

Are You Ready for The Challenges of a Future Disrupted World?

HORIZON 2025 - AND BEYOND

DR JAMES BELLINI



FUTURE WORLD: 1950s VIEW

I'm glad I didn't say this...

"Computers in the future may weigh no more than 1.5 tons."

Popular Mechanics Magazine, 1949

2030 AND BEYOND: HOW EVERYDAY LIFE WILL CHANGE

Skyscraper farming

A futuristic concept converts skyscrapers into crop farms that can help reduce global warming, improve the urban environment, and help feed the world's growing population. How it would work:

SOLAR PANEL

Energy is supplied by a rotating solar panel that follows the sun; drives interior cooling/heating system.

GLASS PANELS

Clear coating of titanium oxide collects pollutants and makes rain slide down the glass where it is collected and used for watering.

ARCHITECTURE

Circular design allows maximum light into center.

ECONOMY

The plan combines farming with office and residential stories.

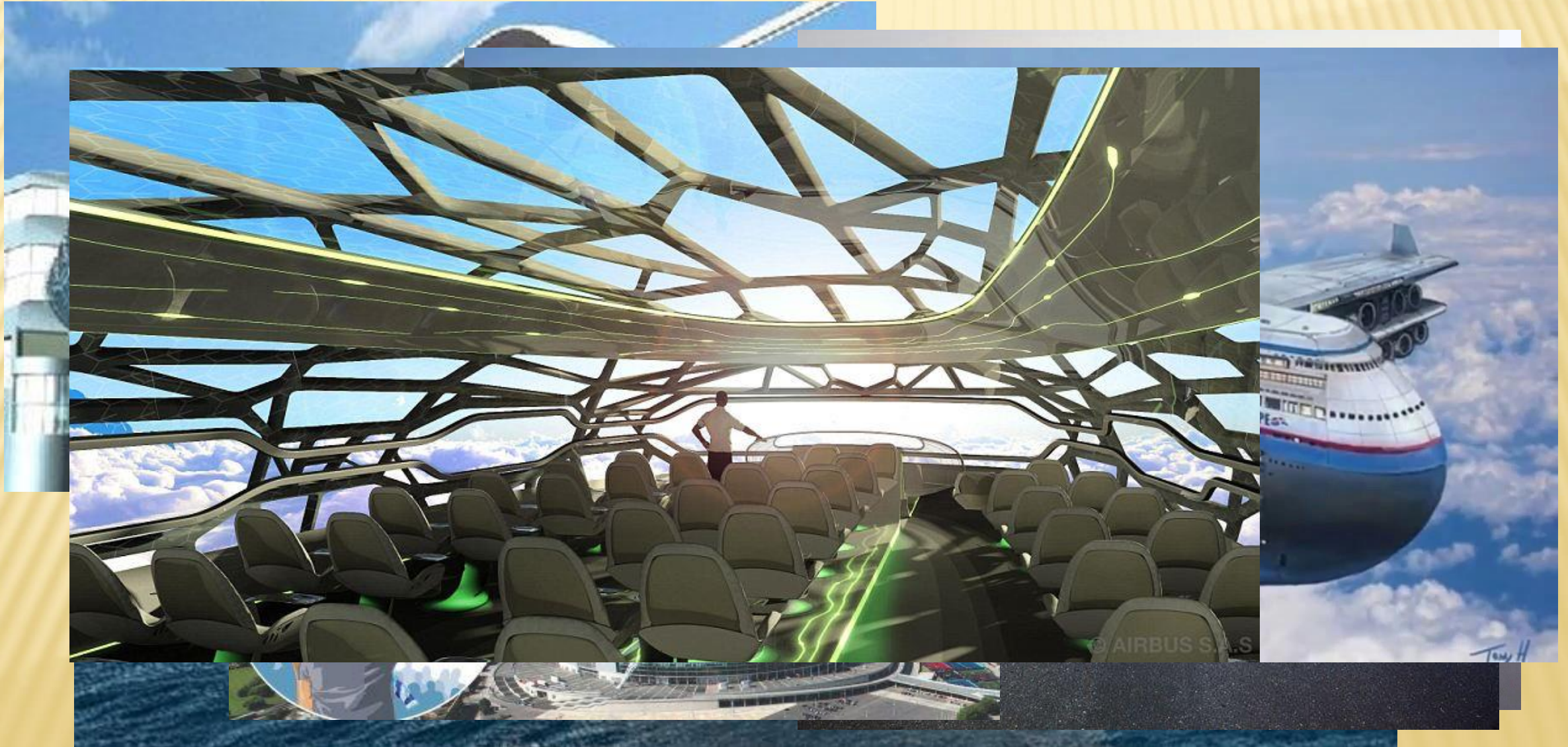
IRRIGATION

Filtered, sterilized wastewater from sewage system can be used for irrigation.

© 2008 MCT
SOURCE: Vertical Farm Project



2030 AND BEYOND: EVERYTHING ELSE WILL CHANGE



2030 AND BEYOND: A LUNAR POWERED FUTURE?

Mining the Lunar Dust

Regolith, the loose soil on the moon's surface, contains more than 1 million tons of helium 3. In theory, this nonradioactive isotope could provide an abundant source of clean nuclear energy. How it might be done:

3 Heater: Brings regolith to 700°C



Infrastructure such as solar panels and oxygen units exported from Earth to set up mining operation



286,600 miles

is collected to 600°C to release helium-3 (He₃)

'The moon is so rich in helium-3, this could solve humanity's energy demand for around 10,000 years at least.'

Professor Ouyang Ziyuan

Chief Scientist, Chinese Lunar Exploration Program

1 Bucket-wheel excavator sifts the regolith to sift out large stones and keep only grains smaller than one millimeter in diameter.

Lunar regolith

Bucket-wheel excavator

Heater

Fluidized chamber

4 Gas storage: Collects the helium 3 and other gases for transport to a moon base where the gases are separated. The helium 3 is shipped to Earth.

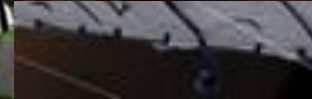
SOURCE: UNIVERSITY OF WISCONSIN * MADISON FUSION TECHNOLOGY INSTITUTE GRAPHIC BY STANFORD KAY-NEWSWEEK

