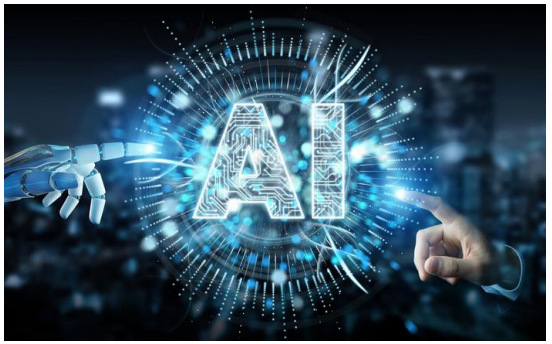
« INTELLIGENCE ARTIFICIELLE ET RELATION CLIENT »
QUELS IMPACTS SUR LES PROCESSUS ET SUR LES SYSTÈMES D'INFORMATION

10ème Symposium 25 juin 2019



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N'ÉCONOMISEZ PAS VOTRE PLAISIR.

Club Urba-EA
ENTERPRISE ARCHITECTURE

EY Building a better working world

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« INTELLIGENCE ARTIFICIELLE ET RELATION CLIENT »
QUELS IMPACTS SUR LES PROCESSUS ET SUR LES SYSTÈMES D'INFORMATION

10ème Symposium 25 juin 2019 : Agenda

09h00 Ouverture de la conférence

09h15


Arnaud LAROCHE
Partner Artificial Intelligence Analytics

09h45


Luc JULIA
Vice-Président Innovation
SAMSUNG Electronics

10h25

Patrice SLUPOWSKI
Directeur innovation numérique Orange

11h15

11h30



Harley DAVIS
Vice-Président, Automation
Intelligence and France Lab at IBM

12h10


François MARICAL
Directeur Data CDiscount

12h50 Conclusion de la conférence

13h00

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Arnaud LAROCHE
Partner Artificial Intelligence Analytics

Club Urba-EA
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Leveraging AI @full speed

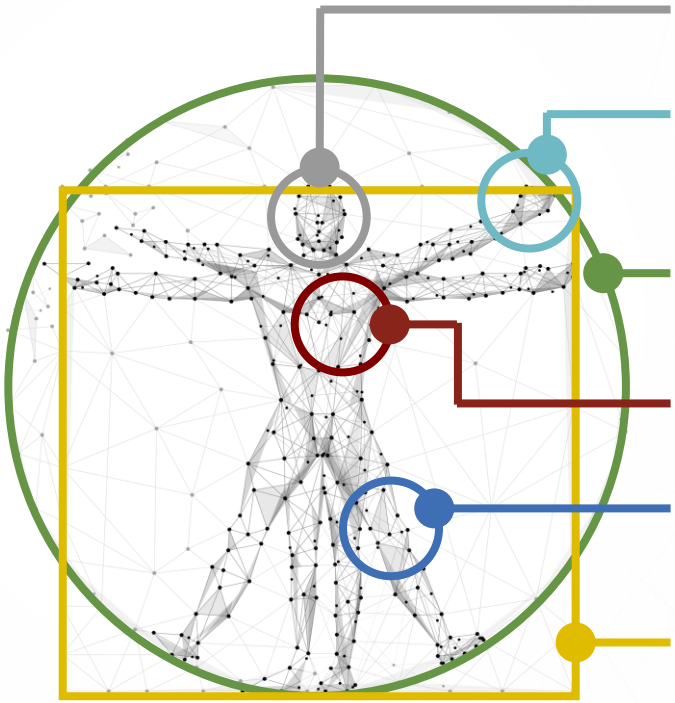
Arnaud Laroche
EMEIA Advisory AI Leader

Behind the scene

. . .

What is at stake ?

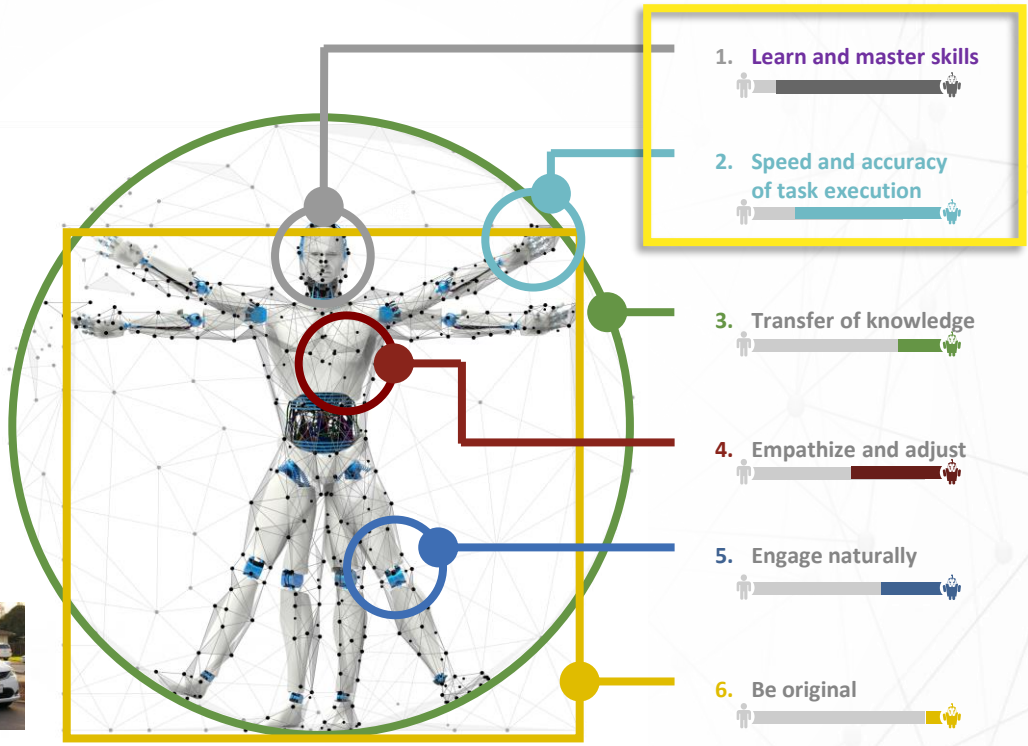
Mimicking human-scale cognitive performance along **six dimensions**



1. **Learn and master skills**
   Time to learn and then time to master a skill
2. **Speed and accuracy of task execution**
   Speed and accuracy of executing both physical and cognitive tasks
3. **Transfer of knowledge**
   Ability to transfer knowledge from one domain to another
4. **Empathize and adjust**
   Ability to empathize and adjust actions/behavior
5. **Engage naturally**
   Interact through written and spoken language, gestures and other physical indications
6. **Be original**
   Conceive original ideas, connect disparate concepts

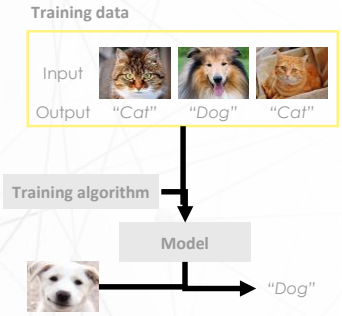
Where do we stand ?

Machines now match or exceed human-like cognition in **two dimensions,** already used to solve complex tasks



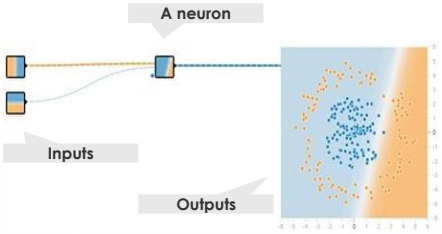
How does it work in real life ?

The example of supervised machine learning



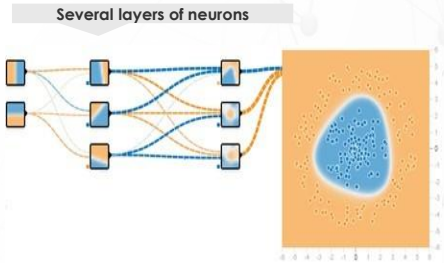
An artificial neuron…

- Is (remotely) inspired from biological neurons
- Is mathematically very simple
- Can be trained efficiently with a simple algorithm
- Can only model very basic patterns

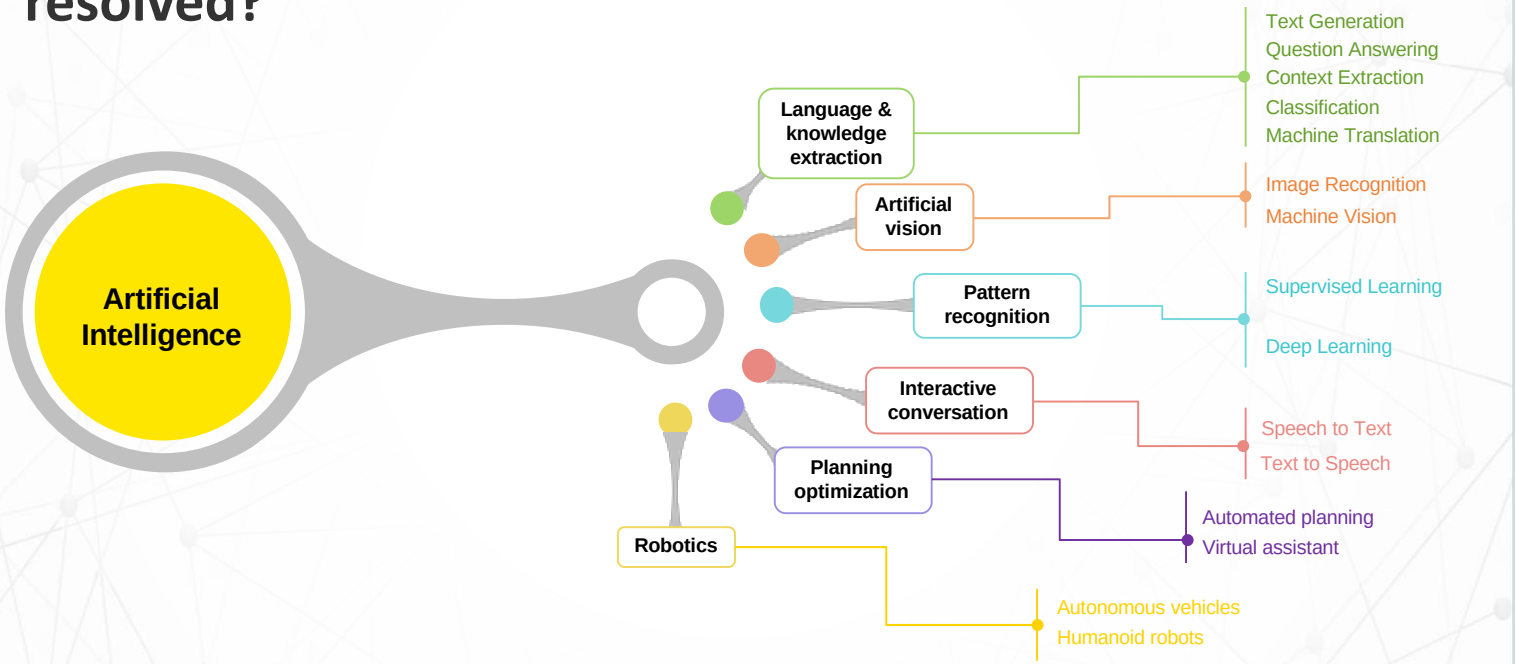


An artificial neural network…

- Combine several neurons, the outputs of certain neurons becoming the inputs of other neurons
- Can be hard to train
- Can model arbitrarily complex patterns



What are the typical issues resolved?



Business maturity

. . .

Where do we go ?

"**Just as electricity transformed almost everything** 100 years ago, today I actually have a hard time thinking of an industry that I don't think AI will transform in the next several years."

Andrew Ng, AI pioneer

2018

In 2018, **10% of government digital services use bots** to personalize workflows and channels through which citizens and businesses access services.

2019

By 2019, **start-ups will overtake Amazon, Google, IBM and Microsoft** in driving the AI economy with disruptive business solutions.

2020

AI analytics research industry will grow to **US$70 billion by 2020** from just $8.2 billion in 2013

Through 2020, organizations using cognitive ergonomics and system design in new AI projects will achieve **long-term success four times more often** than others.

The AI market will increase to more than **US$47 billion in 2020**, from $8 billion in 2016

2035

AI could almost **double annual economic growth** and lead to **40% increase in productivity** by 2035

Why now ?

Calculation capabilities are growing

Moore's law

x2 processing power/18 months

Public cloud computing services

amazon webservices · Google Cloud Platform · Azure · IBM Cloud

Distributed storage and processing technologies

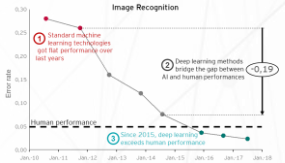
Apache Spark · hadoop

Specialized electronic components

NVIDIA

Algorithms are improving

Computers now exceed human performance for certain tasks (e.g. image recognition) thanks to deep learning



Data is flowing

Connected devices

Nexess · sigfox · ptc · Actility

Mobile devices

iPhone

Social media

Open data

DATA.GOV · EU Open Data Portal · OpenDataSoft

Internet data

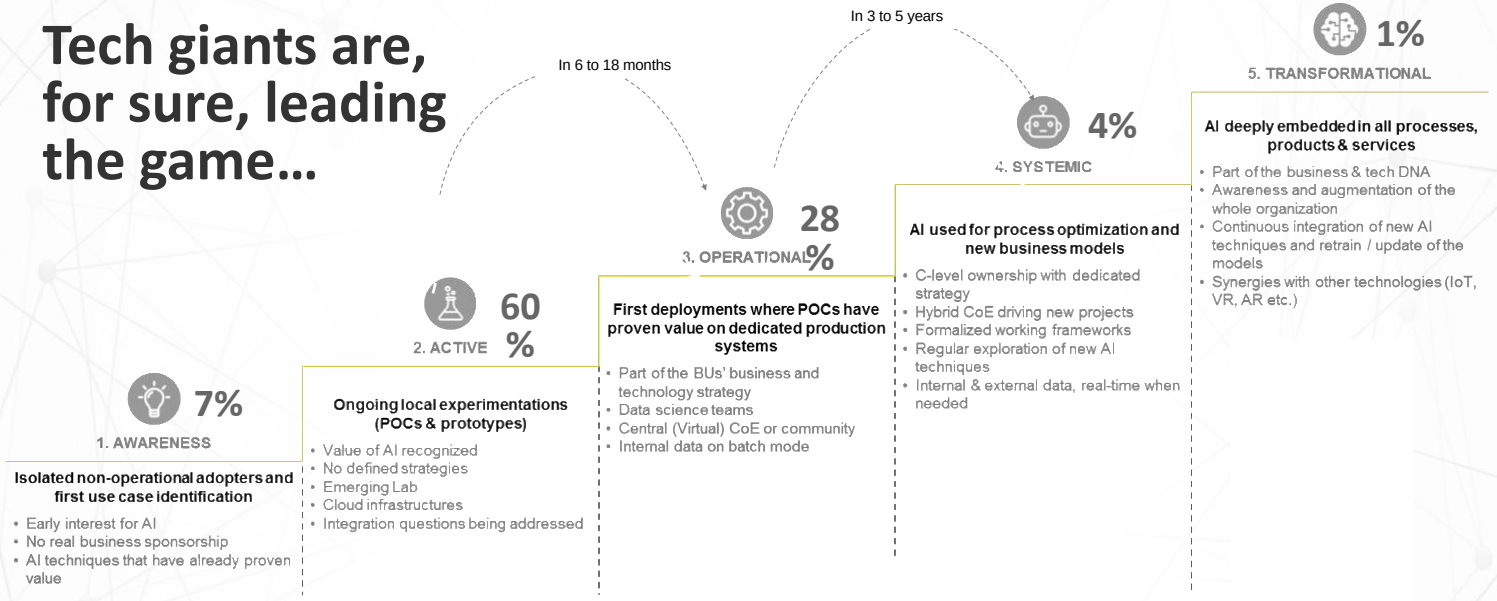
Google · Bing · Wikipedia

Science is open

TensorFlow · Keras · scikit-learn · Microsoft CNTK · Spark · MLlib · theano · Accord.NET Framework · torch · Caffe · PyTorch

Current business applications and maturity

Tech giants are, for sure, leading the game…

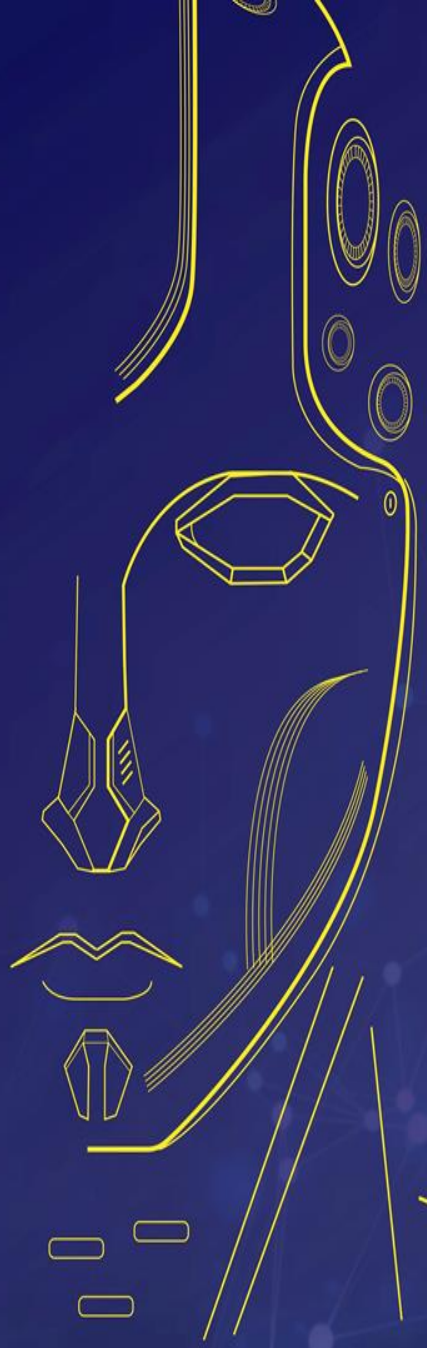


Low AI adoption:
Education, Healthcare, Travel, Consumer products

Medium AI adoption:
Retail, Media, Finance

High AI adoption:
Tech companies

Fewer than 10,000 people in the world have the skills necessary to tackle serious AI research



3 tricks to make it happen

TRICK #1 : THINK BIG !

Think different to make it happen

Today, performance is measured in very human terms

How we define goals, performance, and value is anchored to what we believe humans can do within an earth-cycle:

1. How many core samples can a geologist review in an hour?
2. How many webpages can a developer code in a weekend (with pizza)?
3. How many job applicants can a recruiter interview in an afternoon?
4. How many patients can a nurse check on in a shift?
5. How many blood tests can a lab technician process in a day?

These measurements are rooted in biology and nature, and highly constrained by our perceptions of **what is possible, and what is fair.**

Think different to make it happen

As work becomes more automated, humans still matter, but human-scale metrics become less relevant

Machines can solve a Rubik's cube in less then one second, a cognitive and physical feat only possible because a machine is unconstrained by the limits of biology.

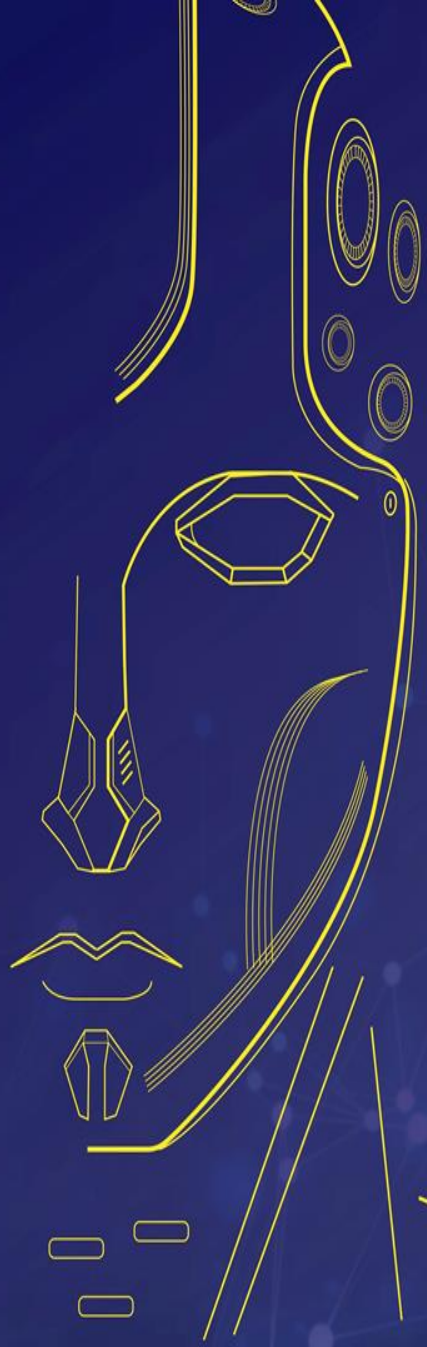
Machines don't sleep, eat or take breaks. They learn and execute at non-human speeds, which represents a **new outer boundary of performance.**

New Record!
Robot Solves Rubik's Cube in Less Than a Second.
LiveScience

The system used computer vision to read the colored tiles, applied an algorithm to determine the optimal path to the fastest solution time, and then used six motor-controlled arms to manipulate the cube, considering 43 quadrillion possible configurations before completing its task within 0.667 seconds – 10 times faster than any human has ever been able to do.

By Kacey Deamer, Nov 11, 2016

Rubik's Cube world Record
Source: livescience.com



3 tricks to make it happen

TRICK #2 : BUILD TRUST !

1. AI is no cure for all…

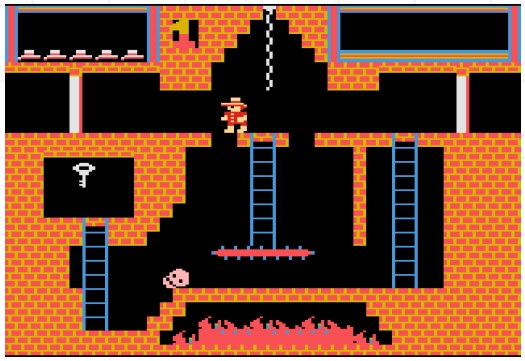
Elaborate a monitoring frame of ideation.

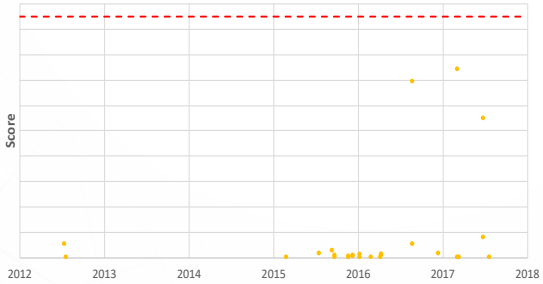
Educate people on the the basics of artificial intelligence.

Manage change and top management expectations.

Video game

Atari Montezuma's Revenge





Reading comprehension

Stanford Questions Answers Dataset

One of the most famous people born in Warsaw was Maria Skłodowska-Curie, who achieved international recognition for her research on radioactivity and was the first female recipient of the Nobel Prize. Famous musicians include Władysław Szpilman and Frédéric Chopin. Though Chopin was born in the village of Żelazowa Wola, about 60 km (37 mi) from Warsaw, he moved to the city with his family when he was seven months old. Casimir Pulaski, a Polish general and hero of the American Revolutionary War, was born here in 1745.

What was Maria Curie the first female recipient of?
Ground Truth Answers: Nobel Prize | Nobel Prize | Nobel Prize
Prediction: Nobel Prize

What year was Casimir Pulaski born in Warsaw?
Ground Truth Answers: 1745 | 1745 | 1745
Prediction: 1745

Who was one of the most famous people born in Warsaw?
Ground Truth Answers: Maria Skłodowska-Curie | Maria Skłodowska-Curie | Maria Skłodowska-Curie
Prediction: Maria Skłodowska-Curie

Who was Frédéric Chopin?
Ground Truth Answers: Famous musicians | musicians | Famous musicians
Prediction: Władysław Szpilman

How old was Chopin when he moved to Warsaw with his family?
Ground Truth Answers: seven months old | seven months old | seven months old
Prediction: seven

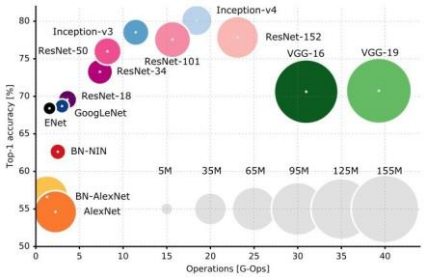
Manage trust to make it happen

2. AI can be misleading…

Onboard domain experts and think carefully about the impacts of the project.

Look for potential data bias and continuously monitor models' predictions.

Choose methods to find proper balance between performance and interpretability.



The most efficient algorithms output are very complex and opaque, and their theoretical understanding is very limited

Bias in training data or poorly specified objectives can lead AI algorithms to behave in unacceptable ways

Machine learning systems can be quite easily misled by malicious users

85% of AI projects through 2020 will deliver **erroneous outcomes** due to bias in data, algorithms or development teams

Source: Gartner's 2018 CIO Agenda Survey

Manage trust to make it happen

3. AI is fascinating AND scary…

Don’t concentrate AI efforts on replacing people. Help them.

