InsurTech Snapshot
Current state of affairs
&
foreseeable developments

October 2018

Carlos Alejandro Belloni

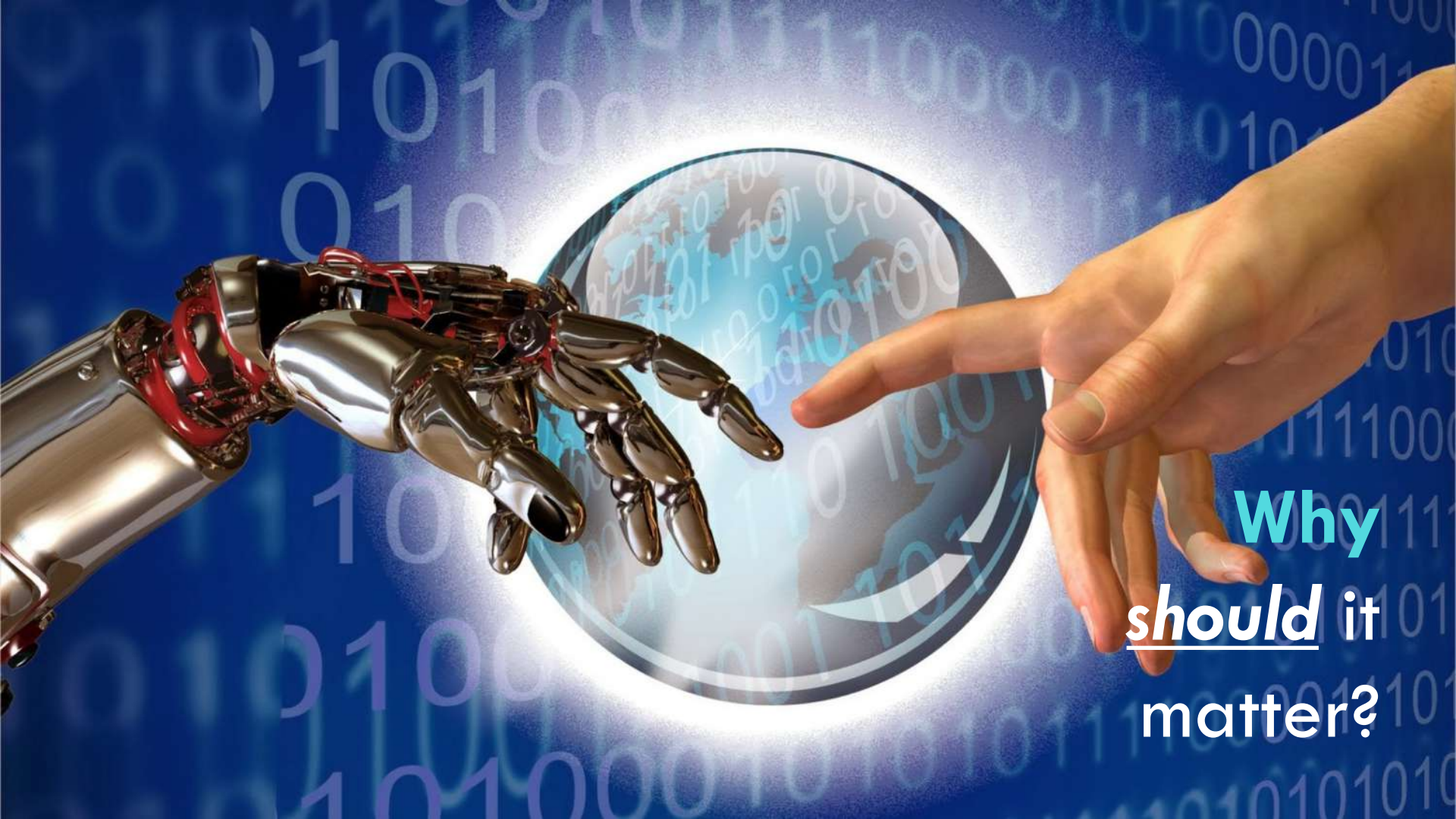
What is the Fourth Industrial Revolution?

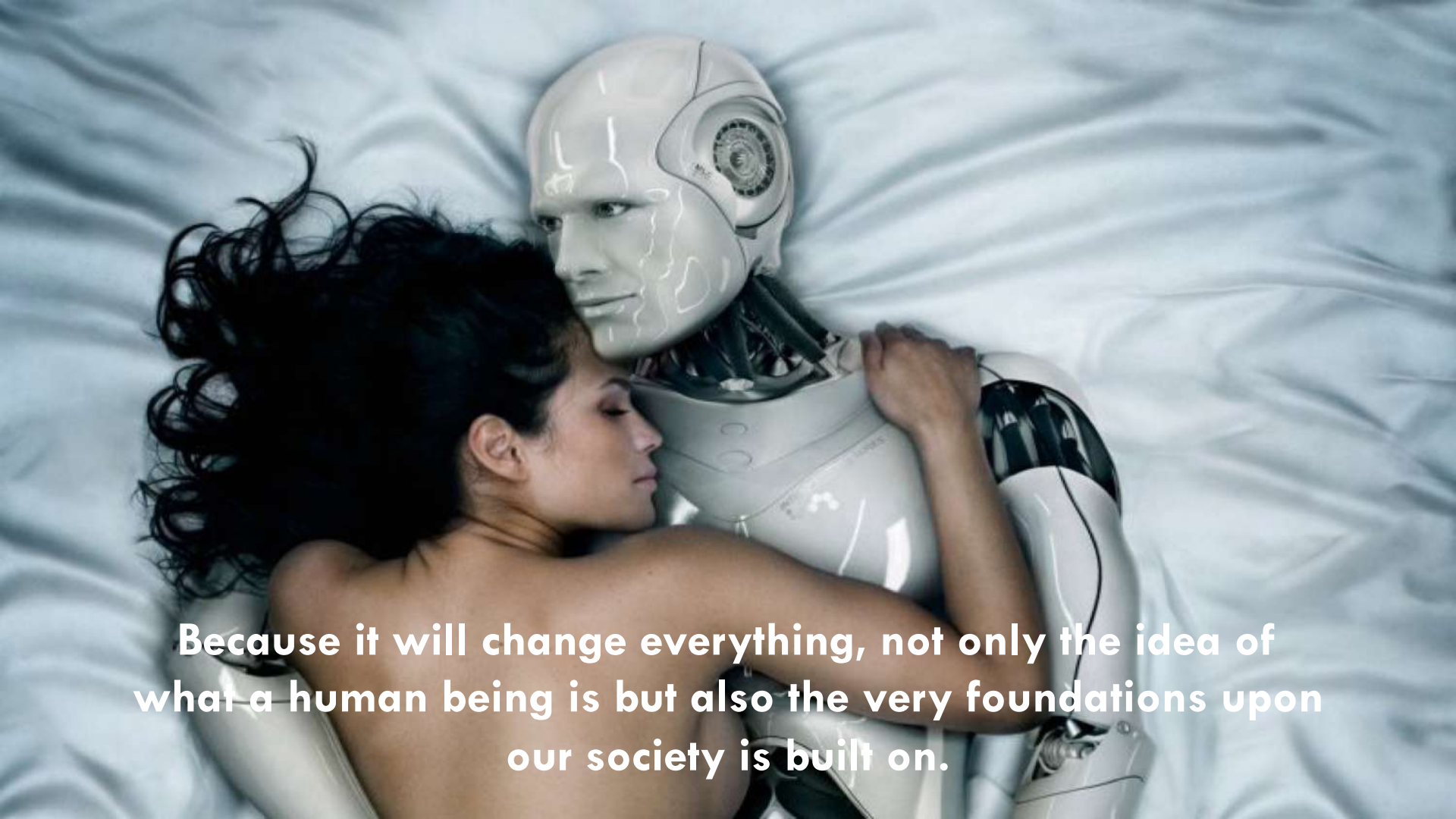
The 4IR is characterized by a ***fusion*** of technologies that is ***blurring*** the lines between the ***physical***, ***digital*** and ***biological*** spheres. These overlapping technologies will define our lives in the decades to come.

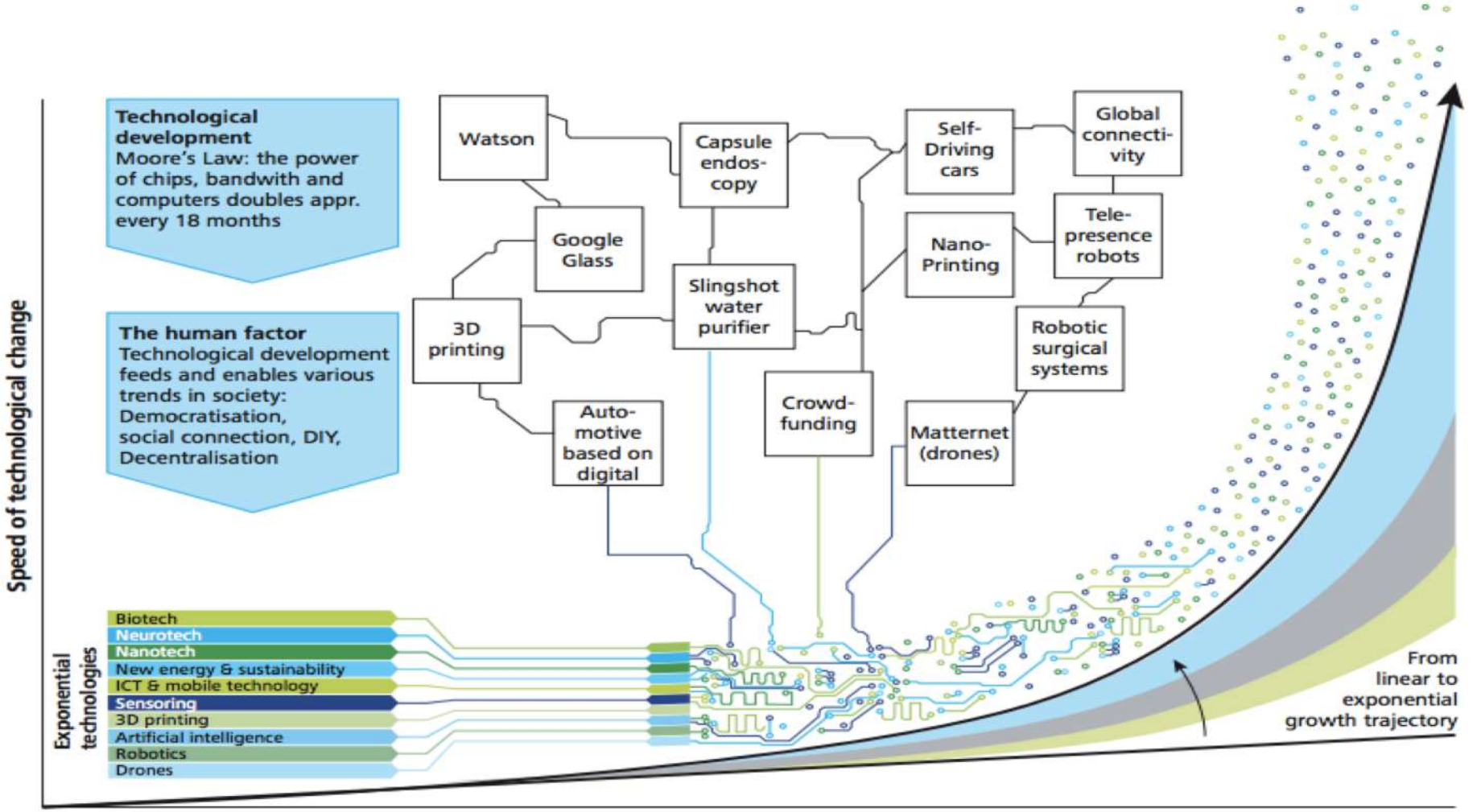
- Genetics revolution will allow us to ***reprogram our own biology***.
- Nanotechnology will allow us to ***manipulate matter at the molecular and atomic scale***.
- AI will allow us to create a ***greater than human non-biological intelligence***.

