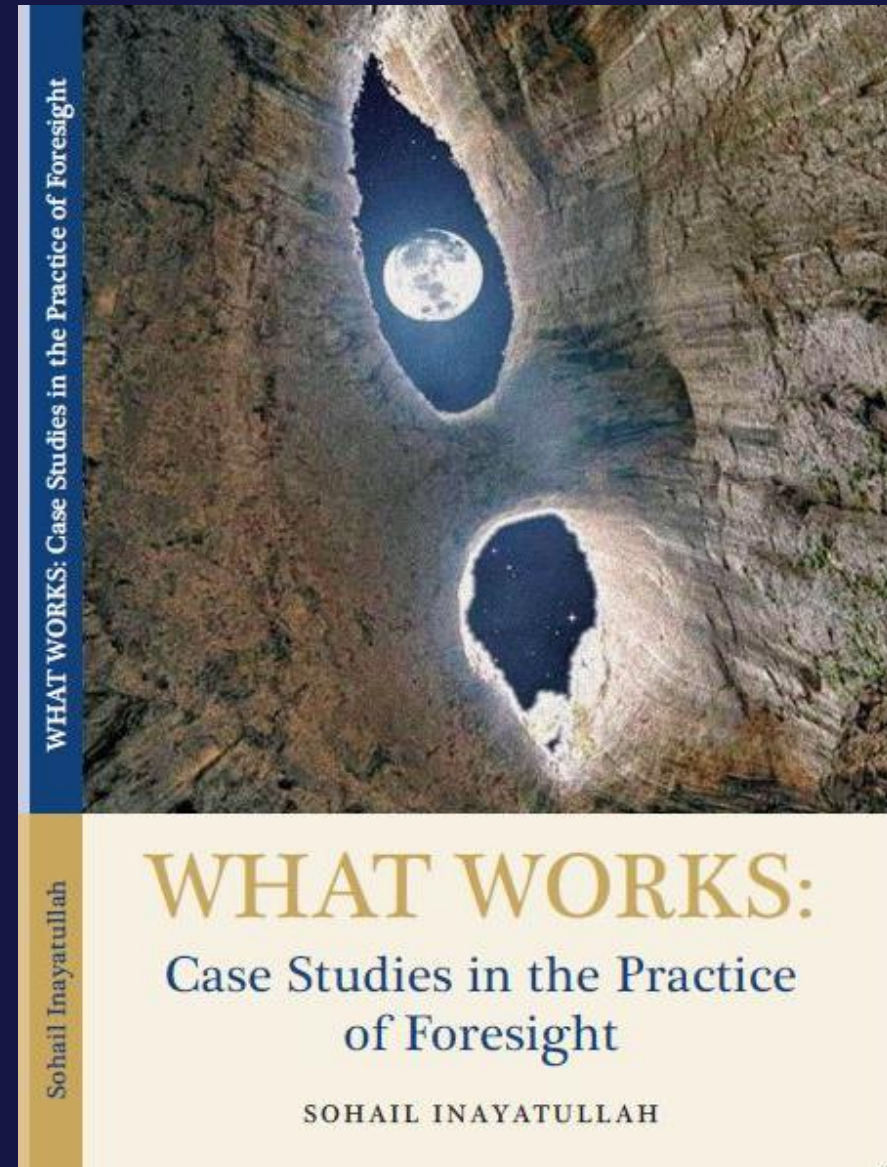
# Robot ends the brick layer

- Hadrian X, which will have a capacity of up to 1,000 standard brick equivalents an hour (That is double the daily output of a top bricklayer in just one hour.)  
“We are a frontier technology company, and we’re one step closer to bringing fully automated, end-to-end 3D printing brick construction into the mainstream,” says Fastbrick CEO Mike Pivac





1. Challenge the default/used future
2. Scan the environment for emerging issues
3. Create alternative futures
4. Link story to strategy

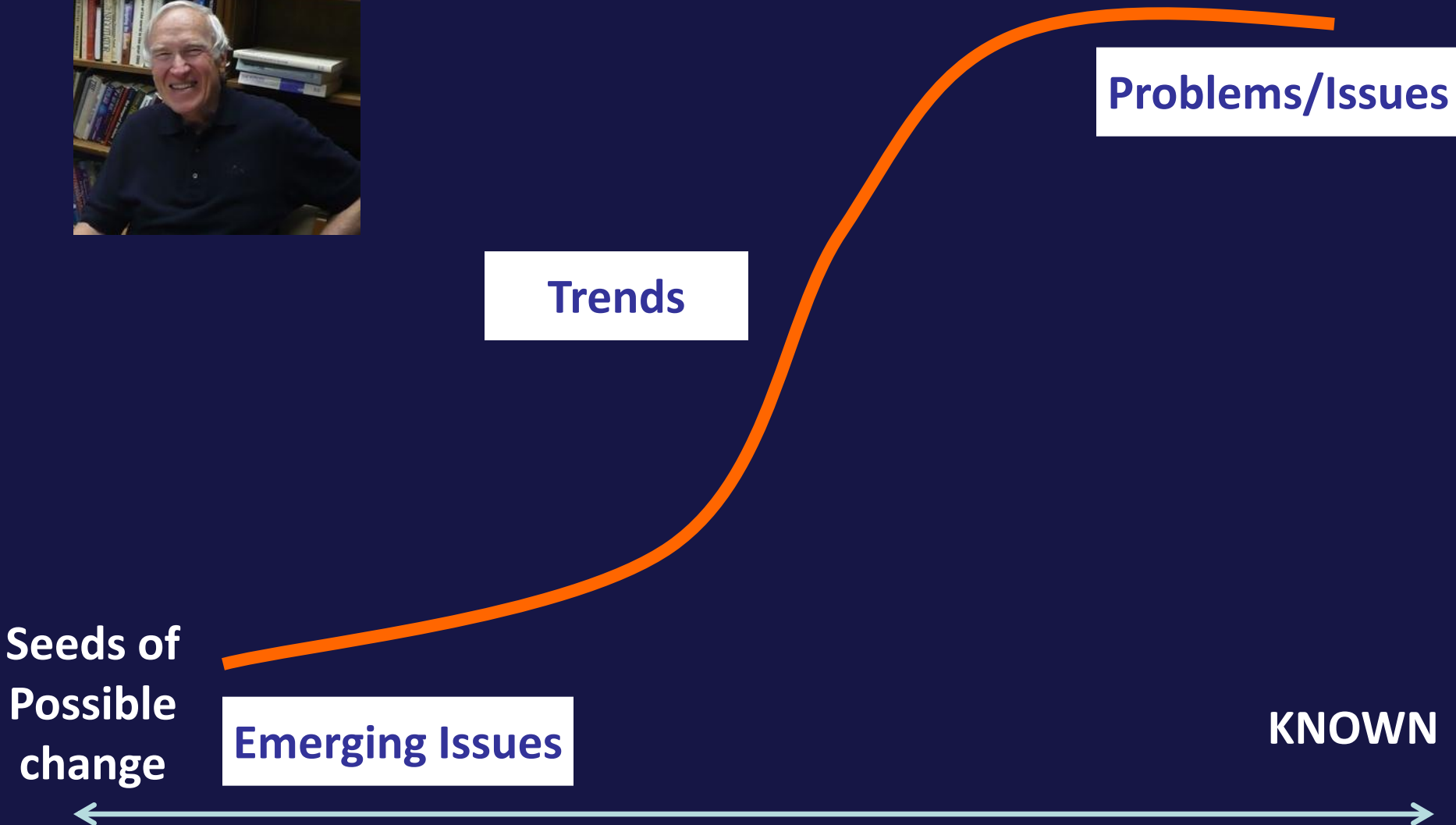


# ANTICIPATING

## ANTICIPATING



# Emerging Issues Analysis – Graham Molitor





# Early warning 1912

## The Rodney & Otamatea Times

WAITEMATA & KAIPARA GAZETTE.