Trust collective intelligence as much as artificial intelligence.

Decentralize sources of information.

70%

Of top-management believes AI to be a driver of progress

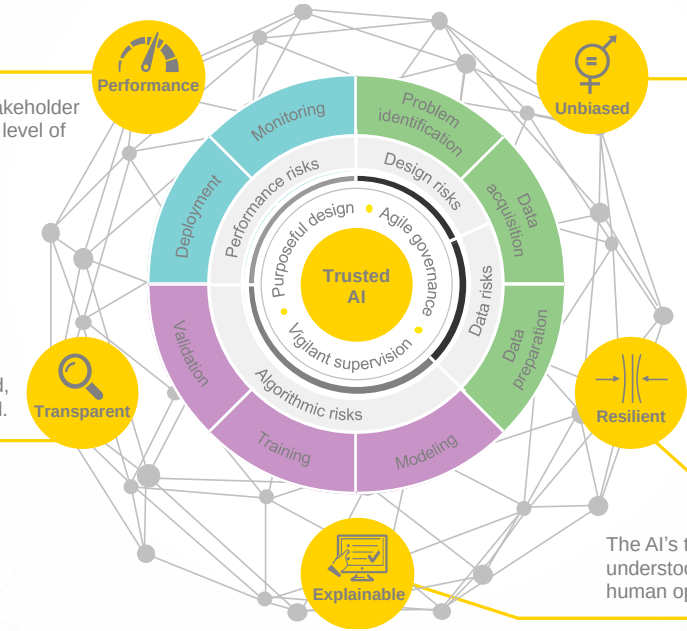
70%

Of mid-management employees and below are convinced of the contrary

Cumulative effect can be disastrous !

Manage trust to make it happen

You need to build a consistent Trusted AI framework



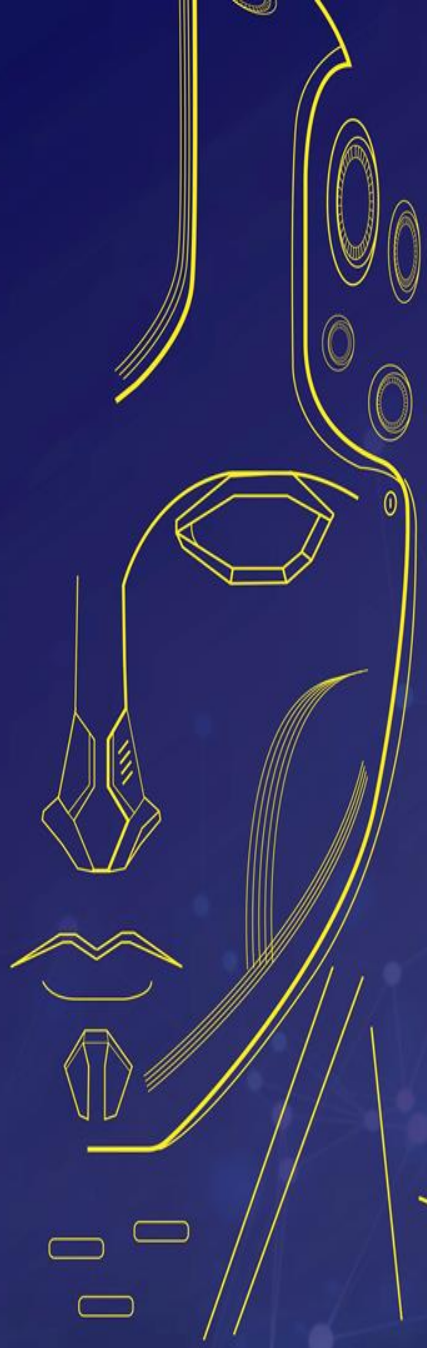
The AI's outcomes are aligned with stakeholder expectations and perform at a desired level of precision and consistency.

Inherent biases arising from the development team composition, data and training methods are identified and addressed through the AI design. The AI system is designed with consideration for the need of all impacted stakeholders and to promote a positive societal impact.

When interacting with an AI, an end-user is given appropriate notification and an opportunity to select their level of interaction. User consent is obtained, as required for data captured and used.

The data used by the AI system components and the algorithm itself is secured from unauthorized access, corruption and/ or adversarial attack.

The AI's training methods and decisions criteria can be understood, is documented and is readily available for human operator challenge and validation.



. . . 3 tricks to make it happen

TRICK #3 : MASTER INNOVATION !

Master innovation

You need to design strong organizational and technical enablers to leverage AI

ORGANIZATION & PROCESSES

Defined and shared E2E delivery process
Iterative R&D and industrialization process, with defined steps and gates

Multidisciplinary teams & agile ways of working
Right mix of business, analytics, IT and data skills, working as one team, with defined roles & responsibilities

Security, legal and compliance framework
On the roles and rights of the Data Science teams, R&D phase, cross-entity sharing of data

SOLUTIONS AND TOOLS

R&D platform
Secured data vault with industrialized ingestion & masking processes. Platform with flexible and elastic storage / compute capacities, allowing to build, train and test AI models

Industrialization platform
Container platform with adapted storage & compute, monitoring tools and AI specific processes, allowing batch and real time run of solutions, interfaced with information system

Reusable AI building blocks
Developed internally or externally, ready-to-use or to be fine-tuned

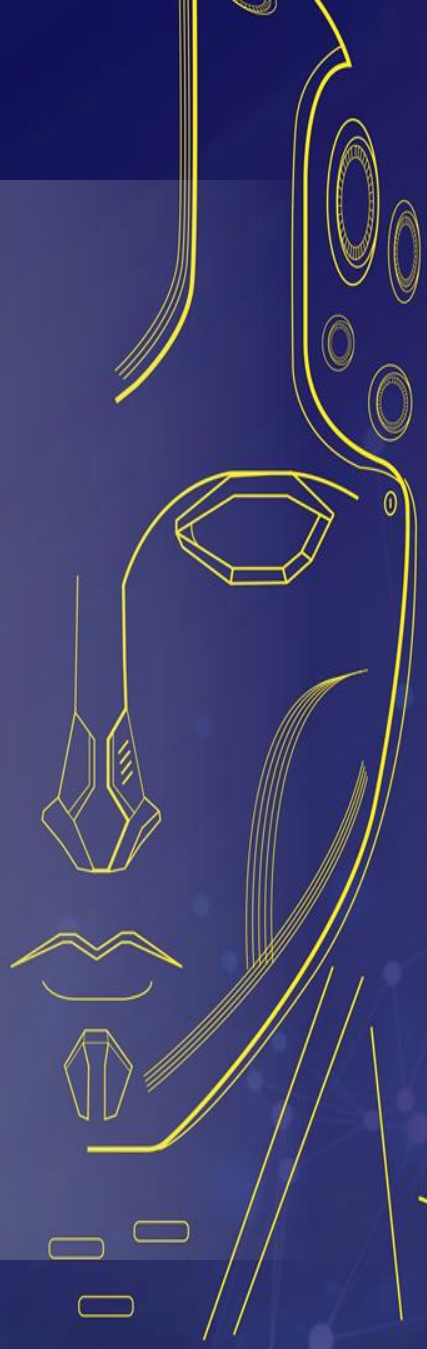
The implementation of these capabilities will

- **Secure the development and the run of AI solutions** in a timely manner
- **Address the different AI use cases** and their interfacing with information systems

A classical and generally successful approach is to design Centers of Excellence to innovate and scale up

- The **hub for AI & Advanced Analytics**
- An organization focused on **enterprise-wide empowerment**
- A **team of experts**
- A highly influential node on a **network of distributed experts and competency centers**

- A steward of **methods and standards**
- A link between **strategy and execution**
- A **change agent**
- A **catalyser for excellence** enabling speed, scope, and scale



Thank you.

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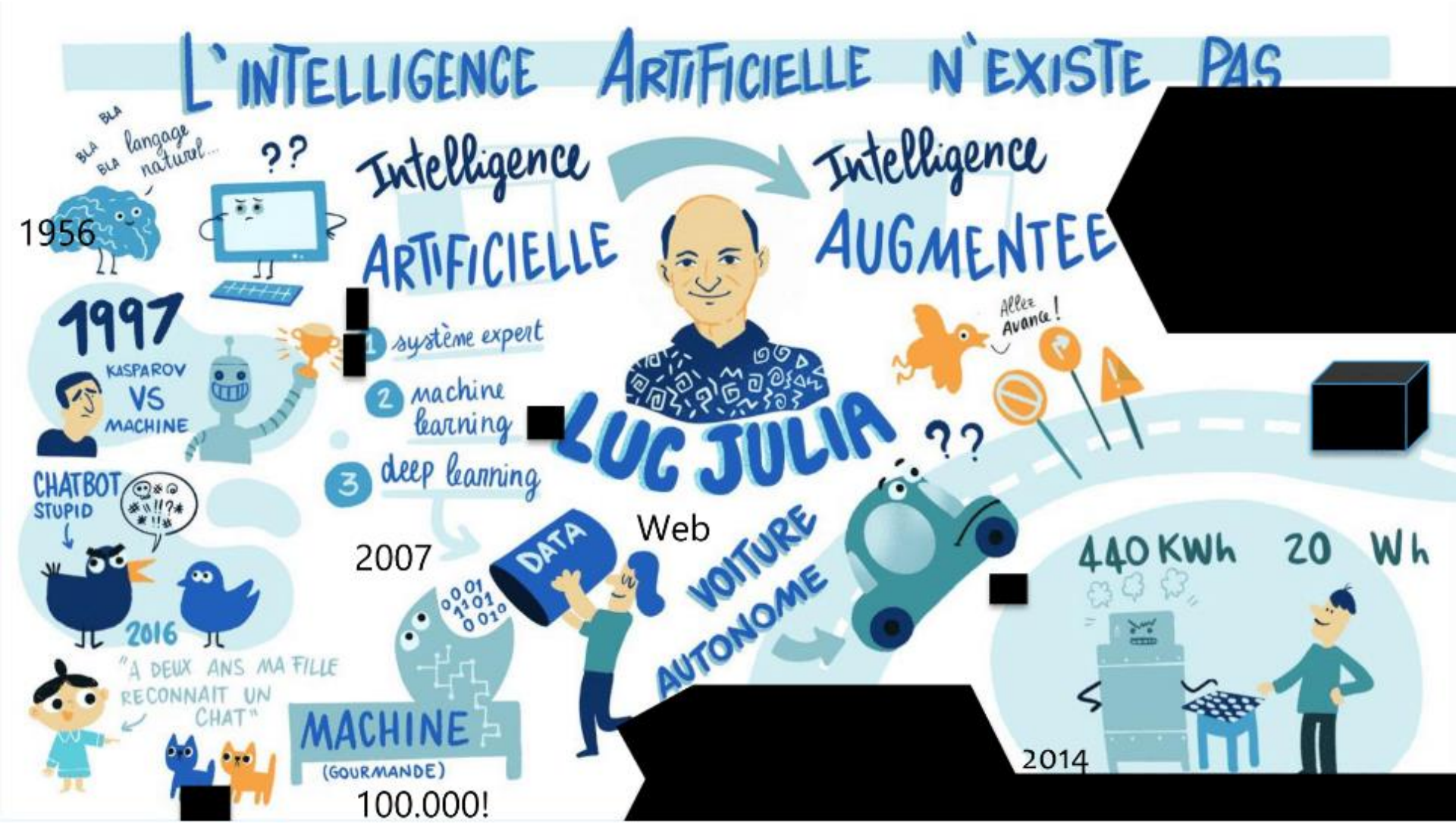
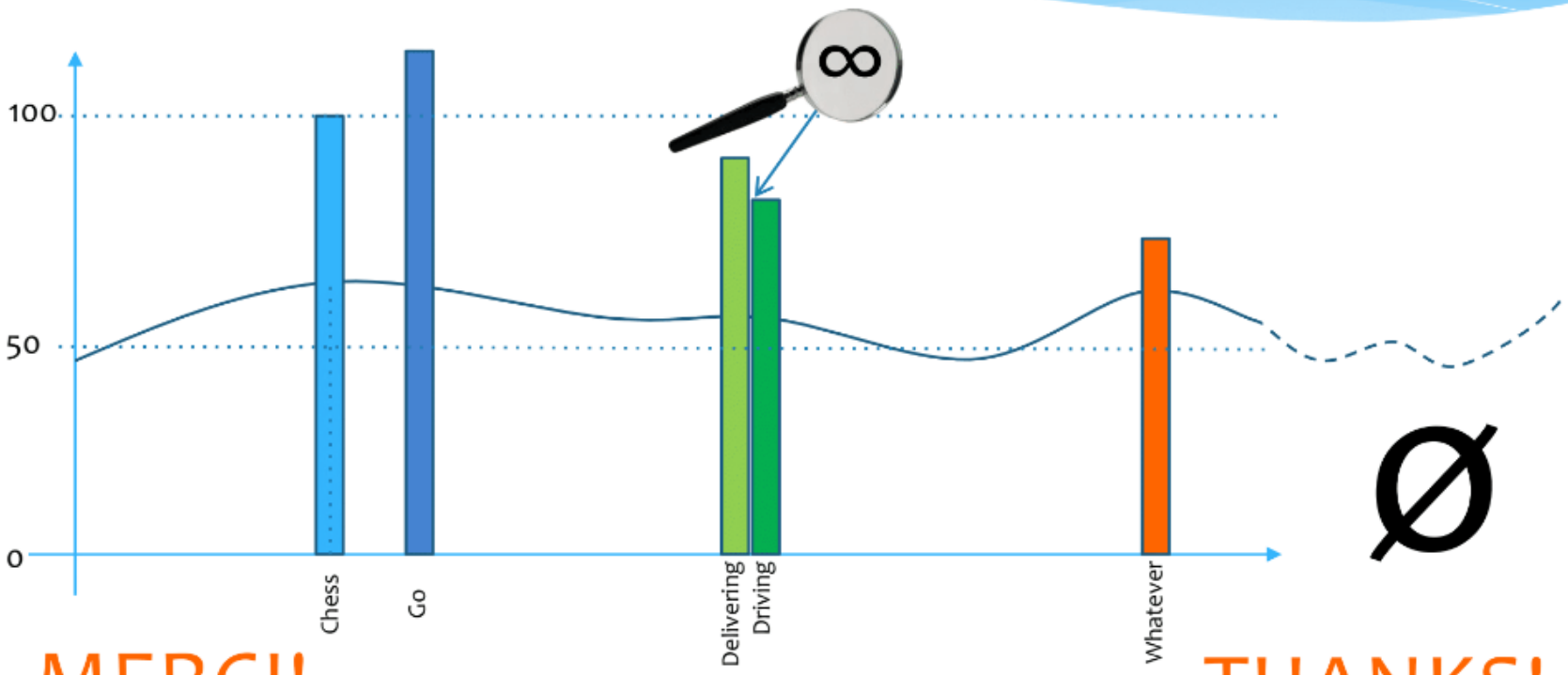

L'INTELLIGENCE ARTIFICIELLE N'EXISTE PAS
BLA BLA langage naturel...
??
1956
Intelligence ARTIFICIELLE
Intelligence AUGMENTEE
1997
KASPAROV VS MACHINE
1 système expert
2 machine learning
3 deep learning
LUC JULIA
Allez Avance !
CHATBOT STUPID
2016
"A DEUX ANS MA FILLE RECONNAIT UN CHAT"
2007
DATA
Web
VOITURE AUTONOME
440 KWh
20 Wh
MACHINE (GOURMANDE)
100.000!
2014

INTELLIGENCE(S)?



MERCI!

THANKS!

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Orange

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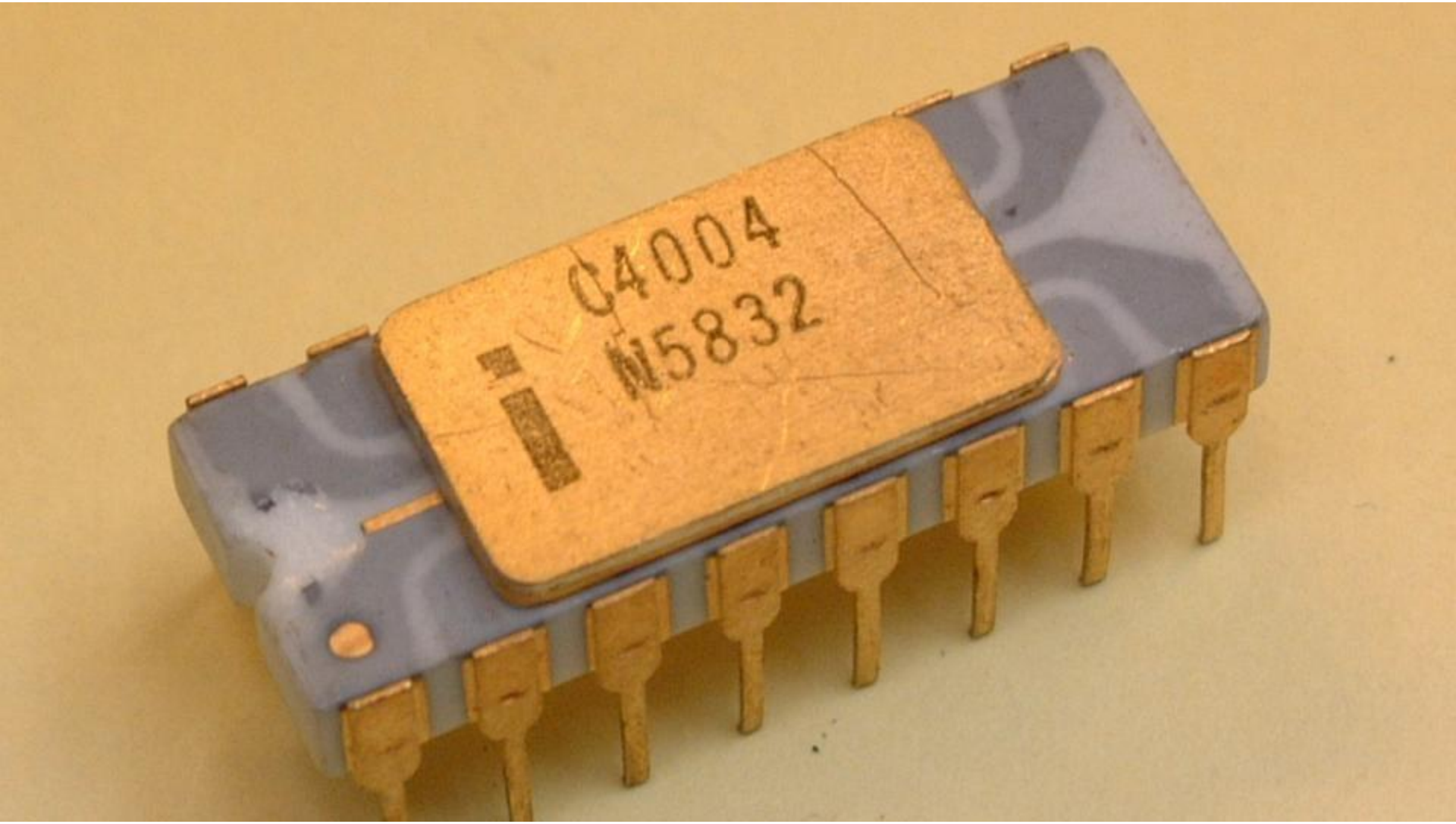
L'IA doit-elle être haïe ?

Patrice SLUPOWSKI

25 juin 2019

Décryptage de quelques grandes tendances actuelles de la transformation digitale


5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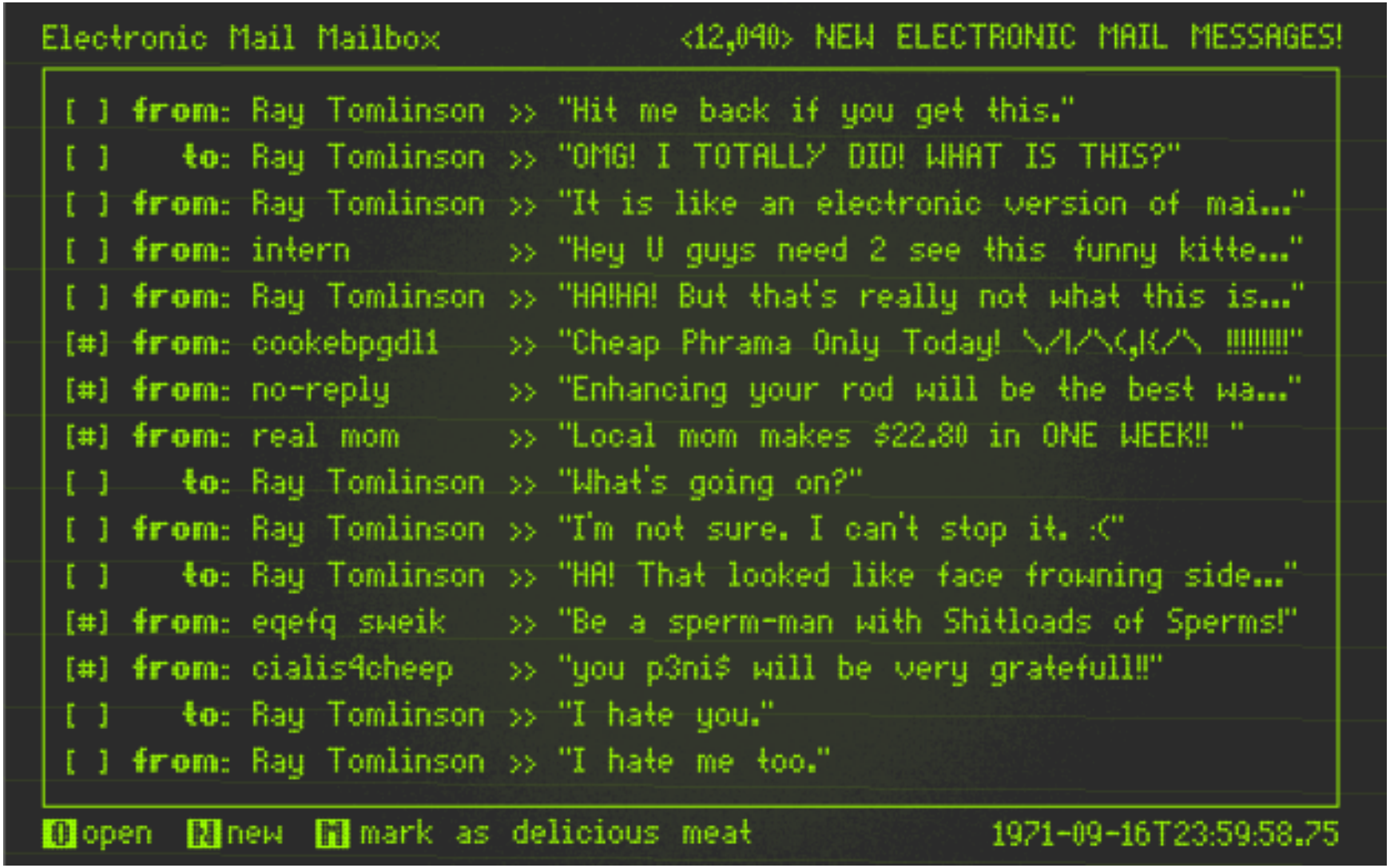
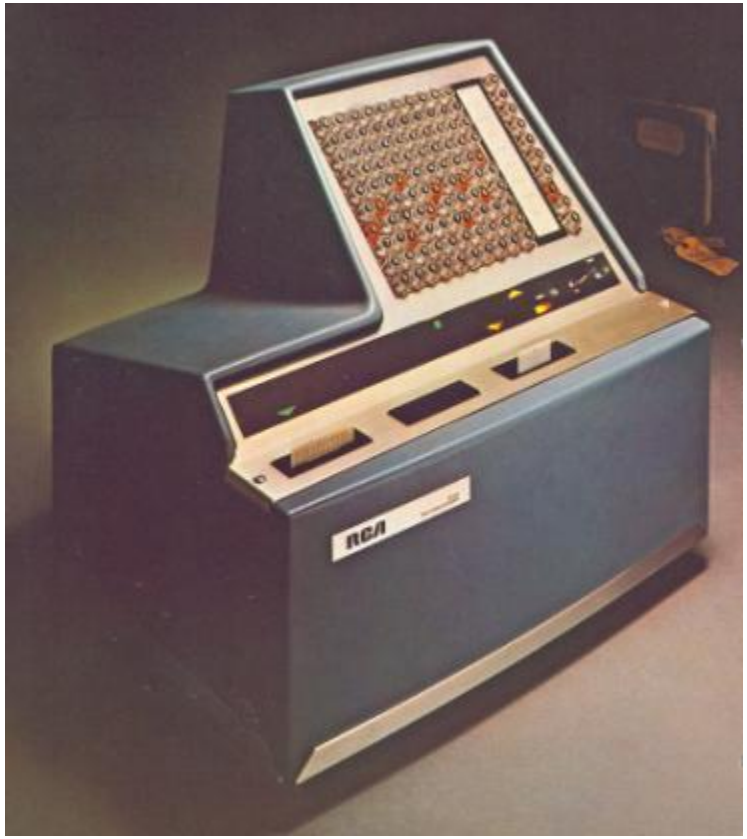