Original Image

Image Reconstructed From Bacteria


Why
should it
matter?


Because it will change everything, not only the idea of what a human being is but also the very foundations upon our society is built on.


Technological development
Moore's Law: the power of chips, bandwith and computers doubles appr. every 18 months
The human factor
Technological development feeds and enables various trends in society: Democratisation, social connection, DIY, Decentralisation
Watson
Capsule endos-copy
Self-Driving cars
Global connecti-vity
Google Glass
Slingshot water purifier
Nano-Printing
Tele-presence robots
3D printing
Robotic surgical systems
Auto-motive based on digital
Crowd-funding
Matternet (drones)
Speed of technological change
Exponential technologies
Biotech
Neurotech
Nanotech
New energy & sustainability
ICT & mobile technology
Sensoring
3D printing
Artificial intelligence
Robotics
Drones
From linear to exponential growth trajectory

10%

15%

45%

66 million people were forced lo left their homes. 23 million persons are refugees.

The importance of regulators and regulations


What's
all
about?

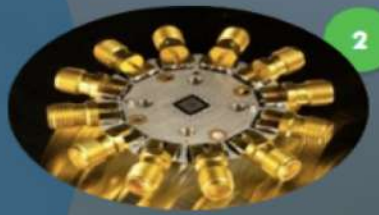
Mega Trends

8

1

7

2



6

3

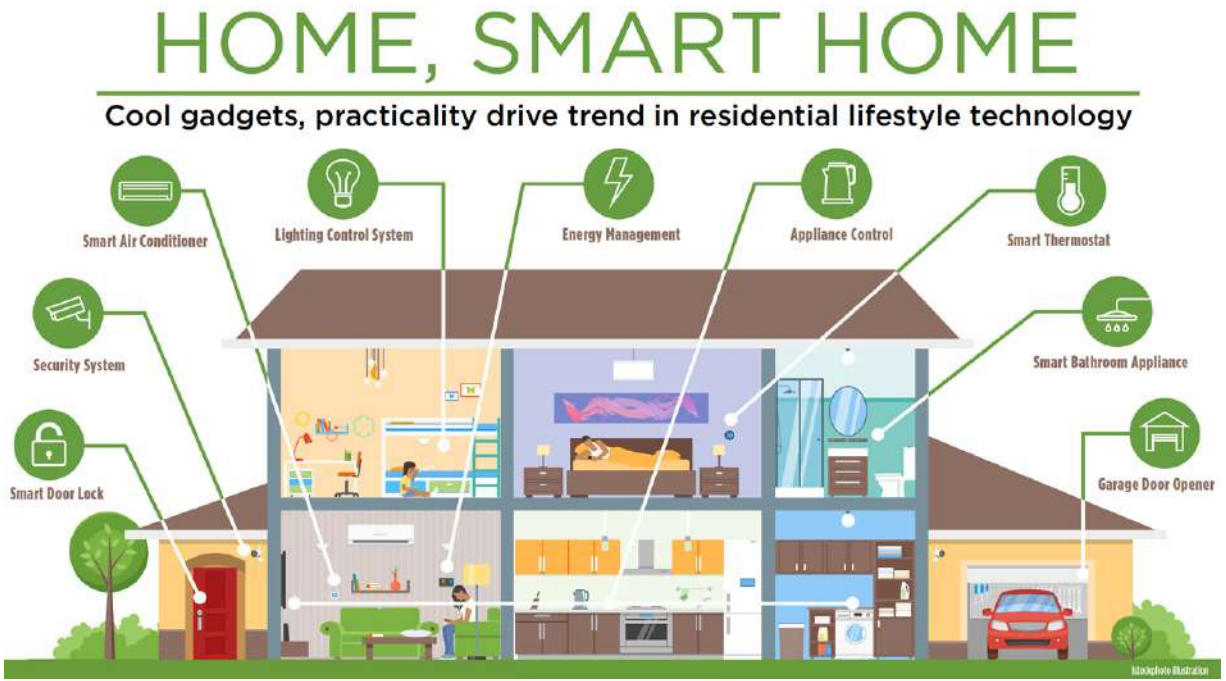
5

4


1
THE
INTERNET
OF THINGS
SMART
SERVICES
CONSUMER
ORGANIZATION
SEO
PROGRAMMING
BRANDING
M2M
CONSUMER DEMAND
WEB MARKETING
SOCIAL
STATISTICS
EQUIPMENT
APPS
PLANNING
MEDIA
SOCIAL NETWORKS
SOLUTIONS
RESEARCH
COM
HOME
AUTOMATION
SEGMENTATION
TOOLS
M2M
PROJECTS
WEB
SMART
MACHINES
OBJECTS
VISION
ENGINEERING
BRAND
WEB DEV
STRATEGY
WORLDWIDE
ORGANIZATION
BIG
DATA
CLOUD
WEB SERVICES
EVERYTHING
AUTOMOBILE
MOBILE
SOLUTIONS
SERVICE
PRO
CODING
BRANDS
SOLUTIONS

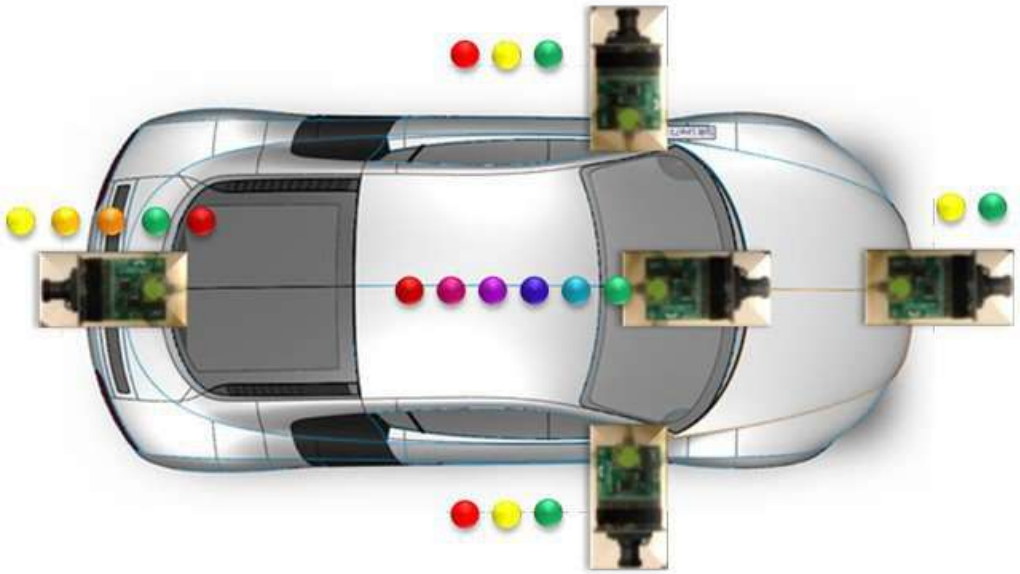

Homes and factories will start to change with the IoT…

…and so it will change (P&C) insurance industry



Smart cars are already changing…

…and so it will change (cars) insurance industry



- 3D Surround View
- Rear View Camera
- Rear Cross Traffic
- Blind Spot Detection
- Lane Departure Warning
- Intelligent Headlamp Control
- Traffic Sign Recognition
- Forward Collision Warning
- Intelligent Speed Control
- Pedestrian Detection

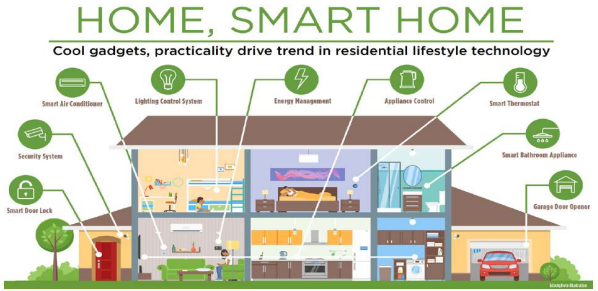
And everything else as well of course!

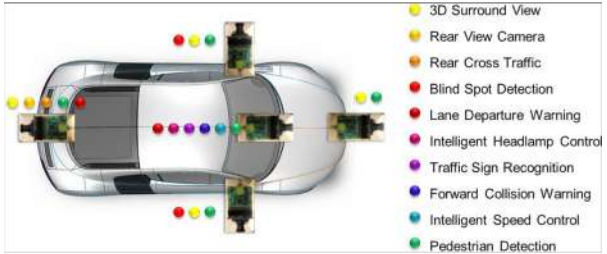
Smart things are coming…

…and so it will change insurance industry

The product is **moving** from **post-event forensics to pre-event prevention.**

In the future the product will include **less and less** of the loss compensation element and **more services** designed to avoid/mitigate losses.



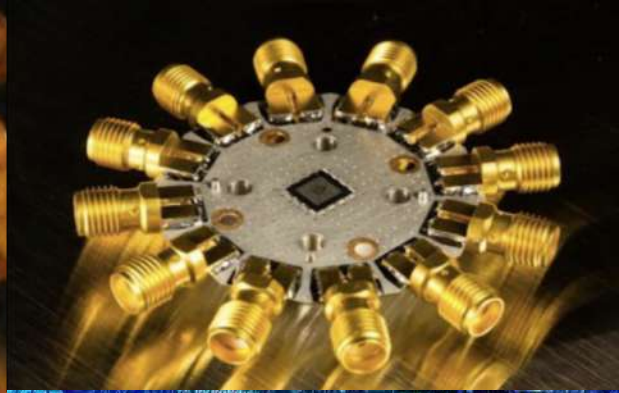


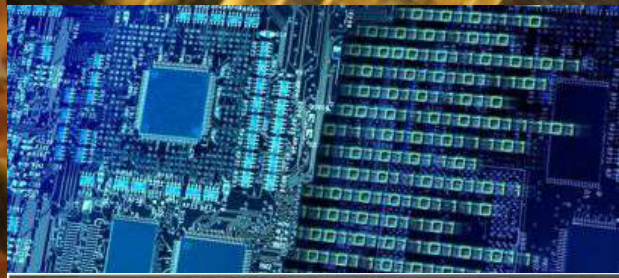
IoT is an "Adjacent Frontier" mainly because of

- Technological entry costs are no longer barriers
- Regulators are FAR BEHIND the curve on this matters (as in so many others...)

- Use of data is discovered once it was collected...
  - Some concerns should be raised...

2

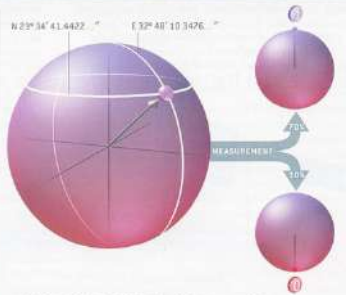




QUBITS EXPLAINED

A BIT can have one of two states: 0 or 1. A bit can be represented by a transistor switch set to "off" or "on" or abstractly by an arrow pointing up or down.

A QUBIT, the quantum version of a bit, has many more possible states. The states can be represented by an arrow pointing to a location on a sphere. The north pole is equivalent to 1, the south pole to 0. The other locations are quantum superpositions of 0 and 1.