PRICE—10s per annum in advance

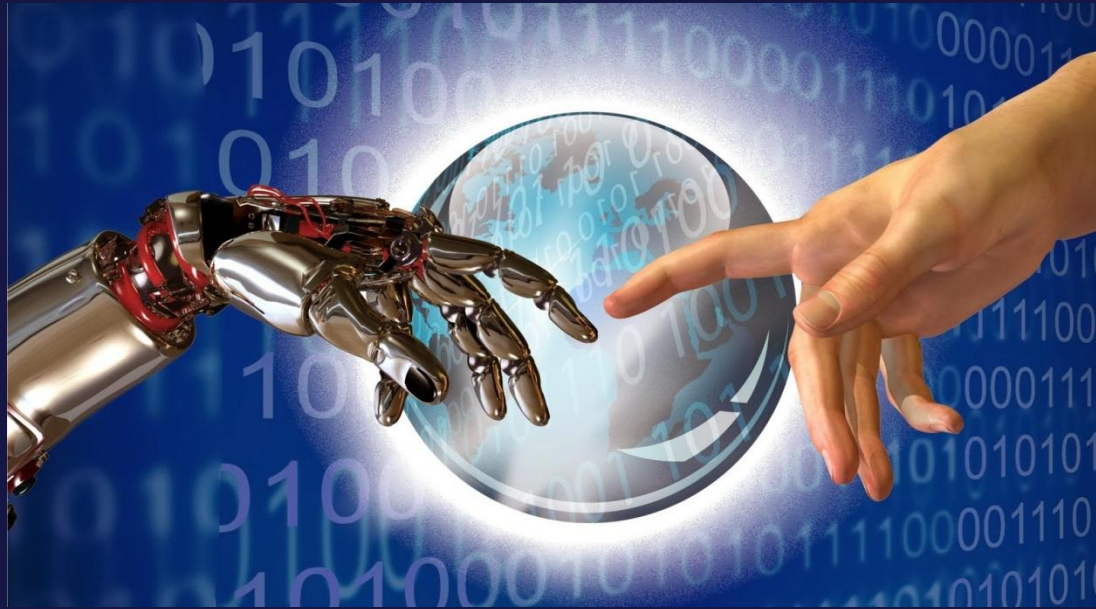
WARKWORTH, WEDNESDAY, AUGUST 14, 1912.

3d per Copy.

### Science Notes and News.

#### COAL CONSUMPTION AFFECT- ING CLIMATE.

The furnaces of the world are now burning about 2,000,000,000 tons of coal a year. When this is burned, uniting with oxygen, it adds about 7,000,000,000 tons of carbon dioxide to the atmosphere yearly. This tends to make the air a more effective blanket for the earth and to raise its temperature. The effect may be considerable in a few centuries.



# THE FOURTH INDUSTRIAL REVOLUTION

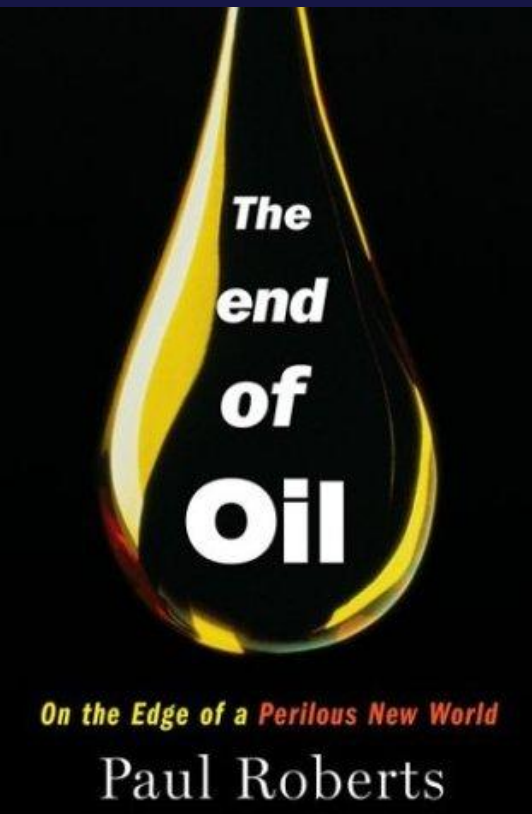
# FIVE ASPECTS

1. REPRICING OF NATURE – SHIFT TO RENEWABLES AND THE RISE OF PURE MEAT
2. WE ARE MAKERS – HOUSEHOLDS CREATE ENERGY AND DESIGN
3. THE RISE OF AI, SENSORS AND ROBOTS
4. PEER TO PEER AND COOPERATIVES – end of the middle man
5. END OF THE TRADITIONAL JOB – GURANTEED INCOME?

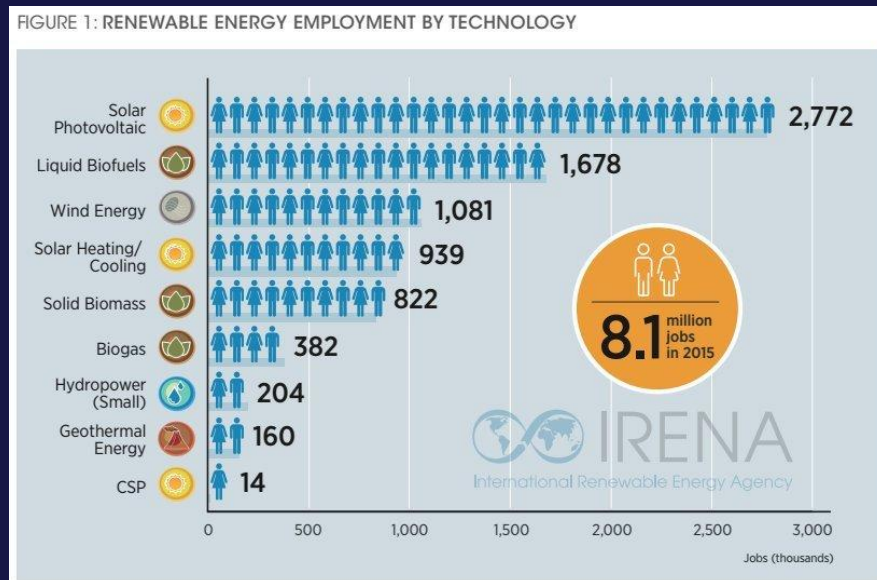




# 1. Environmental Challenges – *repricing of nature*



# 8.1 million employed in renewable energy, more than in oil and gas



- more money was invested worldwide into expanding renewable energy production than into oil and gas production.
- more people employed in renewable energy worldwide than there are in oil and gas.

# Only sun and seawater - sundrop

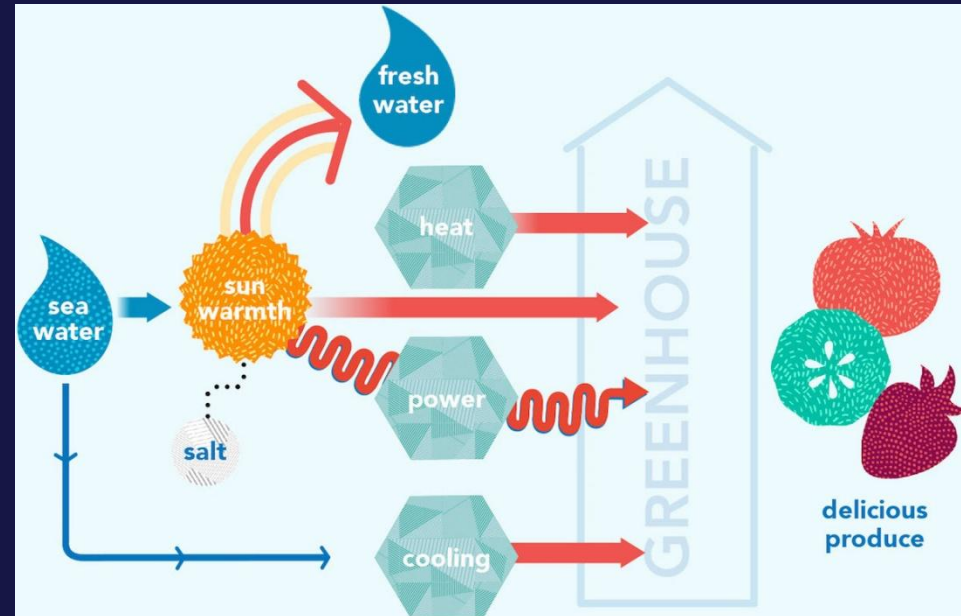
First commercial  
agricultural system of its  
kind

50 acres

No groundwater, nor soil,  
nor pesticides, nor fossil  
fuels

At this stage only grows  
tomatoes

Seawater plus solar energy



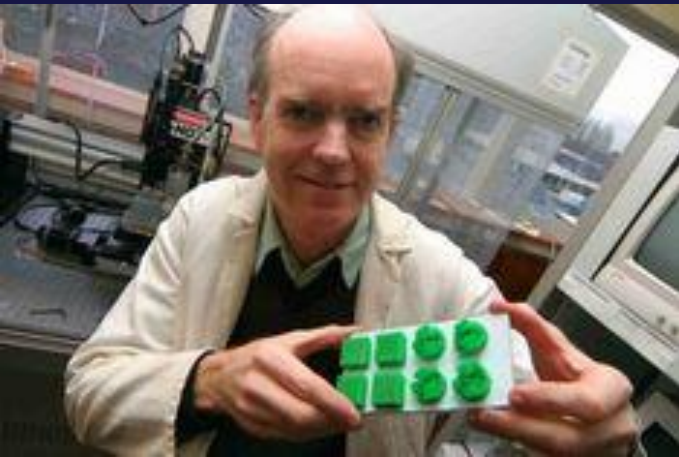


# SUPER MEAT

- HUMANE – NO ANIMALS KILLED, AN END TO THE 57 BILLION KILLED ANNUALLY
- SLOWS DOWN GLOBAL WARMING
- HEALTHIER - SUPERVISED
- CHEAPER – EACH HOUSEHOLD ITS OWN MEAT CULTIVATION 3D PRINTER
- 1 BURGER NOW 16.00 USED TO BE 350,000 US\$