Electronic Mail Mailbox
<12,090> NEW ELECTRONIC MAIL MESSAGES!
[ ] from: Ray Tomlinson >> "Hit me back if you get this."
[ ] to: Ray Tomlinson >> "OMG! I TOTALLY DID! WHAT IS THIS?"
[ ] from: Ray Tomlinson >> "It is like an electronic version of mai..."
[ ] from: intern >> "Hey U guys need 2 see this funny kitte..."
[ ] from: Ray Tomlinson >> "HA!HA! But that's really not what this is..."
[#] from: cookebpgdll >> "Cheap Phrama Only Today! \/|/\\G|K/\ !!!!!!!!"
[#] from: no-reply >> "Enhancing your rod will be the best wa..."
[#] from: real mom >> "Local mom makes $22.80 in ONE WEEK!! "
[ ] to: Ray Tomlinson >> "What's going on?"
[ ] from: Ray Tomlinson >> "I'm not sure. I can't stop it. :("
[ ] to: Ray Tomlinson >> "HA! That looked like face frowning side..."
[#] from: eqefq sweik >> "Be a sperm-man with Shitloads of Sperms!"
[#] from: cialis4cheep >> "you p3ni$ will be very gratefull!!"
[ ] to: Ray Tomlinson >> "I hate you."
[ ] from: Ray Tomlinson >> "I hate me too."
O open N new M mark as delicious meat
1971-09-16T23:59:58.75


RCA


4
3
2
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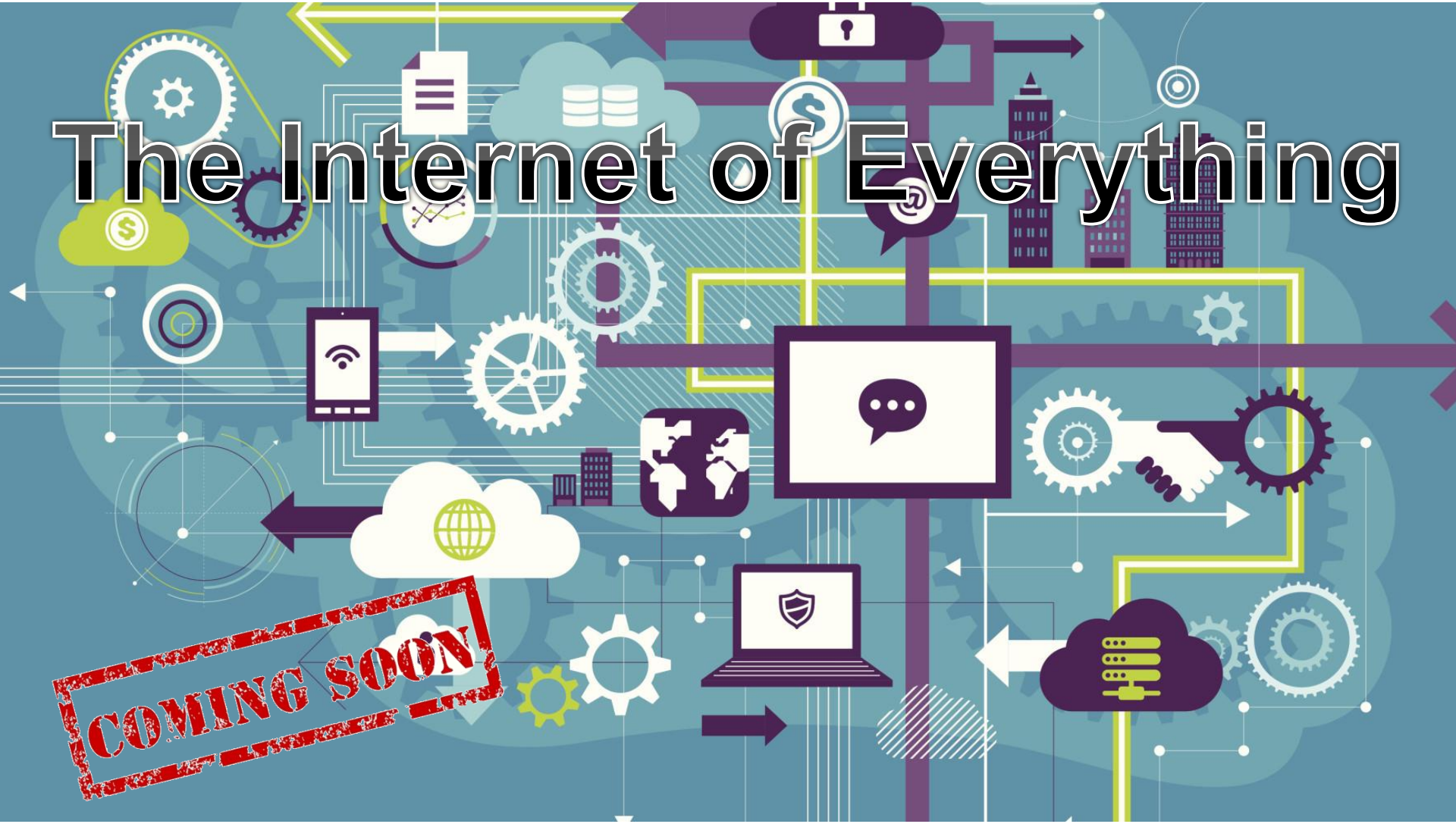
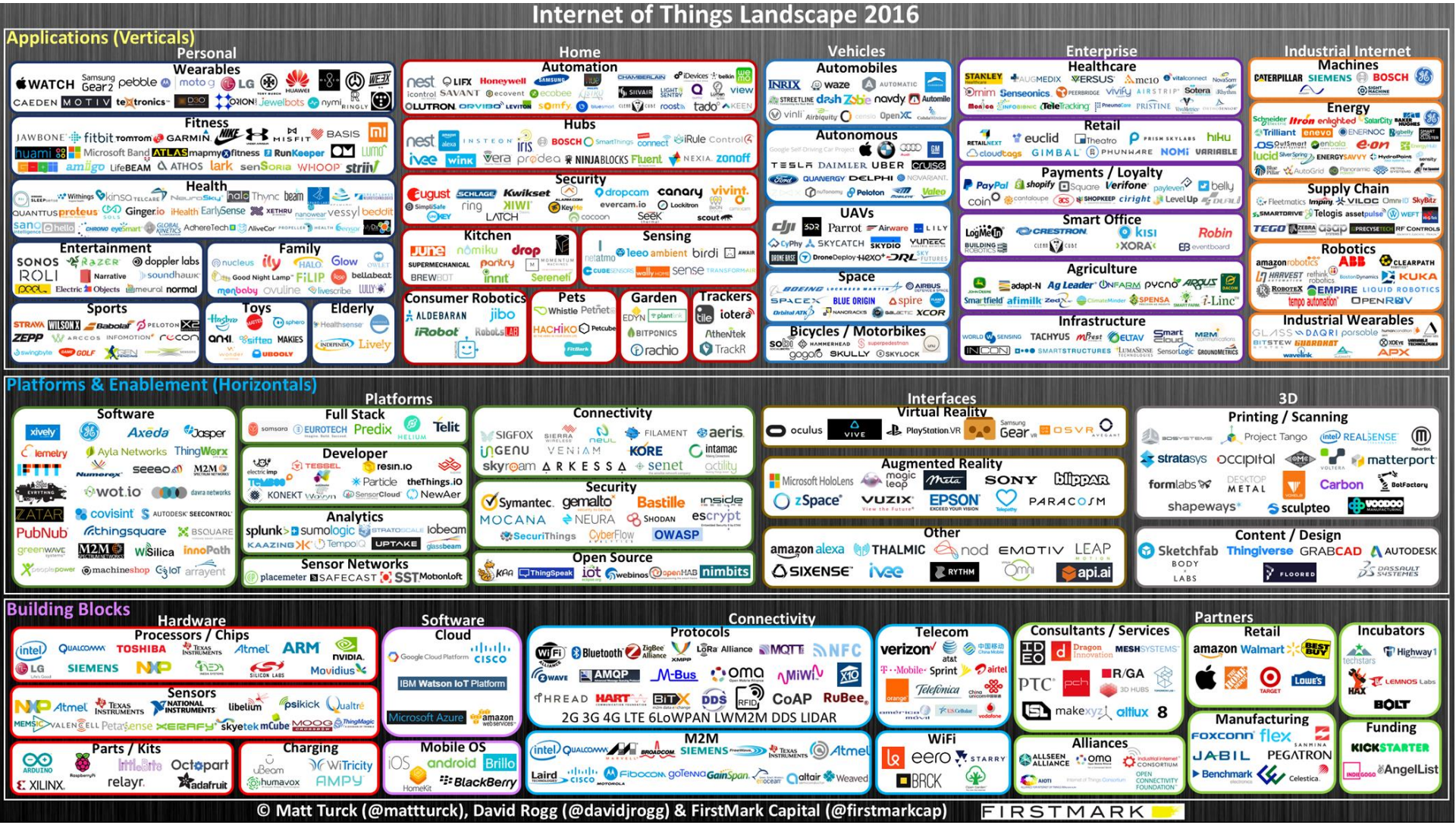
- « Software is eating the world »
- « The IoT will become the internet of everything »
- « Data is the new oil »
- « Cybercrime is the modern-Day mafia »
- « AI is the new UI »
- « Immersion is the new revolution »
- « Real time is too late »
- « Future of apps is no app »
- « Power is switching from institutions to communities »
- « Everything as a service »
- « Silicon is back »


The Internet of Everything
COMING SOON


Internet of Things Landscape 2016
Applications (Verticals)
Personal
Wearables
Fitness
Health
Entertainment
Family
Sports
Toys
Elderly
Home
Automation
Hubs
Security
Kitchen
Sensing
Consumer Robotics
Pets
Garden
Trackers
Vehicles
Automobiles
Autonomous
UAVs
Space
Bicycles / Motorbikes
Enterprise
Healthcare
Retail
Payments / Loyalty
Smart Office
Agriculture
Infrastructure
Industrial Internet
Machines
Energy
Supply Chain
Robotics
Industrial Wearables
Platforms & Enablement (Horizontals)
Platforms
Software
Full Stack
Developer
Analytics
Sensor Networks
Connectivity
Security
Open Source
Interfaces
Virtual Reality
Augmented Reality
Other
3D
Printing / Scanning
Content / Design
Building Blocks
Hardware
Processors / Chips
Sensors
Parts / Kits
Charging
Software
Cloud
Mobile OS
Connectivity
Protocols
2G 3G 4G LTE 6LoWPAN LWM2M DDS LIDAR
M2M
Telecom
WiFi
Consultants / Services
Alliances
Partners
Retail
Manufacturing
Incubators
Funding
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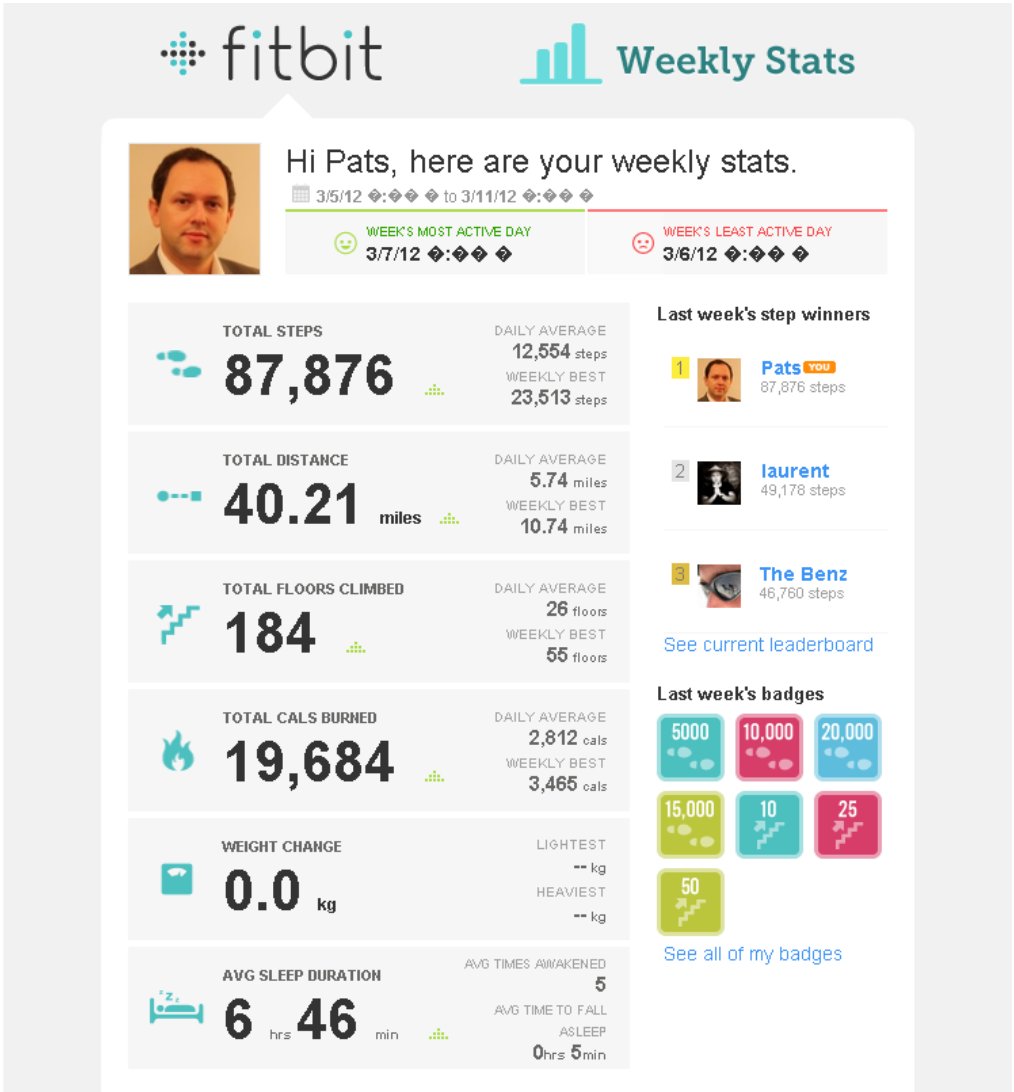
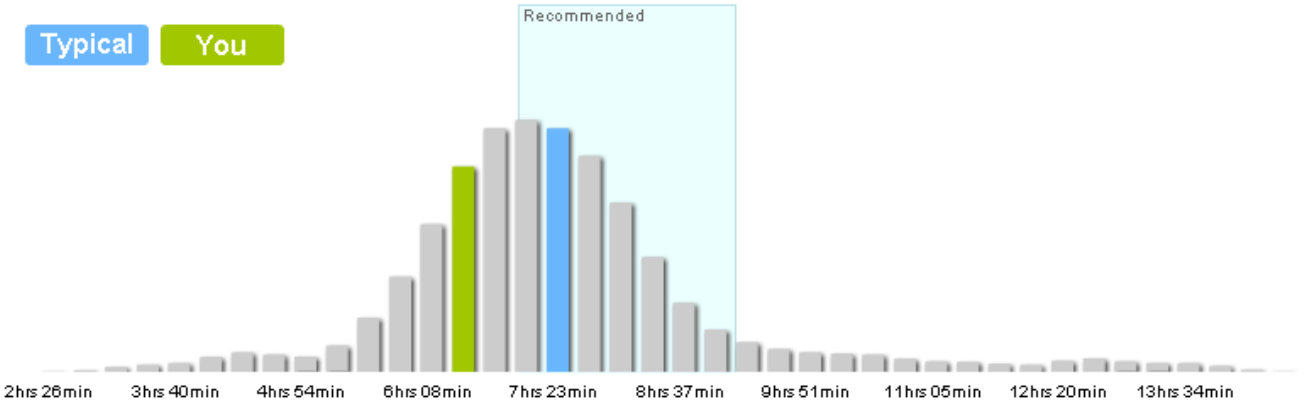
DATA


Track
Know
Enhance


fitbit
Weekly Stats
Hi Pats, here are your weekly stats.
3/5/12 ❍:❍❍ ❍ to 3/11/12 ❍:❍❍ ❍
WEEK'S MOST ACTIVE DAY
3/7/12 ❍:❍❍ ❍
WEEK'S LEAST ACTIVE DAY
3/6/12 ❍:❍❍ ❍
TOTAL STEPS
87,876
DAILY AVERAGE
12,554 steps
WEEKLY BEST
23,513 steps
TOTAL DISTANCE
40.21 miles
DAILY AVERAGE
5.74 miles
WEEKLY BEST
10.74 miles
TOTAL FLOORS CLIMBED
184
DAILY AVERAGE
26 floors
WEEKLY BEST
55 floors
TOTAL CALS BURNED
19,684
DAILY AVERAGE
2,812 cals
WEEKLY BEST
3,465 cals
WEIGHT CHANGE
0.0 kg
LIGHTEST
-- kg
HEAVIEST
-- kg
AVG SLEEP DURATION
6 hrs 46 min
AVG TIMES AWAKENED
5
AVG TIME TO FALL ASLEEP
0hrs 5min
Last week's step winners
1 Pats YOU
87,876 steps
2 laurent
49,178 steps
3 The Benz
46,760 steps
See current leaderboard
Last week's badges
5000
10,000
20,000
15,000
10
25
50
See all of my badges



You averaged

6hrs 43min

of sleep per night this week

You get more than

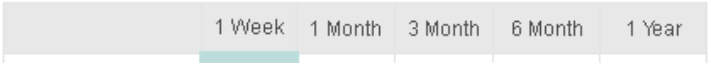
32 percent

of all men 35 to 44 yrs who are overweight

You averaged **6hrs 42min** of sleep per night this week. A good night's rest is important for your alertness during the day and can help prevent chronic disease. It is recommended that you get between **7 and 9 hrs** of sleep a night. You get **18min** less than that. Try to get some more rest – you might feel better for it.

Sleep History

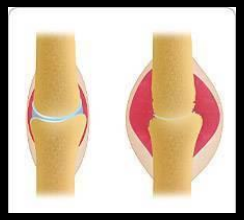
Sleep Time (hr)



behavior change
will be
the killer-app
of the IoT

1

Polyarthritis



7 000 000 ~ 1%

« Can we identify
a behavior change
in the daily activity of patients
suffering from polyarthritis
by analyzing
activity trackers data ? »

2

170 patients - 3 months

+15 000 000 data

Datavenue

Khiops ©

24h	predicted	
true	0	1
0	0.96	0.04
1	0.52	0.48

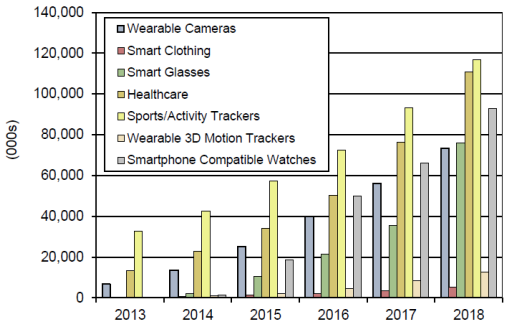
1h	predicted	
true	0	1
0	0.97	0.03
1	0.04	0.96

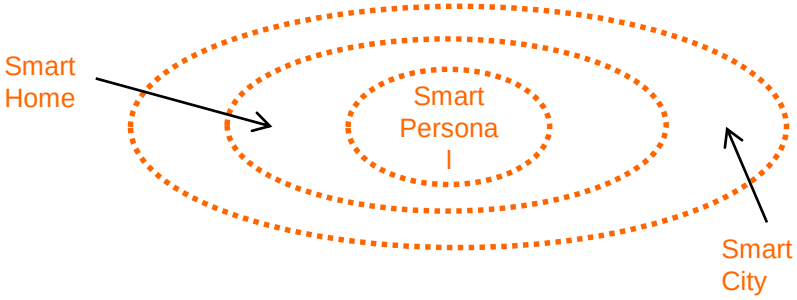
3

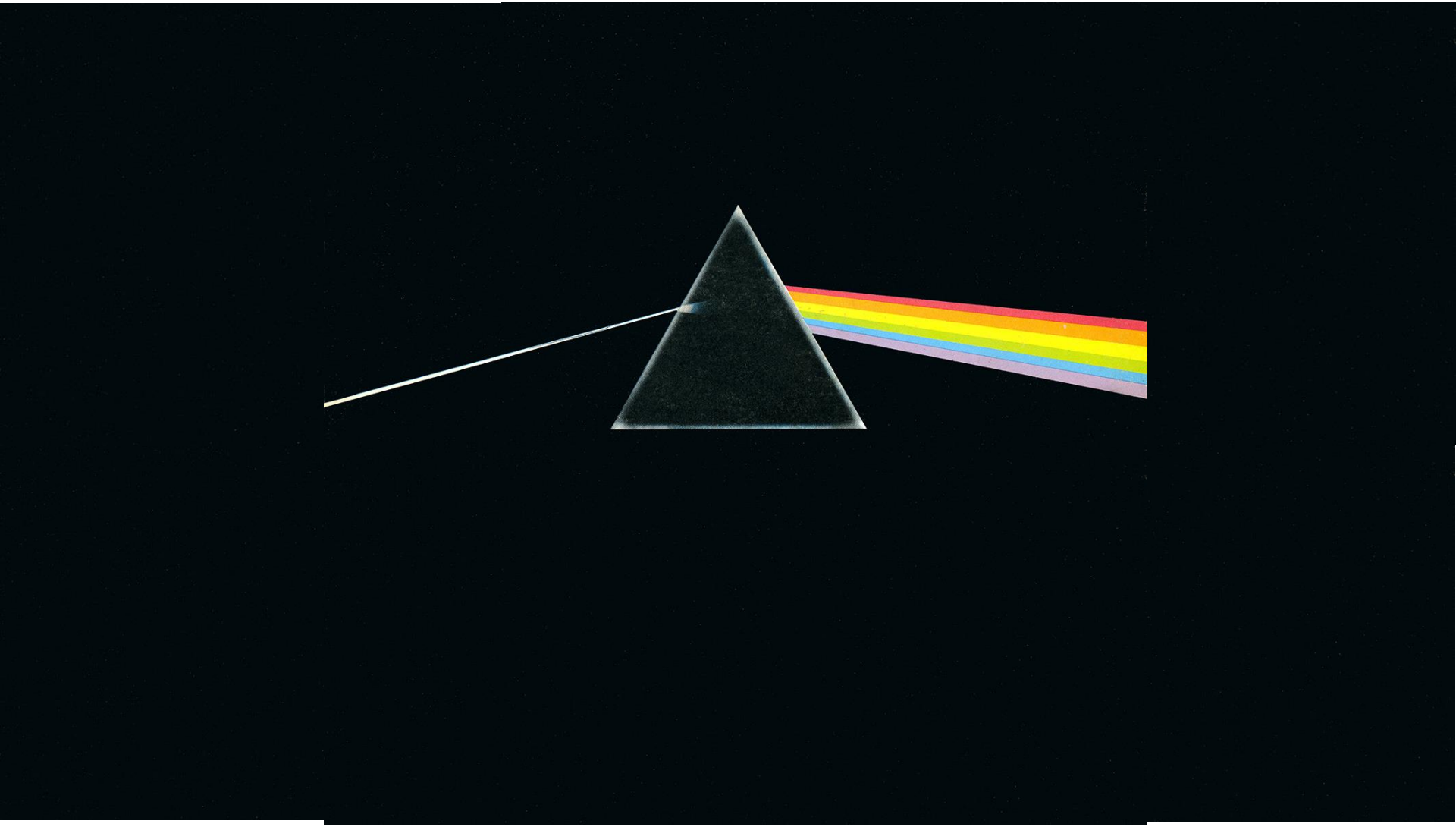
The Internet of Things, 3rd age of the internet, a digital revolution with billions of objects producing data, a data tsunami of digital traces, social networks & connected objects putting the world in data

- 300 to 500 million devices sales per year in 2017-2018 according to ABI research compared to 1,7 billion smartphones. There are now more connected things than connected people.
- IoT and Big Data are horizontal concepts made of several vertical categories (Home, Care, Transport, M2M, …) and disrupting several vertical industries (insurance, automotive, health, wellness …
- The world is quickly turned into data thanks to clouds and computing power

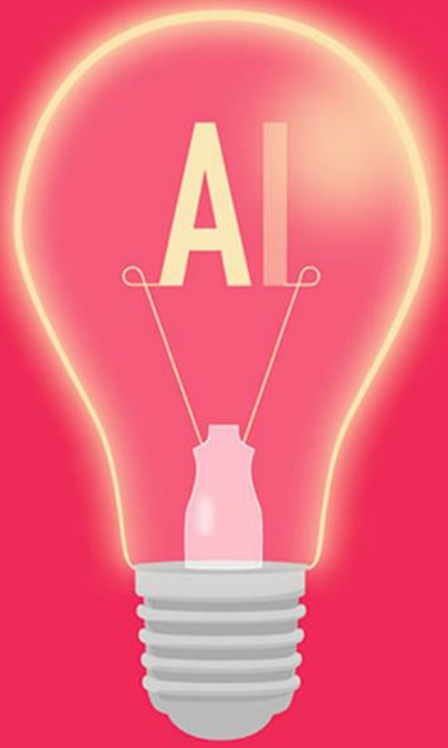
Chart 1: Global Wearable Technologies Market
World Markets, Forecast: 2013 to 2018
(Source: ABI Research)