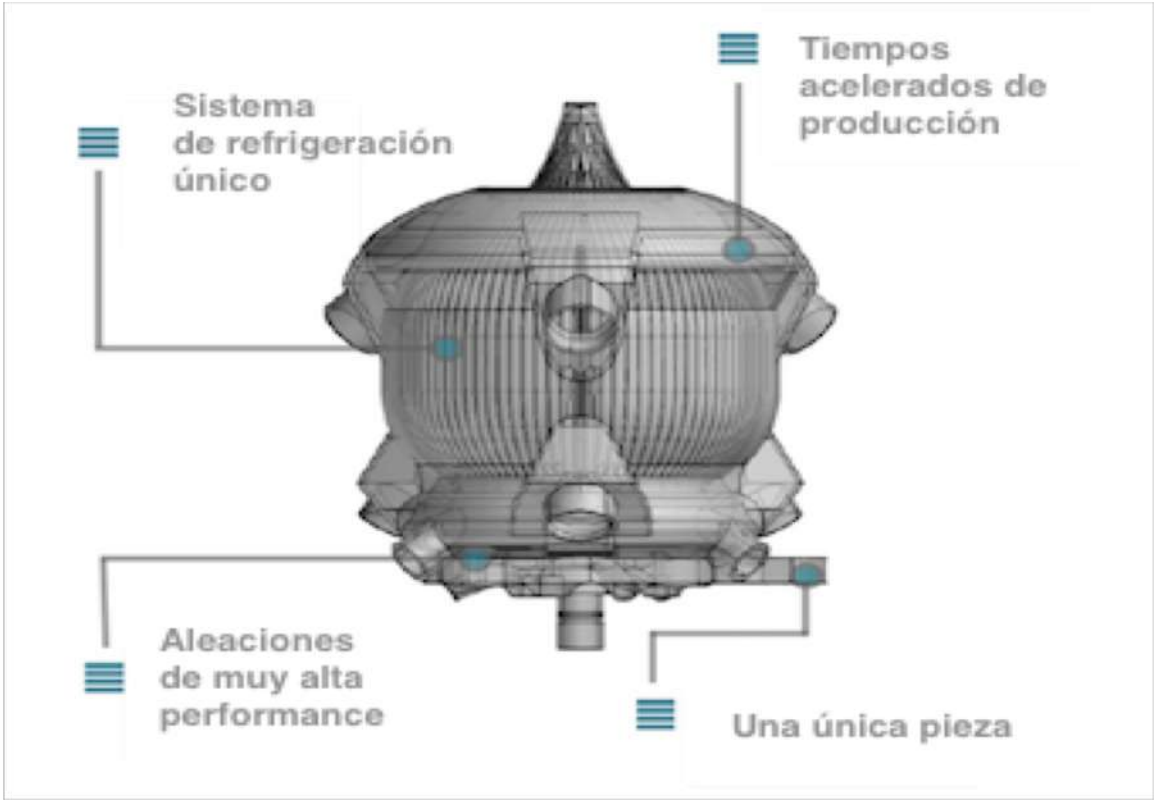


A QUBIT MIGHT SEEM TO CONTAIN an infinite amount of information because its coordinates can encode an infinite sequence of digits. But the information in a qubit must be extracted by a measurement. When the qubit is measured, quantum mechanics requires that the result is always an ordinary bit – a 0 or a 1. The probability of each outcome depends on the qubit's "latitude."

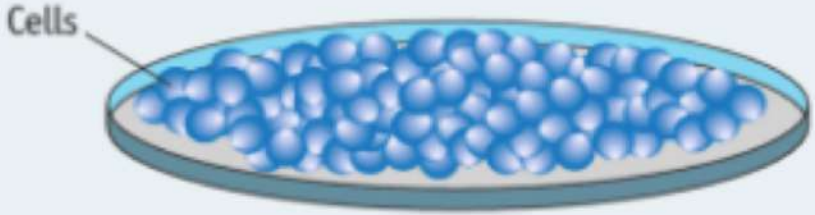

3


Reasoning
AI
Science
Computer
Knowledge
Technology
Learning

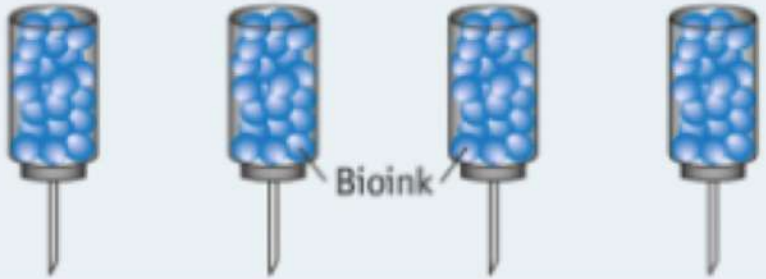

Watson IoT
olli


Tiempos
acelerados de
producción
Sistema
de refrigeración
único
Aleaciones
de muy alta
performance
Una única pieza

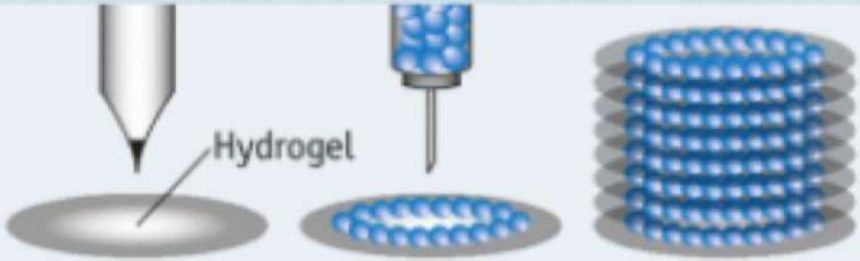
¿Cómo funciona una bio-impresora 3D?



1. Se dejan reproducir, en un ambiente propicio, células madre o células tomadas del organismo de una persona. Estas células serán usadas para producir la "bio-tinta".

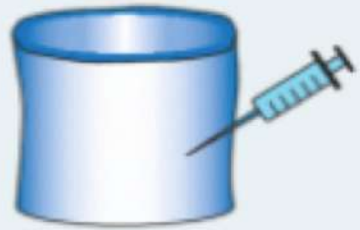


2. Esta "bio-tinta" se introduce en unos cartuchos en forma de jeringas con una agujas largas para la impresión.

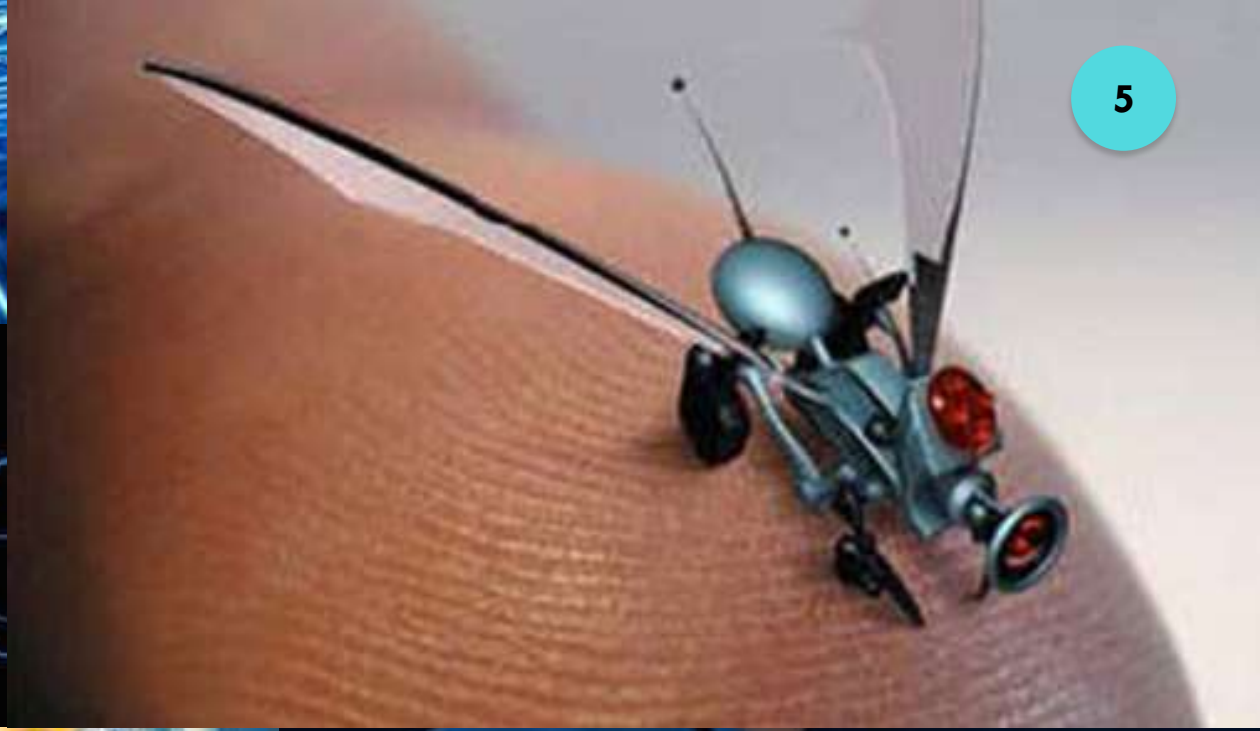


3. La computadora guía a la bio-impresora para ir depositando un diseño de células en capas muy precisas; una capa sobre otra. Entre cada capa se coloca una substancia llamada "hidrogel", la cual se coloca a través de una jeringa especial y que sirve para "darle forma" a las células.

4. El tejido así "impreso", se deja crecer y madurar y se retira el "hidrogel".



4. El tejido así "impreso", se puede usar para investigación médica o como material para trasplantes.




MEDICAL

Preventing diseases for $199

Carrier status
Find out if your children are at risk for inherited conditions, so you can plan for the health of your family.

Health risks
Understand your genetic health risks. Change what you can, manage what you can't.

Drug response
Arm your doctor with information on how you might respond to certain medications.

Health tools
Document your family health history, track inherited conditions, and share the knowledge.

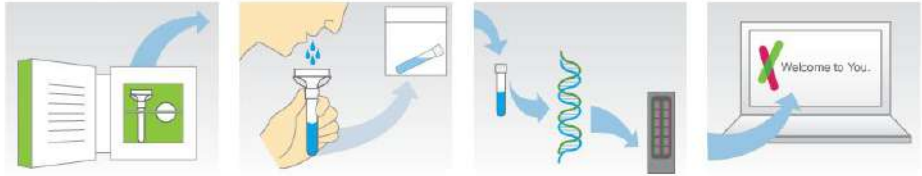
Inherited traits
Explore your genetic traits for everything from lactose intolerance to male pattern baldness.

Scientific advances
Keep receiving updates on your DNA as discoveries are made, so your knowledge grows as you do.

Personal Genome Service™

Get to know your DNA. All it takes is a little bit of spit.

Here's what you do:



1. Order a kit from our online store.
2. Register your kit, spit into the tube, and send it to the lab.
3. Our CLIA-certified lab analyzes your DNA in 6-8 weeks.
4. Log in and start exploring your genome.