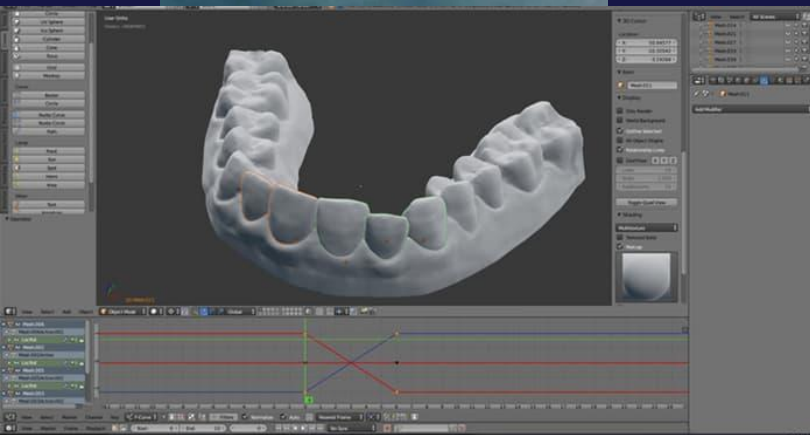


## 2. The new manufacturing: 3d printed everything? – *You are the maker*



# Brace and hand made by teens

## 25\$ plus labour for the hand



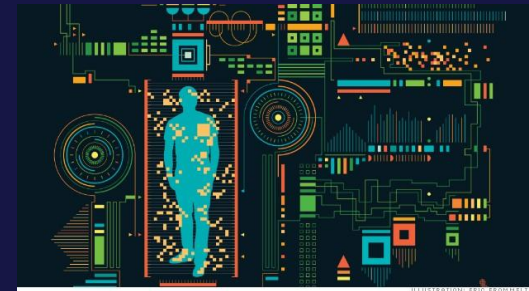
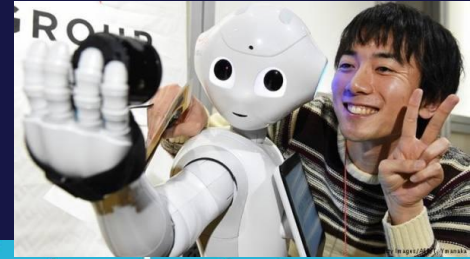


# Bio-fabrication



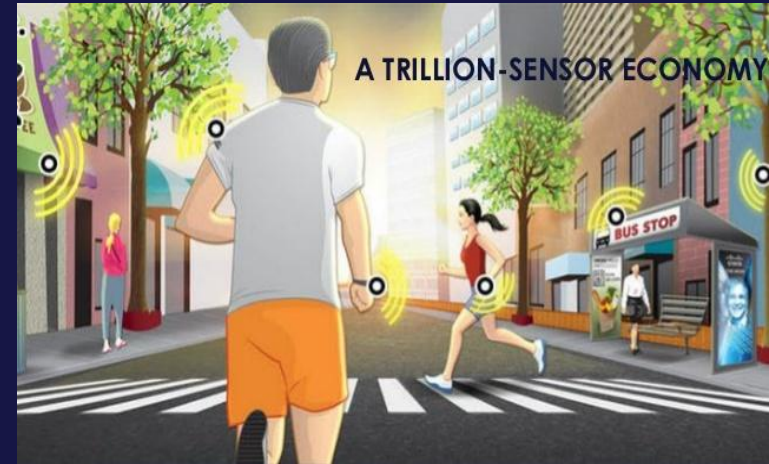
# 3. The rise AI/robots

- Personalized
- Learning and on demand
- Big Data-AI driven ie predictive
- Does undesirable tasks



# A TRILLION DOLLAR SENSOR ECONOMY

- 100 billion connected devices linking people (and their emotions) with processes, places, and data
- 5 billion plus hyper-connected people
- Protect the vulnerable – Dutch police





# Factory workers to robots

As Adidas announces a new robot shoe factory, an ILO report says up to 90% of workers in South-east Asia could face unemployment due to automation



# The transition



- From ownership to mobility, ie a product to a shared service
- Major redesign of all cities (parking, the cbd, competitive advantage)





# First robot sex brothel in Barcelona

## Europe's first sex robot brothel FORCED OUT of base as prostitutes complain of competition

EUROPE'S first sex robot brothel has been forced to move after real-life prostitutes complained sex dolls were stealing their trade.

By JON ROGERS AND MARIA ORTEGA

PUBLISHED: 10:10, Thu, Mar 16, 2017 | UPDATED: 17:42, Fri, Mar 17, 2017





# Many marries robot in China



**i** Zheng Jiajia, 31, decided to 'marry' Yingying after failing to find a suitable human alternative. Photograph: Qiangjing Evening News

# Robot Priest - Germany



# Biohacking

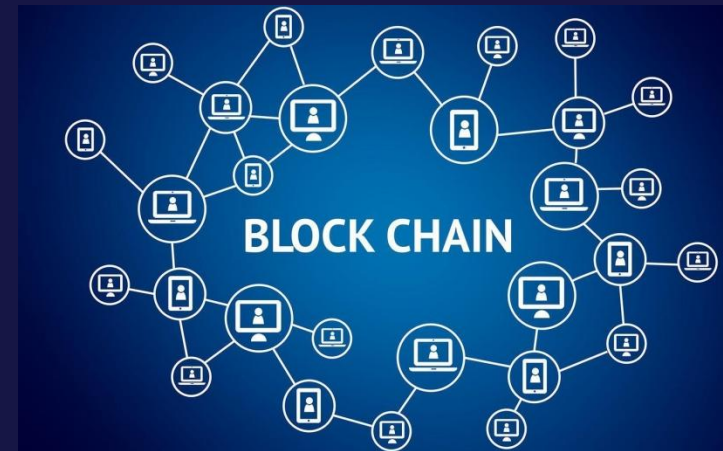




1. Securely managed database—or ledger—that's distributed by a network.

2. The network nodes all maintain a copy of the encrypted database, and new records can be added only through complicated hash validation functions.

3. Perhaps the most important element is that all of the transactions or events are indelibly recorded, making fraud hard to perpetrate—data anomalies are transparent.



# AI Script

## AI-written film 'Sunspring' a surreal delight, upchucked eyeball included

All bets are off when you fill a neural network with sci-fi scripts and then ask it to write a movie for you. "Sunspring" is chaotic, super weird and still worth watching.

Tech Culture

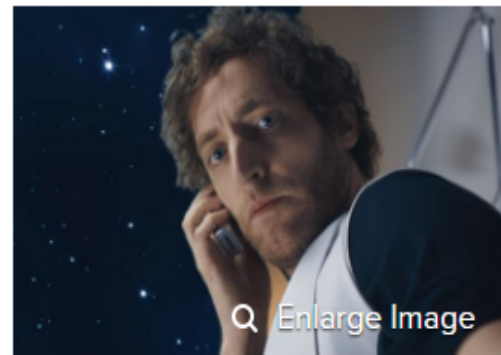
June 13, 2016  
10:56 AM PDT



by *Amanda Kooser*  
@akooser



Filmmaker **Oscar Sharp** pulled together a cast and crew for a day of filming. He had actors, including Thomas Middleditch from HBO's "Silicon Valley." He had a set, props and special effects. Most importantly, he had a script written by an artificial-intelligence neural network. And the finished product, "**Sunspring**," is exactly as weird as you'd expect.