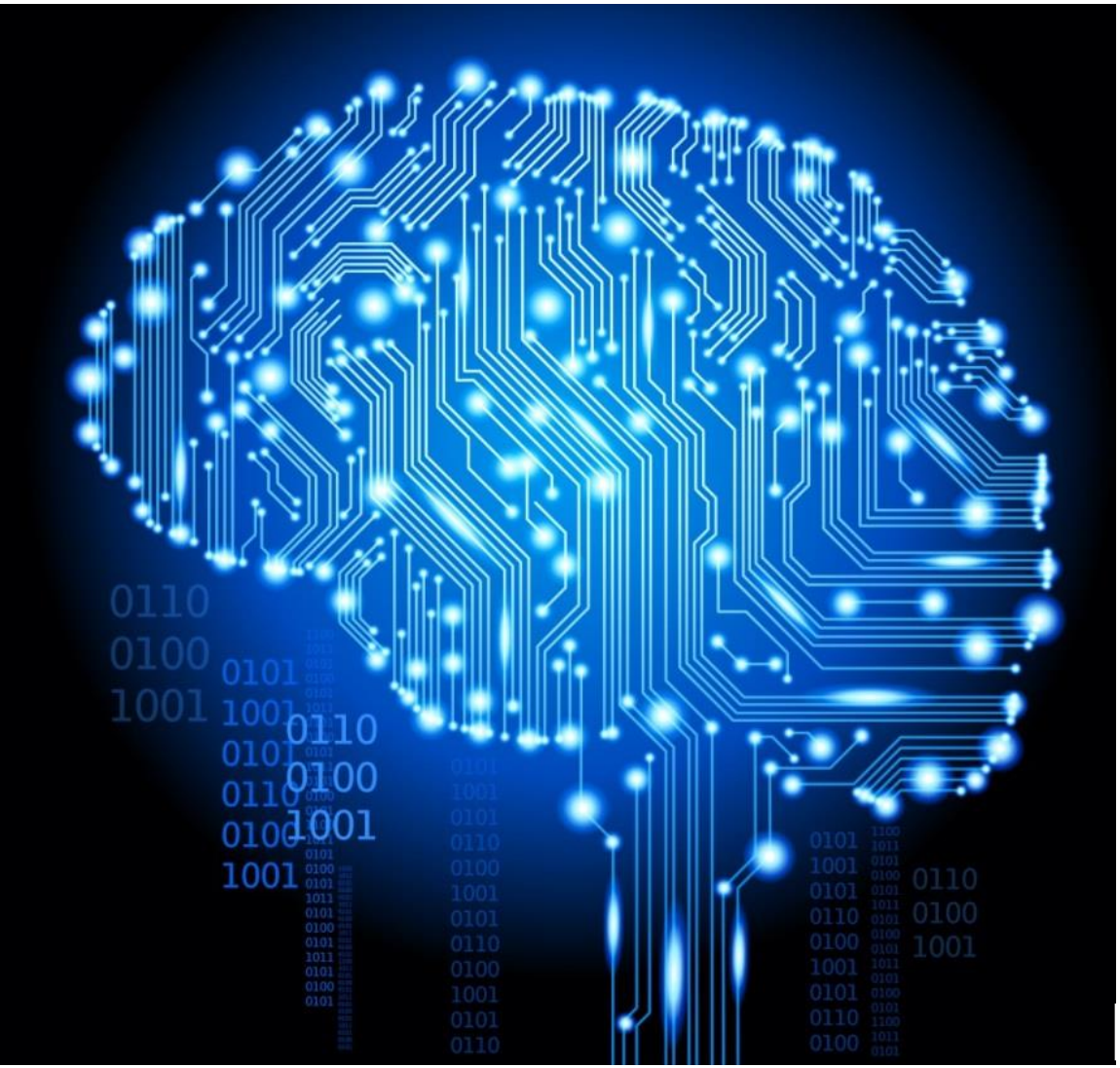




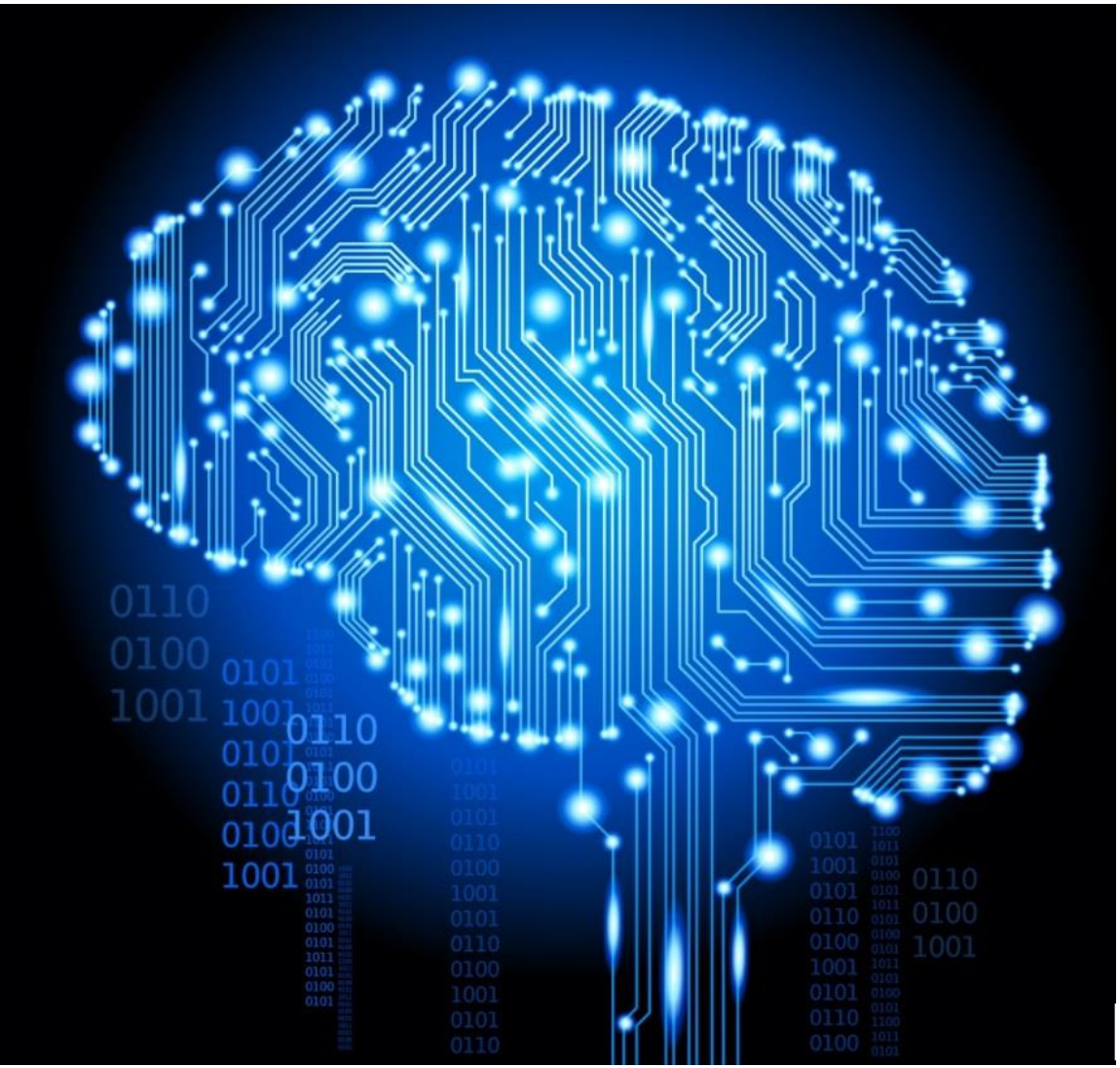
Data is the new oil. AI is the new electricity.



Gerd

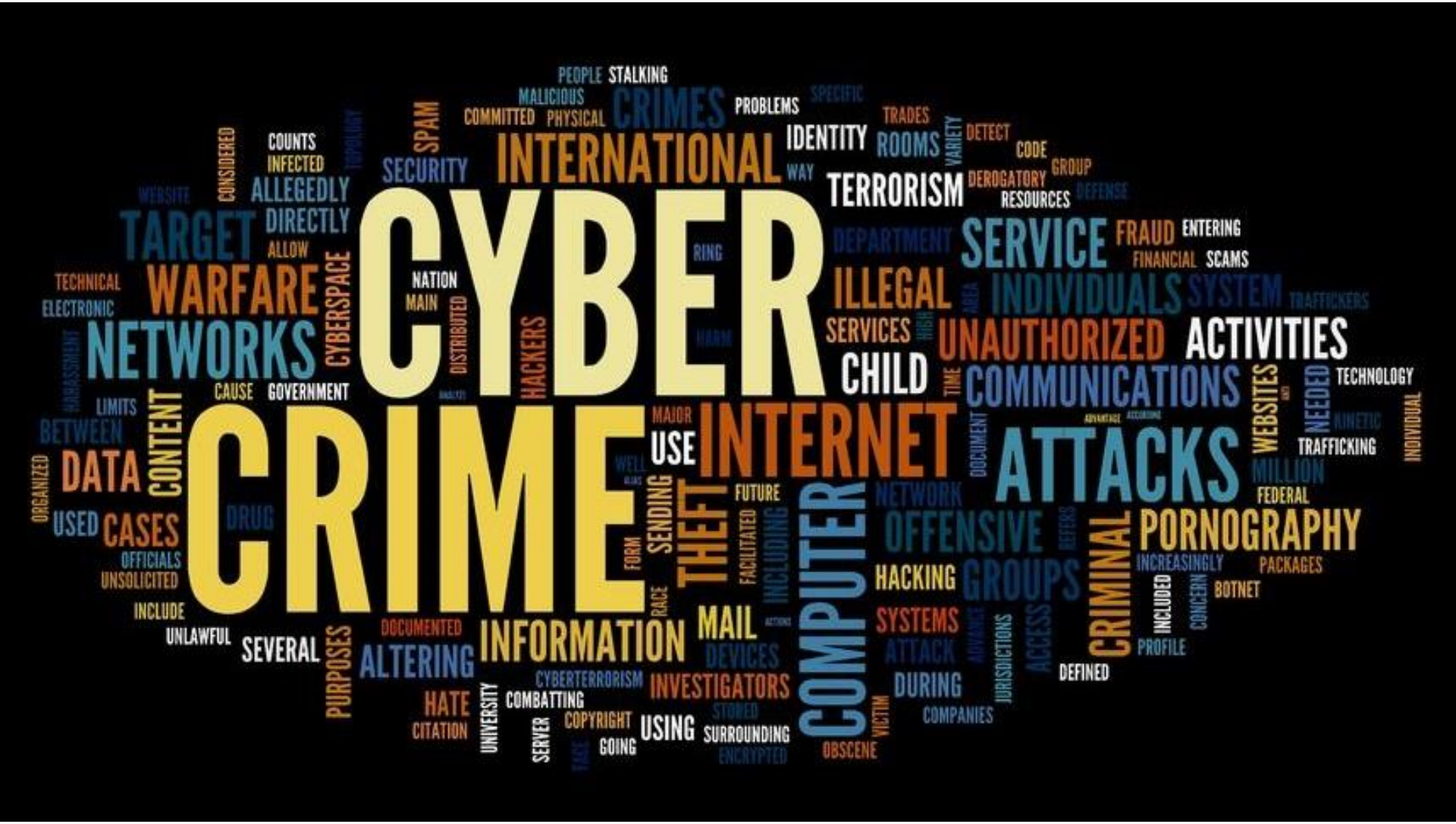


Algorithms able to reproduce a human reasoning



Learn from
existing data bases

Learn by
themselves


CYBER
CRIME
INTERNATIONAL
CRIMES
TERRORISM
IDENTITY
SECURITY
SPAM
TARGET
ALLEGEDLY
DIRECTLY
WARFARE
NETWORKS
CYBERSPACE
HACKERS
DISTRIBUTED
ILLEGAL
SERVICE
INDIVIDUALS
SYSTEM
UNAUTHORIZED
ACTIVITIES
CHILD
COMMUNICATIONS
INTERNET
ATTACKS
WEBSITES
NEEDED
TECHNOLOGY
TRAFFICKING
DATA
CONTENT
USE
THEFT
COMPUTER
OFFENSIVE
GROUPS
CRIMINAL
PORNOGRAPHY
HACKING
SYSTEMS
MAIL
INFORMATION
ALTERING
SEVERAL
HATE
INVESTIGATORS
DURING
USED
CASES
DRUG
SENDING
FUTURE
NETWORK
FEDERAL
MILLION
INCREASINGLY
PACKAGES
BOTNET
PROFILE
DEFINED
PEOPLE
STALKING
MALICIOUS
COMMITTED
PHYSICAL
PROBLEMS
TRADES
ROOMS
DETECT
CODE
GROUP
DEROGATORY
RESOURCES
COUNTS
INFECTED
ALLOW
CAUSE
GOVERNMENT
NATION
MAIN
RING
DEPARTMENT
FRAUD
ENTERING
FINANCIAL
SCAMS
SERVICES
TECHNICAL
ELECTRONIC
LIMITS
BETWEEN
ORGANIZED
OFFICIALS
UNSOLICITED
INCLUDE
UNLAWFUL
PURPOSES
DOCUMENTED
CYBERTERRORISM
COMBATTING
COPYRIGHT
USING
SURROUNDING
CITATION
UNIVERSITY
SERVER
GOING
OBSCENE
ENCRYPTED
STORED
VICTIM
COMPANIES
JURISDICTIONS
ACCESS
ATTACK
DEVICES
INCLUDING
FACILITATED
FORM
RACE
MAJOR
TIME
DOCUMENT
WEBSITE
CONSIDERED
TRAFFICKERS
KINETIC
INDIVIDUAL
CONCERN
INCLUDED
REFERS
NETWORK
WAY
VARIETY
SPECIFIC
DEFENSE

So many passwords…

Creating a password

cabbage

Sorry, the password must be more than 8 characters.

boiled cabbage

Sorry, the password must contain 1 numerical character.

1 boiled cabbage

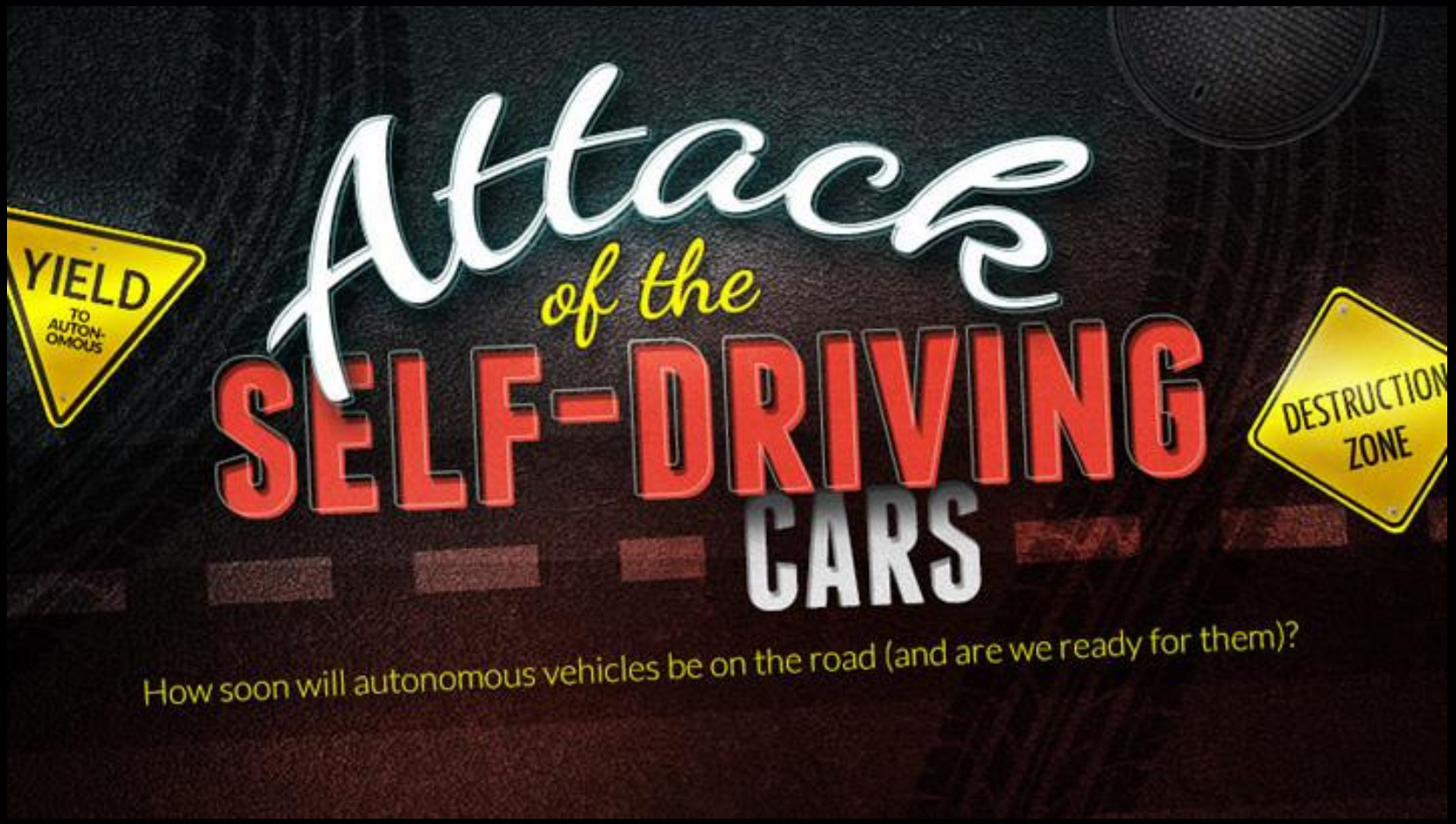
Sorry, the password cannot have blank spaces.

50fuckingboiledcabbages

Sorry, the password must contain at least one upper

The IoT will densify
the internet
by a factor of 15


ATTACK
OF THE
DRONES


YIELD
TO
AUTON-
OMOUS
Attack
of the
SELF-DRIVING
CARS
DESTRUCTION
ZONE
How soon will autonomous vehicles be on the road (and are we ready for them)?


My Building Has Been Hacked

Future of Digital Identity will be Strong, Frictionless & Multi-factor

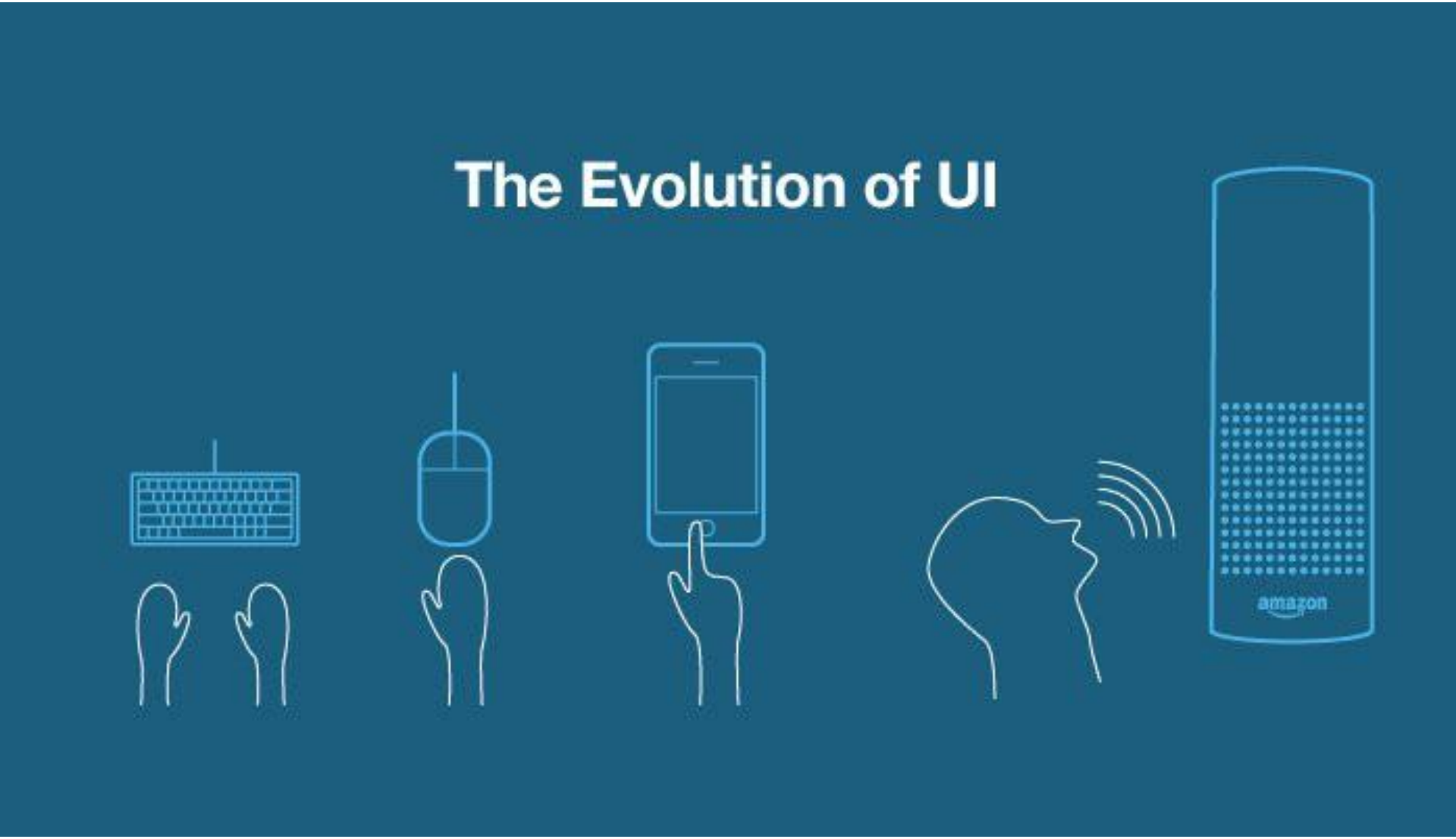

SOMETHING
YOU KNOW
SOMETHING
YOU HAVE

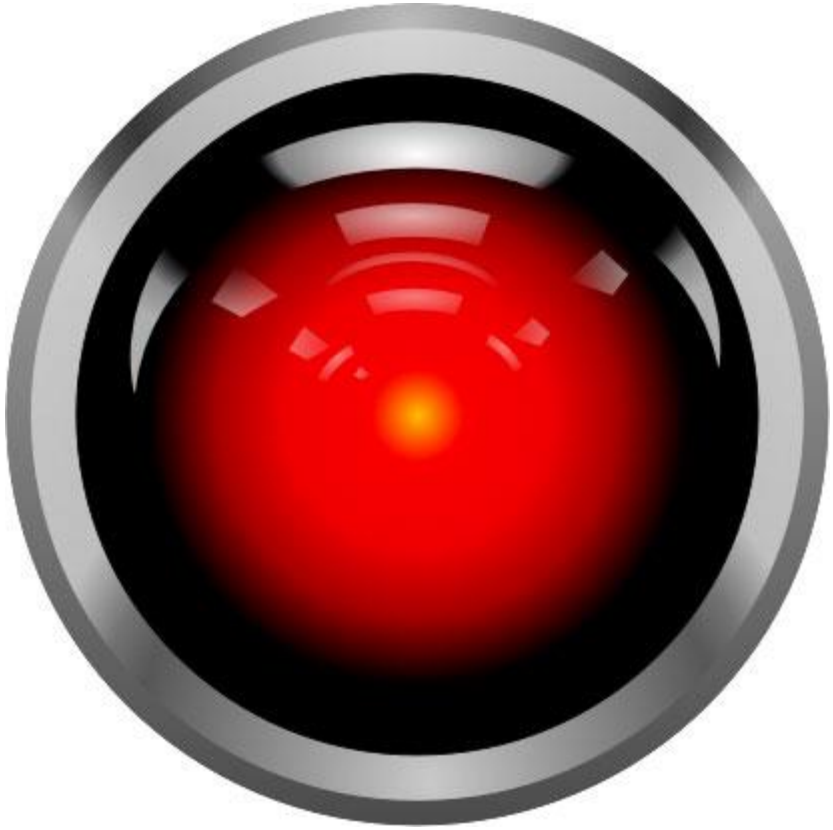
Cyberdefense
Academy

Users DATA must belong to Users

GDPR: General Data Protection Regulation

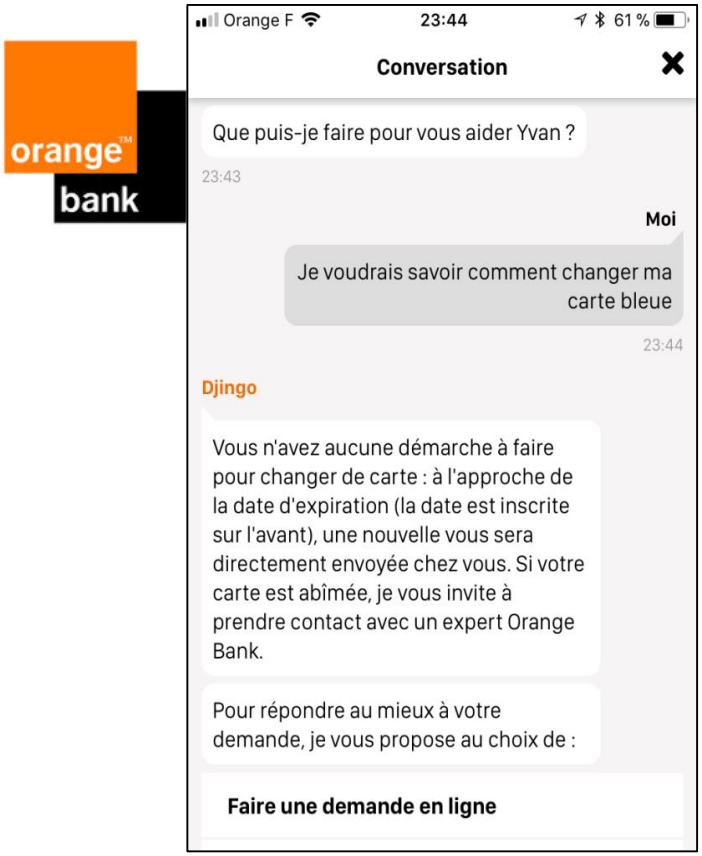
- cadre harmonisé
- application extraterritoriale
- consentement « explicite » et « positif »
- droit à l'oubli
- portabilité des données personnelles
- Profilage
- Privacy by design
- notifications des fuite de données
- nomination d'un délégué à la protection des données (Data Protection Officer)
- sanctions financières jusqu'à 4 % du CA mondial
- création du European Data Protection Board