Normal Helium



Moon base

2030 AND BEYOND: BUILDING OTHER WORLDS

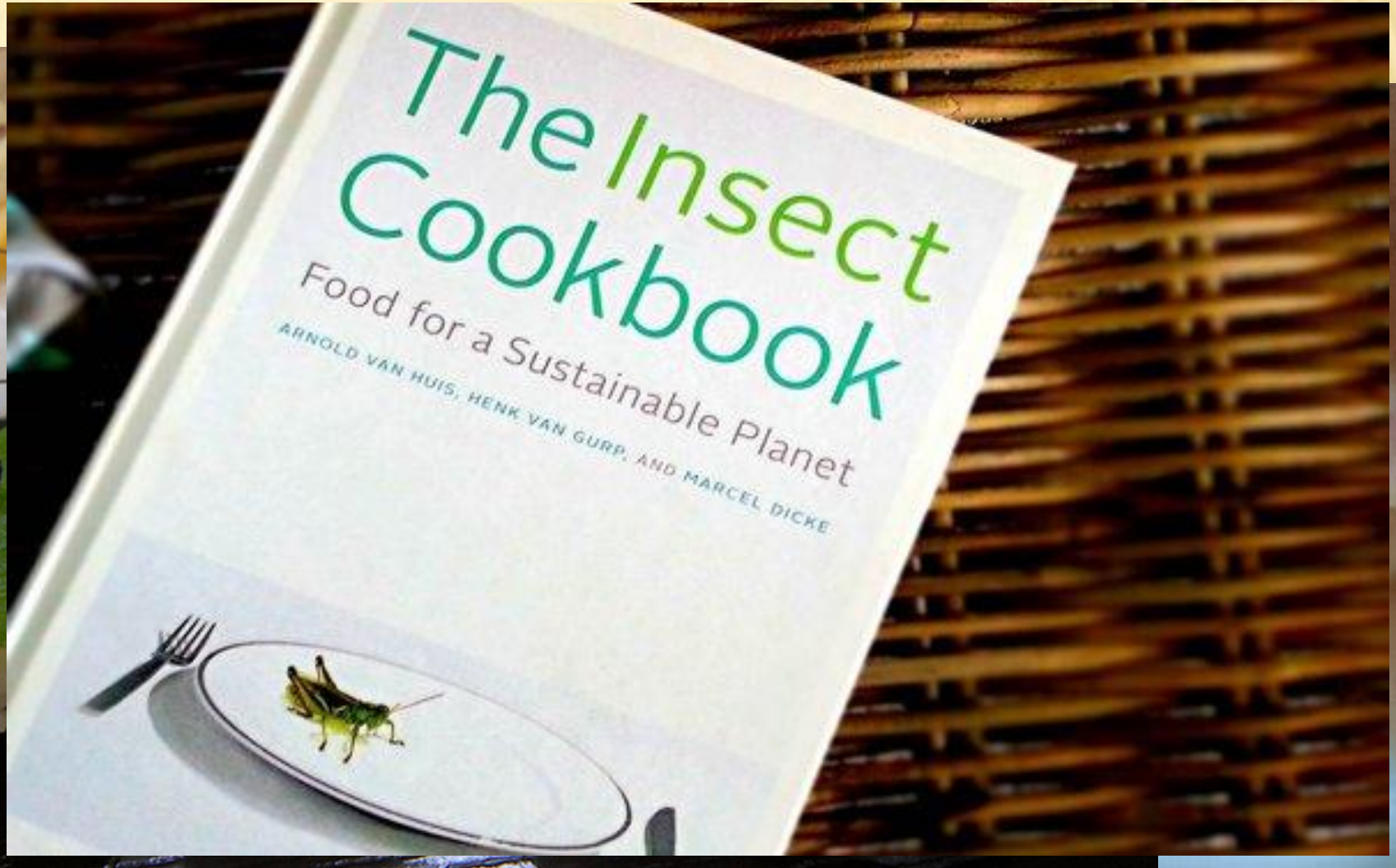


AND SPEAKING OF FUTURE FOOD ...

Bur



6. When enough, the defrosted compact just before 20,000 s 140g bur



HORIZON 2045: TOWARDS A POST-HUMAN FUTURE?

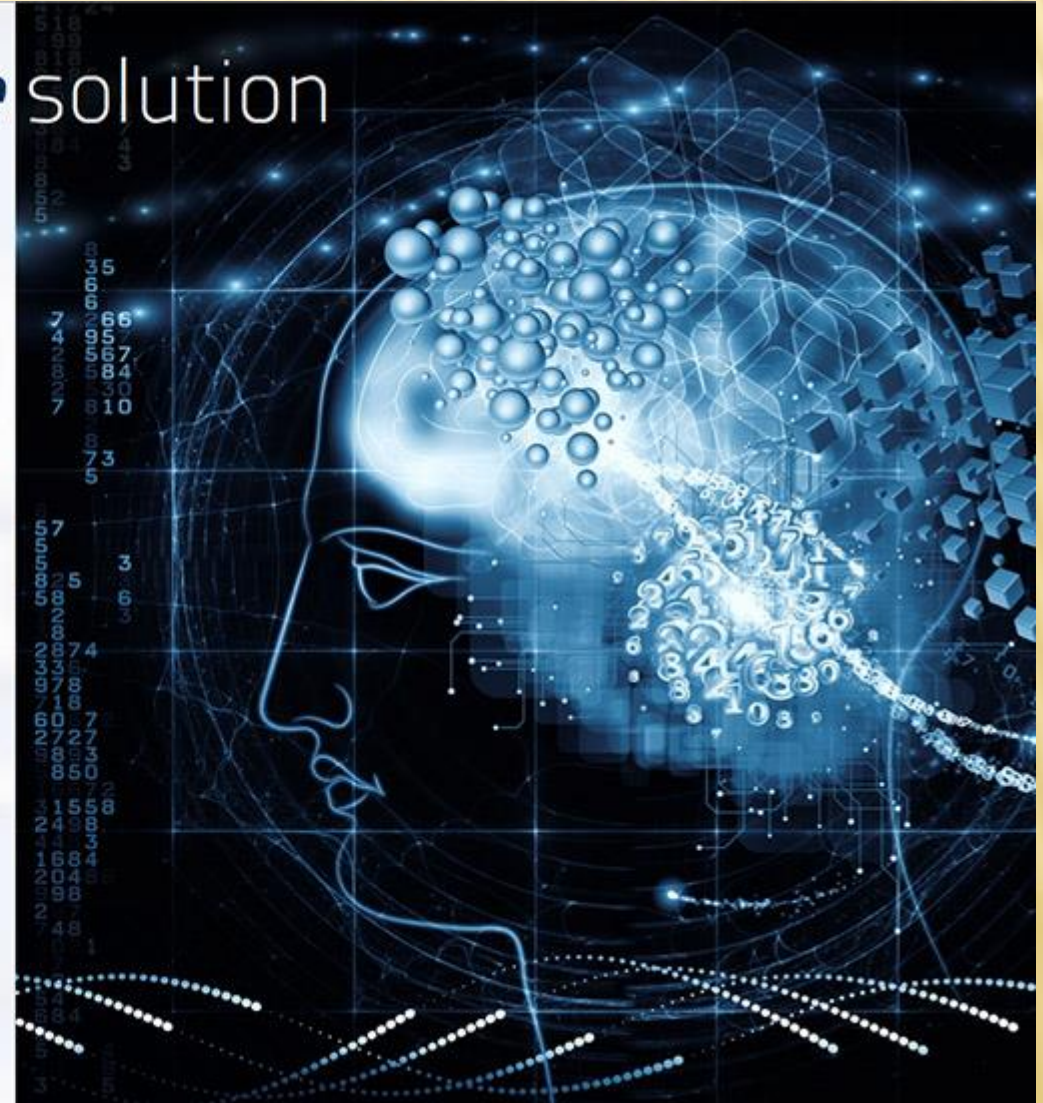
2045
Strategic Social Initiative
AVATAR PROJECT

The *2045 Initiative* solution

Self-directed evolution through partial and eventually complete **replacement of your biological body with an artificial avatar.**

"The body will change and evolve."

— Konstantin Tsiolkovsky



THE FUTURE IS NOW: YOU IGNORE IT AT YOUR PERIL



BRAIN MAP OF THE FUTURIST

Seeing the

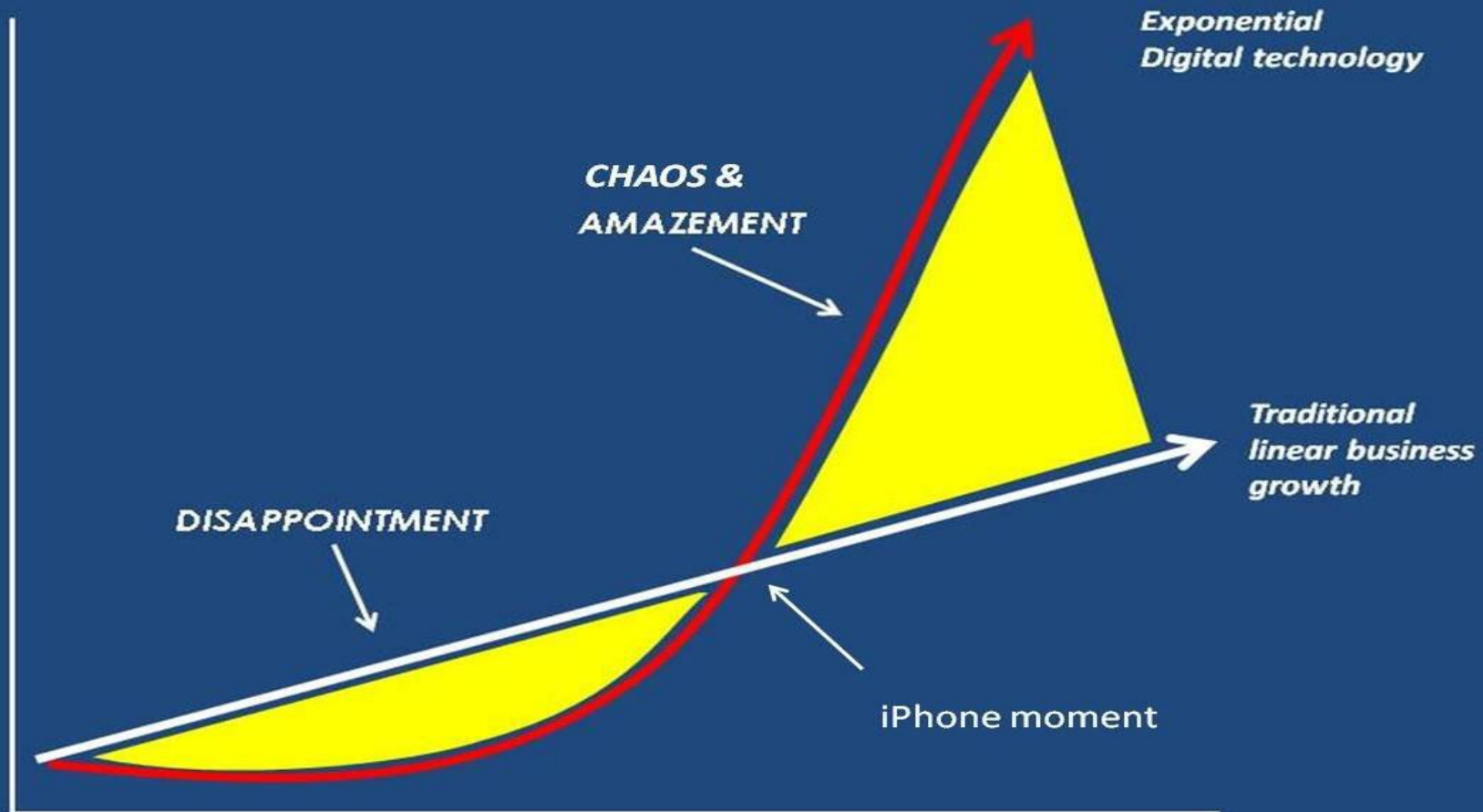
A magnifying glass with a black handle and a silver spring is positioned over the word "BIG" in the phrase "BIG picture". The magnifying glass is tilted, and its lens is focused on the word "BIG", which is significantly larger than the word "picture". The background of the magnifying glass's lens is a light gray gradient.