# Law firm hires robot

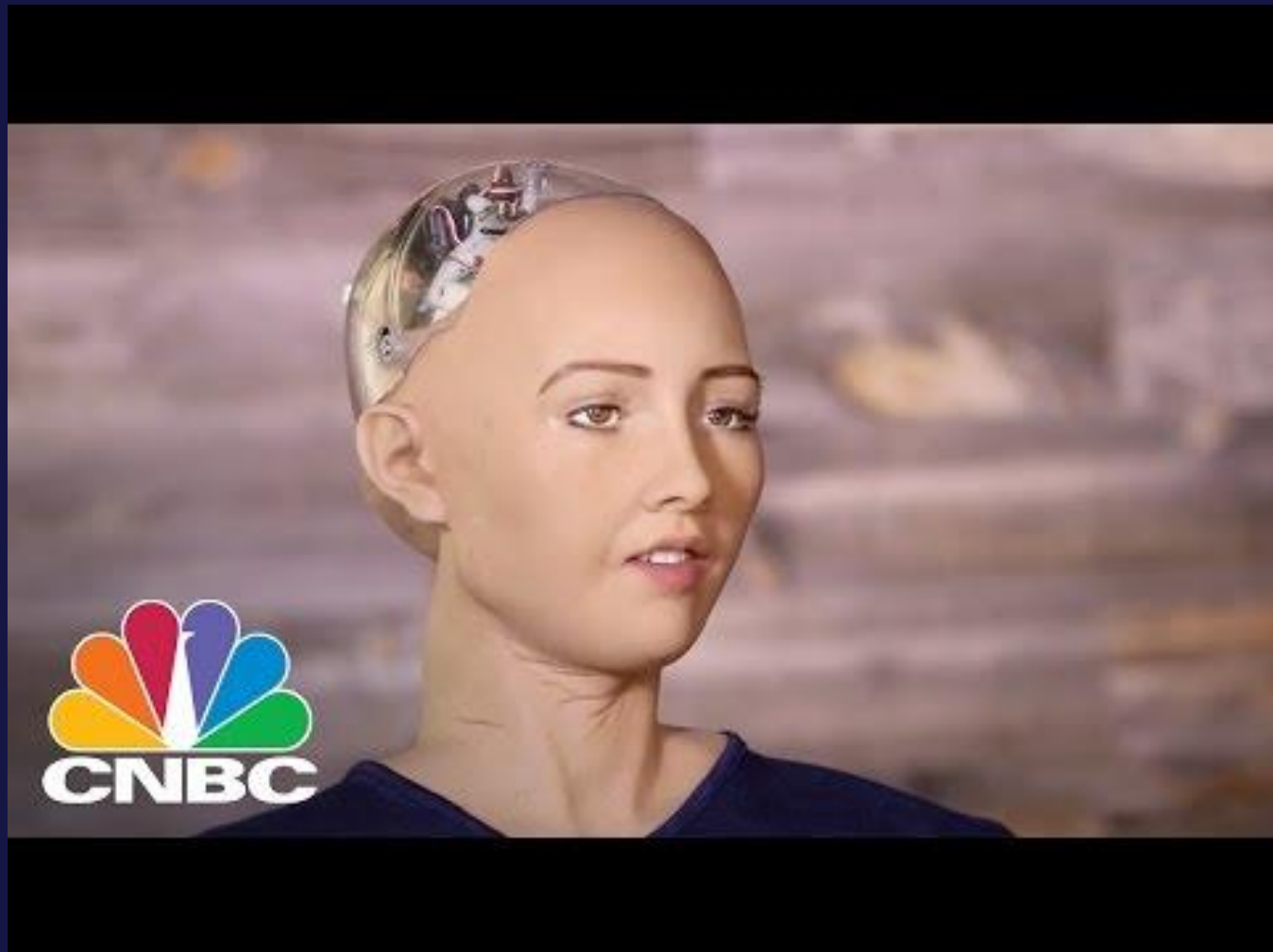


- Ross, “the world’s first artificially intelligent attorney” built on [IBM’s cognitive computer Watson](#), was designed to read and understand language, postulate hypotheses when asked questions, research, and then generate responses (along with references and citations) to back up its conclusions. Ross also learns from experience, gaining speed and knowledge the more you interact with it.





[https://www.youtube.com/watch?v=W0\\_DPi0PmF0](https://www.youtube.com/watch?v=W0_DPi0PmF0)



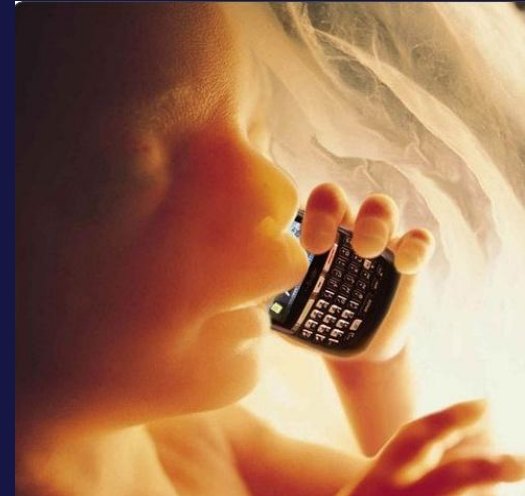
# Are robots persons?



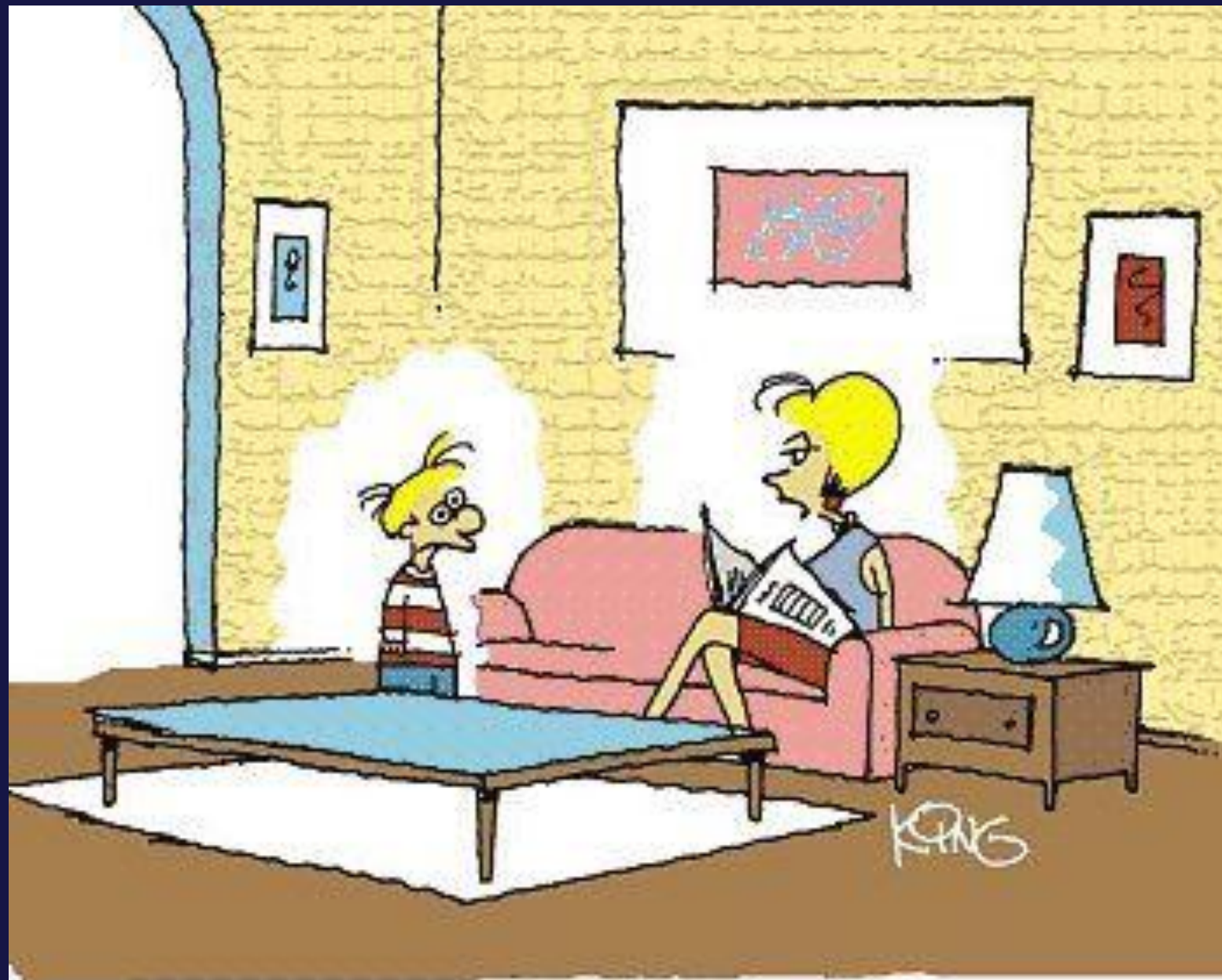
# They drive the shift: From migrant to native

## “Digital Natives” My A\*s...

- ~ RSS?
- ~ Wikis?
- ~ Blogs?
- ~ Digital Storytelling?
- ~ Podcasting?
- ~ Copyright and Creative Commons?
- ~ Twitter?
- ~ Quality?
- ~ What are those?