The Evolution of UI
amazon



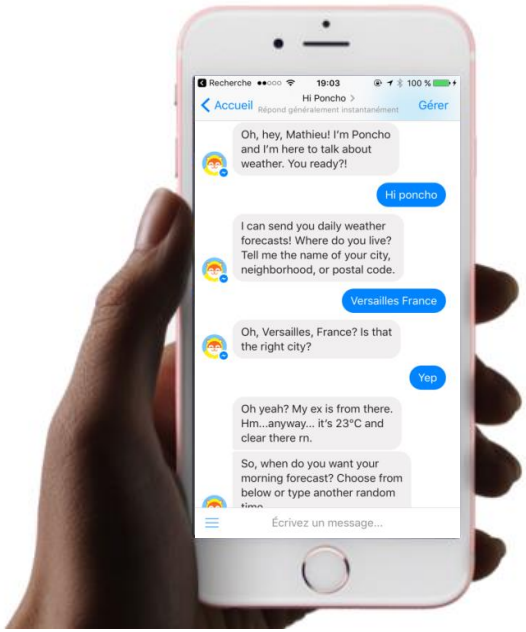
AI IS THE NEW UI

Djingo assistant Chatbot for Orange Bank



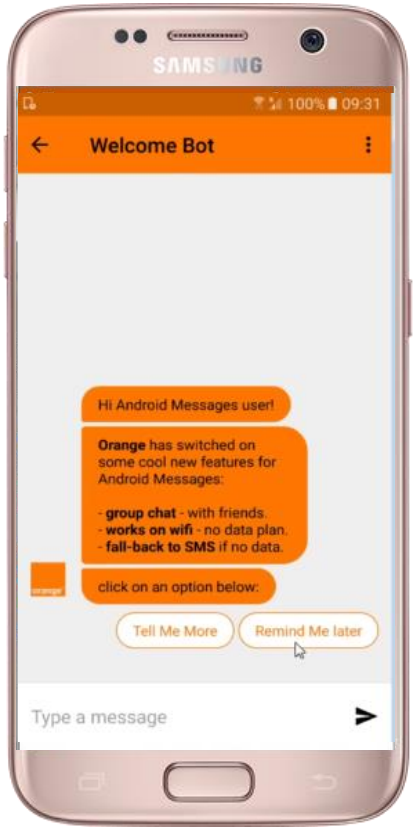
Chatbot within mobile ecosystems

Messenger bots



Apps - Duolingo
to learn a foreign language

RCS



A new user experience : 24/7 effortless customer assistance

Djingo

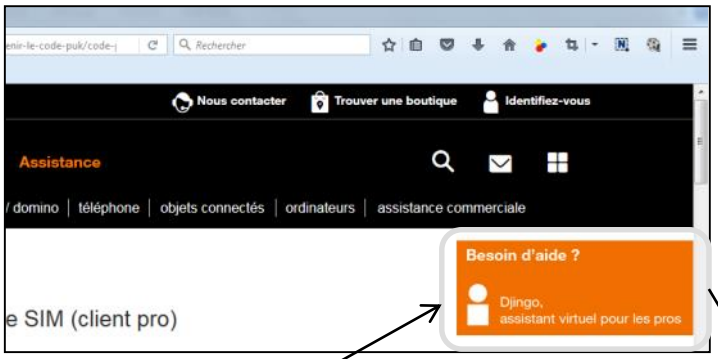
Virtual assistant for professionals

Hello, I am Djingo. What can I do for you ?

I forgot my PIN code, can you help me ?

Value proposition

Need assistance ?
Ask Djingo with your own words and get your answer quickly



Djingo

Today customer accesses Djingo's automated assistance in assistance FAQ : link

Answer to customer's pain points

Assurance Retraite
Un bot pour faciliter la vie de nos retraités

- Assurance retraite qui gère la retraite du régime général de la Sécurité Sociale
- Environ 400 points d'accueil en France pour 12 965 professionnels au service de la retraite
- 17,5 millions de cotisants pour 13,9 millions de retraités

Enjeux

- Augmenter sa productivité en automatisant le traitement des principales questions de ses clients
- Accompagner les assurés retraités dans la prise en main des services proposés dans leur espace personnel sur le portail.

Solution

- **6 cas d'usage : changer mes coordonnées bancaires et personnel, Consulter mes 3 derniers paiements …**

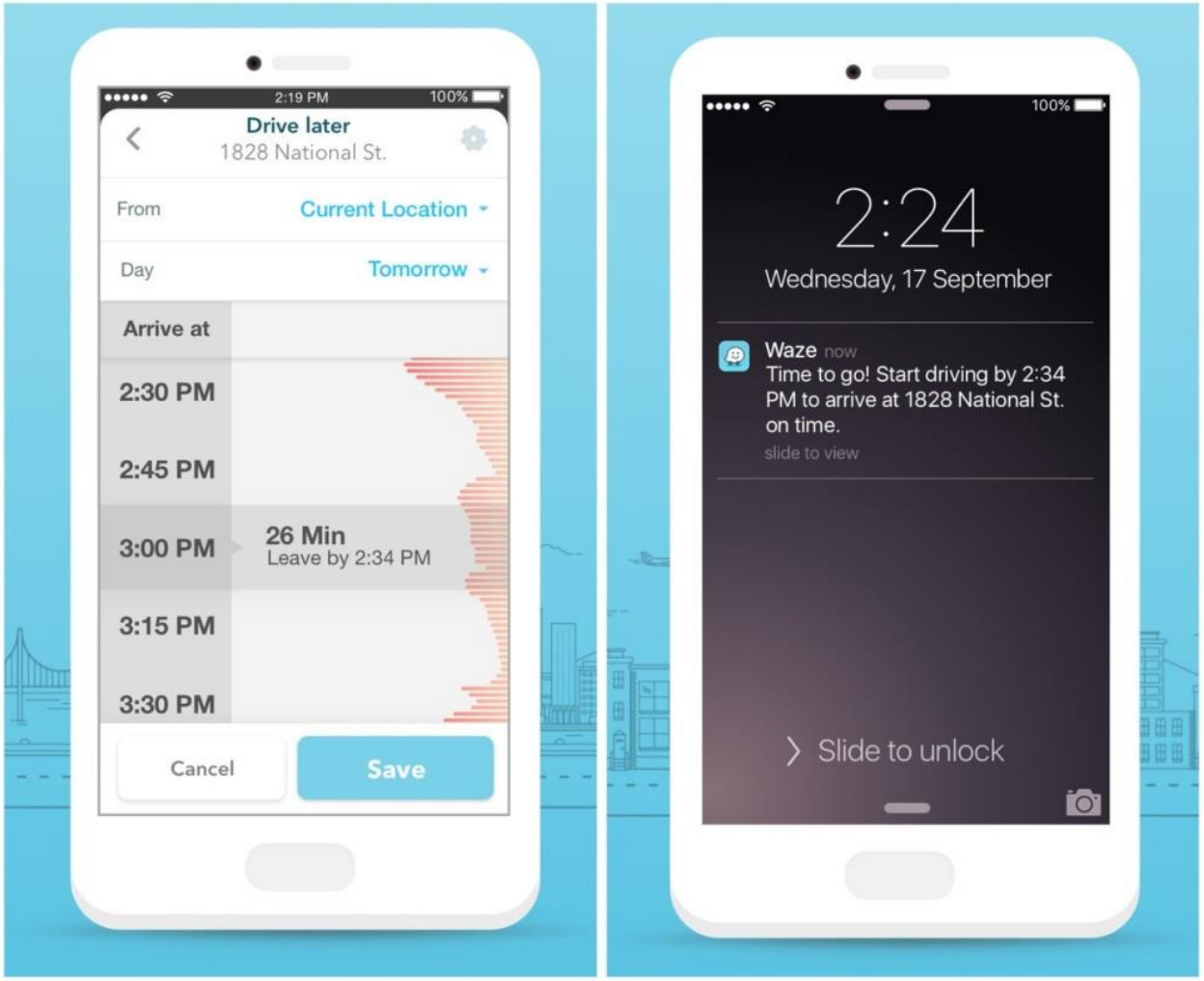
Bénéfices

- Permet de décharger les agents sur les questions les plus fréquentes pour se concentrer sur des tâches à valeur ajoutée.

AI
is
the
new
UI

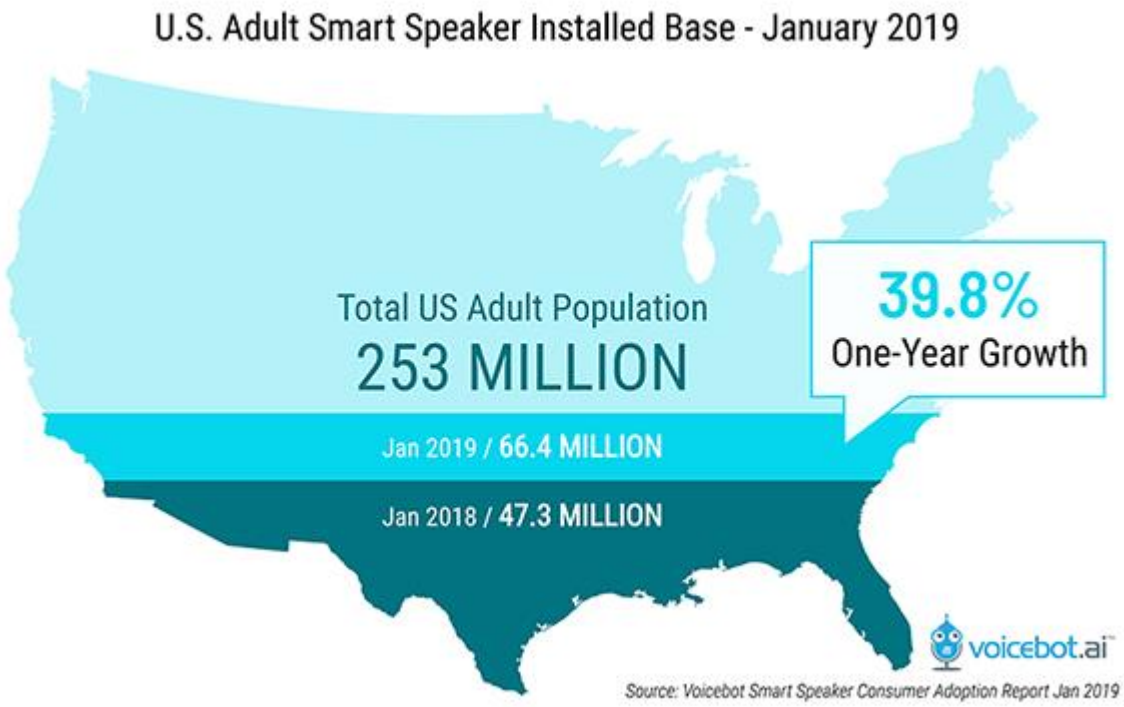
Customer interactions of tomorrow

Real time is too late


2:19 PM
100%
Drive later
1828 National St.
From
Current Location
Day
Tomorrow
Arrive at
2:30 PM
2:45 PM
3:00 PM
26 Min
Leave by 2:34 PM
3:15 PM
3:30 PM
Cancel
Save
100%
2:24
Wednesday, 17 September
Waze now
Time to go! Start driving by 2:34 PM to arrive at 1828 National St. on time.
slide to view
Slide to unlock

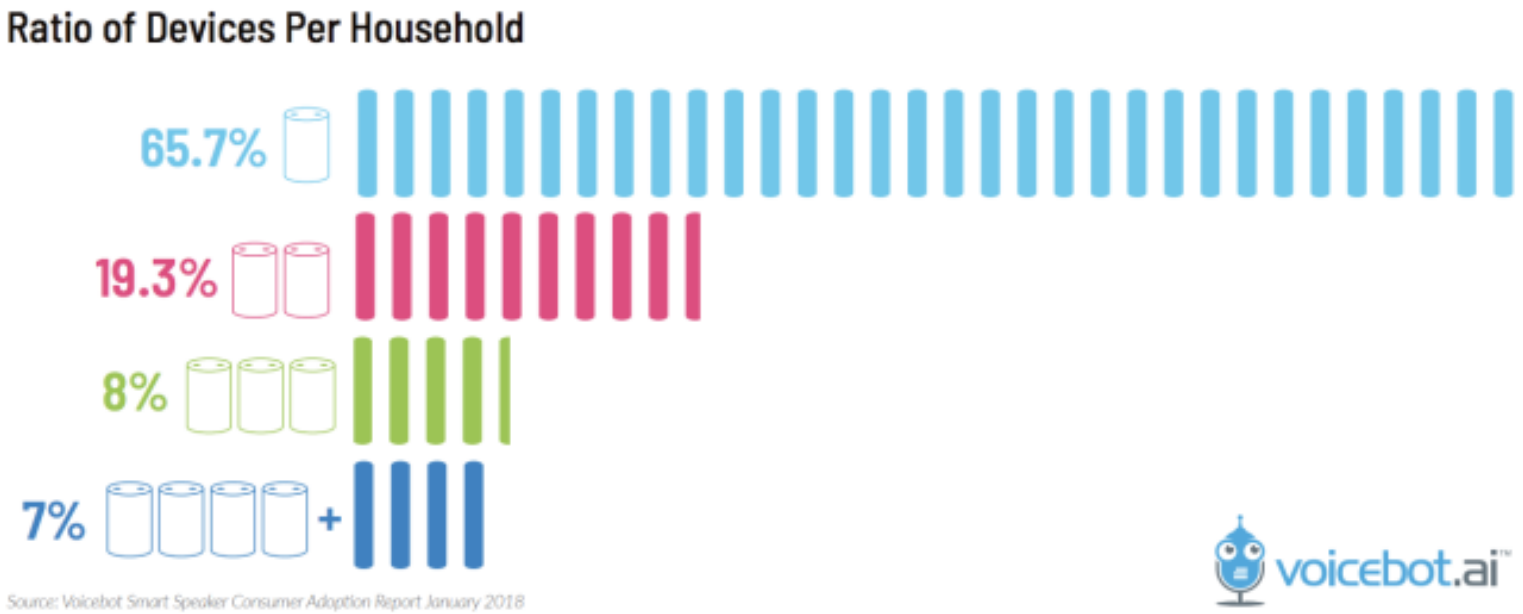
The market is booming

US Reach:
20% of adults have a smart speaker

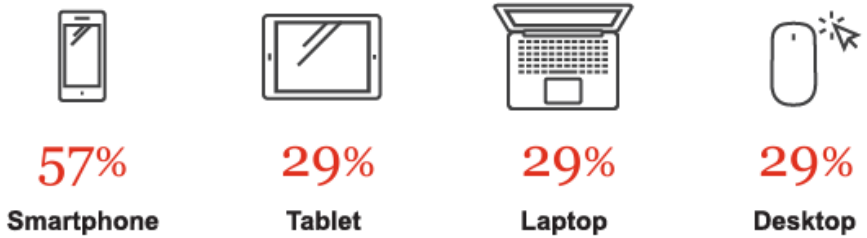


Multi Devices Reach

30% own more than 1 smart speaker

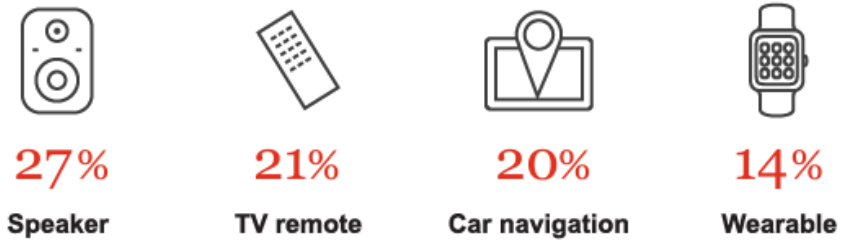


Smart Assistant Usage per Devices



Q. Have you spoken to or issued commands to any of the following technology devices?
Source: PwC Consumer Intelligence Series voice assistants survey, 2018

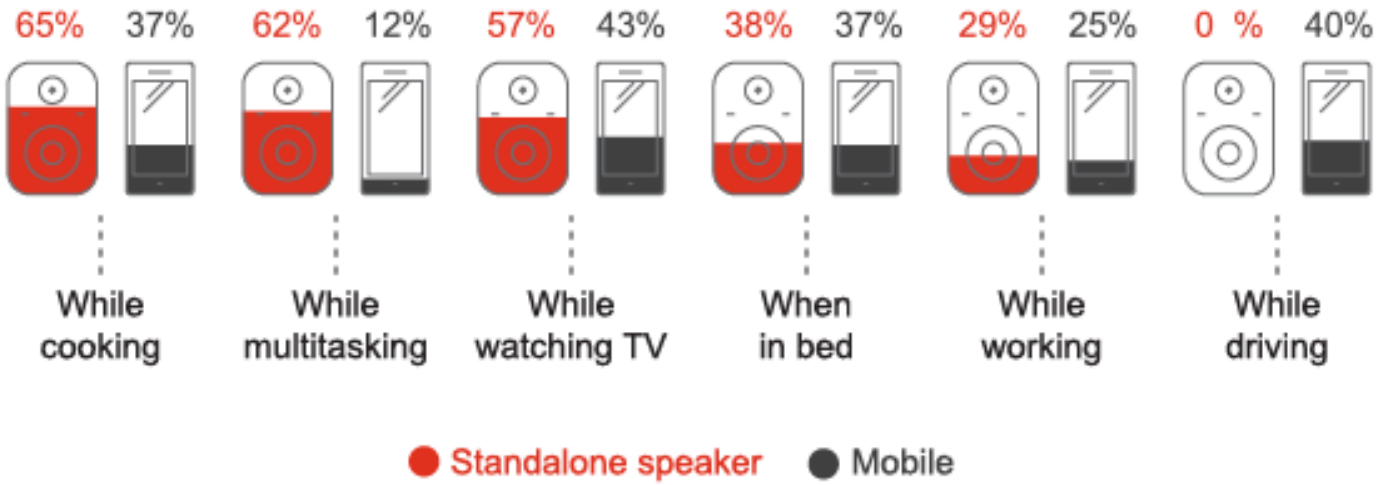
Microphone embedded along time ago



Recently embedding microphone

Source: PWC – Prepare for the voice revolution

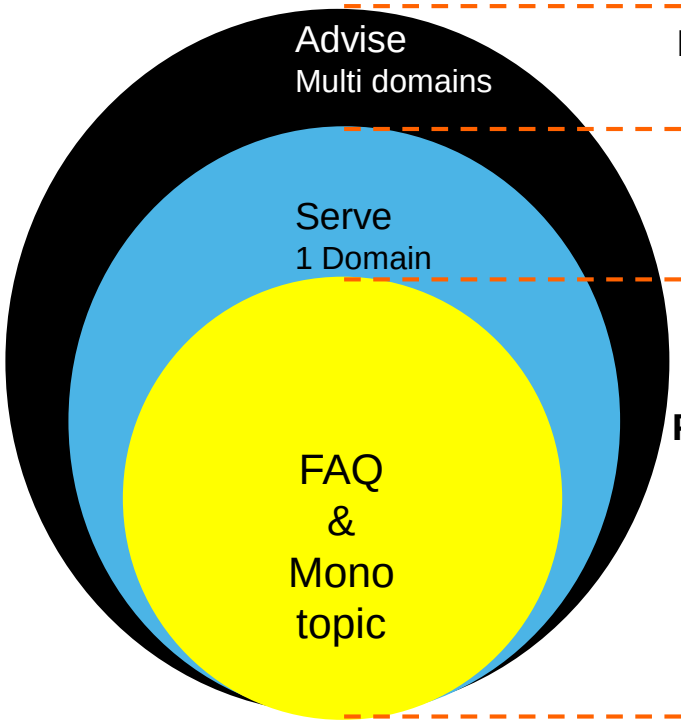
At home, speakers are more convenient …



Q. Where/in what situations do you use your voice assistant?
Source: PwC Consumer Intelligence Series voice assistants survey, 2018

Source: PWC – Prepare for the voice revolution

3 levels of intelligence



Personal coach / Virtual Advisor

- Proactivity, anticipation, advice

Concierge

- Personal Services & Assistance

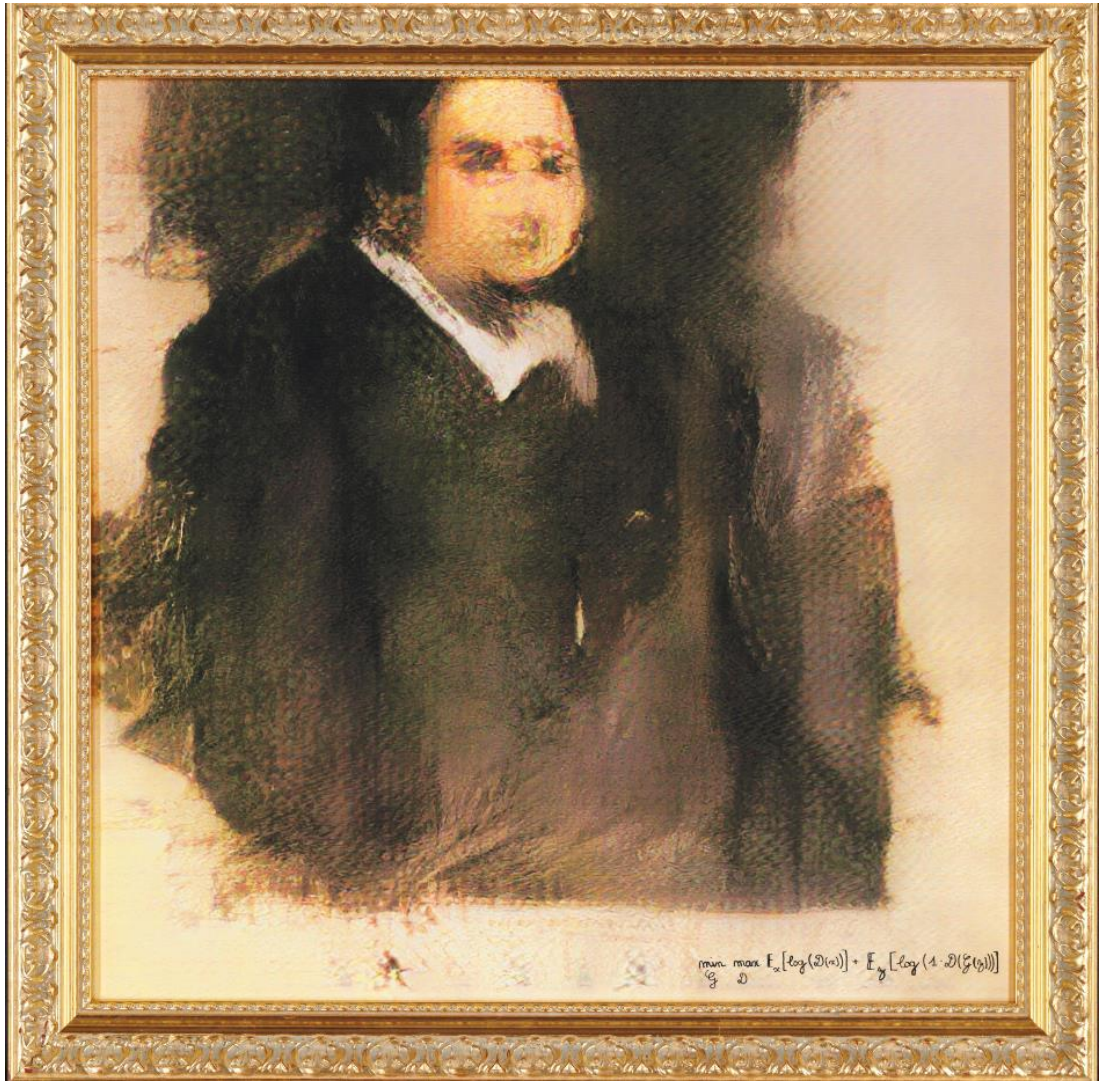
FAQ

- Non-personal services
- Basic assistance
- almost no AI

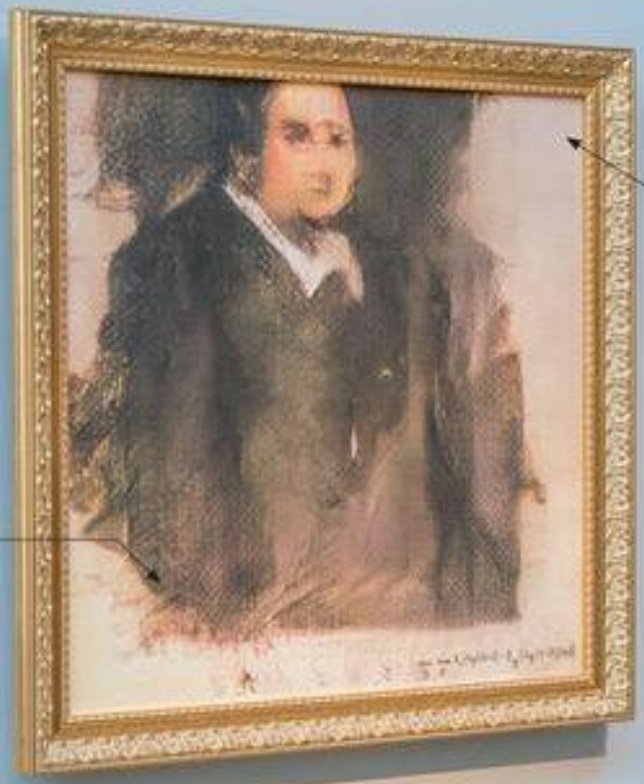
mostly « intelligent » bots

mostly « simple » bots

1997 Deep Blue


$\min_G \max_D E_x[\log(D(x))] + E_y[\log(1 - D(G(y)))]$

« L'ALGORITHME PIOCHE DANS LE STYLE DES ŒUVRES QU'IL A "APPRISES", MAIS SUR QUELLES BASES ? MYSTÈRE... »
Pierre Fautrel, Obvious