Disease Risks (100)

Elevated Risks	Your Risk	Average Risk
Gallstones new	11.1%	7.0%
Restless Legs Syndrome	2.5%	2.0%

more »

Decreased Risks	Your Risk	Average Risk
Prostate Cancer ♂	12.7%	17.8%
Alzheimer's Disease new	4.9%	7.2%
Colorectal Cancer	4.2%	5.6%

more »

See all 100 risk reports

Carrier Status (24)

Hemochromatosis	Variant Present
Alpha-1 Antitrypsin Deficiency	Variant Absent
Bloom's Syndrome	Variant Absent
BRCA Cancer Mutations (Selected)	Variant Absent
Canavan Disease	Variant Absent
Cystic Fibrosis	Variant Absent
Familial Dysautonomia	Variant Absent
Factor XI Deficiency	Variant Absent

See all 24 carrier status

Traits (50)

Alcohol Flush Reaction	Does Not Flush
Bitter Taste Perception	Can Taste
Earwax Type	Wet
Eye Color	Likely Brown
Hair Curl	Slightly Curlier Hair on Average

See all 50 traits

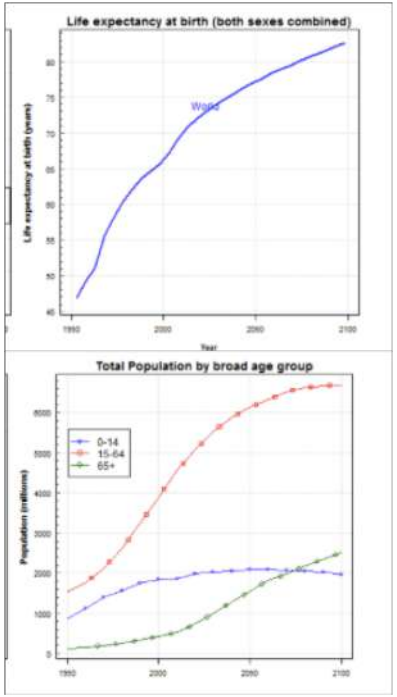
Drug Response (19)

Warfarin (Coumadin®) Sensitivity	Increased
Abacavir Hypersensitivity	Typical
Alcohol Consumption, Smoking and Risk of Esophageal Cancer	Typical
Clopidogrel (Plavix®) Efficacy	Typical
Fluorouracil Toxicity	Typical

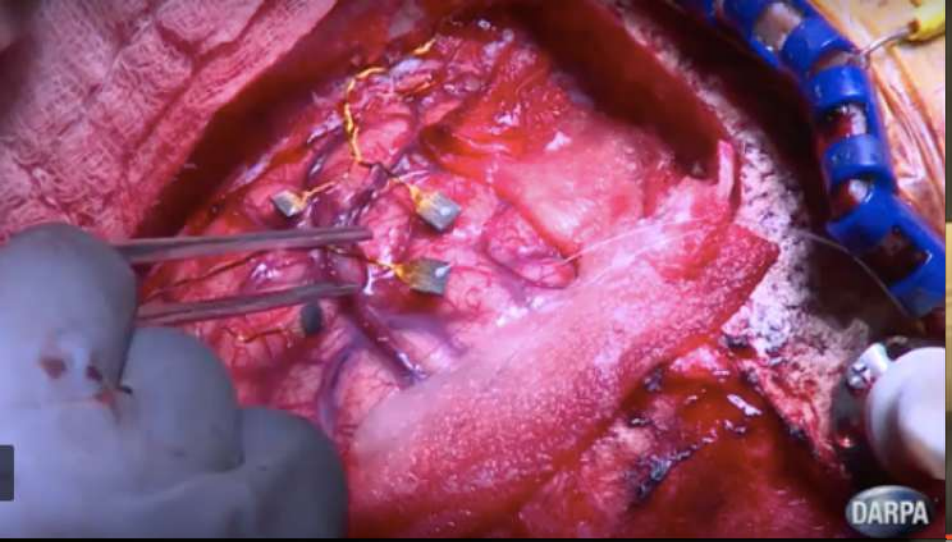
See all 19 drug response

We will start cheating death…

… so how it would affect (Life) insurance industry



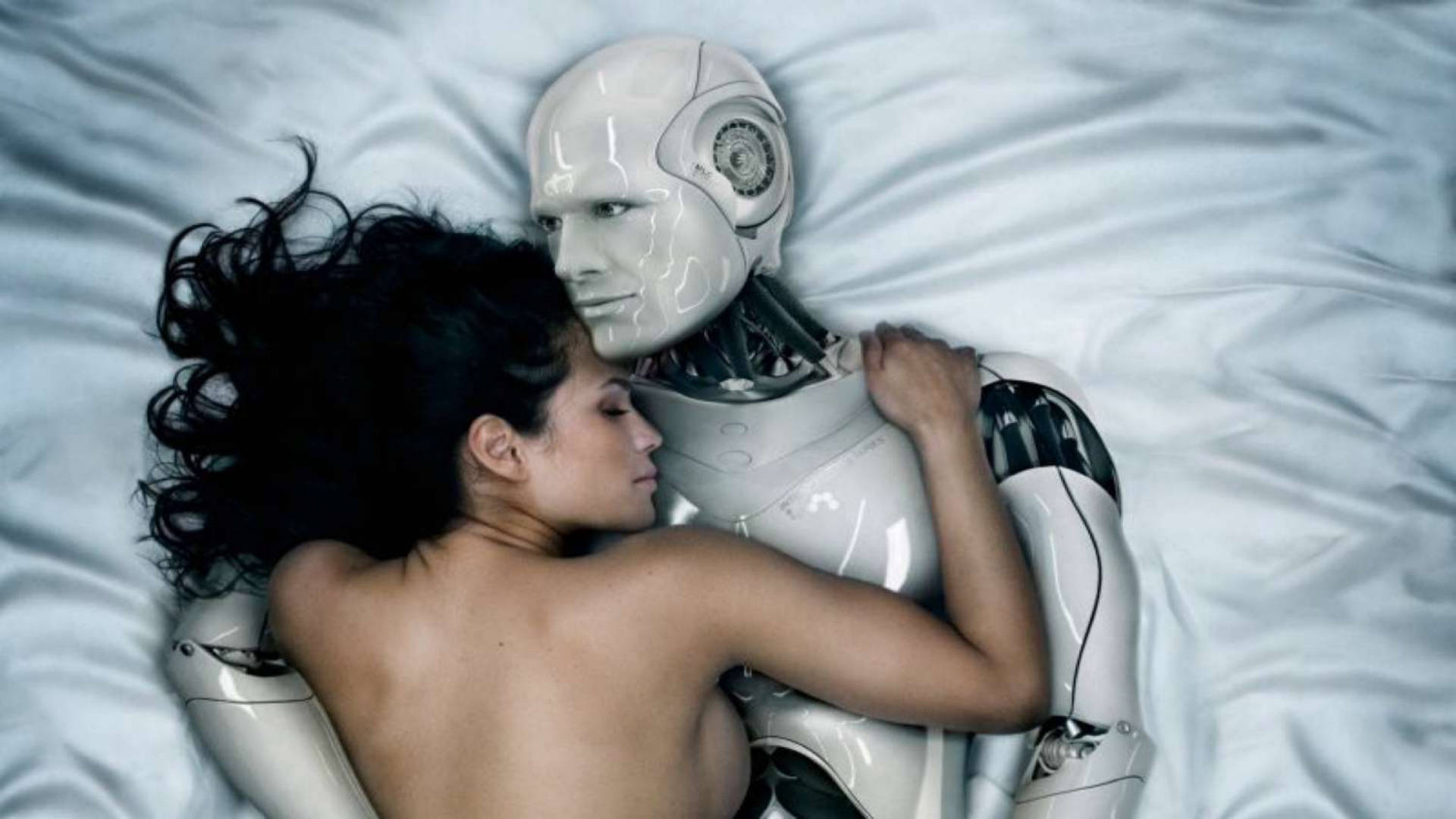
- 3D Bio - Printing
- Use of AI in medicine
- Predictive genetic testing…
  - might lead to adverse selection through asymmetry of information. .