"No, you weren't downloaded.  
You were born."



# BORNEO BULL'S EYE





# William Bossert, Professor of Computer Science, Harvard

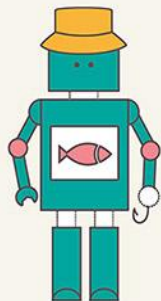
- If you're afraid that you might be replaced by a computer, then you probably can and should be.*

Risk of being replaced:

80-90%



Taxi Drivers



Fishermen



Bakers



Fast Food Cooks

SOPH. ORDOÑEZ/CNN/MONEY

Risk of being replaced:

90-100%



Models



Sports Umpires



Paralegals

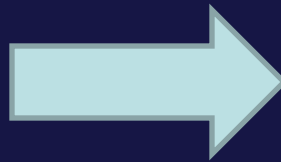
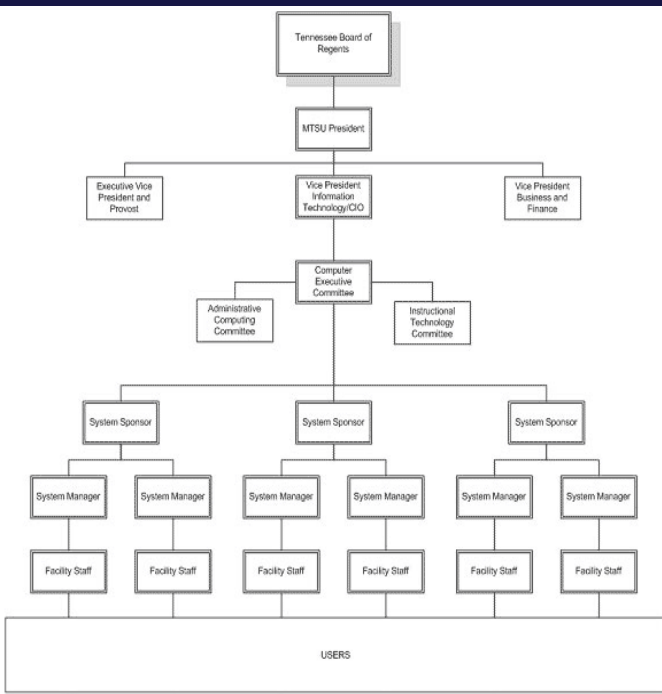


Telemarketers

SOPH. ORDOÑEZ/CNN/MONEY



# 4. The rise of peer to peer – end of the middle man



users adds value

# Two million in two days via facebook and indigigo



## Let's Help Fatima End Bonded Labor

Community  
Lahore, Pakistan



**\$2,202,084** USD

raised by 72,331 people in 4 days

2.202% funded

\$100,000 USD goal

**Donate Now**

Share on Facebook 19.4k

INDIEGOGO  
**life**



Organizer  
**Humans of New York**  
 Contact



Bonded Labor Liberation Front

# The new cooperative economy



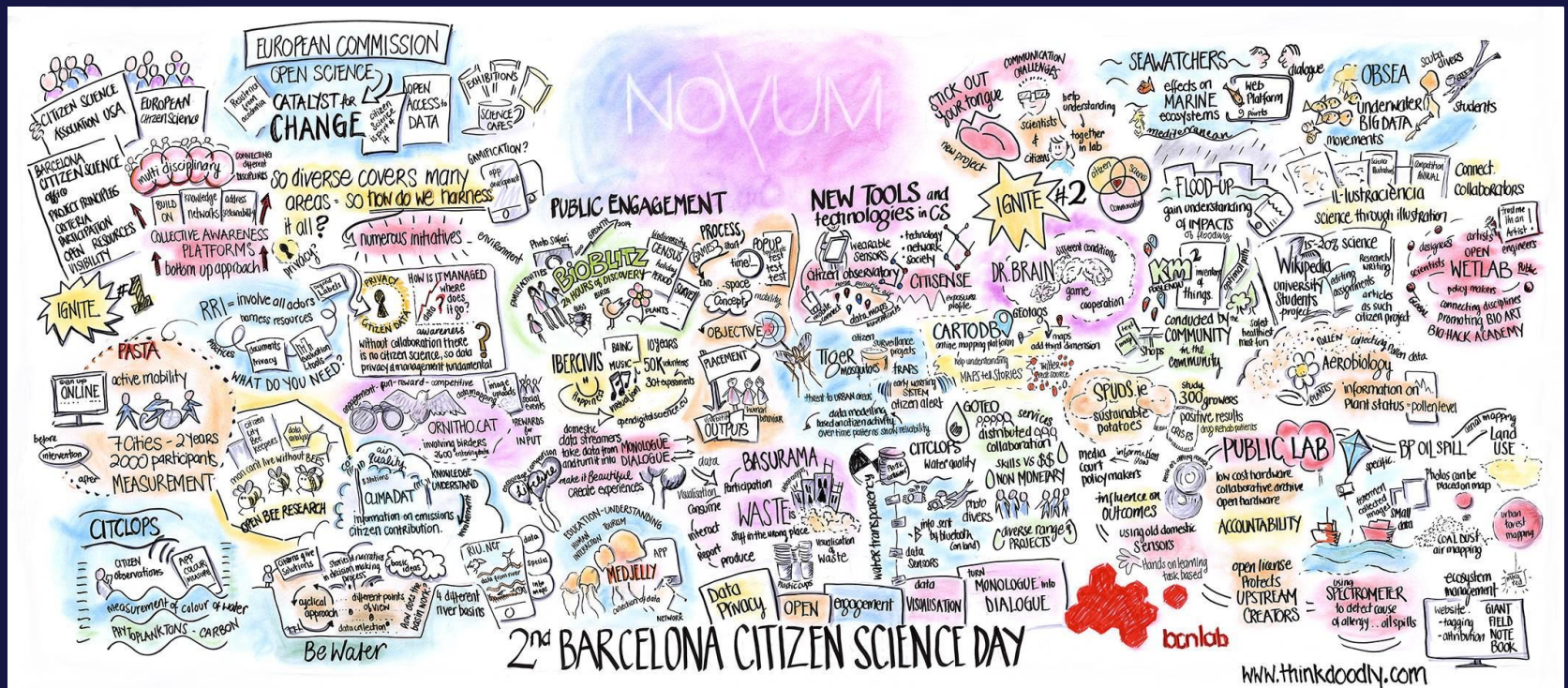
- GE – co-creation economy
- Reduce investment costs by crowdsourcing innovation
- Wider reach – titanium jet engine bracket design won by 21 year old student from indonesia
- Used 3d printing





# Barcelona:

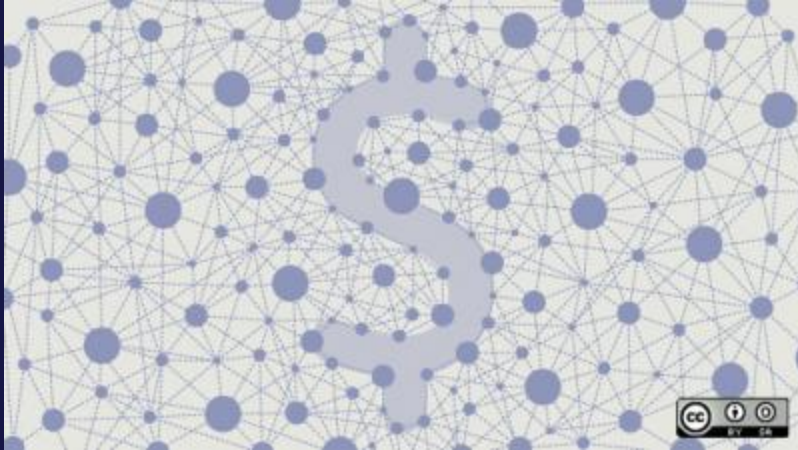
- Right to housing
- Feminist city – gender equity
- Crowdsourced city planning solutions
- Participatory sustained democracy





*"These smug pilots have lost touch with regular passengers like us. Who thinks I should fly the plane?"*