500 Go
de données produites, soit 200 000 images pour la famille Belamy

10 000 €
Mise à prix de l'œuvre

24 heures
Le temps de calcul pour réaliser une peinture

Nom de l'œuvre

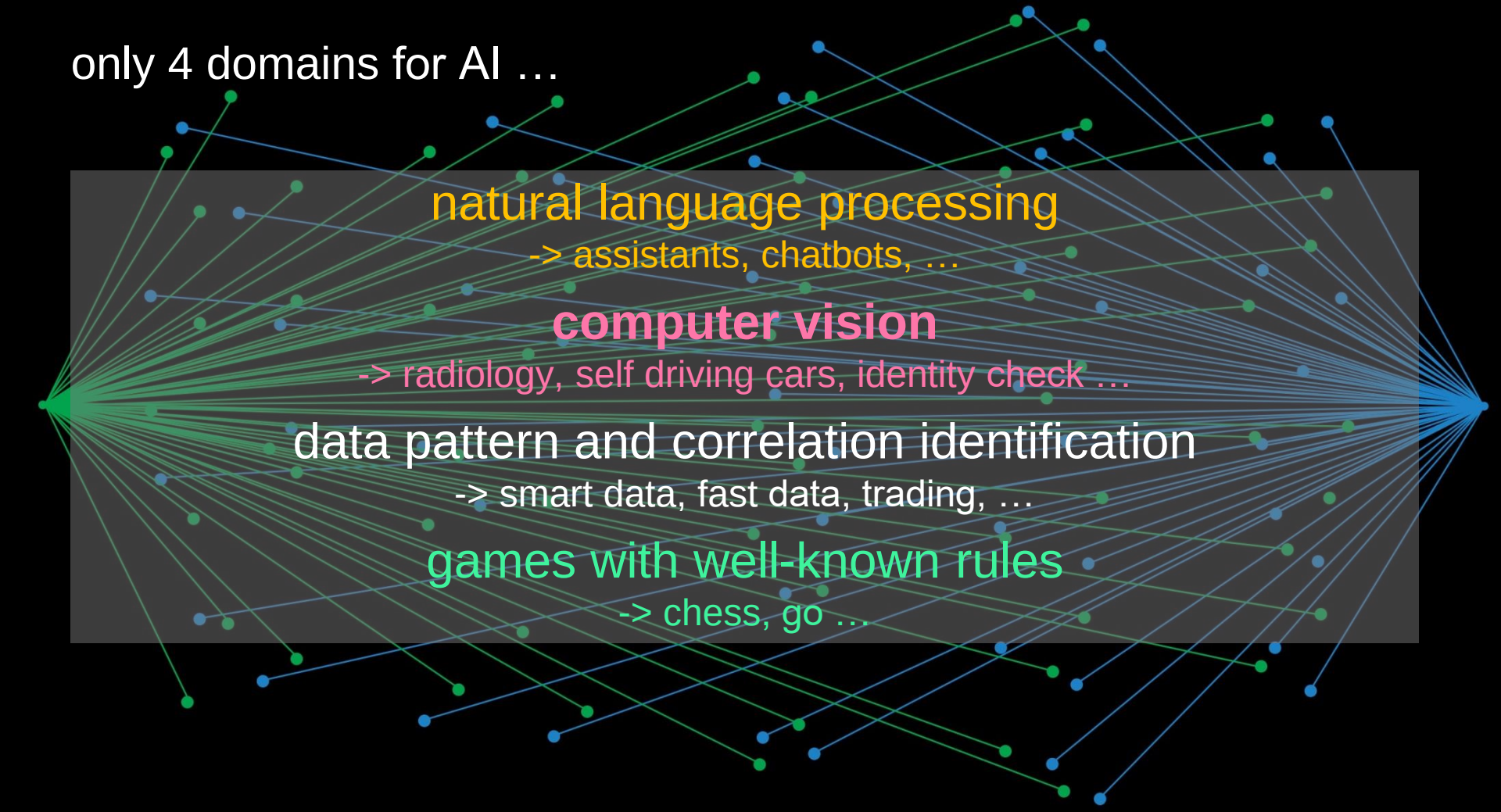
« Le comte de Belamy »

$$\min_G \max_D \mathbb{E}_x[\log(D(x))] + \mathbb{E}_z[\log(1 - D(G(z)))]$$

Artiste

From artificial intelligence to human interactions and emotions

only 4 domains for AI …



Immersion
is
the
new
revolution

The future of VR is social VR

Holoparty, le futur de la relation client

magic leap

intel REALSENSE

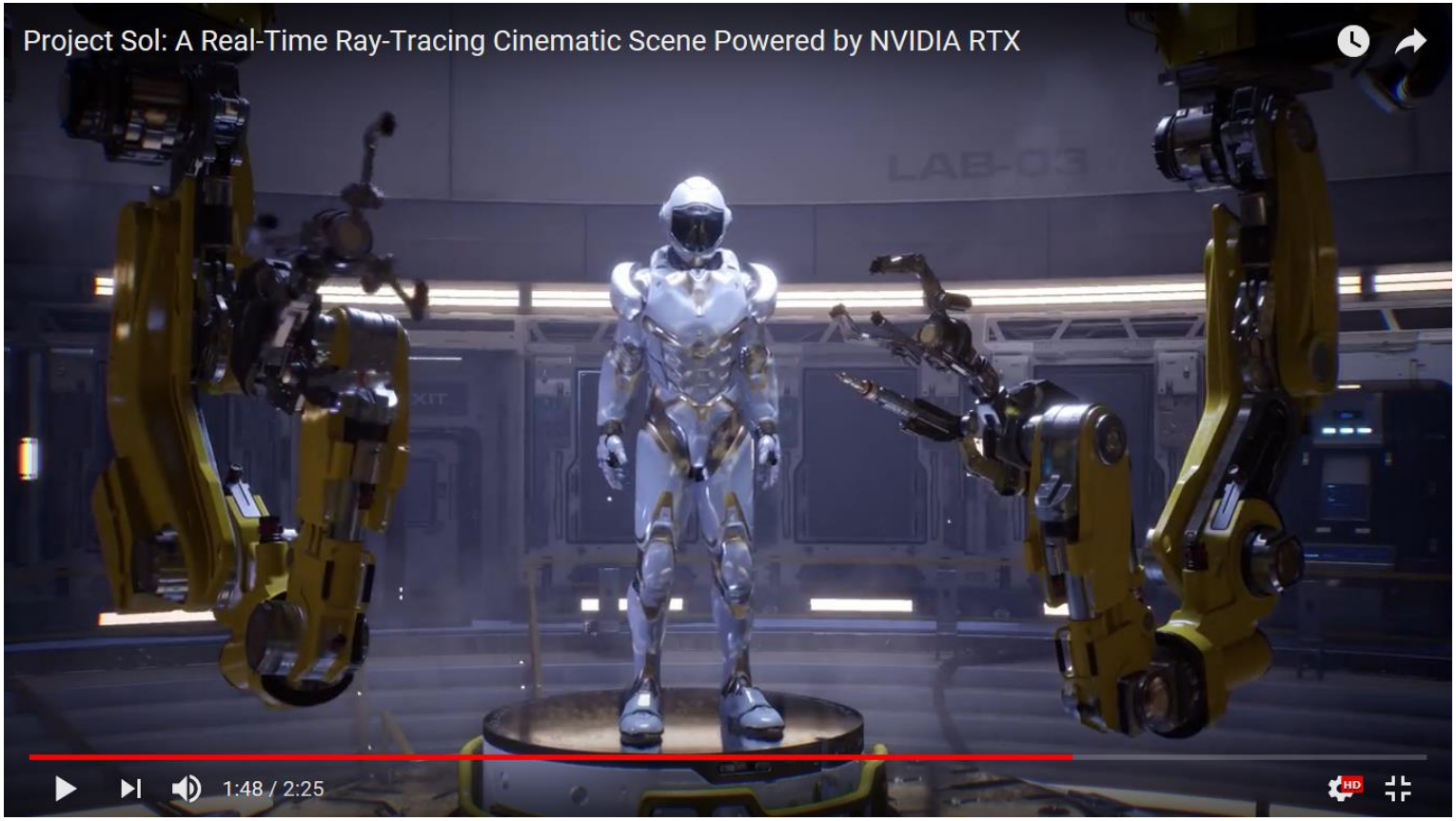
EMISSIVE

MIMESYS

Holoparty, le futur de la relation client

86

87



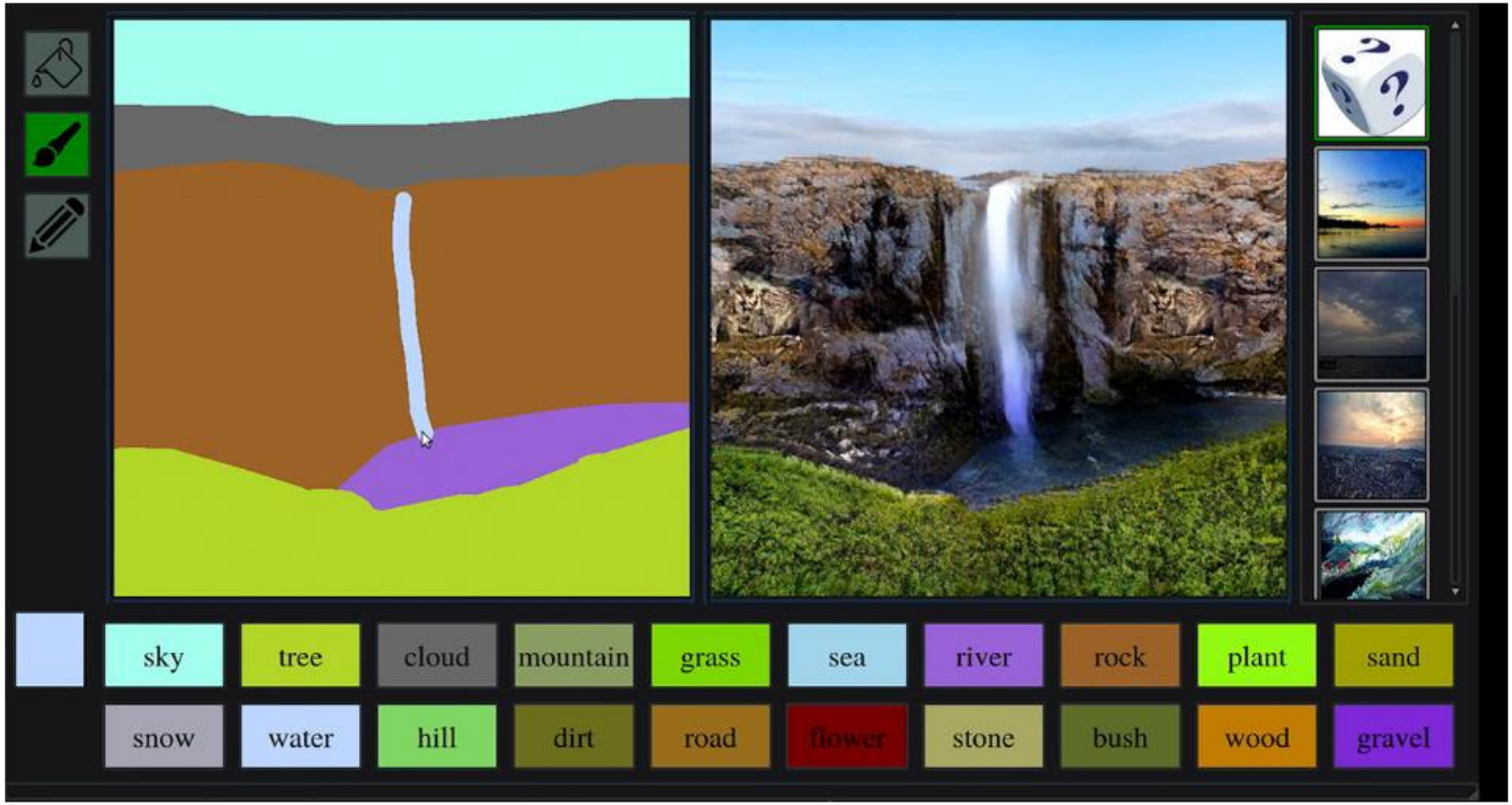
https://www.youtube.com/watch?v=KJRZTkttgLw

88

Stroke of Genius: GauGAN Turns Doodles into Stunning, Photorealistic Landscapes

NVIDIA research harnesses generative adversarial networks to create highly realistic scenes.

March 18, 2019 by ISHA SALIAN



89

90

https://www.youtube.com/watch?v=VzhN7LyNJHs

91

- « Software is eating the world »
- « The IoT will become the internet of everything »
- « Data is the new oil »
- « Cybercrime is the modern-Day mafia »
- « AI is the new UI »
- « Immersion is the new revolution »
- « Real time is too late »
- « Future of apps is no app »
- « Power is switching from institutions to communities »
- « Everything as a service »
- « Silicon is back »

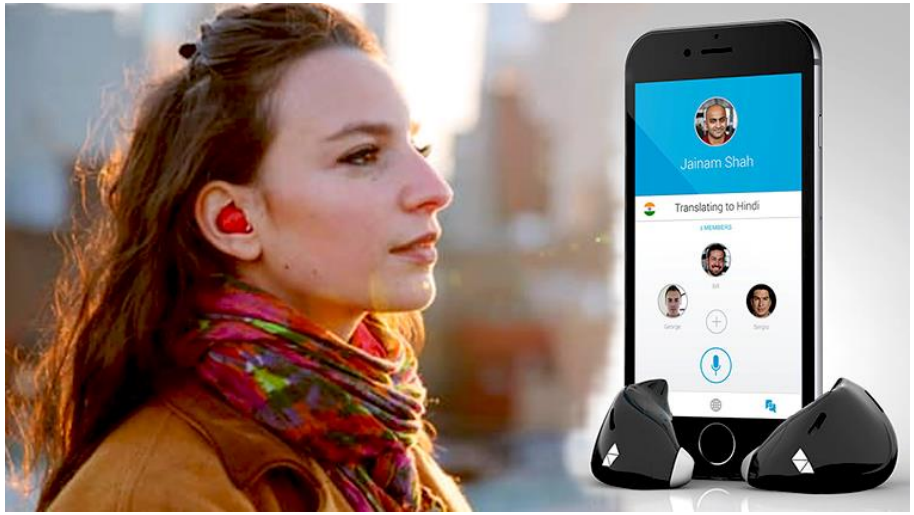
Live from CES

LG Screens

Live from CES

AI Toys for your cat

Live from CES



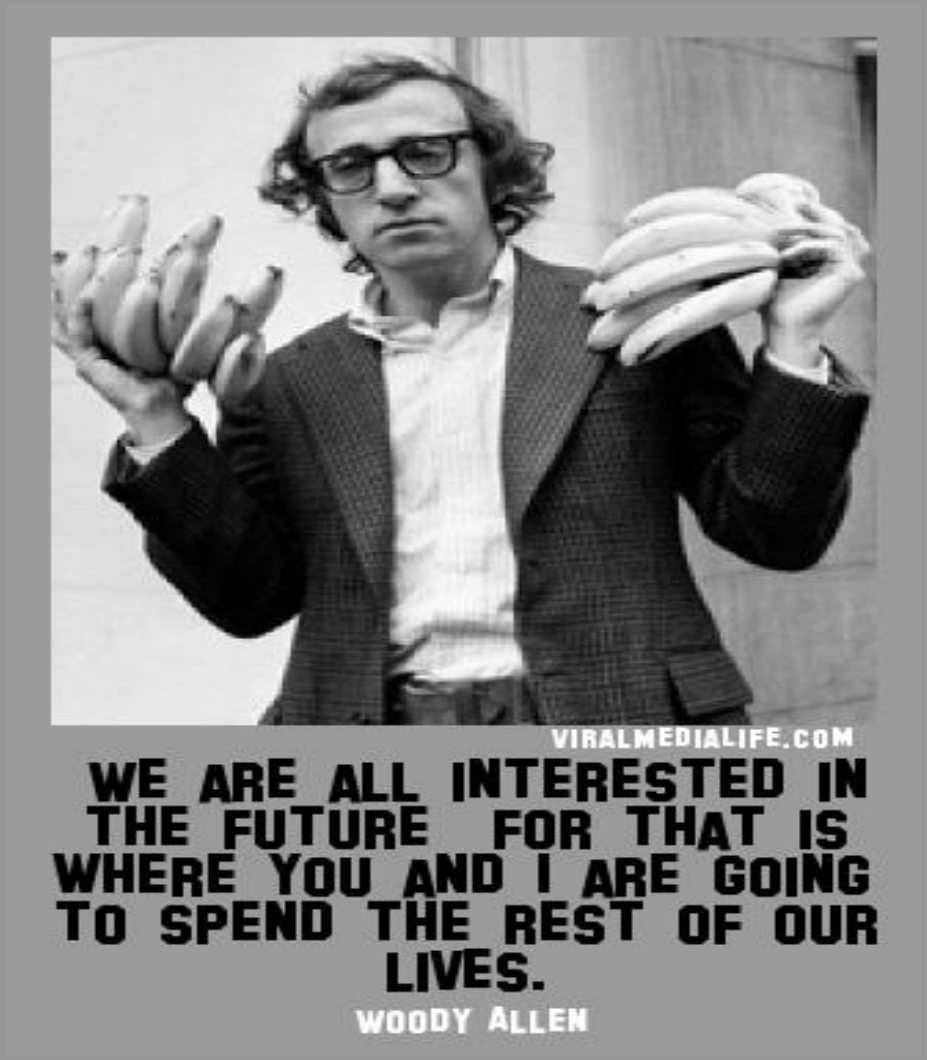
Waverly Pilot

Kuri

Live from CES

Motobot

Forpheus


VIRALMEDIALIFE.COM
WE ARE ALL INTERESTED IN THE FUTURE FOR THAT IS WHERE YOU AND I ARE GOING TO SPEND THE REST OF OUR LIVES.
WOODY ALLEN

Merci

@slupowski

« INTELLIGENCE ARTIFICIELLE ET RELATION CLIENT »
QUELS IMPACTS SUR LES PROCESSUS ET SUR LES SYSTÈMES D'INFORMATION

10ème Symposium 25 juin 2019 : Agenda

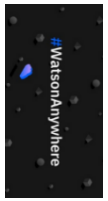
Club Urba-EA
ENTERPRISE ARCHITECTURE

EY Building a better working world

CLUB Pilotes de Processus

« INTELLIGENCE ARTIFICIELLE ET RELATION CLIENT »
QUELS IMPACTS SUR LES PROCESSUS ET SUR LES SYSTÈMES D'INFORMATION

10ème Symposium 25 juin 2019 : Agenda



Harley DAVIS
Vice-Président, Automation Intelligence and France Lab at IBM

Club Urba-EA
ENTERPRISE ARCHITECTURE

EY Building a better working world

CLUB Pilotes de Processus

AI: Customer Care Revolution and Fairness

Harley Davis

VP IBM France Lab & Intelligent Automation

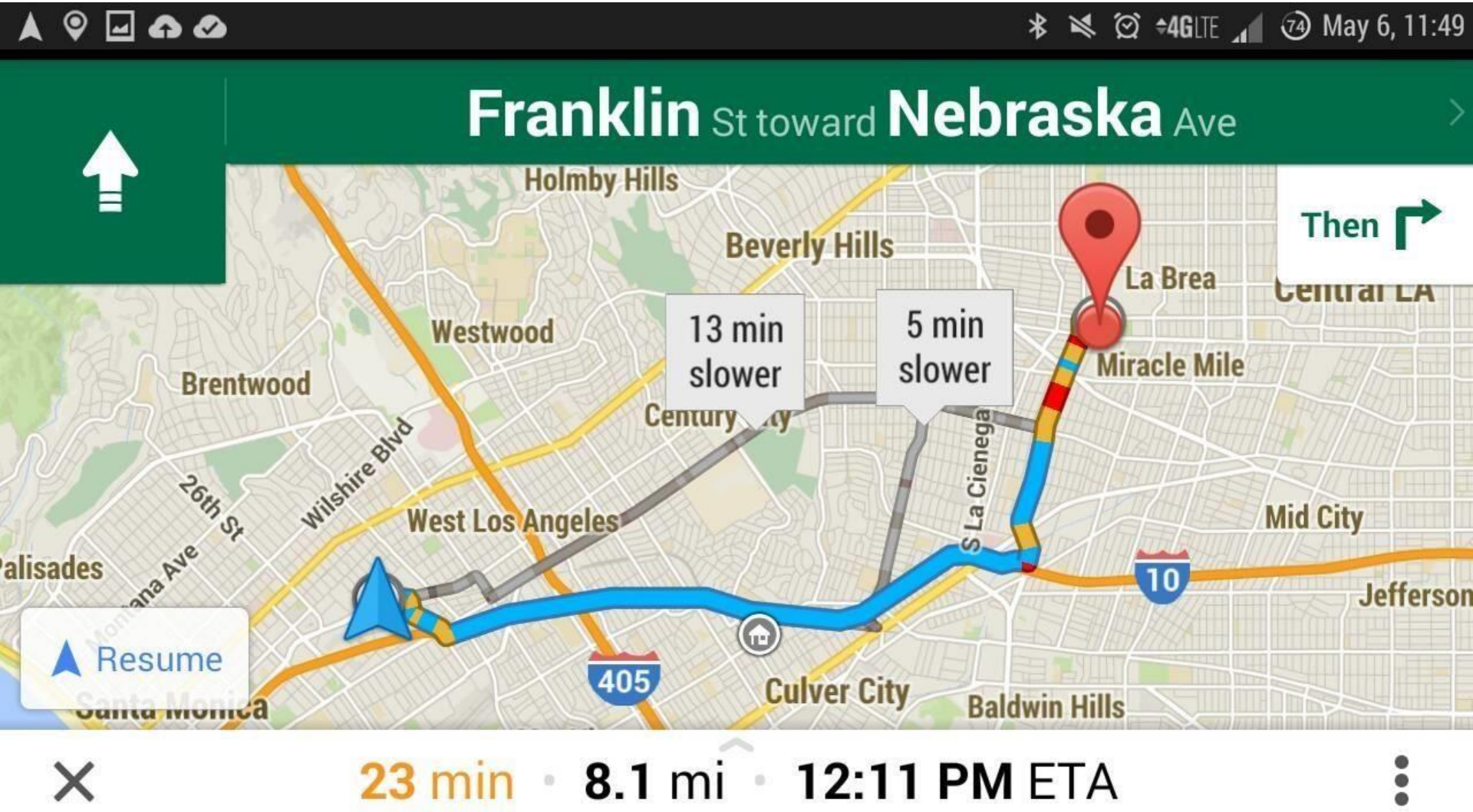
harley.davis@fr.ibm.com

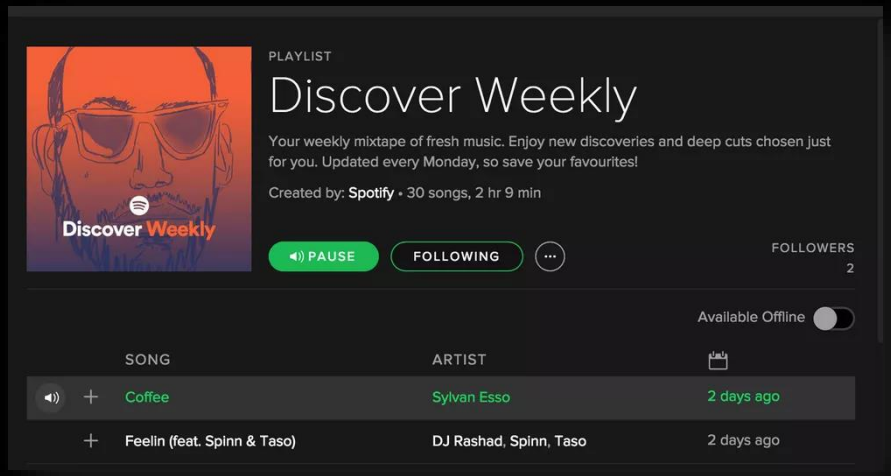
@HarleyDavisPro

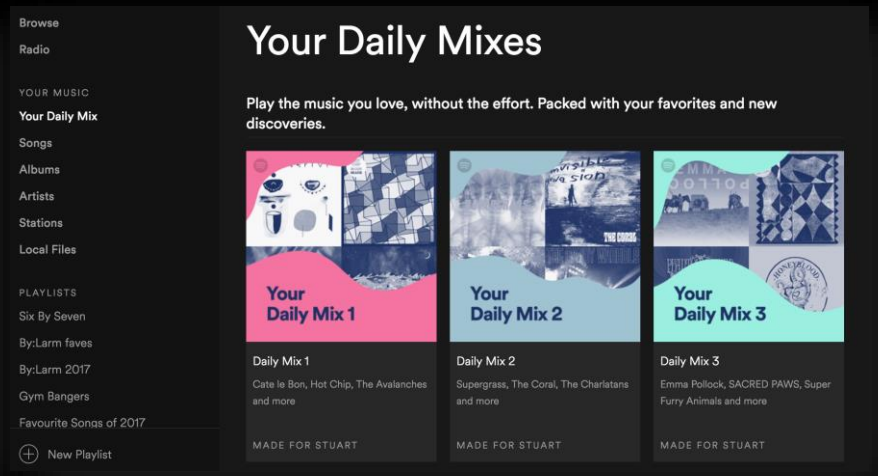
June 25, 2019

Artificial Intelligence Revolution

How many times has AI touched you today?