DARPA

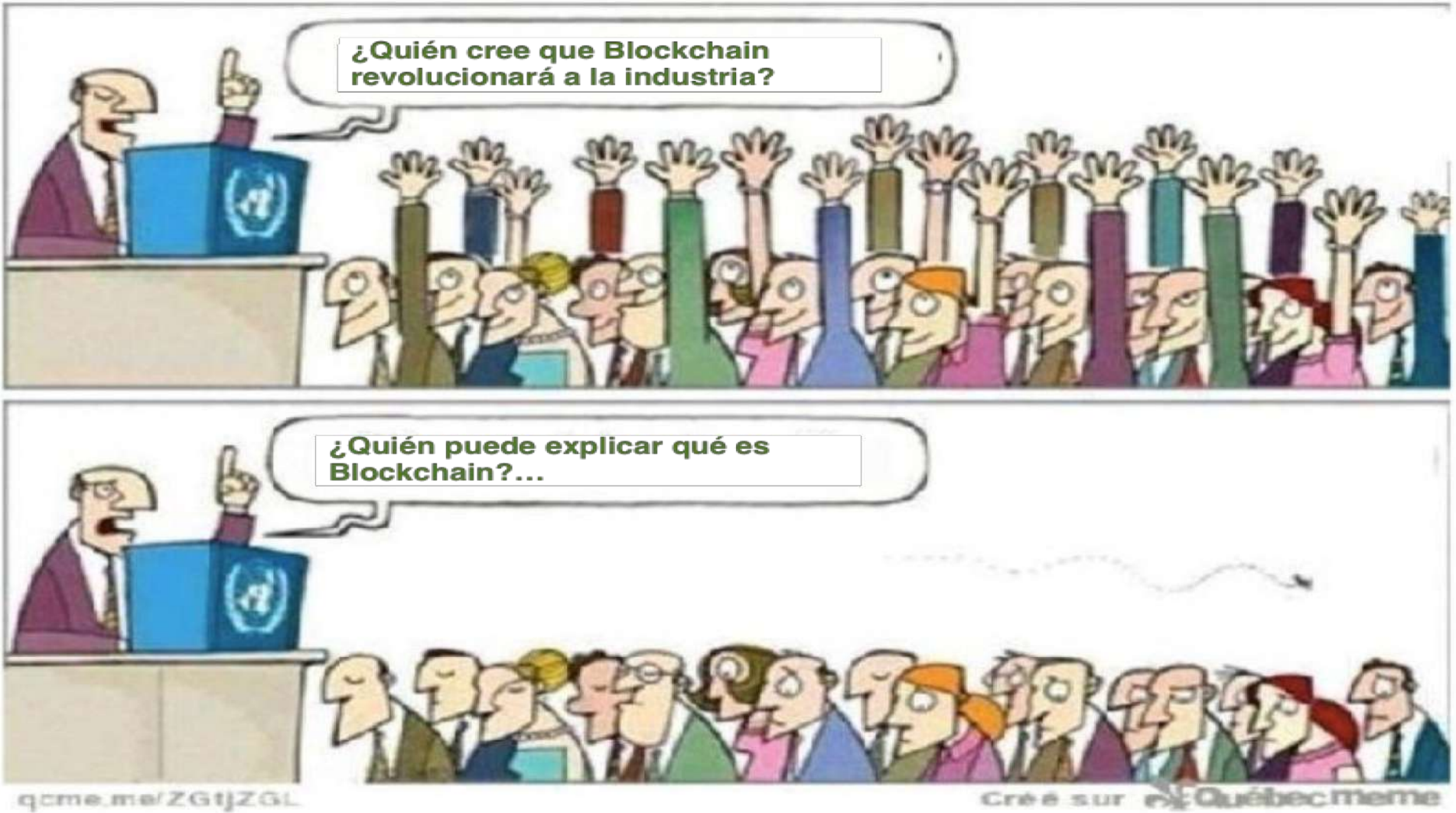

DARPA


Providing a Sense of Touch through a Brain-Machine Interface
MORE VIDEOS
DARPA


DARPA



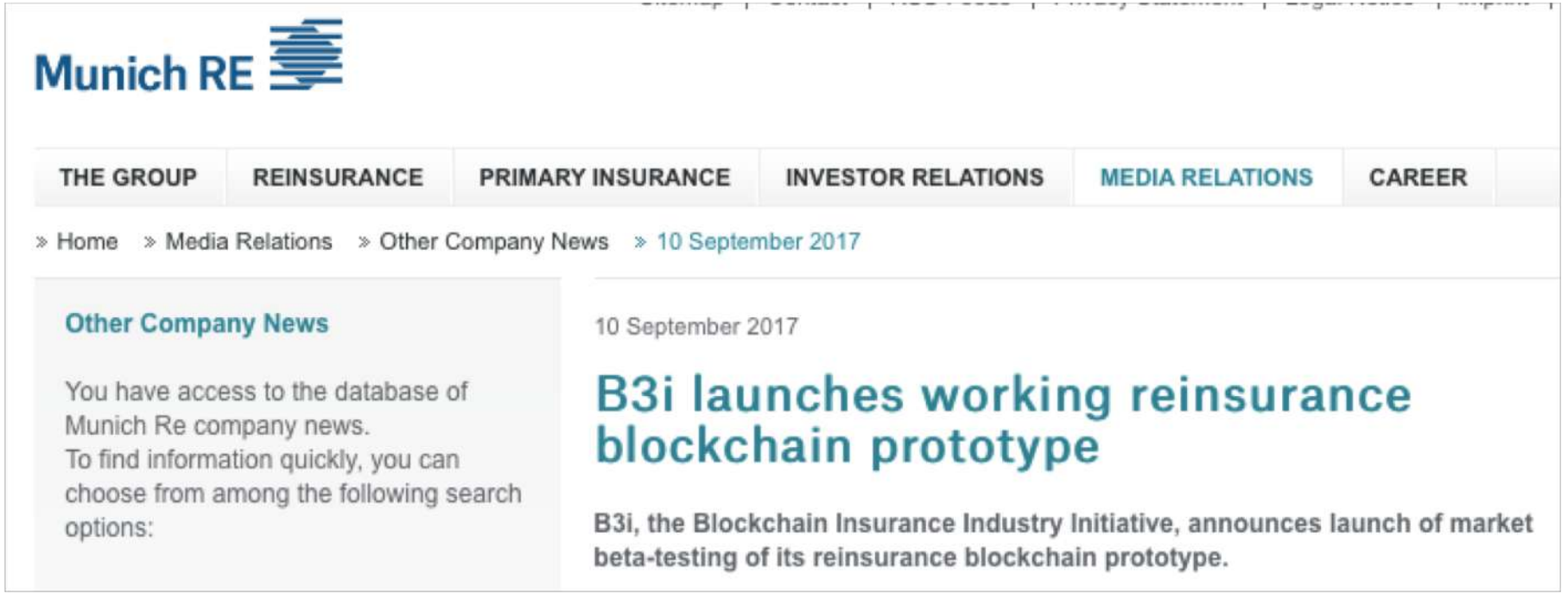
6


¿Quién cree que Blockchain revolucionará a la industria?
¿Quién puede explicar qué es Blockchain?...
qcme.me/ZGtjZGL
Créé sur Québecmeme


BITCLUB
GLOBAL MINING POOL

Last but not least…

… what about Blockchain?



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Other Company News

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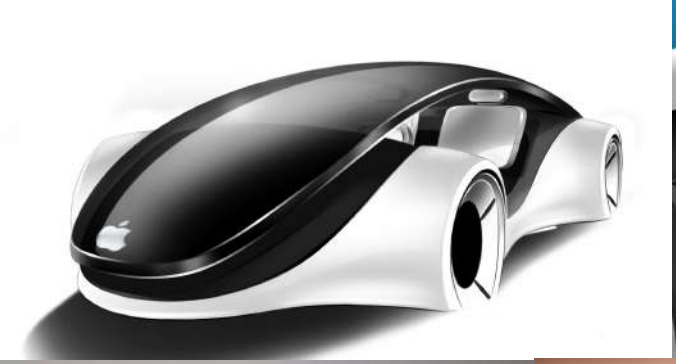
To find information quickly, you can choose from among the following search options:

10 September 2017

B3i launches working reinsurance blockchain prototype

B3i, the Blockchain Insurance Industry Initiative, announces launch of market beta-testing of its reinsurance blockchain prototype.


OTTO




Audi piloted driving
CARJAM TV . com

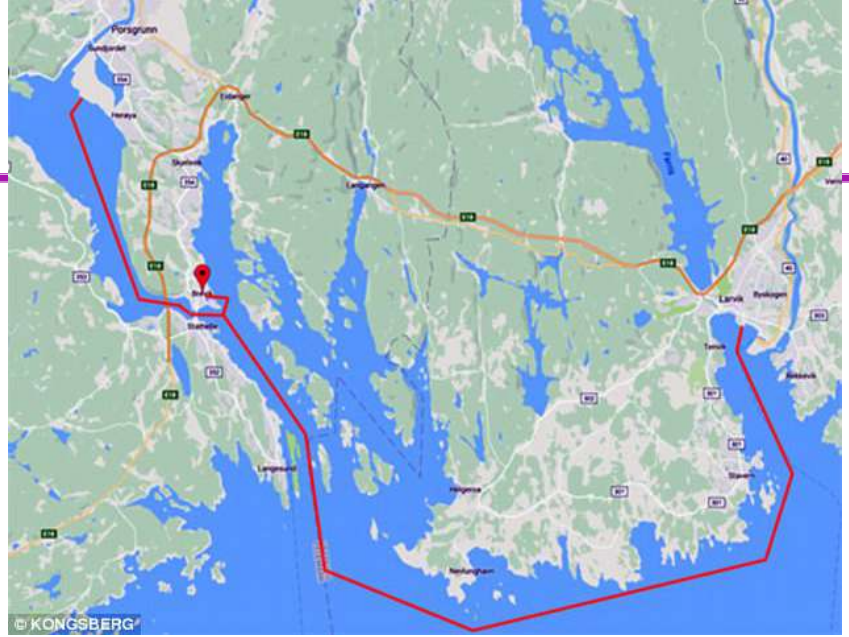
4%

”Ownership?”

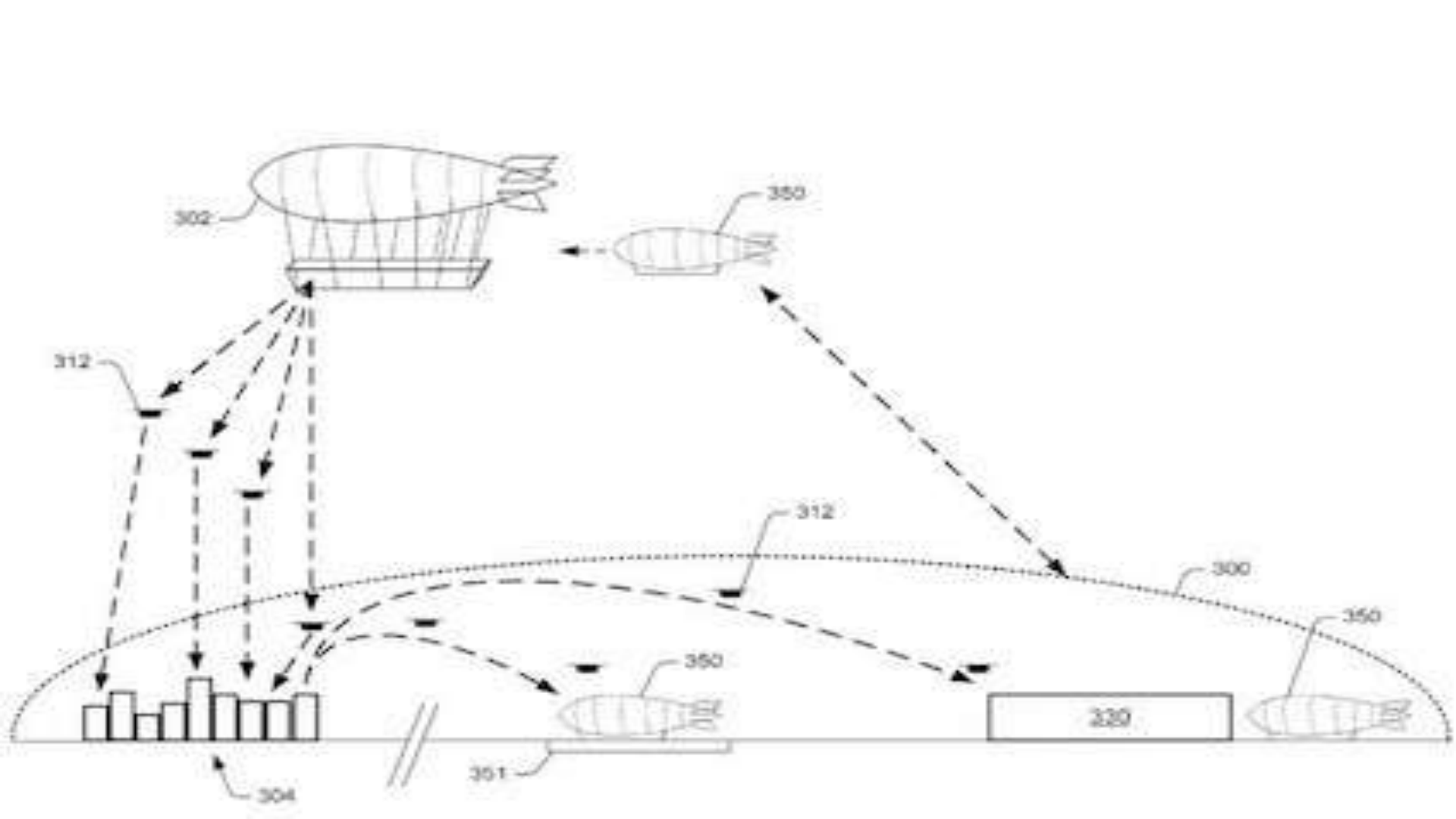
Autonomous vehicles will **entirely re shape** the new economy to come…

What about if instead of insuring x billion cars now we will have to insure a few thousand of fleets…

The autonomous ship YARA Birkeland.




THE STRAITS TIMES


302
350
312
312
300
350
350
330
304
351


AUTOLIVERY
POWERED BY FORD

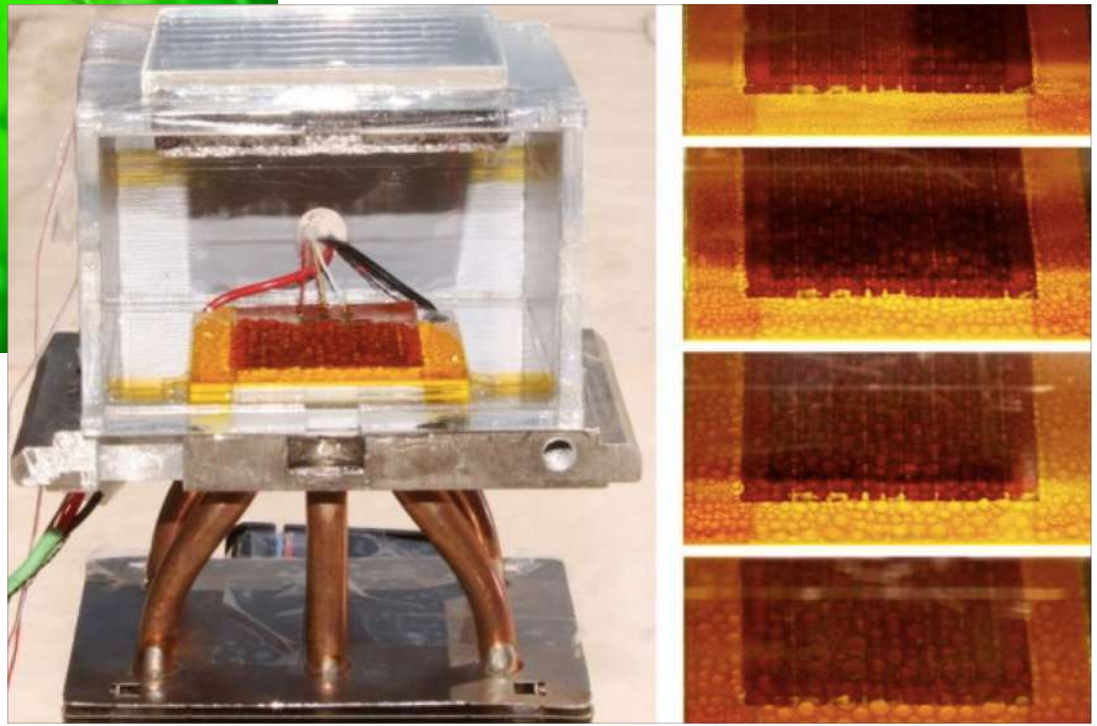

CHARGE
CHARGE


Prime Air
amazon


dispatch


U.S. Wind Power Generation
Gigawatt-hours
200,000
2012
2013
MIT Technology Review
U.S. Solar Power Generation
Gigawatt-hours
10,000
8,000
6,000
4,000
2,000
2009
2010
2011
2012
2013
MIT Technology Review
NOW
Power Balancing
PAST
NOW
FUTURE