BIG
picture

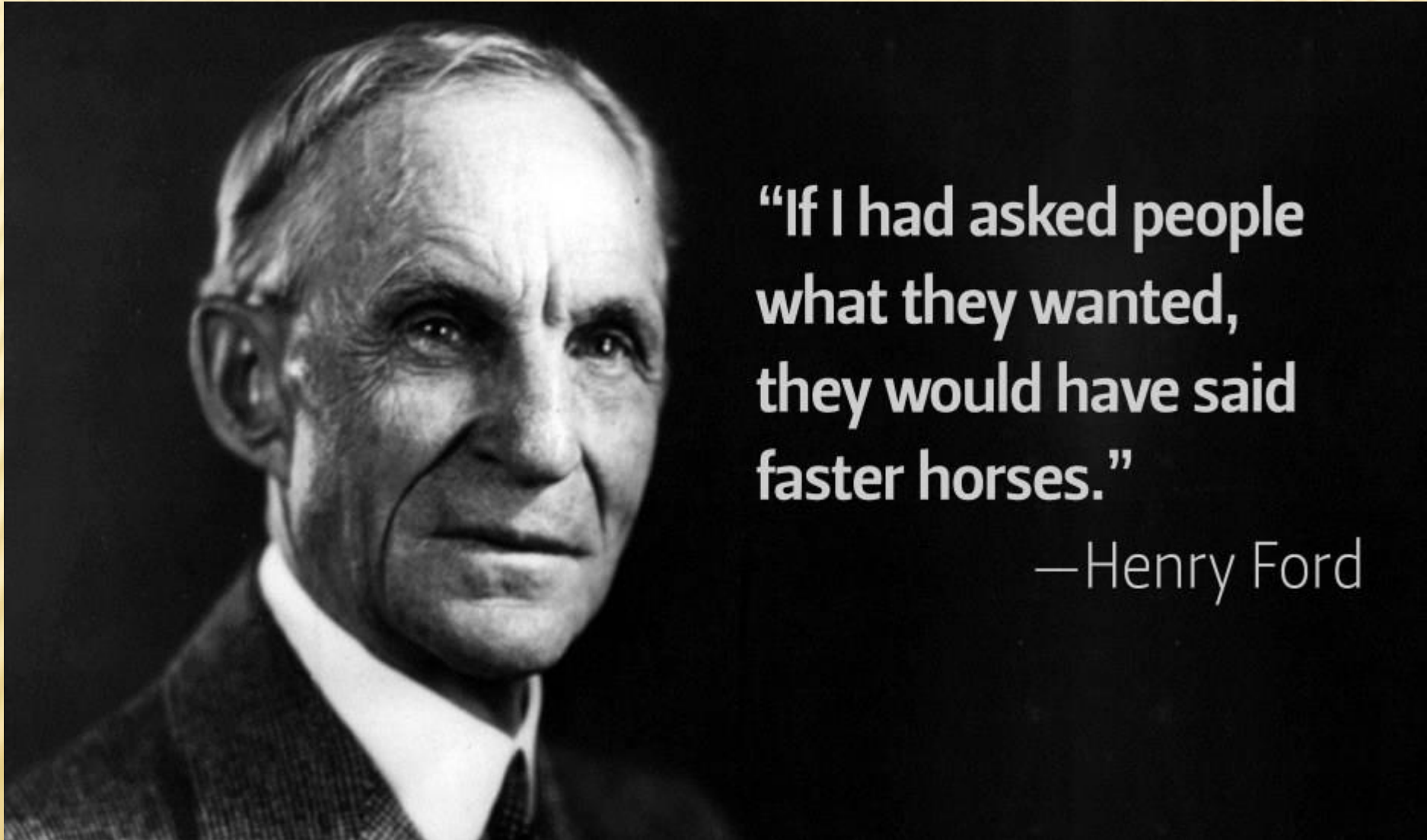
in the small details

THE BIGGEST CHALLENGE: THE ACCELERATING PACE OF CHANGE

LINEAR VS EXPONENTIAL GROWTH



WHY COMPANIES FAIL – THEY IGNORE THE FUTURE



**“If I had asked people
what they wanted,
they would have said
faster horses.”**

—Henry Ford

“Creative destruction” is the “process of industrial mutation that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one“

Joseph Schumpeter

TOMORROW'S WORLD: SHAPED BY DISRUPTION



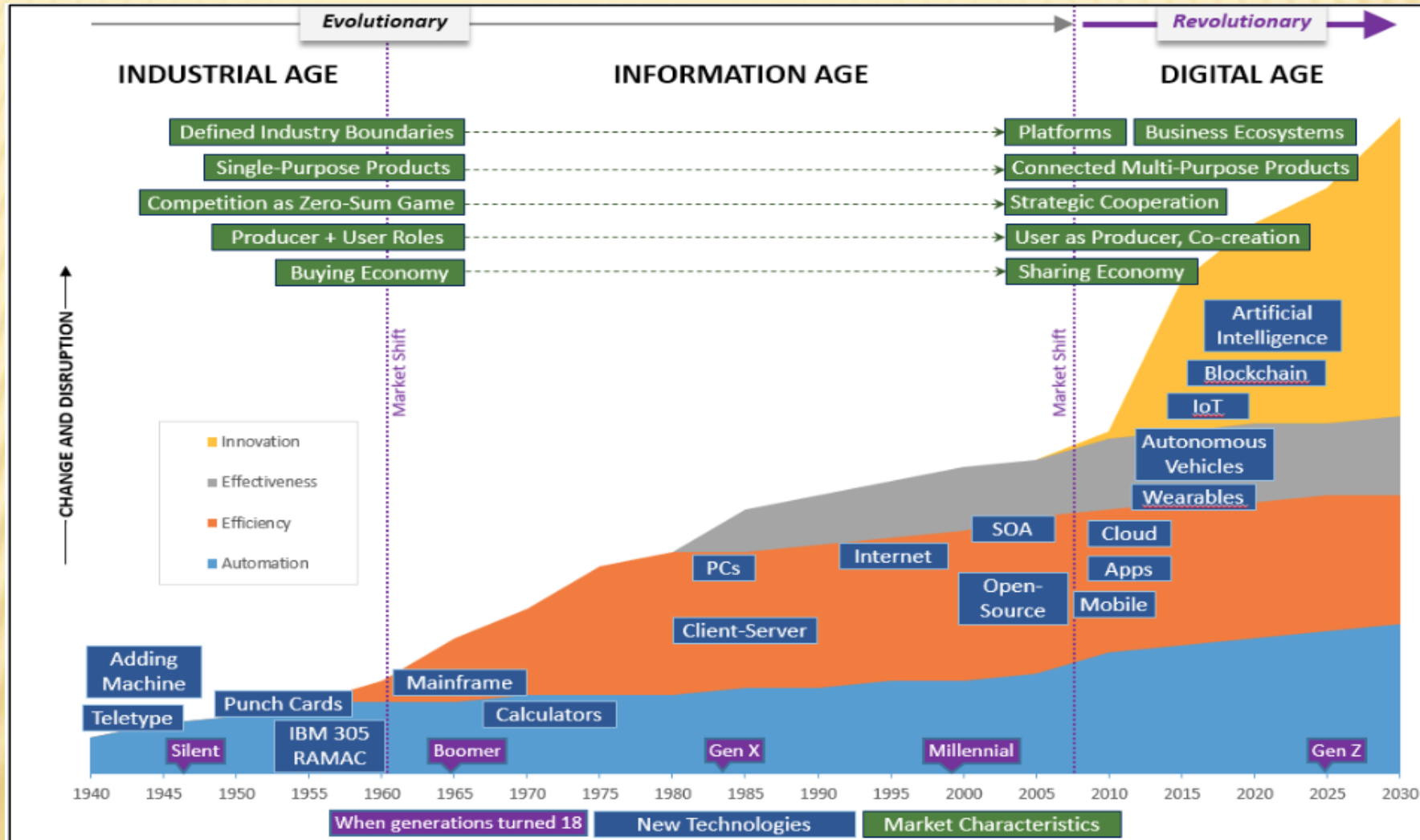
“Because of the explosive nature of exponential growth, the 21st Century will be equivalent to twenty thousand years of progress at today’s rate of progress; about one thousand times greater than the 20th Century”