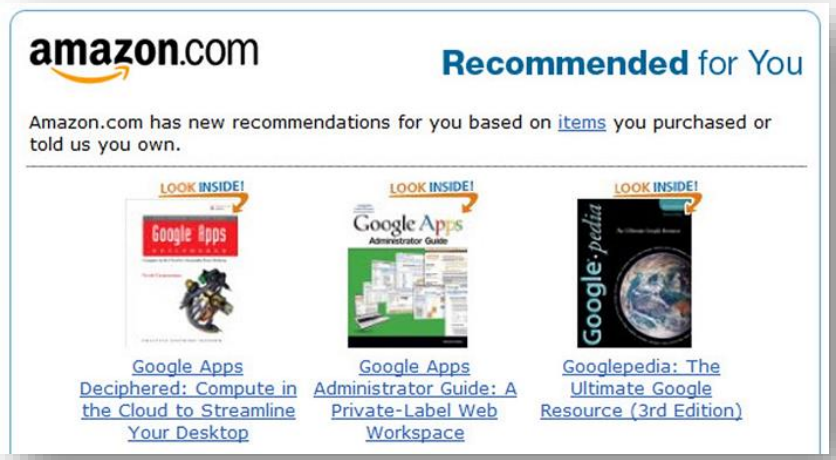

May 6, 11:49
Franklin St toward Nebraska Ave
Then
Holmby Hills
Beverly Hills
La Brea
Central LA
Westwood
13 min slower
5 min slower
Miracle Mile
Brentwood
Century City
S La Cienega
Wilshire Blvd
26th St
West Los Angeles
Mid City
Palisades
10
Jefferson
Resume
405
Culver City
Baldwin Hills
Santa Monica
23 min · 8.1 mi · 12:11 PM ETA

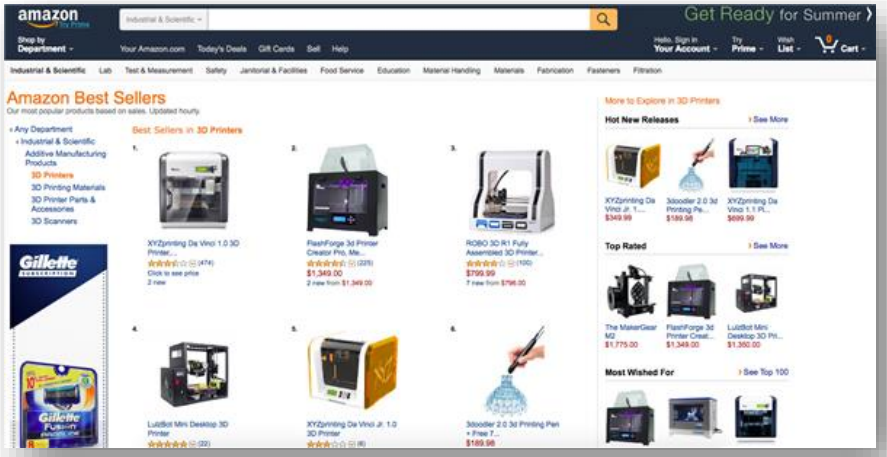


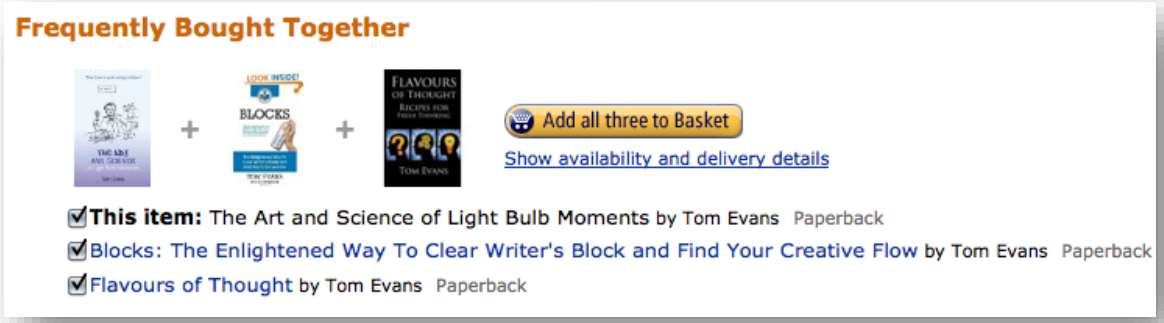


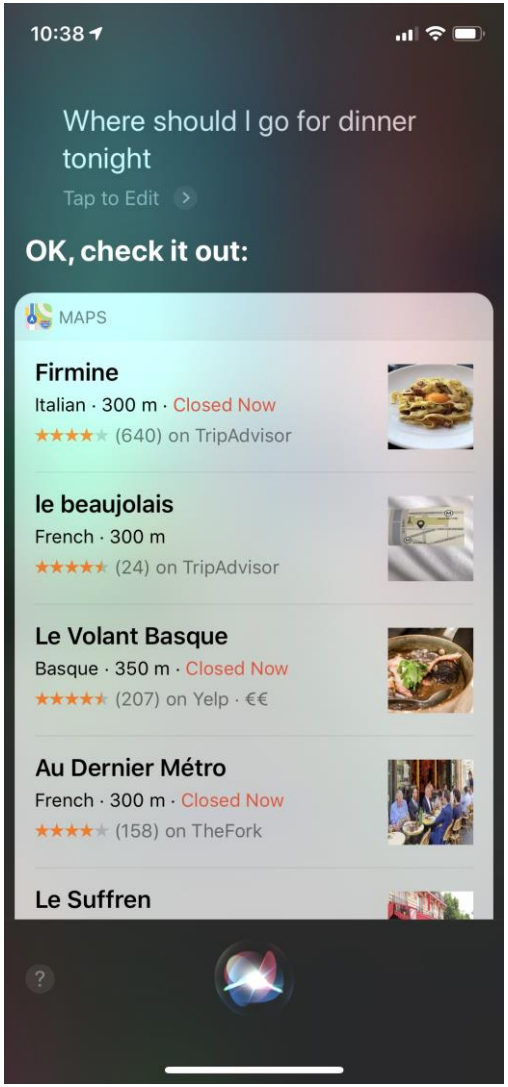
https://www.theverge.com/2015/9/30/9416579/spotify-discover-weekly-online-music-curation-interview


HDR
Auto
Auto
SLO-MO
VIDEO
PHOTO
SQUARE
PANO

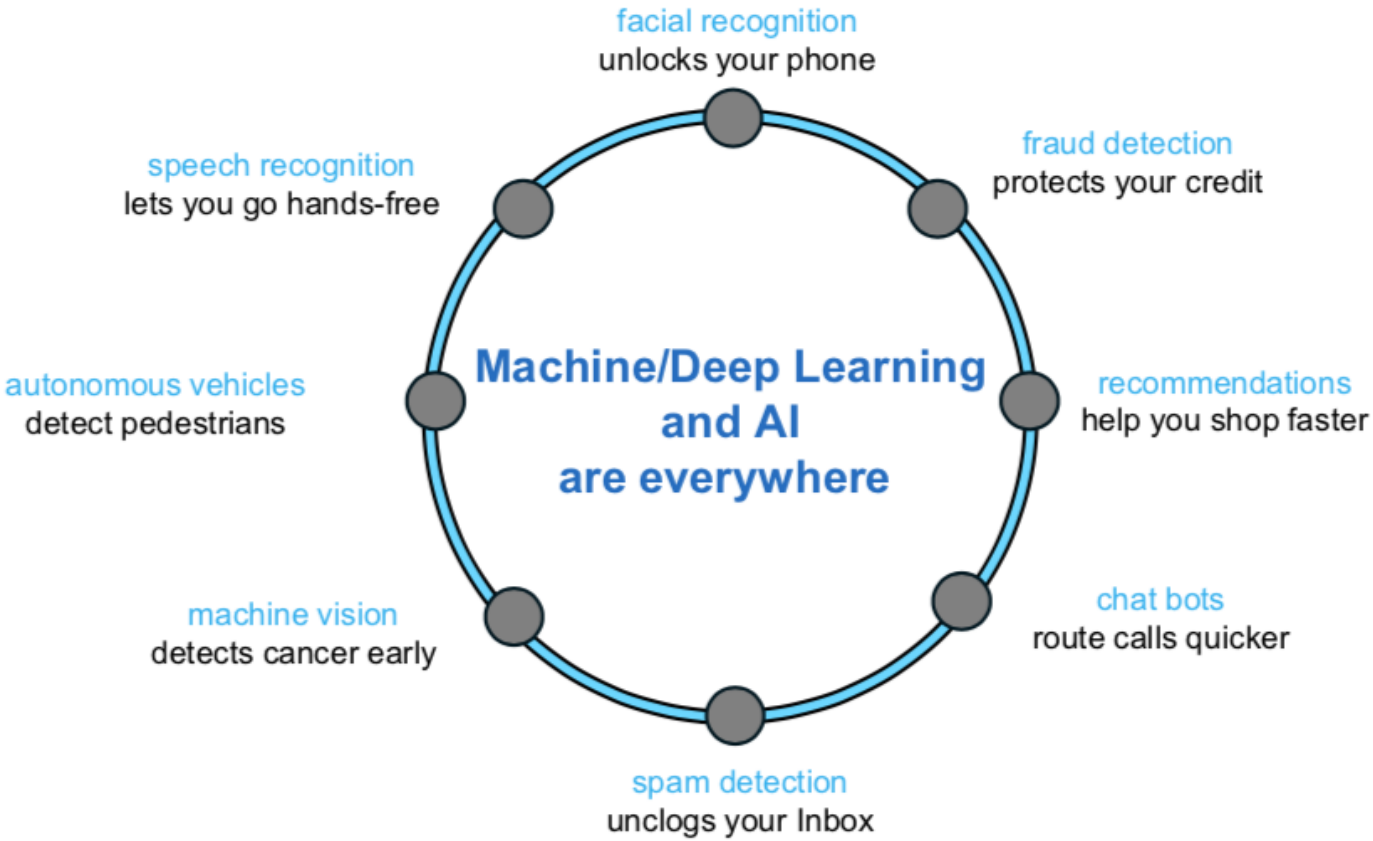

amazon.com
Recommended for You
Amazon.com has new recommendations for you based on items you purchased or told us you own.
LOOK INSIDE!
Google Apps Deciphered: Compute in the Cloud to Streamline Your Desktop
LOOK INSIDE!
Google Apps Administrator Guide: A Private-Label Web Workspace
LOOK INSIDE!
Googlepedia: The Ultimate Google Resource (3rd Edition)


amazon
Get Ready for Summer
Amazon Best Sellers
Best Sellers in 3D Printers
Hot New Releases
Top Rated
Most Wished For


Frequently Bought Together
LOOK INSIDE!
BLOCKS
FLAVOURS OF THOUGHT
Add all three to Basket
Show availability and delivery details
This item: The Art and Science of Light Bulb Moments by Tom Evans Paperback
Blocks: The Enlightened Way To Clear Writer's Block and Find Your Creative Flow by Tom Evans Paperback
Flavours of Thought by Tom Evans Paperback


10:38
Where should I go for dinner tonight
Tap to Edit
OK, check it out:
MAPS
Firmine
Italian · 300 m · Closed Now
(640) on TripAdvisor
le beaujolais
French · 300 m
(24) on TripAdvisor
Le Volant Basque
Basque · 350 m · Closed Now
(207) on Yelp · €€
Au Dernier Métro
French · 300 m · Closed Now
(158) on TheFork
Le Suffren

The future is now



Insurance

- **Automated claims processing**
- Underwriting and eligibility
- Fraud detection

Banking

- **Interactive customer care agents**
- Credit Scoring
- Financial risk and regulatory compliance

Healthcare

- Patient Care
- Prescription management
- Clinical trial management

Retail

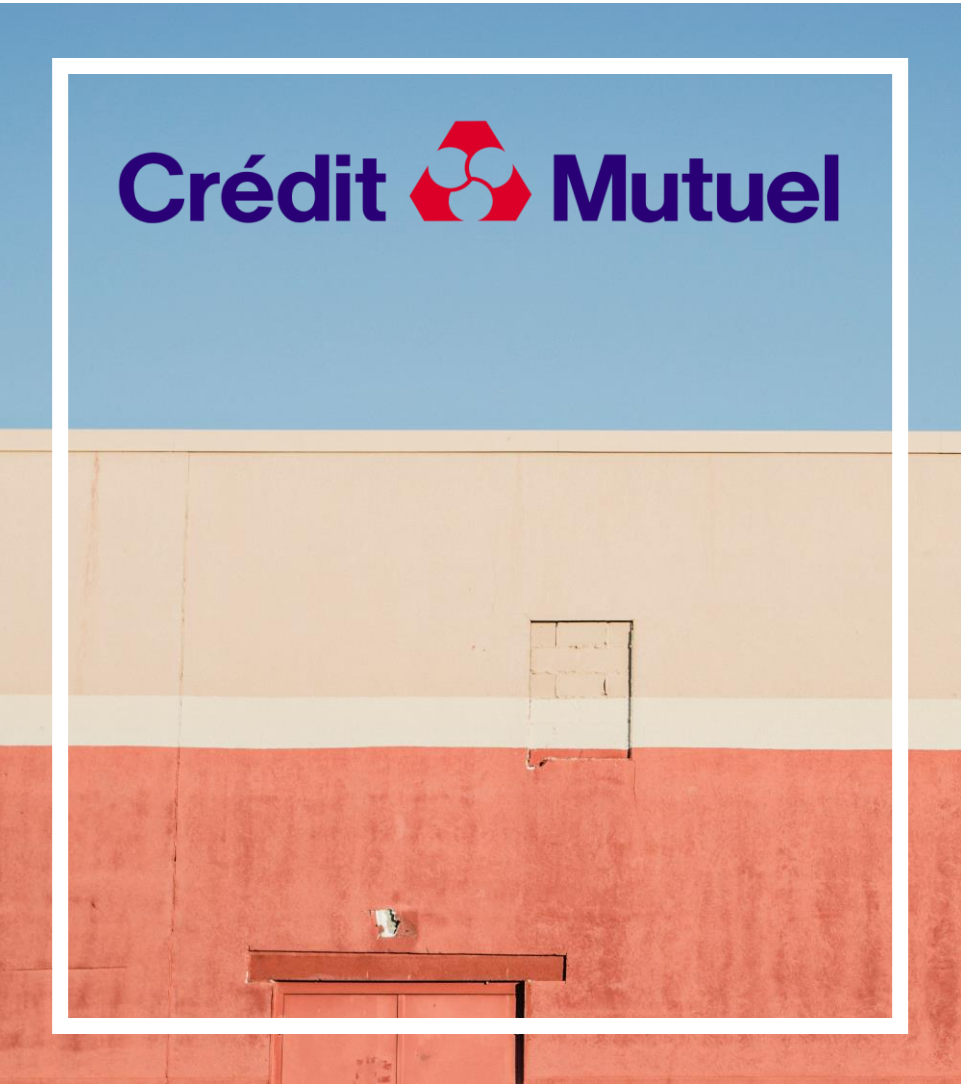
- Product recommendation
- Customer loyalty programs
- Pricing & promotion

Government

- Custom and border control
- Tax calculation
- Compliance and fraud detection

Travel and transportation

- Pricing
- Loyalty programs
- Real-time passenger notification



20K

Customer advisors assisted by Watson across 5K branches

60%

Faster answer times for Client Advisors

Challenge

Crédit Mutuel, one of France's leading banks, has over 5,000 branches that receive more than 350,000 online inquiries a day – and volume is growing 23% a year. Maintaining the quality of client relationships, while dealing with an ever-rising stream of customers and client requests, meant reinventing the role of client advisor or losing their competitive edge.

After running a diagnosis of how client advisors were spending their time, Crédit Mutuel found that a significant part of their work involved answering simple and repetitive questions...

Transformation

They needed a solution that could speed up everyday processes and allow client advisors time to address more complicated and nuanced problems.

IBM deployed a Watson-powered agent assistant platform. Watson was trained **analyzing banking and insurance vocabulary and building 50,000 lines of dialogue**. Crédit Mutuel rolled out solutions progressively, across different lines of business.

55%

Of customer inquiries handled by Djingo

100K

Conversations monthly between Djingo & customers

Challenge

Orange, the leading French telecom operator, has been proposing a disruptive banking model since November 2017. Today, Orange Bank, a completely digital only bank, has reached nearly 100,000 customers in France.

For the French, mobile banking is becoming the preferred mode of interaction with their bank. Today, nearly two out of three (63%) French people have downloaded their bank's app on their mobile, and almost half (47%). Orange Bank wanted to enter the banking market with an innovative, new offer.

Transformation

Orange Bank offers a new quality of customer services through a virtual advisor called "Djingo", which is powered by IBM Watson.

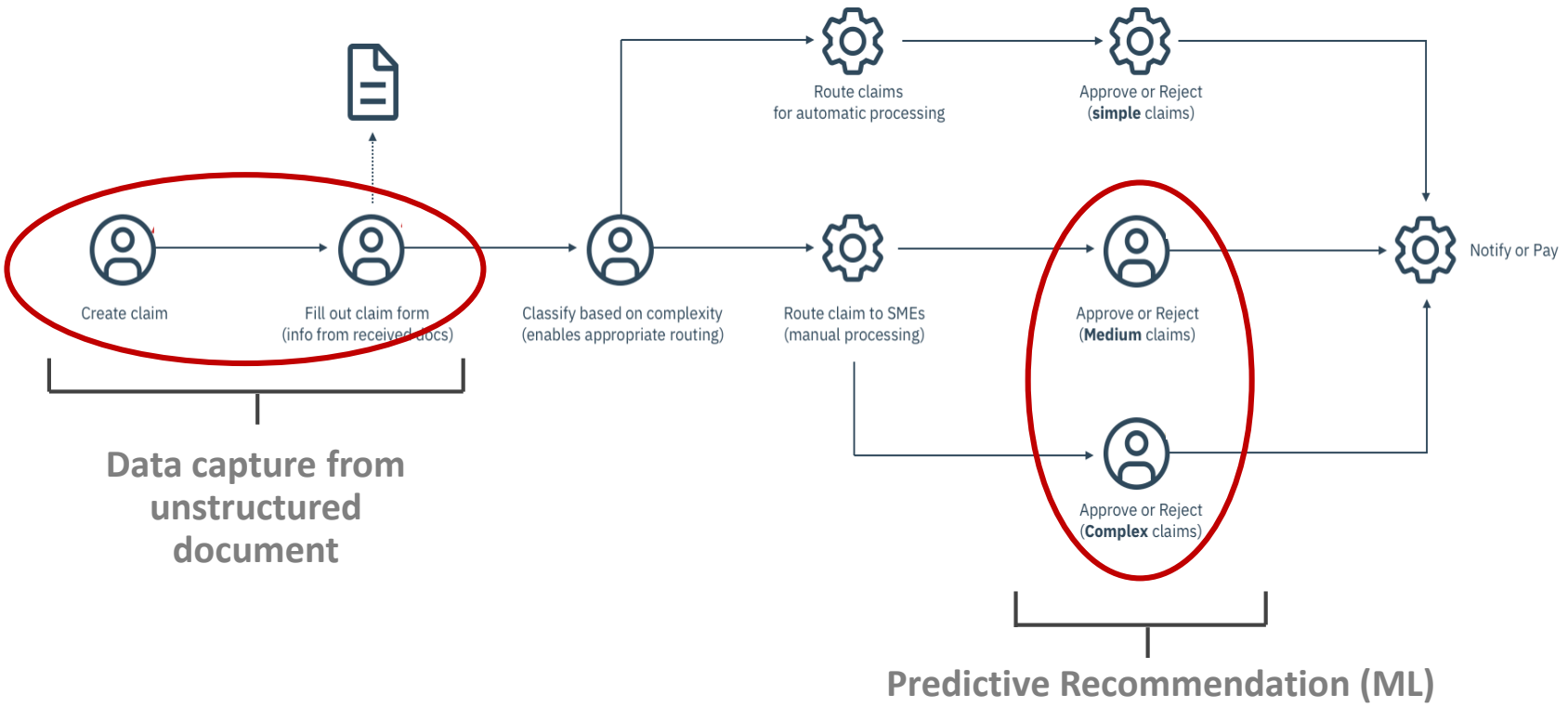
Djingo answers customers' questions in natural language and can perform actions such as blocking a card in case of loss, or unblocking it.

Available 24/7, Djingo is the first point of contact for customers and prospects with the bank.

Claims processing example

GOALS

- Reduce processing time by 50% from 8 to 4 hours
- Consistent performance during workload peaks



IBM's Data Science Elite helps predicting first-time buyers

USE CASE

Motorcycle manufacturer wants to use machine learning to target potential first-time buyers and replace current manual process.

UNIQUE CHALLENGE

Create a model to predict first-time buyers in the US.

Achieve performance, scalability, and elastic storage to support current and future analytics demands.