# Efficient and cooperative?



- Corporatist – economies of scale

- To efficiency sharing

- To cooperative ie uber drivers and others create cooperative platforms

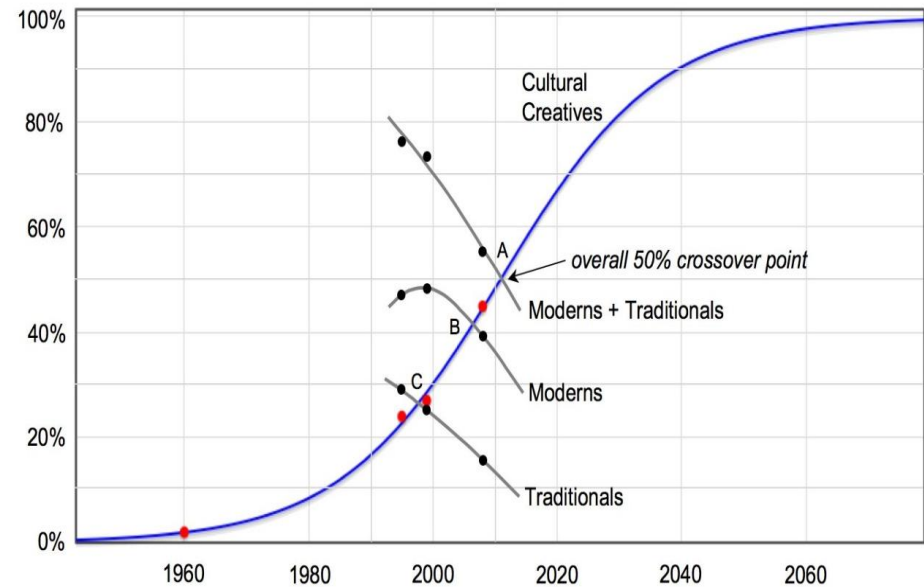
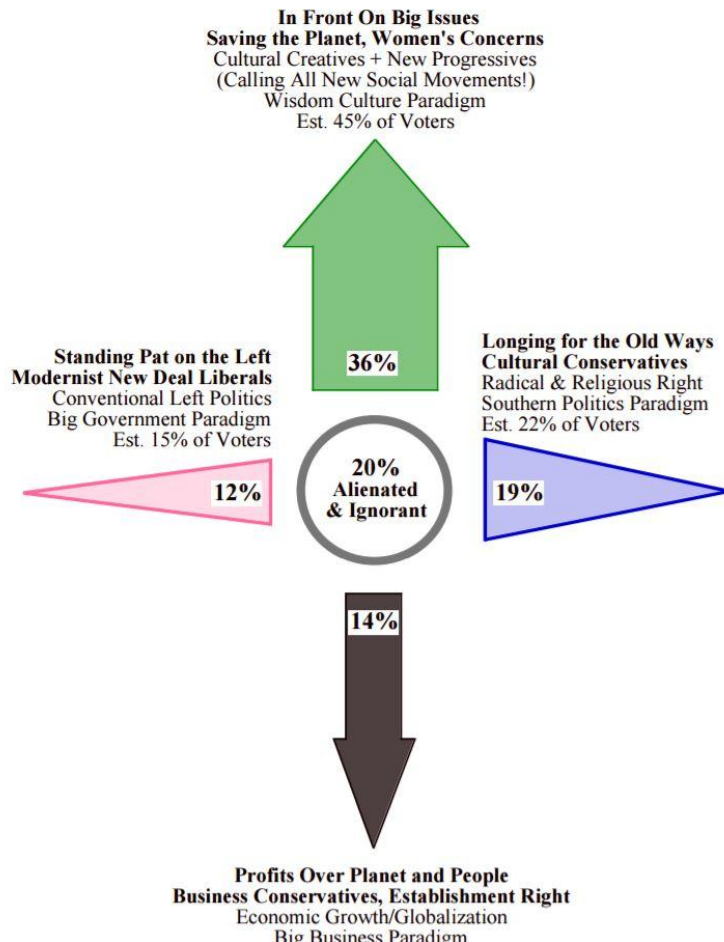




## A complex network diagram with various icons representing people, gears, clouds, and communication symbols, all interconnected by dashed lines. A white box in the bottom left corner contains the text '#PlatformCoopBerlin'.



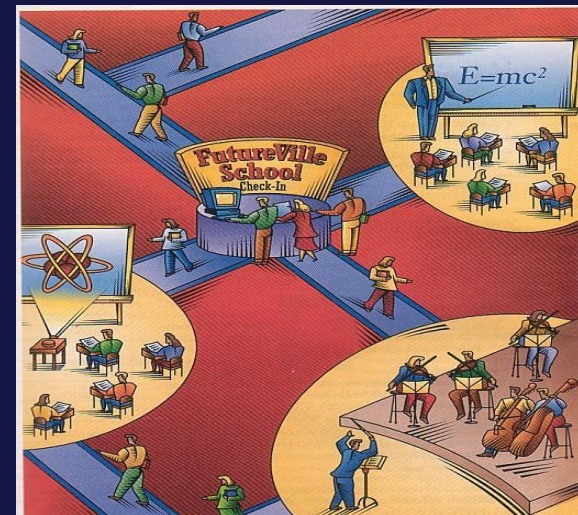
# Who creates the change?



Hardin Tibbs, 2010.

# 5. The new jobs?

- The decline of the full time job
- Flexi work (end of 9/5 and the prison of the office)
- Portfolio career
- New jobs - robot design





# TECHNOLOGY LEADS TO JOB LOSSES

A Knocker-up (sometimes known as a knocker-upper) was a profession in England and Ireland that started during and lasted well into the Industrial Revolution and at least as late as the 1920s, before alarm clocks were affordable or reliable. A knocker-up's job was to rouse sleeping people so they could get to work on time. Mary Smith earned sixpence a week shooting dried peas at sleeping workers windows



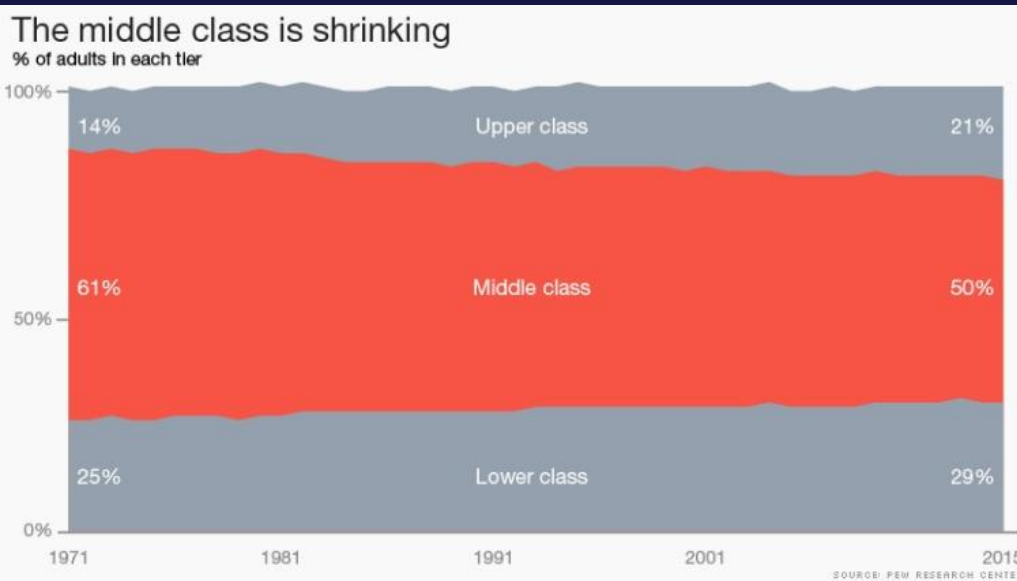
# Eunuchs in Imperial China



SOCIAL PROGRESS LEADS TO JOB LOSSES

# The shrinking job and western middle class

- Google is worth \$101 billion but employs only about 55,000 workers (50 years ago AT&T was worth less in today's dollars but employed about 750,000 workers)
- Just 25 years ago, GM, Ford, and Chrysler generated a combined **\$36 billion** in revenue while employing over 1,000,000 workers. Today Apple, Facebook, and Google generate over a **trillion** dollars in revenue with 137,000 workers.