Ray Kurzweil

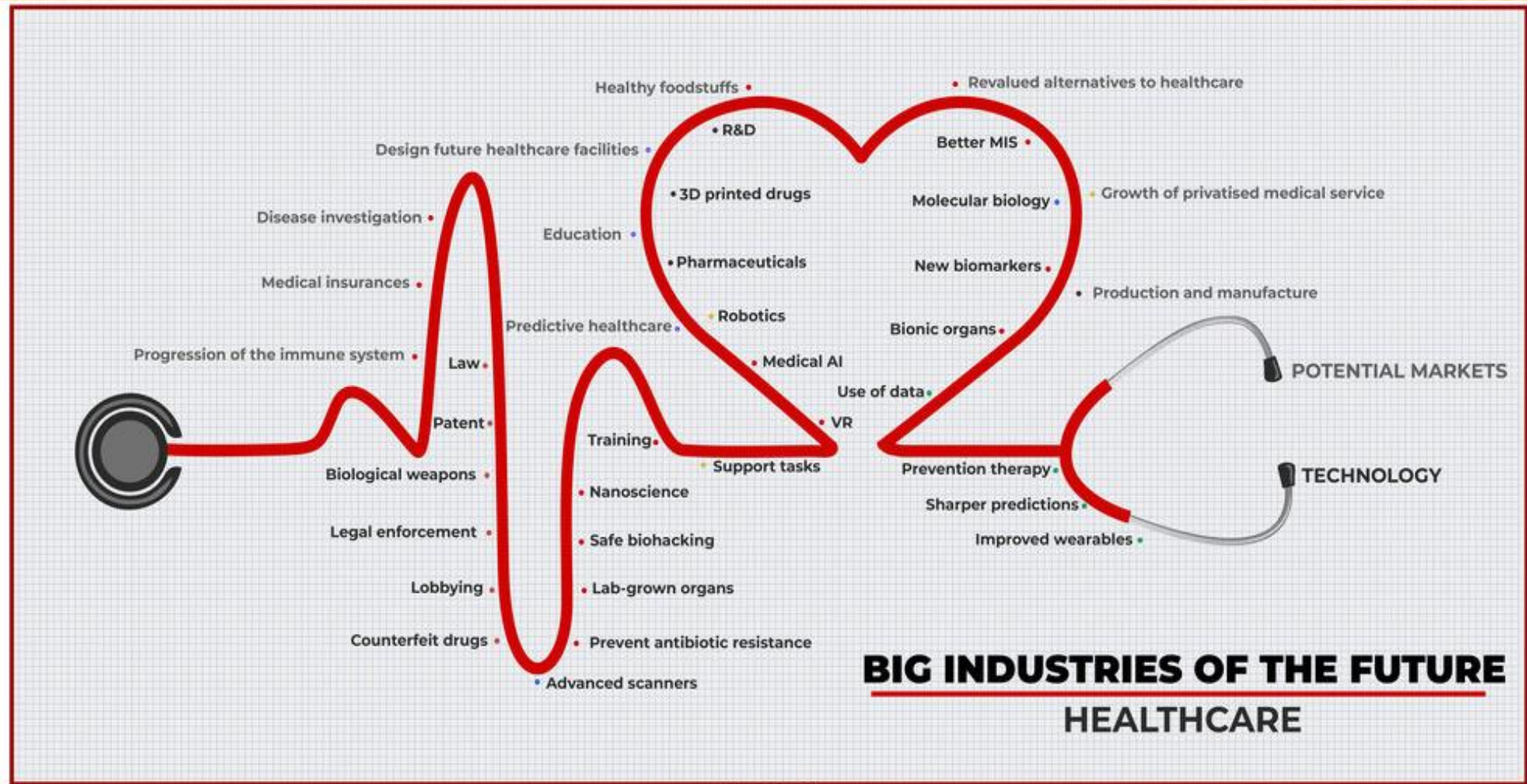
TOMORROW’S WORLD: SHAPED BY DISRUPTION



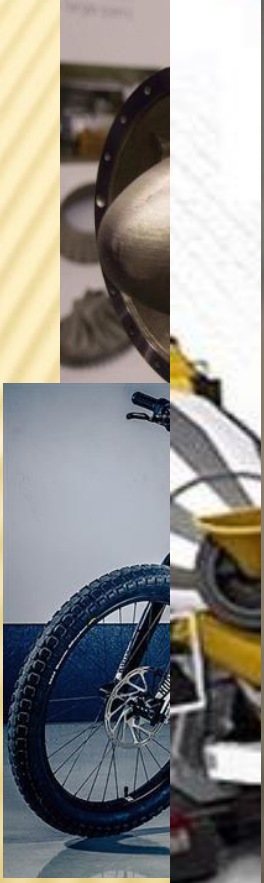
FUTURE DRIVERS OF DISRUPTION



TRANSFORMING EVERY SECTOR



CASE STUDY: ADDITIVE MANUFACTURING FUTURE



COMING SOON: THE FOURTH DIMENSION

Leading the change from automation to self-assembly

Application Mapping

Healthcare



Tissue Engineering

Automotive



Stimuli Response Coatings

Aerospace



Self-repairing parts

Military



Camouflage Suits

Architecture



Shape Changing Pipelines

Trend Evolution

Self-assembling Materials

Exploring materials and understanding reaction to external elements



Commercial 4D Printing

Industry application will be explored with cost of technology more suited for industrial applications