Inclusive Technology

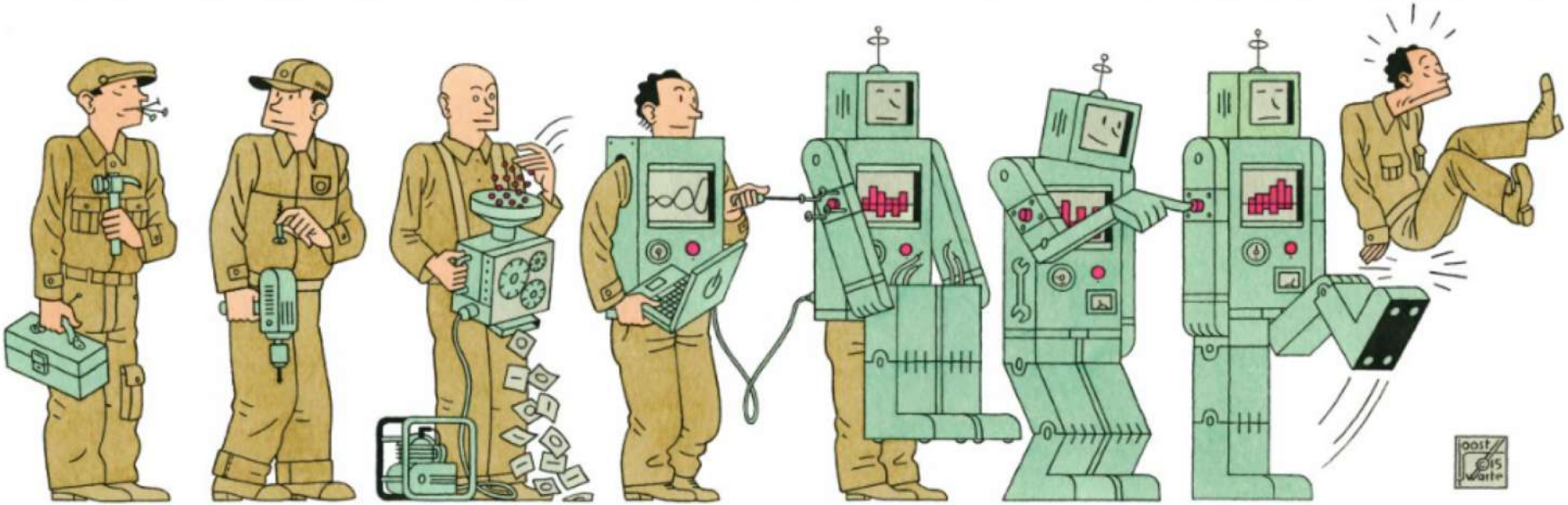



Who
will be
impacted?


TOYS R US BABIES R US
STORE CLOSING SALE!

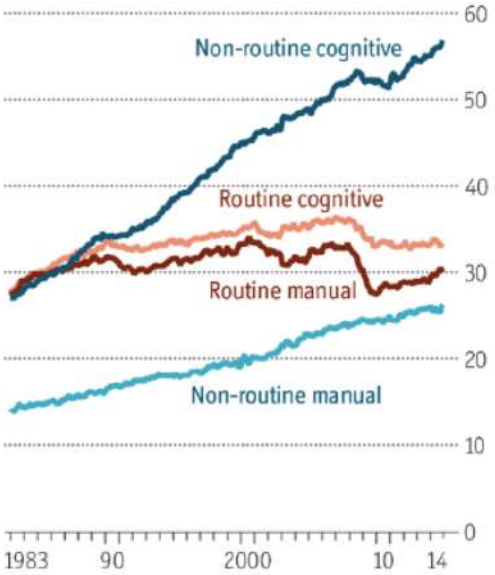

EVERYTHING
MUST GO!
ENTIRE STORE
20% TO 40% OFF
GOING OUT OF BUSINESS
Seasonal
Dolls
Clearance