# The great rise of inequity – perceived injustice



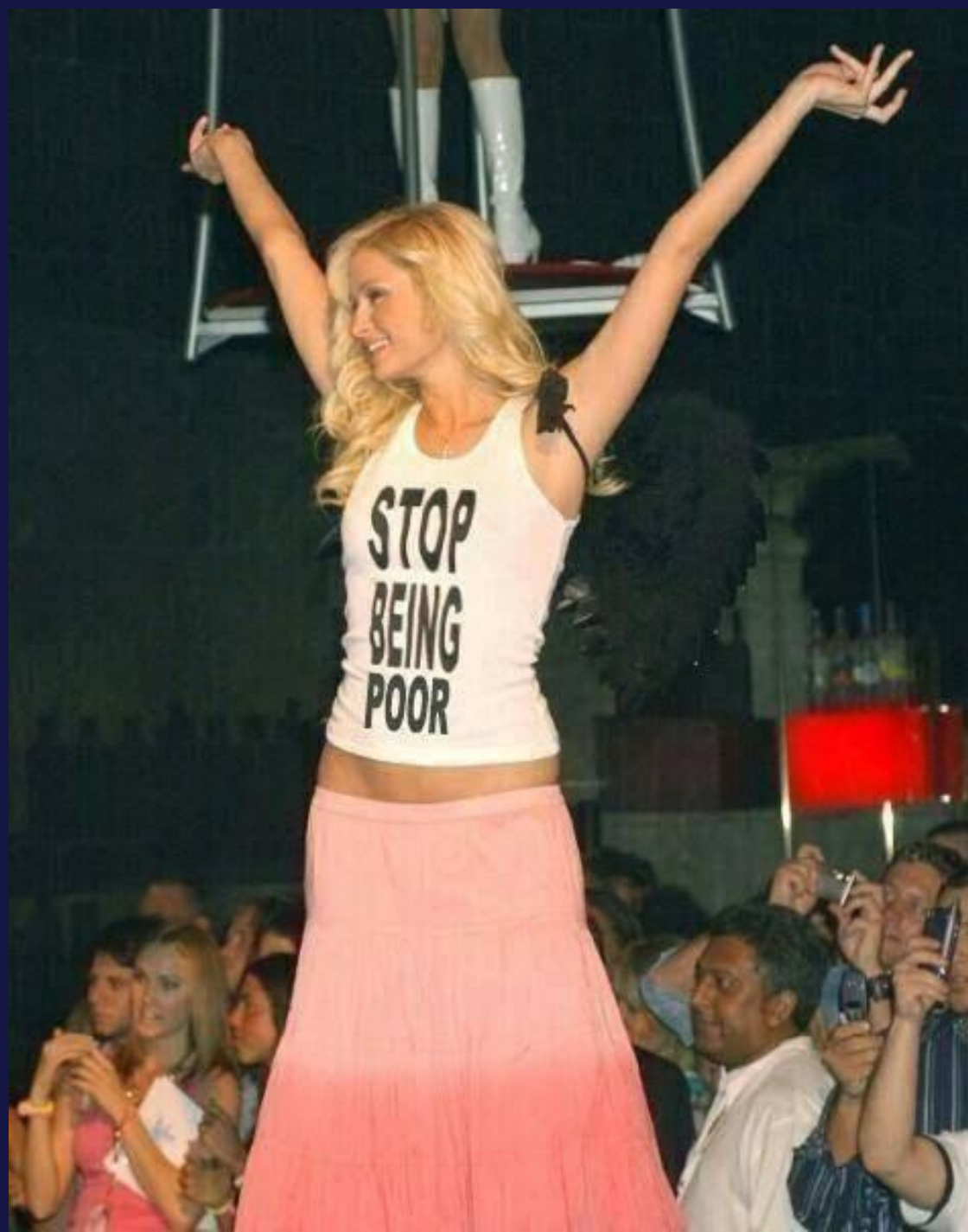
**JUST**  
**8** **BILLIONAIRES OWN**  
**THE SAME WEALTH**  
**AS THE POOREST**  
**3.6 BILLION PEOPLE**

**DEMAND AN ECONOMY THAT WORKS  
FOR EVERYONE, NOT JUST THE FEW**

**EVENITUP.ORG**

**EVEN  
IT UP**

  
**OXFAM**





# Factory workers to robots

As Adidas announces a new robot shoe factory, an ILO report says up to 90% of workers in South-east Asia could face unemployment due to automation





# Robots and guaranteed income

- *44 per cent of jobs will be automated in the next 10 years*
- *50% by 2035*
- *60 per cent of students are chasing careers that won't exist*



- Three (and now 12) Dutch cities experimenting with guaranteed income
- Ontario begins in 2017
- Finland has started a two year pilot project.
- Productivity higher
- Sense of security

# New jobs



## PROFESSIONAL POKEMON GO TRAINER \$20/hr

About me: Also known as 'Golbat-chan' on sites like 4chan and imgur, I am a 24-year-old lifelong Pokemon enthusiast who wants to help YOU become the very best. My services are simple: I will walk...

NEWYORK.CRAIGSLIST.ORG

# SAFETY NET WITH HOLES TO TRAMPOLINE

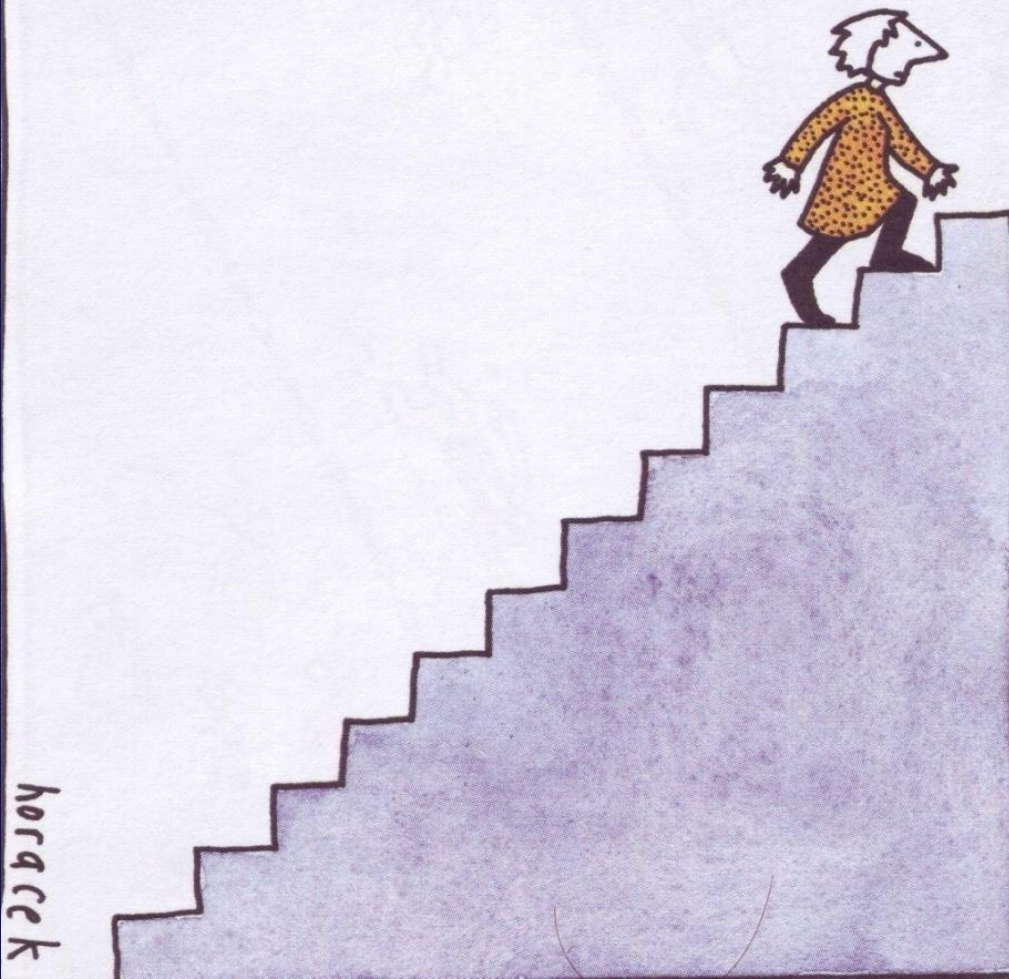
## UNHCR – IOM- Geneva perspectives





# What to do?

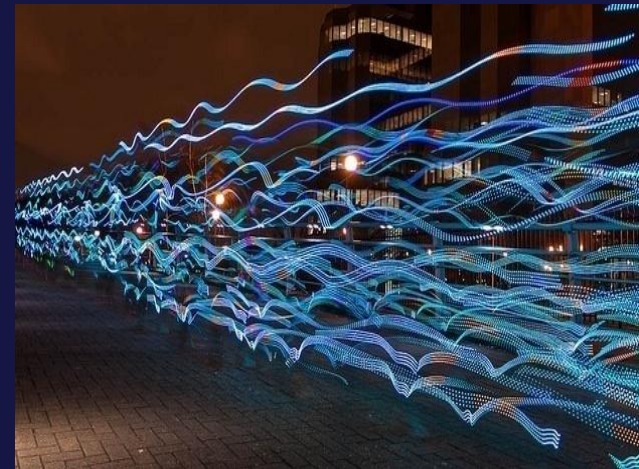
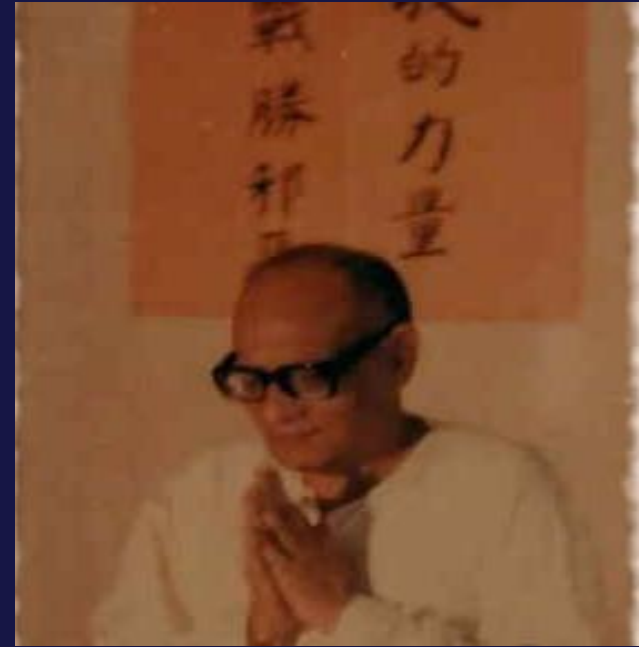
Her next step was clear but she wasn't so sure about the one after that



horacek

# P.R Sarkar

- You have entered a period of *galloping time*
- Exponential influence and impact