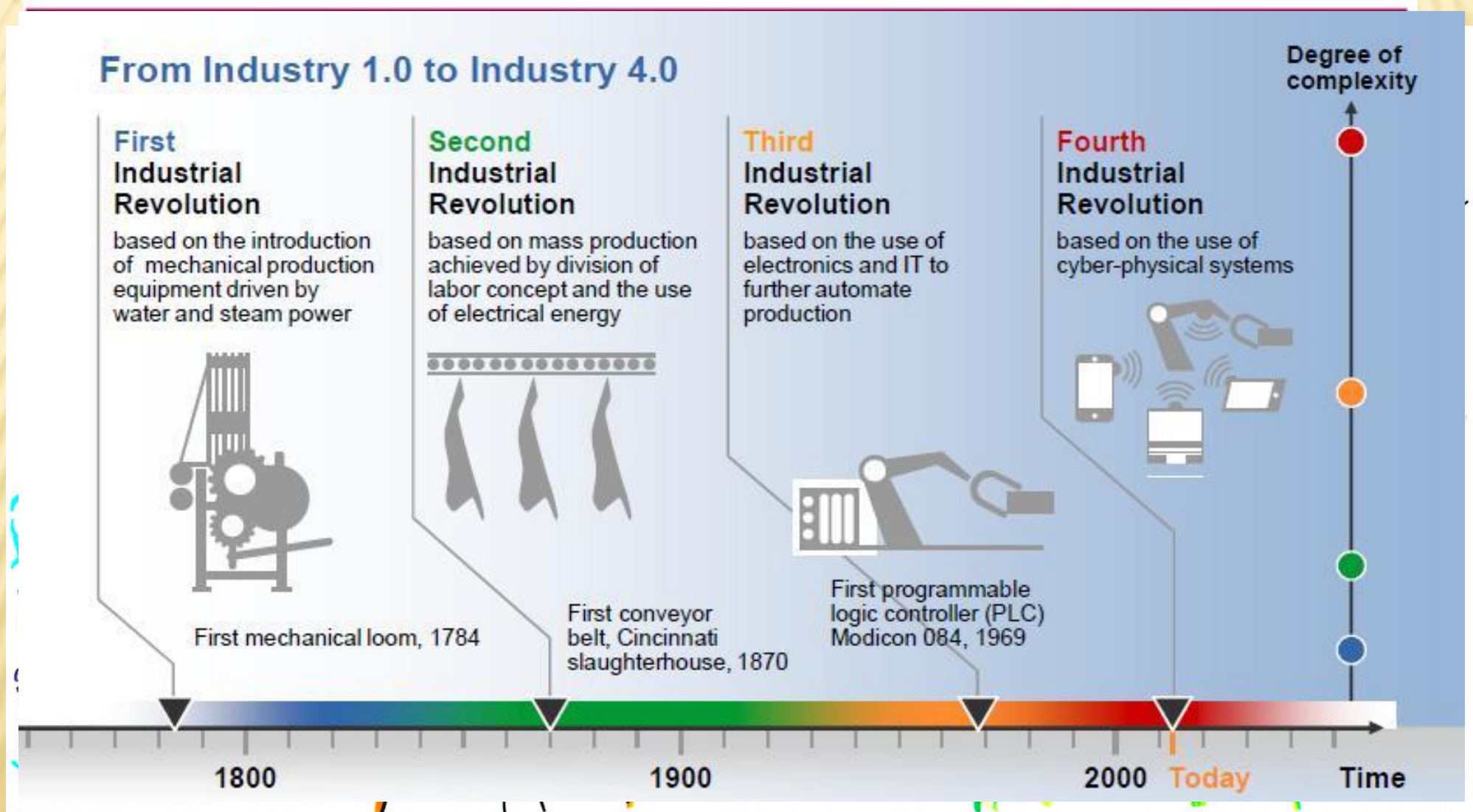


Environmental Manufacturing

Ambient sources of energy (like heat, pressure pneumatic etc.), water or even light will be used as impetuses to self-assemble

Source: Frost and Sullivan

BIG DATA: THE 'OIL' OF THE 21ST CENTURY



BIG DATA: THE ULTIMATE DISRUPTOR

‘The conventional image of the stable, vigilant accountant is set for an unexpected defeat. New technology, new software, and new rules mean the role of the accountant is prepared for a revamp.

Artificial intelligence, automation, cloud accounting, Open Banking, creating Tax Digital all promise to rework the accountancy and consulting profession, and, by extension, produce vast new opportunities for the companies they serve’

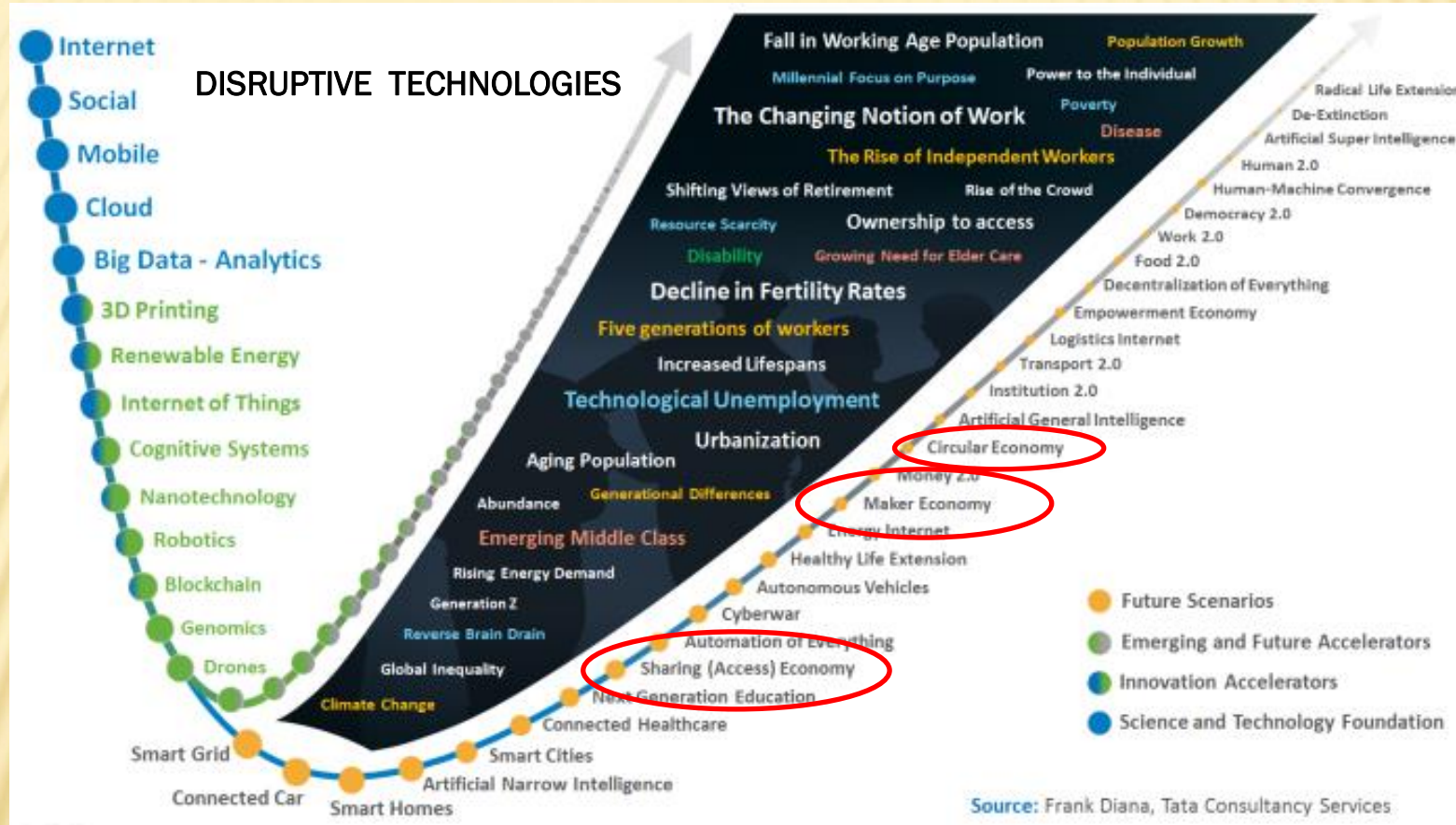
Generational Shift

'Post-Ownership' Business Model?

TOMORROW'S PEOPLE: A NEW ECONOMIC CULTURE?

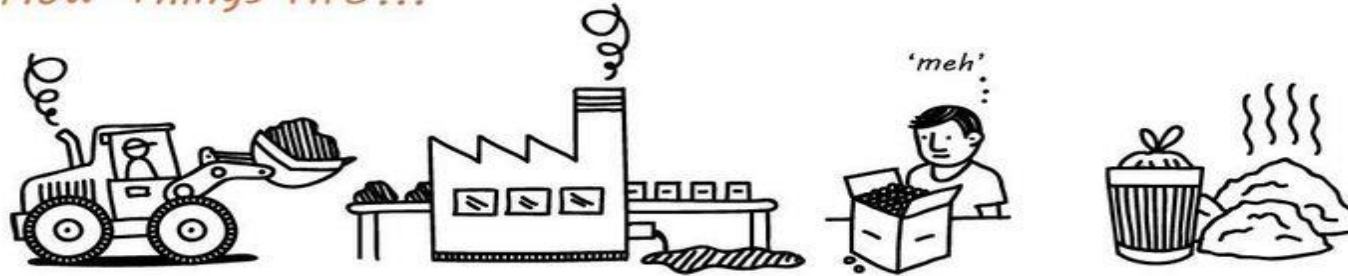


BEHAVIOUR SHIFT: A NEW ECONOMIC CULTURE?

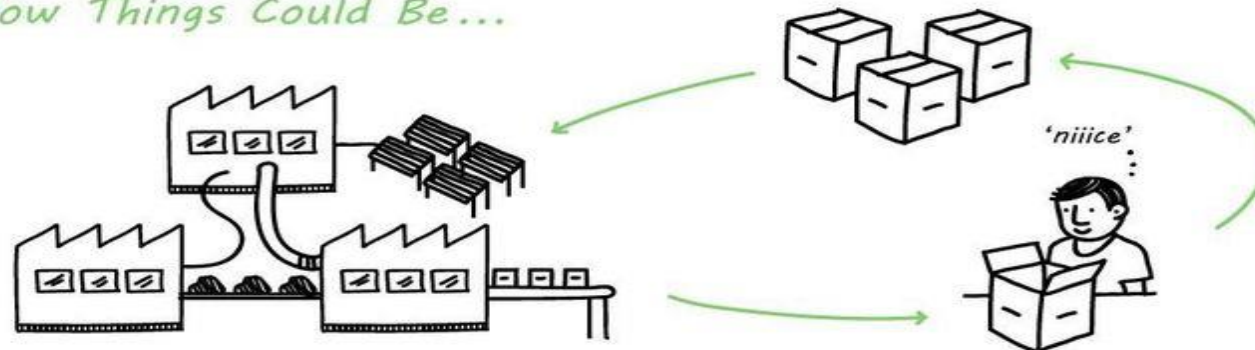


A NEW ECONOMIC AGENDA

How Things Are...