ODCO



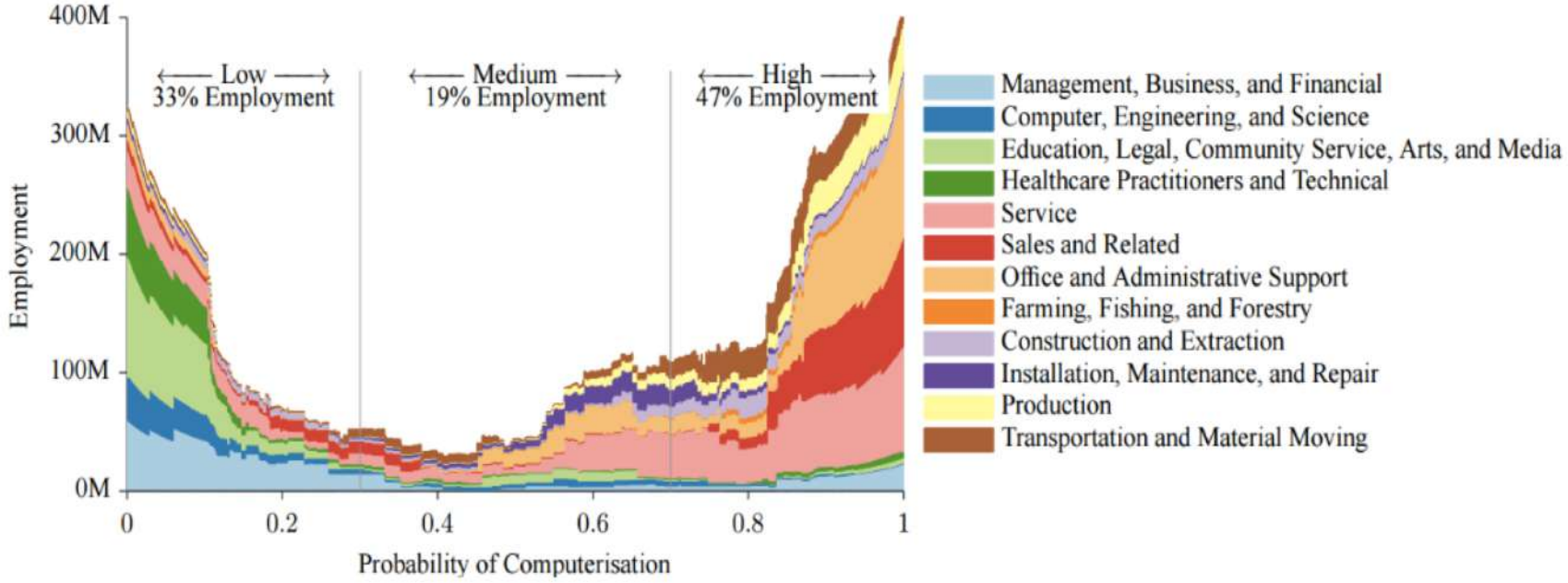
Think

United States employment, by type of work, m



Sources: US Population Survey; Federal Reserve Bank of St. Louis

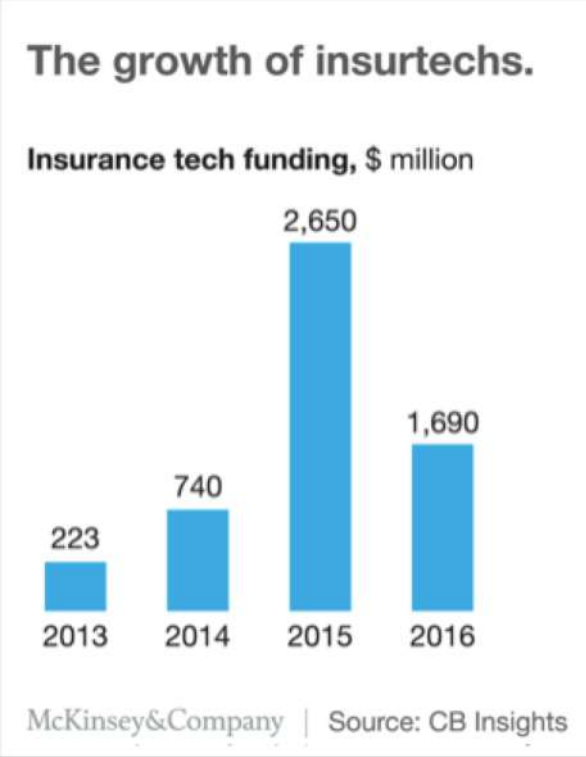
Economist.com

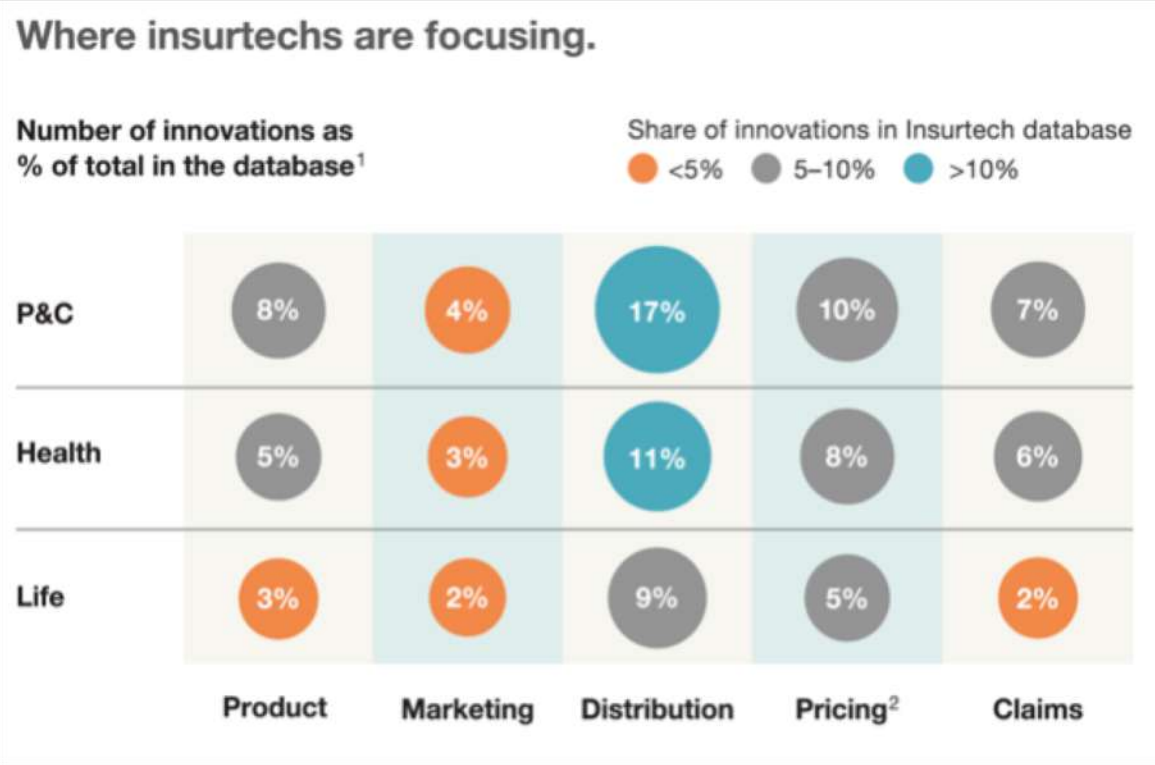


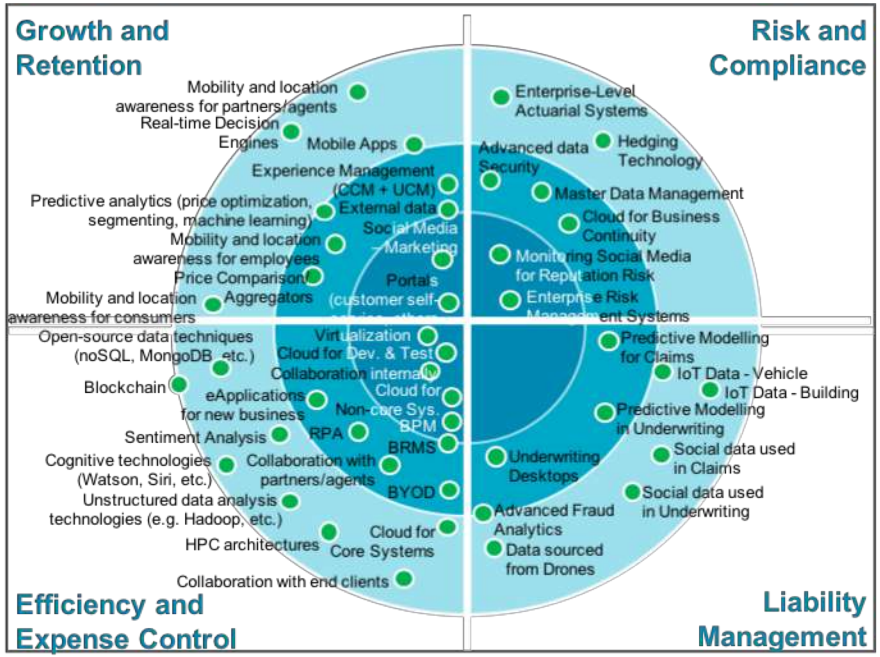
* Distribution based on 2010 job mix.

Source: Frey, C.B. and M.A. Osborne, "The Future of Employment: How Susceptible Are Jobs to Computerisation?", 17 September 2013

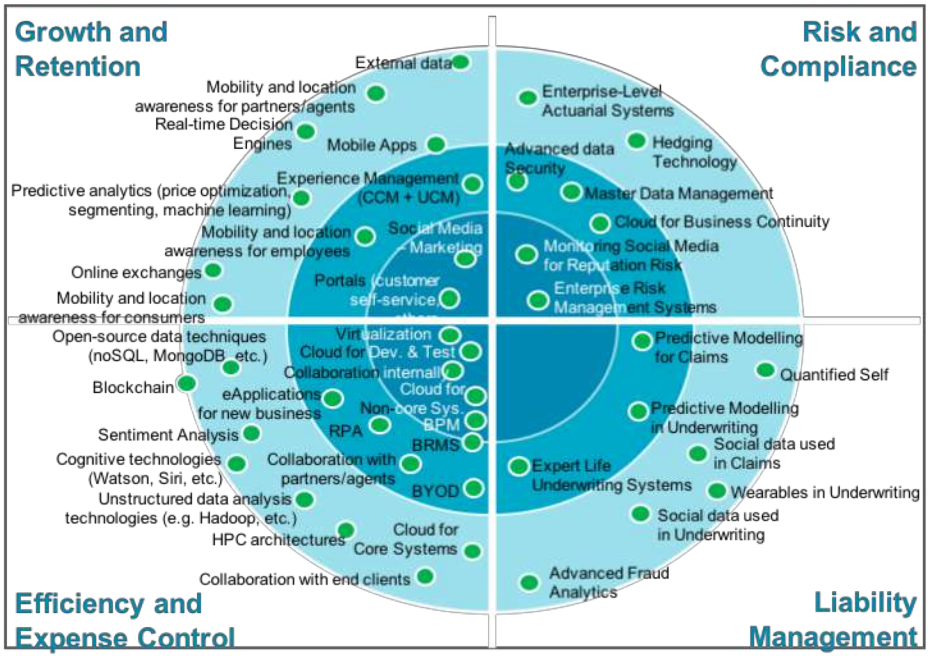
The incipient world of InsurTech…






Growth and Retention
Risk and Compliance
Efficiency and Expense Control
Liability Management
Mobility and location awareness for partners/agents
Real-time Decision Engines
Mobile Apps
Experience Management (CCM + UCM)
Predictive analytics (price optimization, segmenting, machine learning)
External data
Social Media - Marketing
Mobility and location awareness for employees
Price Comparison
Mobility and location awareness for consumers
Aggregators
Portals (customer self-
Open-source data techniques (noSQL, MongoDB, etc.)
Virtualization
Cloud for Dev. & Test
Collaboration internally
Blockchain
eApplications for new business
Cloud for Non-core Sys
BPM
Sentiment Analysis
RPA
BRMS
Cognitive technologies (Watson, Siri, etc.)
Collaboration with partners/agents
BYOD
Unstructured data analysis technologies (e.g. Hadoop, etc.)
HPC architectures
Cloud for Core Systems
Collaboration with end clients
Enterprise-Level Actuarial Systems
Advanced data Security
Hedging Technology
Master Data Management
Cloud for Business Continuity
Monitoring Social Media for Reputation Risk
Enterprise Risk
ent Systems
Predictive Modelling for Claims
IoT Data - Vehicle
IoT Data - Building
Predictive Modelling in Underwriting
Underwriting Desktops
Social data used in Claims
Social data used in Underwriting
Advanced Fraud Analytics
Data sourced from Drones

P&C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Sentiment Analysis
RPA
BRMS
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Collaboration with partners/agents
BYOD
Unstructured data analysis technologies (e.g. Hadoop, etc.)
HPC architectures
Cloud for Core Systems
Collaboration with end clients
Enterprise-Level Actuarial Systems
Advanced data Security
Hedging Technology
Master Data Management
Cloud for Business Continuity
Monitoring Social Media for Reputation Risk
Enterprise Risk Management Systems
Predictive Modelling for Claims
Quantified Self
Predictive Modelling in Underwriting
Social data used in Claims
Expert Life Underwriting Systems
Wearables in Underwriting
Social data used in Underwriting
Advanced Fraud Analytics

Life

Top 10 predictions for 2018

1. **AI accelerates:** Continued innovation and adoption of AI as an underlying tech
2. **Regtech rising:** Increased investment in regtech around the world
3. **Building bridges:** Greater collaboration and partnering between large-scale providers
4. **Next gen digital lending:** The rise of online mortgage technology and platforms
5. **Beyond use cases:** Early success efforts in the initiation of blockchain production systems
6. **Open banking:** Open APIs pave the road for third party developers in Europe and Globally
7. **New challenger banks:** Financial services incumbents building their own digital banks
8. **Insurtech innovation:** Accelerated investment into driving insurtech innovations and building hubs around the world
9. **Going full-stack:** Broadening of solution sets by mature fintech companies
10. **Big tech participation:** More partnering between fintech and technology giants

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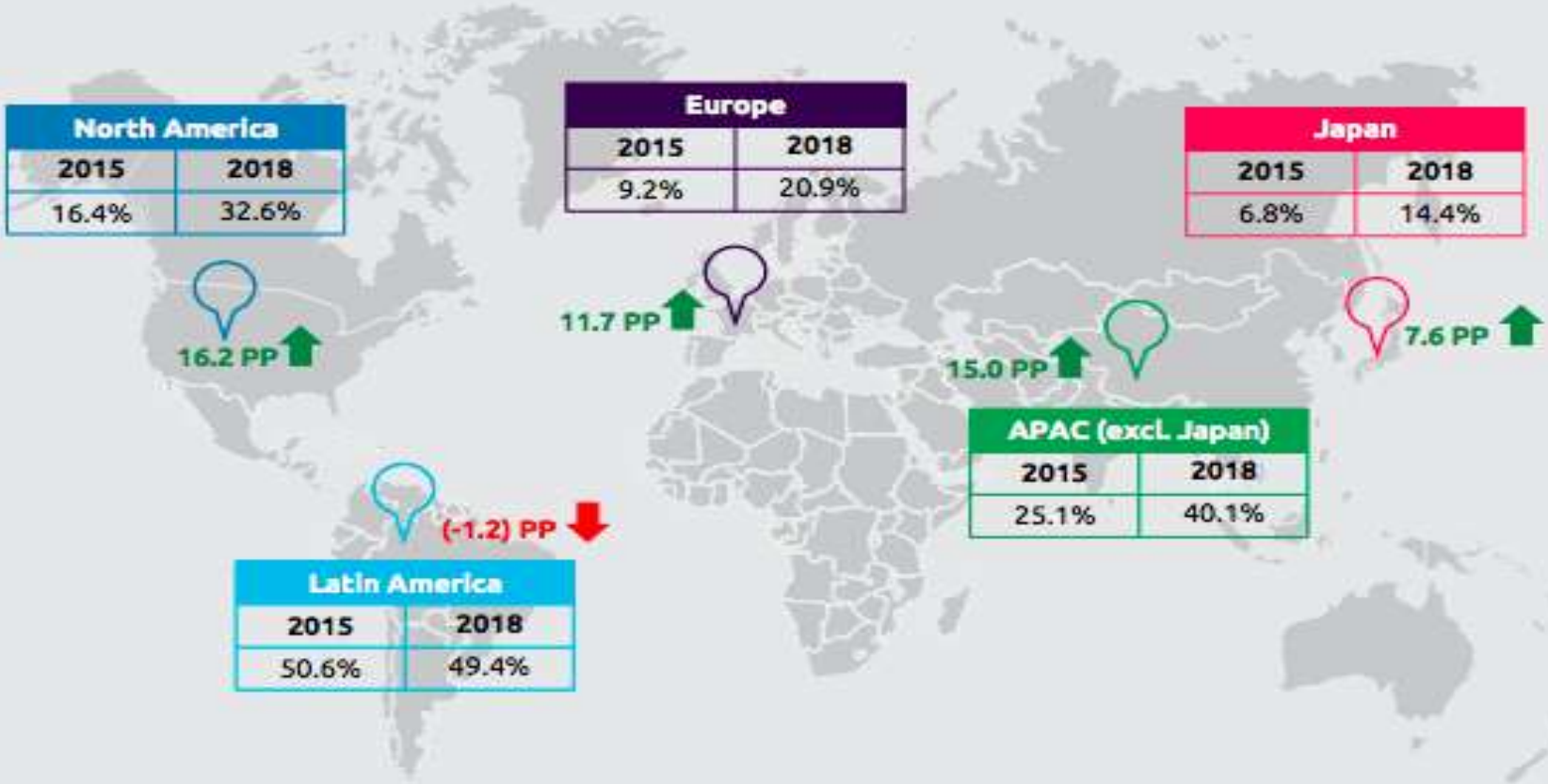
Top 10 Trends in Financial Services, 2018