# The fourth industrial revolution

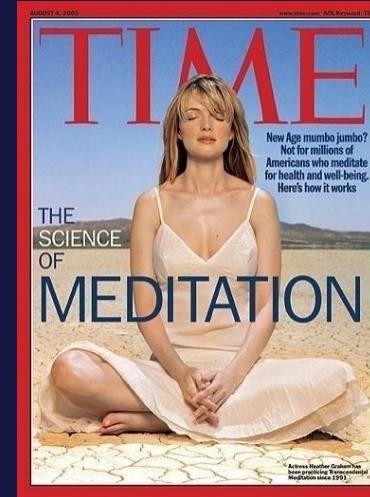




# Meditation and mindfulness

Studies show:

- 87% less heart disease, 55.4% less tumours, 50.2% less hospitalization, 30.6% less mental disorders
- 30.4% less infectious diseases
- Among the elderly, compared to control groups they live 23% longer, 49% less likely to die from cancer, 30% less likely to die from heart disease.
- 42% Less Hospital Resource Use
- 1 billion in sales in the USA , not including apps



# Anticipation – Futures wheel

- First and second order impacts
- Logical thinking
- Green hat
- Robust
- All views included



# GOLD COAST AND GLOBAL CHANGES

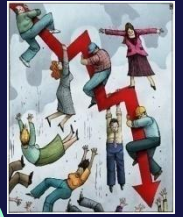


Sea level rise  
Peak Oil  
Water shortages

Prices rise  
Flooding

Depression –  
dislocation

Housing  
prices drop



Innovation



New green social  
and material  
products for asia  
and australia

New  
jobs

Redesign city  
Venice of  
Australia

New Economy and society



# CREATING ALTERNATIVES

## CREATING ALTERNATIVES



## Scenarios

	Spaceship Earth (Technology)	Gaia (Ecological)	Collapse (Worst case)	Modernist (Business as usual)
Litany				
Social causes				
Worldview				
Myth				
	Scenario 1	Scenario 2	Scenario 3	Scenario 4

## CLA Incasting



## Trajectories

# 3. Creating alternative futures

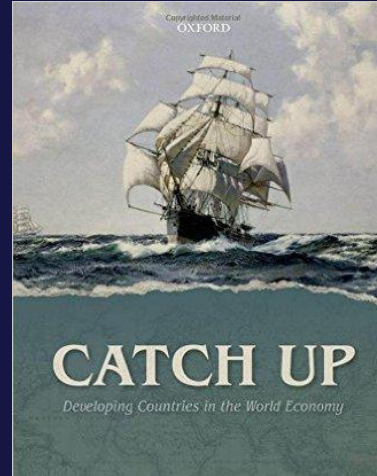
## No Change

*For jobs that  
no longer  
exist*



## Marginal Change

*Catching up*



## Adaptive change

*How well do  
you get along  
with your  
robot?*



## Radical change

People, Planet,  
prosperity, and  
purpose

*A world after jobs*



# DEEPENING

## DEEPENING



**Casual Layered Analysis**

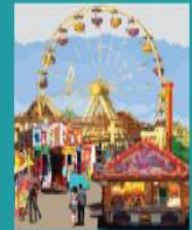


**Metaphors**

From the problem story to



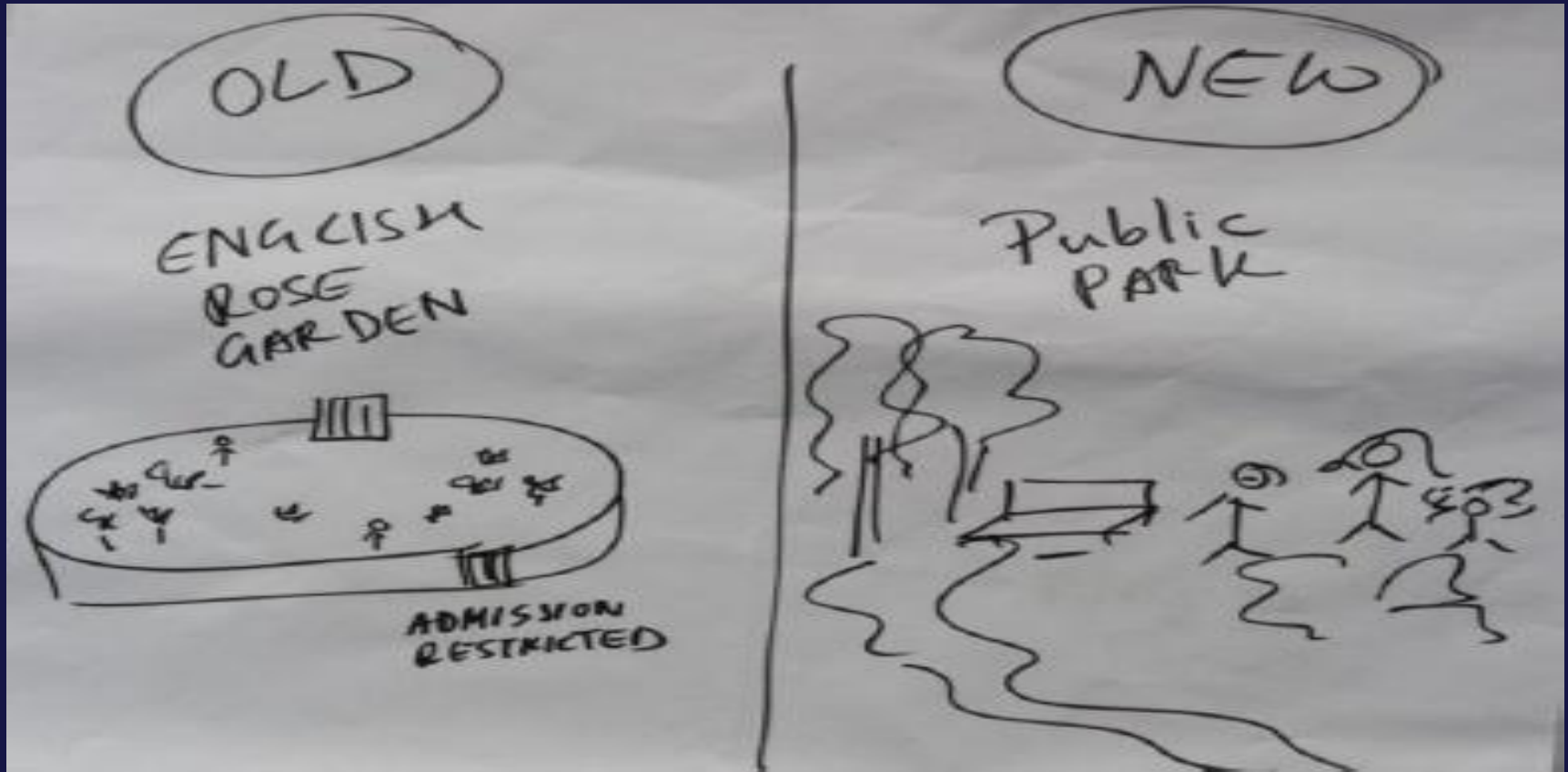
the transformed future



**Create the New Narrative**



# Higher education in the Islamic world



Manicured but  
difficult to enter

Co designed and  
available for all but  
messier

# the tension?

- Wants to be best in the world
- But currently like a hammer, blunt
- The new story?



# THE NEW METAPHOR FOR HIGHER EDUCATION IN MALAYSIA



# NEXT STEPS?

## OUR ROLE

The flame of a lamp  
lights up countless  
other lamps. The touch  
of a great personality  
wakes up innumerable  
sleeping hearts.



# Additional Information at: Malaysian Uni futures course - November 27-29, 2017