How Things Could Be...



MAKE & REMAKE

materials flow back into production
zero-waste ecosystem of factories
waste is food
renewable energy sources

USE & RETURN

performance-based products
service > ownership
resources returned to system
value captured

A 'POST-OWNERSHIP' WORLD?



As people's access to the internet grows we're seeing the sharing economy boom - I think our obsession with ownership is at a tipping point and the sharing economy is part of the antidote for that.

— *Richard Branson* —

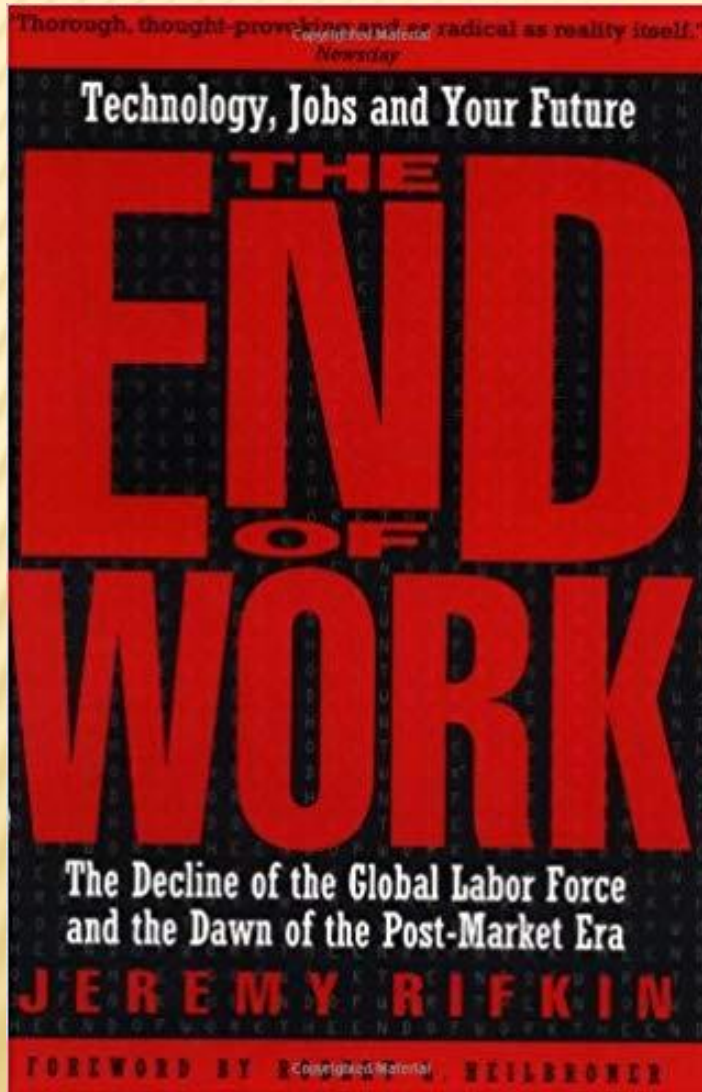
AZ QUOTES

But What Kind Of Work Revolution?

FUTURE OF WORK, WORKPLACE AND BUSINESS MODELS



CHALLENGE: MANAGING A WORK REVOLUTION



EMERGING NETWORKED BUSINESS MODEL

Tomorrow's company will reflect the shift from hierarchy to networked enterprise – from *pyramid* to *pancake* ...

'Cubes and offices—the largest portion of most organizations' real estate portfolios—are only occupied 30 to 40 percent of the core working day' ...
an average of three hours daily' *Global Survey*

What are the implications for accountants of an increasingly **externalised** workforce?

THE FUTURE WORKPLACE?



OR THIS?