JANUARY 2018

INSURANCE

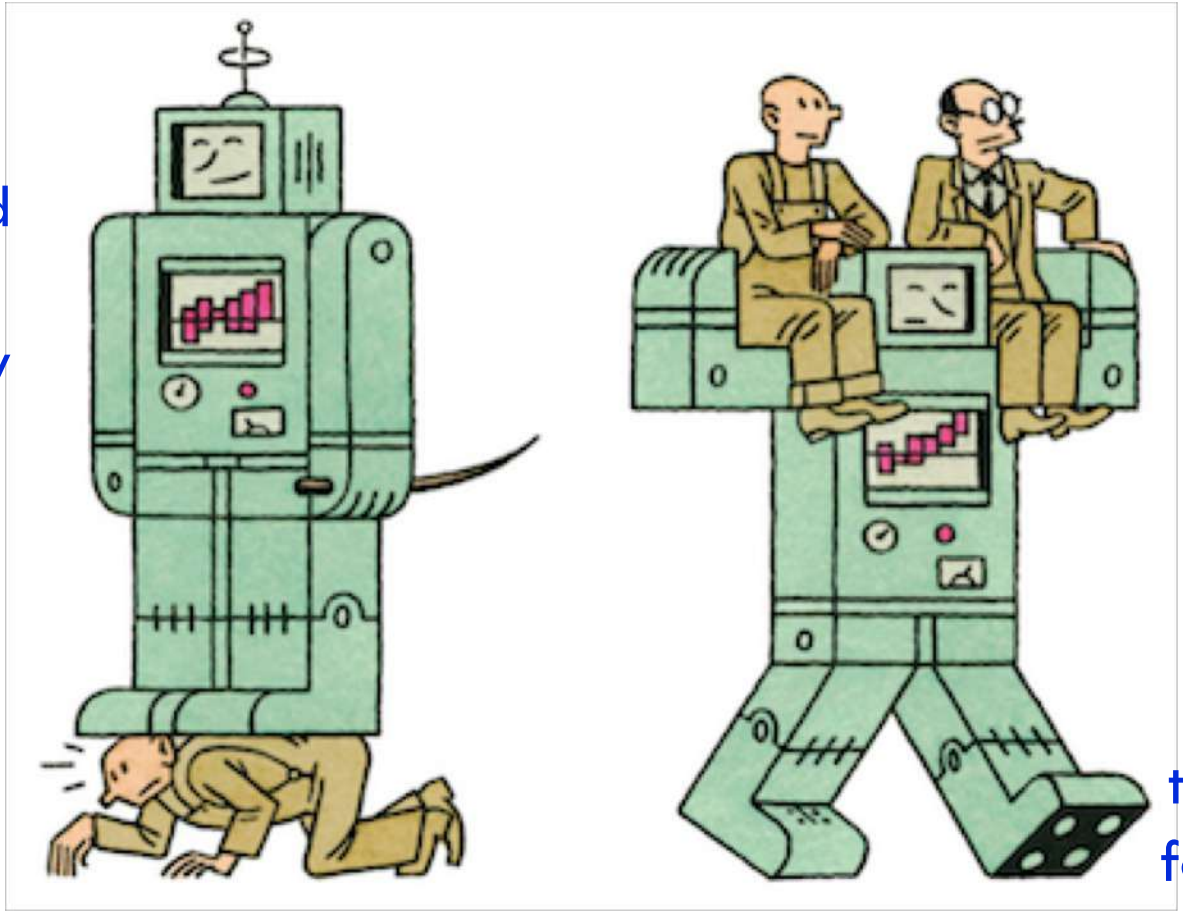
- **Data protection and privacy take center stage:** Several factors, including ceaseless cyberthreats and Europe's General Data Protection Regulation (GDPR), will force insurers to adopt a fresh data strategy.
- **Unstructured data spreads in property and casualty (P&C) underwriting and claims:** Consumers want quicker underwriting and claims decisions, which will compel carriers to turn to unstructured data.
- **Technology becomes a greater part of loss-control strategies:** High-severity losses are pushing carriers to think differently about how to limit those losses.
- **Instant claims payouts become key differentiators in P&C:** In an increasingly customer-centric environment, more carriers will strengthen policyholder engagement and relationships by using available technology to pay claims quickly.
- **Life insurers step up customer-facing full-office digital transformations:** Customer demand and the need to improve upon the full customer experience will force life insurance carriers to look beyond front-office digital solutions to solutions that will support the full policy life cycle.
- **Accelerated life insurance underwriting gets personal:** The need to create an individualized experience while providing immediate gratification, simplicity, convenience, and products that fit consumers' needs is pushing carriers to shift to a true accelerated underwriting process, employing rules engines, scoring tools, advanced algorithms, and third-party data.
- **Life insurers embrace automation:** Reducing operational costs, improving scalability, and streamlining internal processes while plagued by legacy systems are some key reasons life insurance carriers are forced to implement RPA to support automation.
- **Health plans emerge as a medical bill payment channel:** Deepening provider and member relationships are the linchpin for more payers to implement medical bill payment collection technologies, paving the way for a new disruptive consumer collection model in healthcare.
- **Health insurers revamp provider data management:** Better provider data management is being driven by Centers for Medicare & Medicaid Services. But with potential financial penalties, health plans recognize this capability's importance as their businesses become more consumer-focused.

Figure 1.8 Customer Willingness to Purchase Insurance from BigTech Firms (%), 2015, 2018



Source: Capgemini Financial Services Analysis, 2018; Capgemini Voice of the Customer Survey, 2018

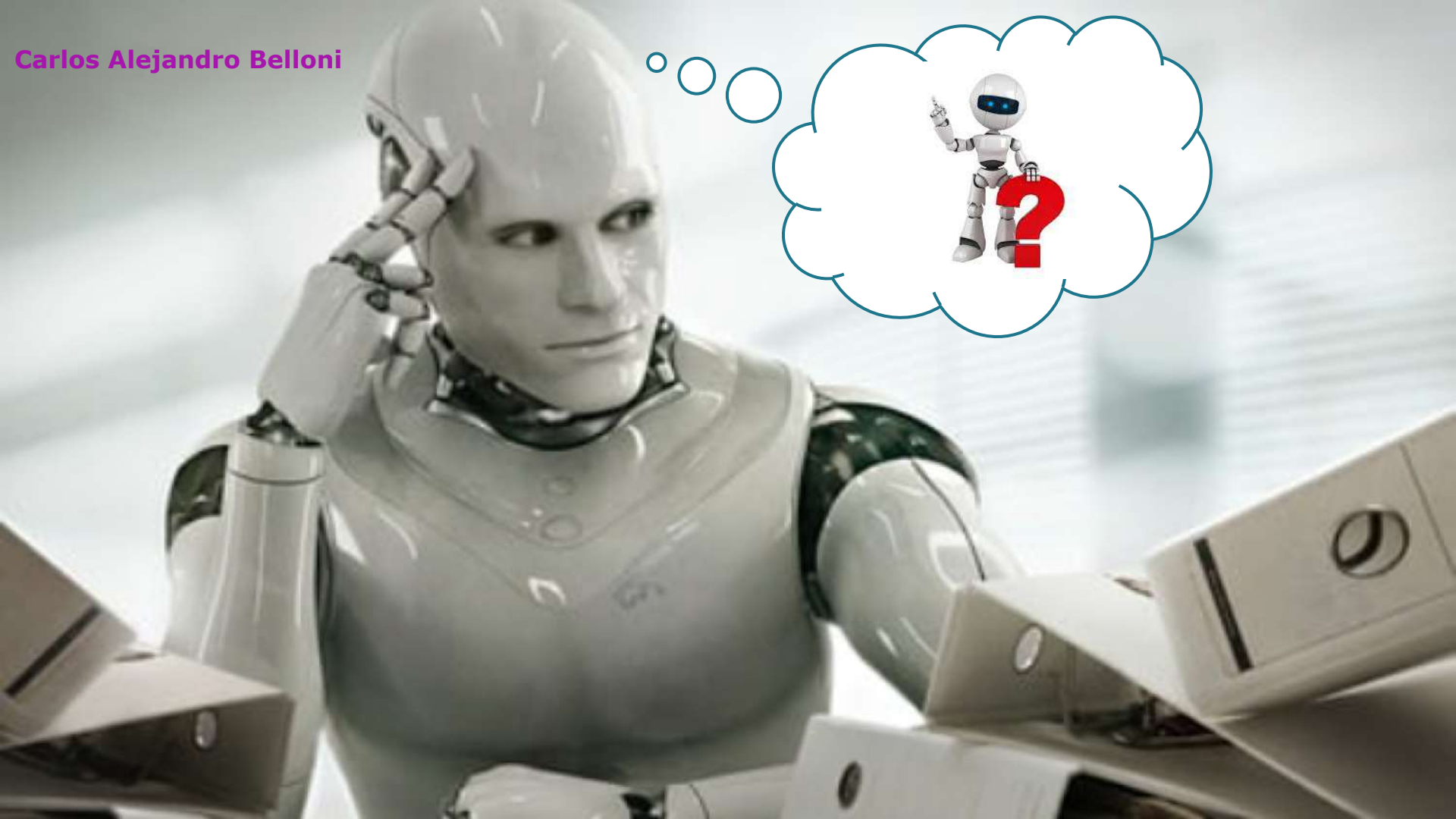
We have to figure out how to avoid being displaced by technology...



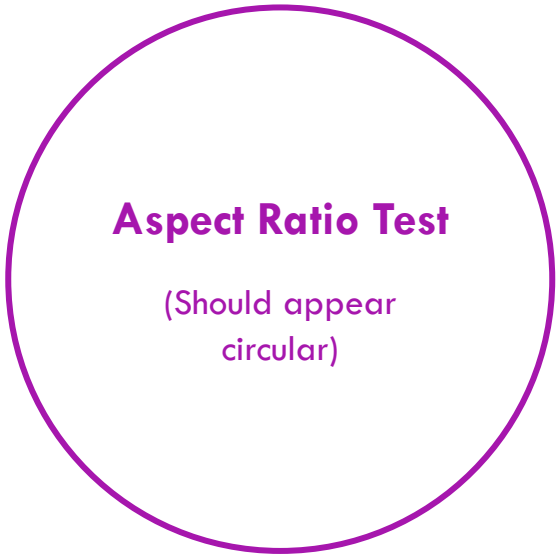
...and instead, how we can get the most of it for everyone.


Is the insurance industry prepared?
Are regulators well prepared?
Are WE prepared?

Carlos Alejandro Belloni

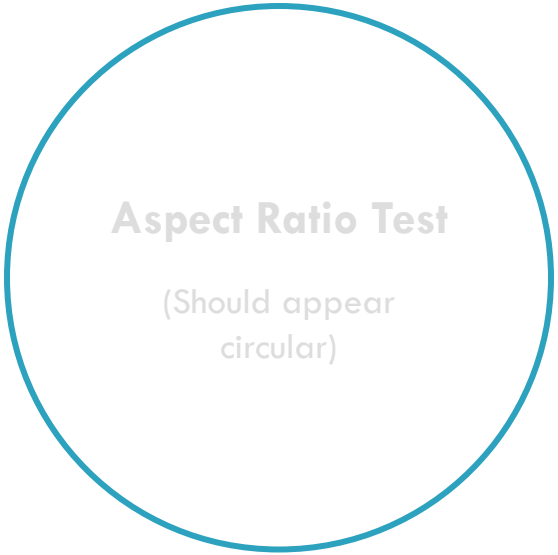


Test Resolution Slides



- To present in true widescreen, you'll need a computer and, optionally, a projector or flat panel that can output widescreen resolutions.
- Common computer widescreen resolutions are 1280 x 800 and 1440 x 900. (These are 16:10 aspect ratio, but will work well with 16:9 projectors and screens.)
- Standard high definition televisions resolutions are1280 x 720 and 1920 x 1080.
- Use the Test Pattern on the next slide to verify your slide show settings.

Widescreen Test Pattern (16:9)



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