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A glimpse
research

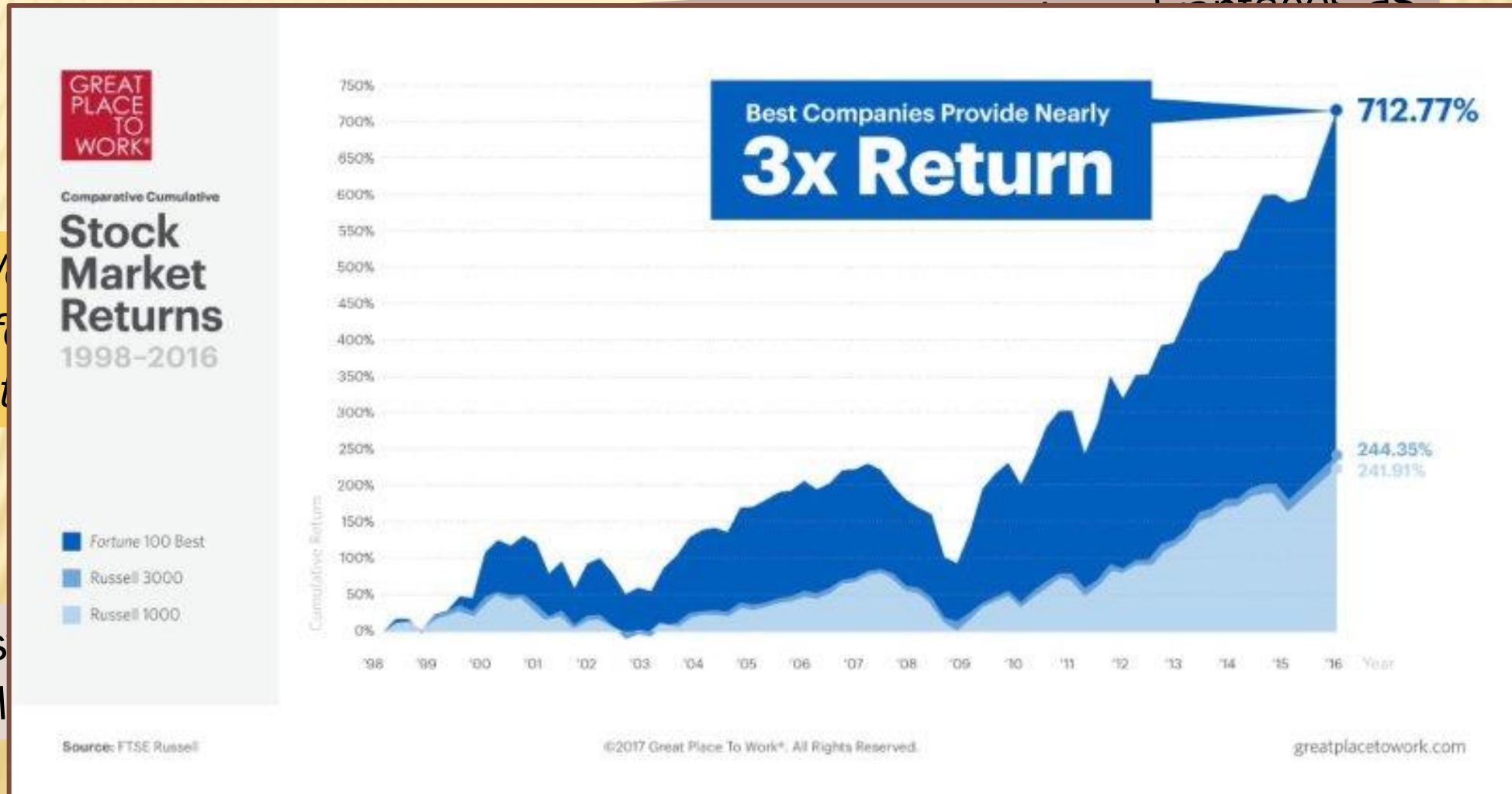


thing
employees stay mentally
exercising the brain

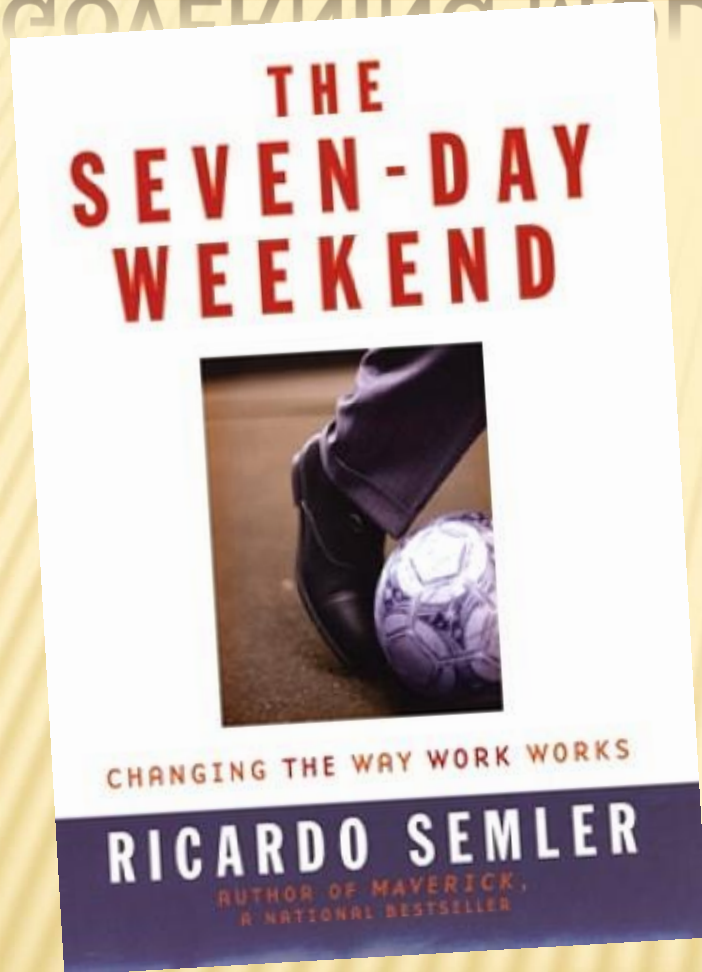
HIGH-TRUST BUSINESS MODEL

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SELF-GOVERNING MODEL



“Successful companies put quality of life first ... do this and quality of product, worker productivity and profits for all will follow”

SELF-ORGANISING MODEL

From Hierarchy to Holarchy

‘Generally, Millennials are not keen on traditional, formal power structures. Traditional role hierarchies and rigid responsibilities are out, flexibility and full participation are in. Ignore this fundamental change at your peril.’ *Forbes*



Team Circle

Team Circle

POST-OWNERSHIP BUSINESS MODELS

The Performance Economy - **selling performance--goods as services**

- is the most profitable and competitive business model of the Circular Economy,
- is sustainable and preventive as manufacturers internalise the cost of risk and of waste,
- leads to radical and rapid new product design for take-back and reuse of goods and components,
- **achieves the highest resource efficiency and security as it maintains ownership of material,**
- exploits sufficiency and prevention as profit strategies

Strategies

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GENERATIONAL SHIFT IN HUMAN MOTIVATION?

Clash Point	Traditionalists	Boomers	Xers	Millennials
Work/career goal	To build a legacy	To build a stellar career	To build a portable career	To build parallel careers
Reward system	Satisfaction of a job well done	Money, title, recognition	Freedom is the ultimate reward	Meaningful work
Feedback	No news is good news	Once a year is enough	"How am I doing?"	Comes at the push of a button
Changing jobs ...	Carries a stigma	Puts your career behind	Is necessary	Is part of my daily routine
Retirement is ...	A reward	Time to retool	Time off to renew	Recycling
Training	"I learned it the hard way; you can too."	"Train 'em too much and they'll take the new skills and leave."	"The more they learn, the more they stay."	Continuous learning is a way of life.

'Behavior comes w

and

'Too many individual

AND THEN THERE'S GENERATION ALPHA

The signals of **evolving consumption patterns** are already here.



AND WHAT NEW JOBS IN THIS FUTURE WORLD?



Professions In The Digital Age

YOUR FUTURE CHALLENGE?



YOUR FUTURE CHALLENGE

What kind of clients will you be serving in tomorrow's world of disruptive change –

- where new technologies emerge at an accelerating pace?
- where company size will be irrelevant?
- where business models are mutating?
- where working practices are being transformed?
- where new generations rule the workplace?



YOUR FUTURE CHALLENGE

'It is obvious that large parts of the work the profession does at present could be automated with relative ease. But in that case the profession has to adapt and current signs are that it is in a remarkably poor place to do so'

Prof. Richard Murphy City University London

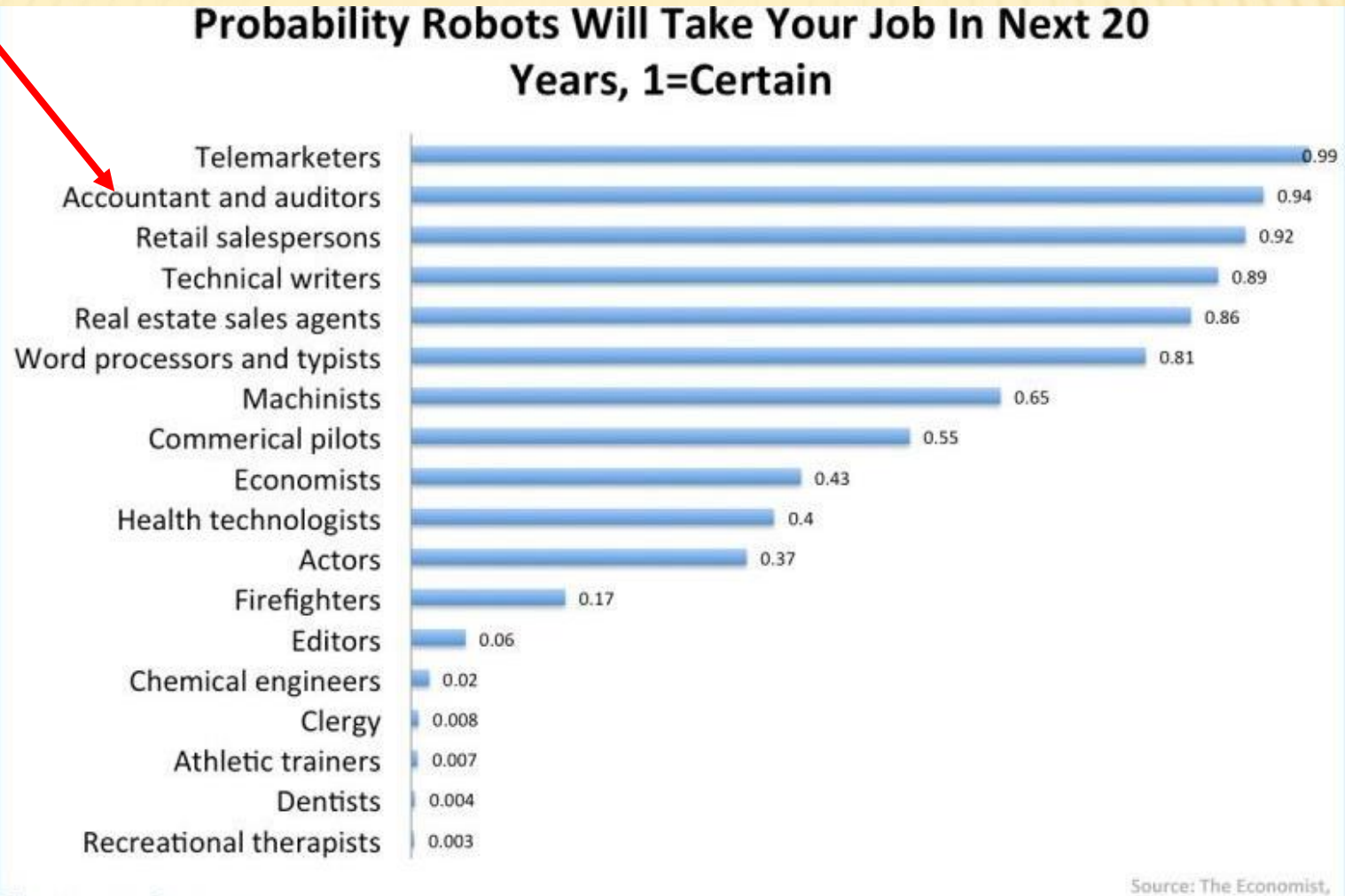
ACCOUNTING

'In a technology-based internet society, we predict that increasingly capable machines, operating on their own or with non-specialist users, will take on many of the tasks that have been the historic preserve of the professions'

R & D Susskind

The Future of the Professions

FIRST – THE NEGATIVE VIEW



'Ro
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y by 2035'

THE CHALLENGE IN A NUTSHELL

‘There are two interconnected fronts of change in workforce transformations:

- 1) large-scale decline in some roles as tasks within these roles become automated or redundant
- 2) large-scale growth in new products and services—and associated new tasks and jobs— generated by the adoption of new technologies and other socio-economic developments such as the rise of middle classes in emerging economies and demographic shifts’

World Economic Forum *The Future of Jobs Report 2018*

Financial data analyst
Financials preparer vs. strong communicator
A company outsider vs. integral participant in
company strategy
Comptroller vs. business coach

YOUR FUTURE AGENDA

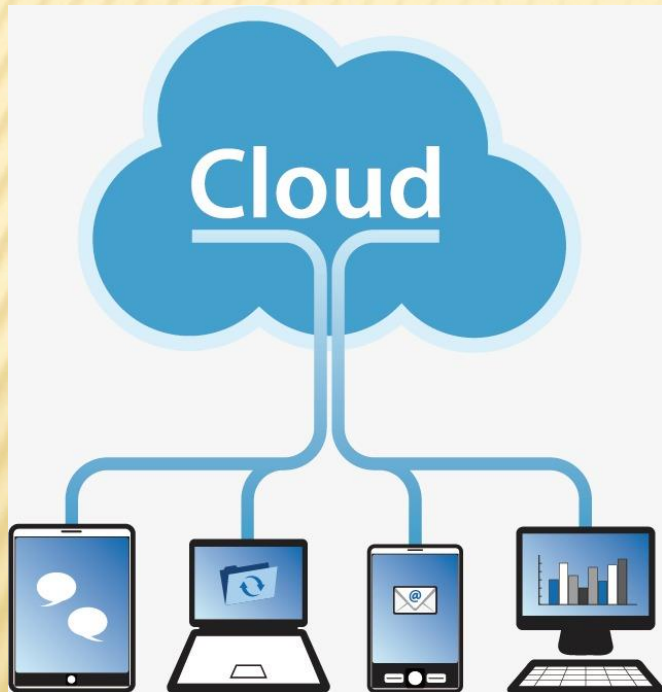


‘Effectively combining finance, technology and information will be key to succeeding in the accountancy world over the next five to ten years

Where accountants can make their mark is with distilling data - turning information into actionable insights

Big data provides the perfect platform for accountants to develop an increasingly strategic relationship with their clients’

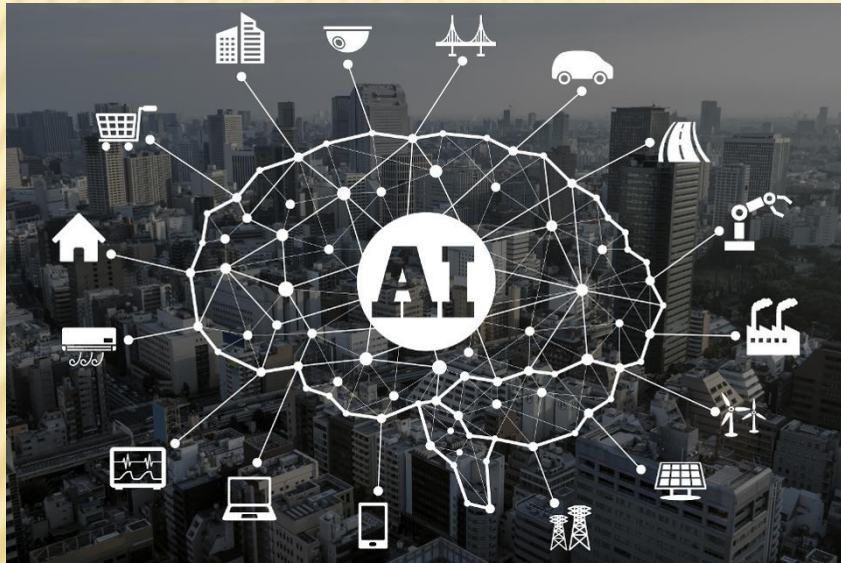
YOUR FUTURE AGENDA



‘Cloud-based accounting systems raise the prospect of an agile and competitive service. The increasing reach of the internet means cloud computing is edging closer to ubiquity

The cloud makes accountancy software scalable, cost-effective and easy to use - a potent combination for a profession that prides itself on attention to detail’

YOUR FUTURE AGENDA



Technology may seem more pressing and transformational now, but is the arrival of AI or big data more significant than the arrival of computers into finance departments or the appearance of the spreadsheet?

Accountants should grasp the opportunity this new world offers. For instance, robotic process automation (RPA) could “transform the cost, efficiency and quality of executing many of the back office and customer-facing processes that businesses rely on people to perform.”

YOUR FUTURE AGENDA



“As well as intelligent automation and machines gaining cognitive skills, reason and learning there is another 600lb gorilla that can take out huge chunks of the profession. This is blockchain.

They are still being tested and developed, but it is clear these new technologies will change the profession and we’ll need different skills and a different focus to help us do whatever our jobs turn into better.”

David Powell *President, ACAUS*

YOUR FUTURE AGENDA

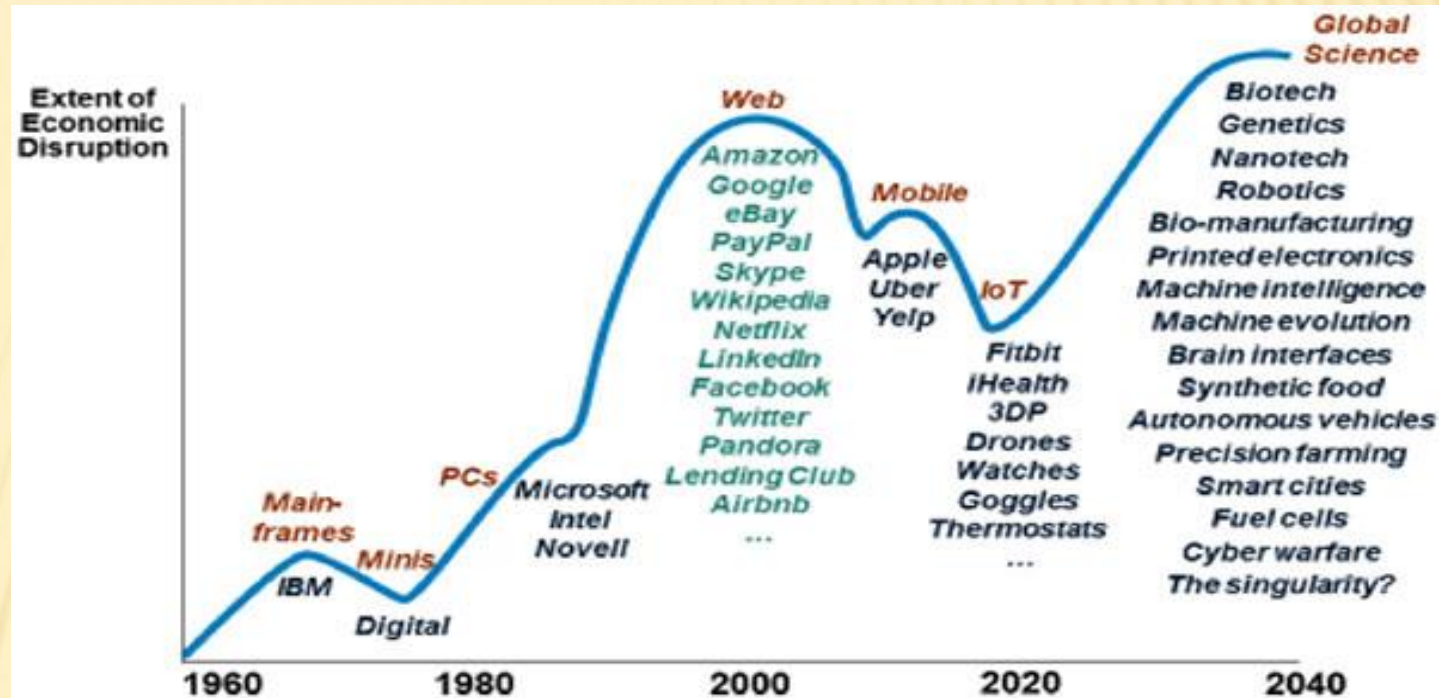


‘One issue all this throws up for those seeking to develop the next generation of accountants is that entry-level jobs are often made up of the more routine tasks that are likely to be automated.

The challenge will be: what do new entry level jobs look like? You can’t take someone without experience and put them straight into a higher-level, judgment-based role’

CLOSING WORDS OF WISDOM

The key is to embrace disruption and change early. Don't react to it decades later. You can't fight innovation.



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