EXPECTED BENEFIT

Developed a model to:

Predict potential first-time buyers

Move data to a scalable cloud-based environment

Reduce processing time more than 90%

Three major changes in the last 10 years

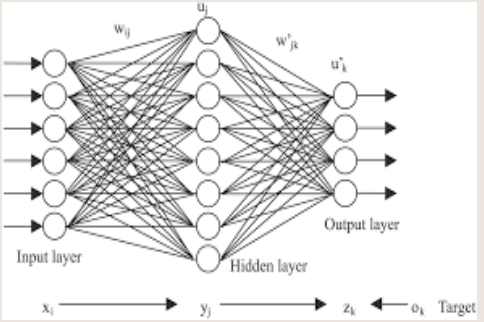
Data

Internet of Things

Social

Image & Video

Learning Models

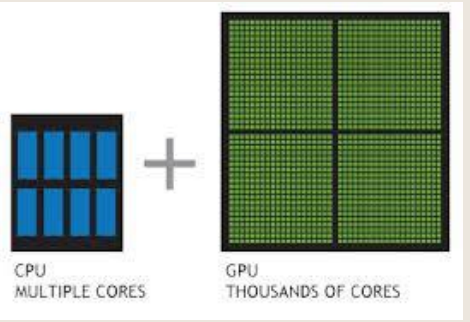


Machine Learning advances

Deep Learning

Optimization algorithms

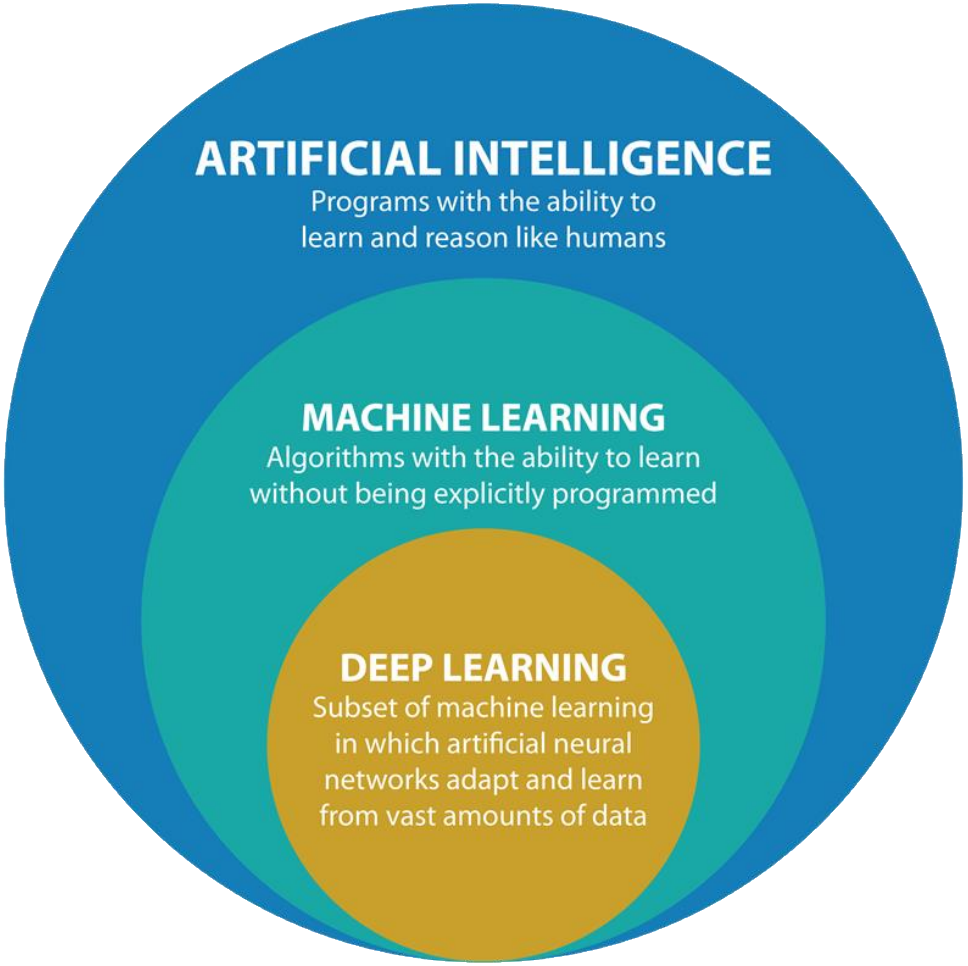
Computing

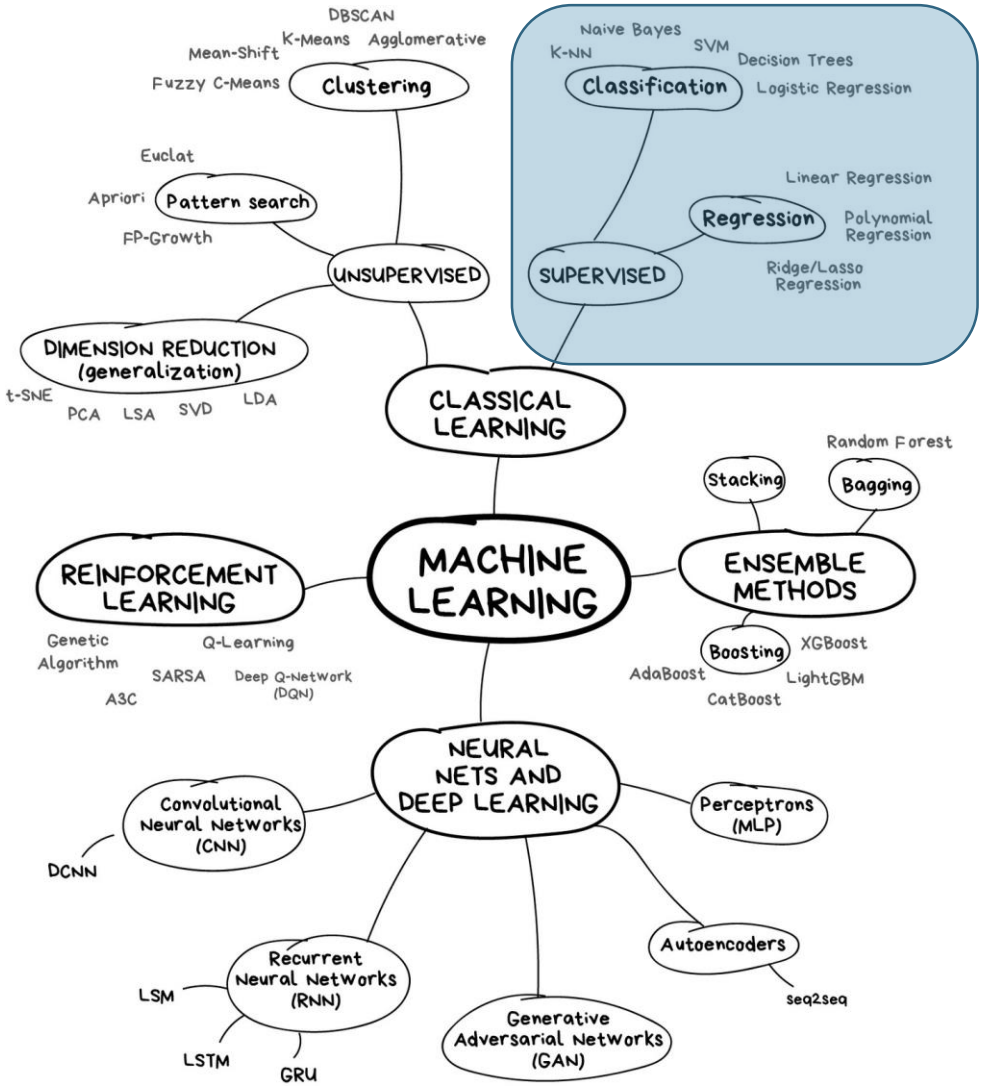


Falling hardware prices

GPU accelerators

Pay-as-you-go Cloud


ARTIFICIAL INTELLIGENCE
Programs with the ability to learn and reason like humans
MACHINE LEARNING
Algorithms with the ability to learn without being explicitly programmed
DEEP LEARNING
Subset of machine learning in which artificial neural networks adapt and learn from vast amounts of data



Traditional statistics

AI and Trust

REUTERS Business Markets World UK TV

TECHNOLOGY NEWS OCTOBER 10, 2018 / 5:12 AM / 6 MONTHS AGO

Amazon scraps secret AI recruiting tool that showed bias against women

Jeffrey Dastin 8 MIN READ

SAN FRANCISCO (Reuters) - Amazon.com Inc's (AMZN.O) machine-learning specialists uncovered a big problem: their new recruiting engine did not like women.

MIT Technology Review

Log in / Cre

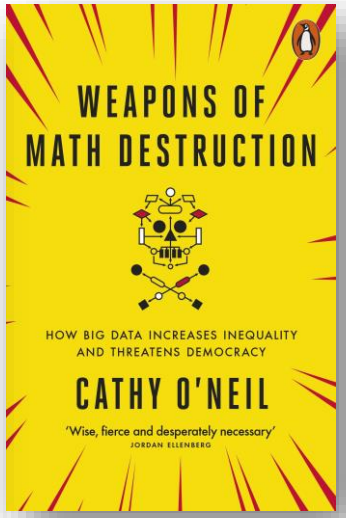
Topics+ The Download

Intelligent Machines

Biased Algorithms Are Everywhere, and No One Seems to Care

The big companies developing them show no interest in fixing the problem.

by Will Knight July 12, 2017



Machine Bias

There's software used across the country to predict future criminals. And it's biased against blacks.

by Julia Angwin, Jeff Larson, Surya Mattu and Lauren Kirchner, ProPublica
May 23, 2016

Artificial Intelligence Is Now Used to Predict Crime. But Is It Biased?

The software is supposed to make policing more fair and accountable. But critics say it still has a way to go.

What does it mean to “trust” a system or process?

We trust traditional software applications by understanding them

Simulation

Testing

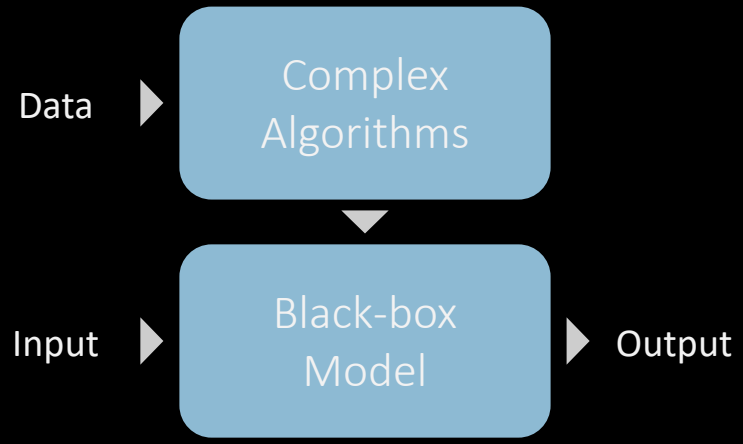
Reviews

Documentation

Audits

Traditional systems are programmed, predictable and introspectable

How do we trust a Machine Learning model, trained from data, that we cannot understand?

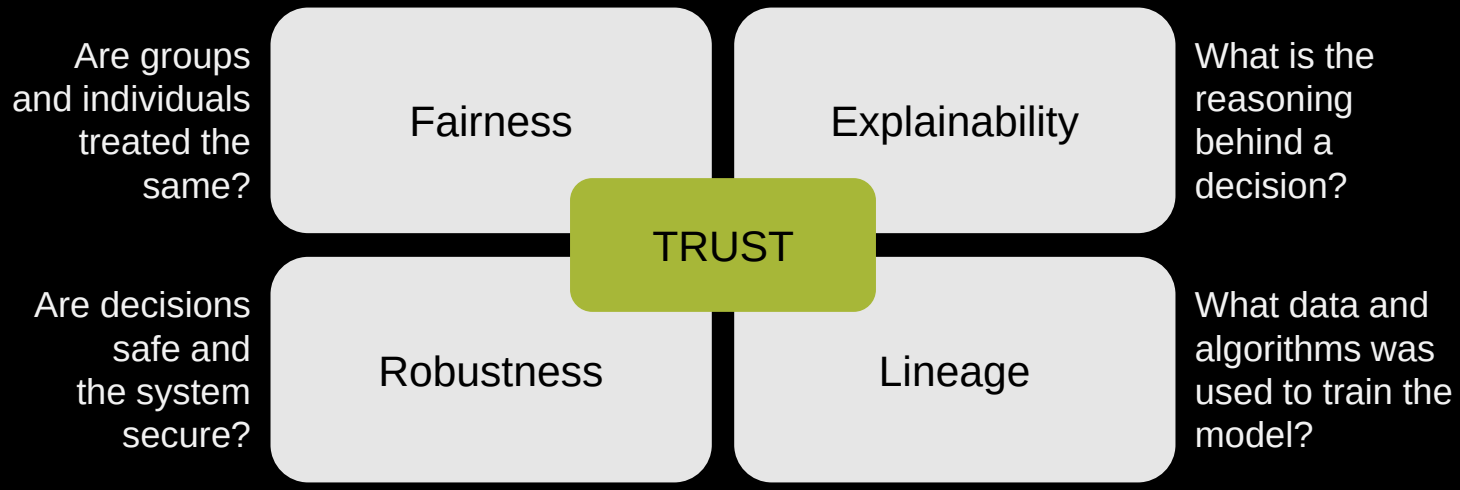


We have to build trust in a slightly different way.

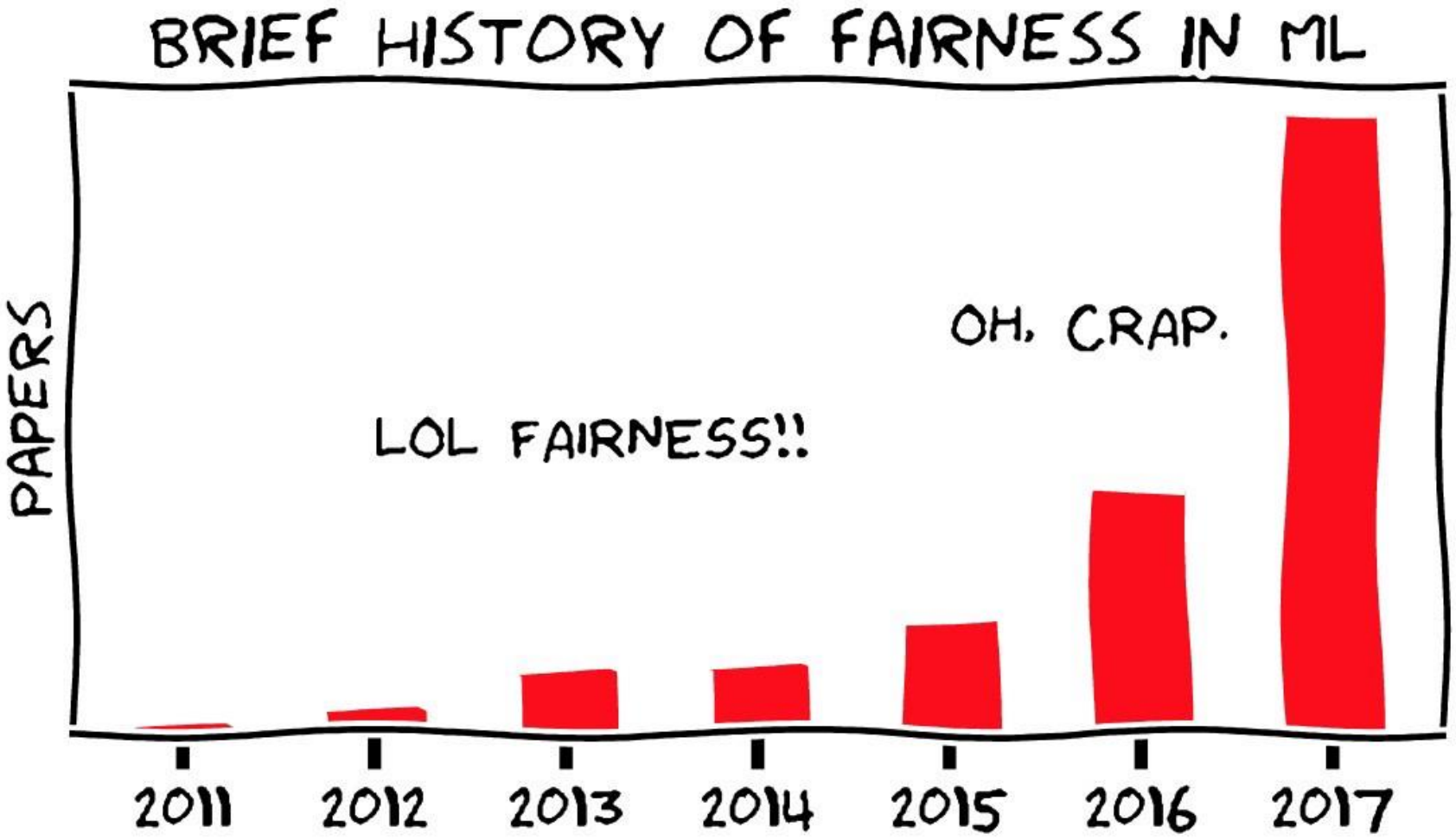
Through proxies we can actually measure and understand.

127

Four measurable ways of building trust



Let’s look at Fairness



https://towardsdatascience.com/a-tutorial-on-fairness-in-machine-learning-3ff8ba1040cb

PROPUBLICA

NORTHPOINTE

"There's software used across the country to predict future criminals. And it's biased against blacks."

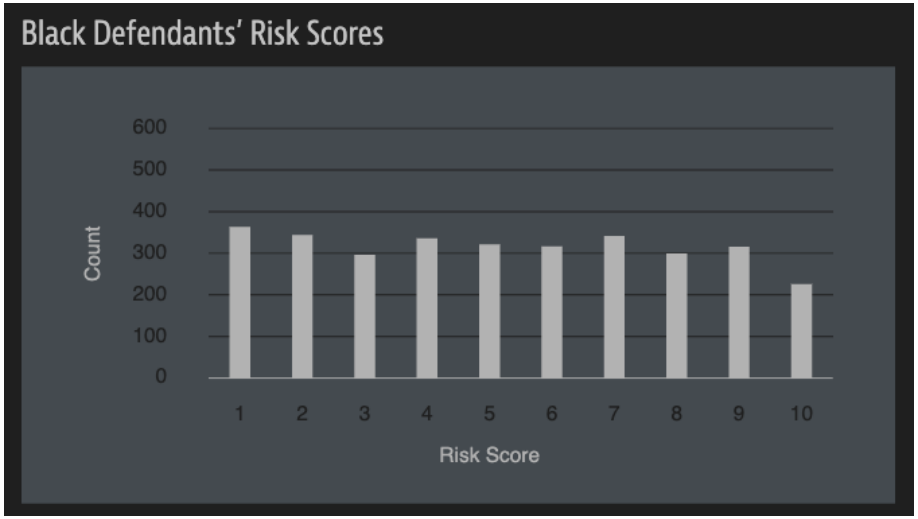
"…blacks are almost twice as likely as whites to be labeled a higher risk but not actually re-offend."

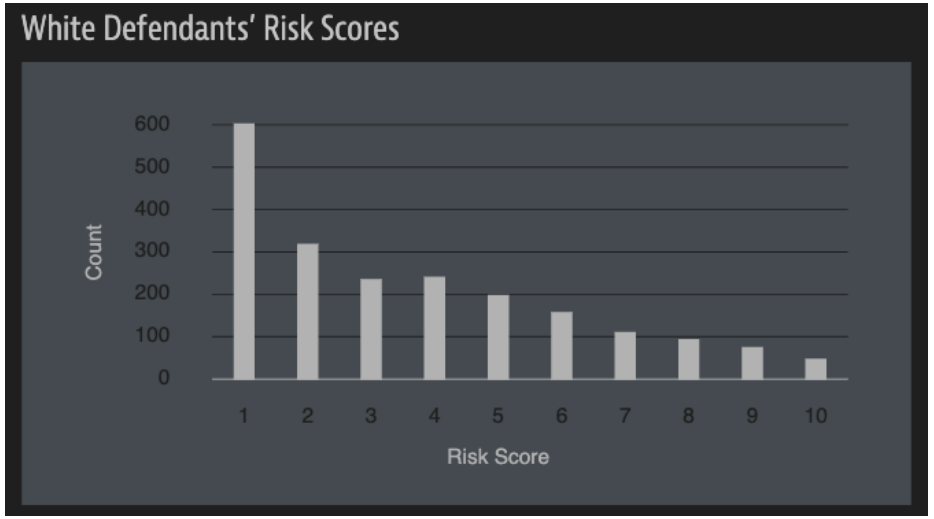
https://www.washingtonpost.com/news/monkey-cage/wp/2016/10/17/can-an-algorithm-be-racist-our-analysis-is-more-cautious-than-propublicas/?utm_term=.bbe10e6766e4

https://www.technologyreview.com/s/607955/inspecting-algorithms-for-bias/

https://www.theatlantic.com/technology/archive/2018/01/equivant-compas-algorithm/550646/

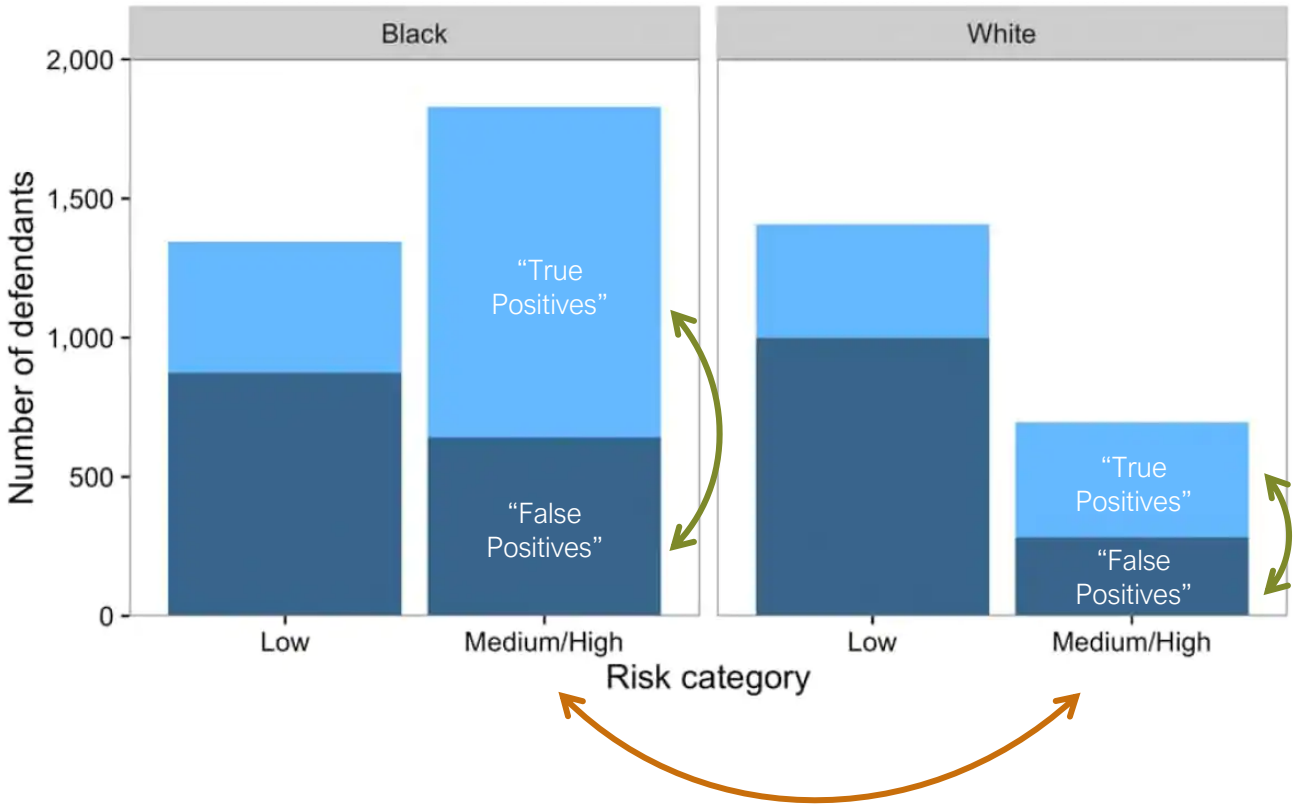
https://5harad.com/papers/fair-ml.pdf





	WHITE	AFRICAN AMERICAN
Labeled Higher Risk, But Didn't Re-Offend	23.5%	44.9%
Labeled Lower Risk, Yet Did Re-Offend	47.7%	28.0%

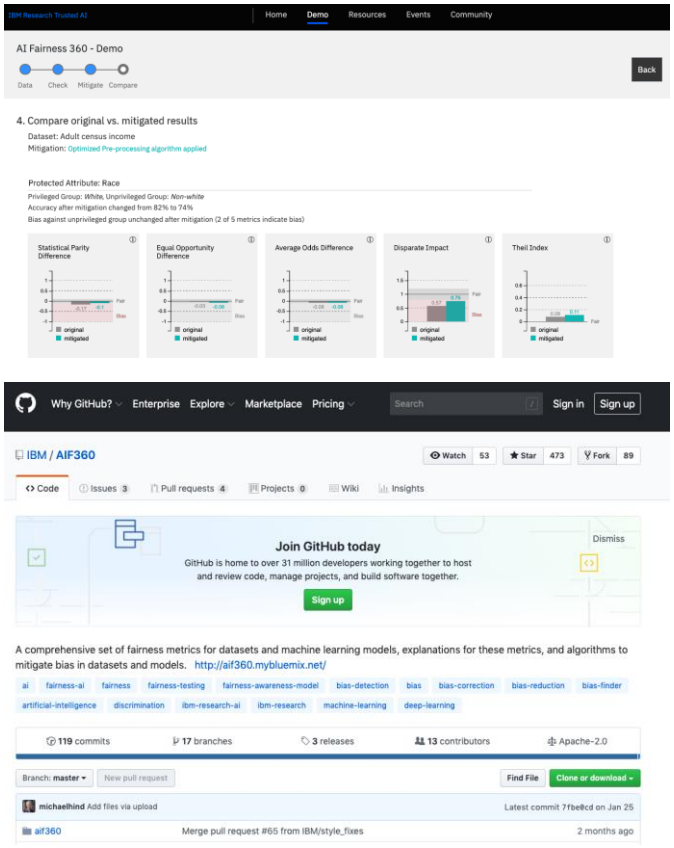
Overall, Northpointe's assessment tool correctly predicts recidivism 61 percent of the time. But blacks are almost twice as likely as whites to be labeled a higher risk but not actually re-offend. It makes the opposite mistake among whites: They are much more likely than blacks to be labeled lower risk but go on to commit other crimes. *(Source: ProPublica analysis of data from Broward County, Fla.)*


Black
White
2,000
1,500
1,000
500
0
Number of defendants
"True Positives"
"False Positives"
"True Positives"
"False Positives"
Low
Medium/High
Low
Medium/High
Risk category
Reoffended
Did not reoffend
NorthPointe: "The ratios of True Positives ARE the same".
ProPublica: "The ratios of False Positives are NOT the same".

What are the right fairness criteria?
What are the real sources of bias?

What can we do about bias?

IBM Fairness 360

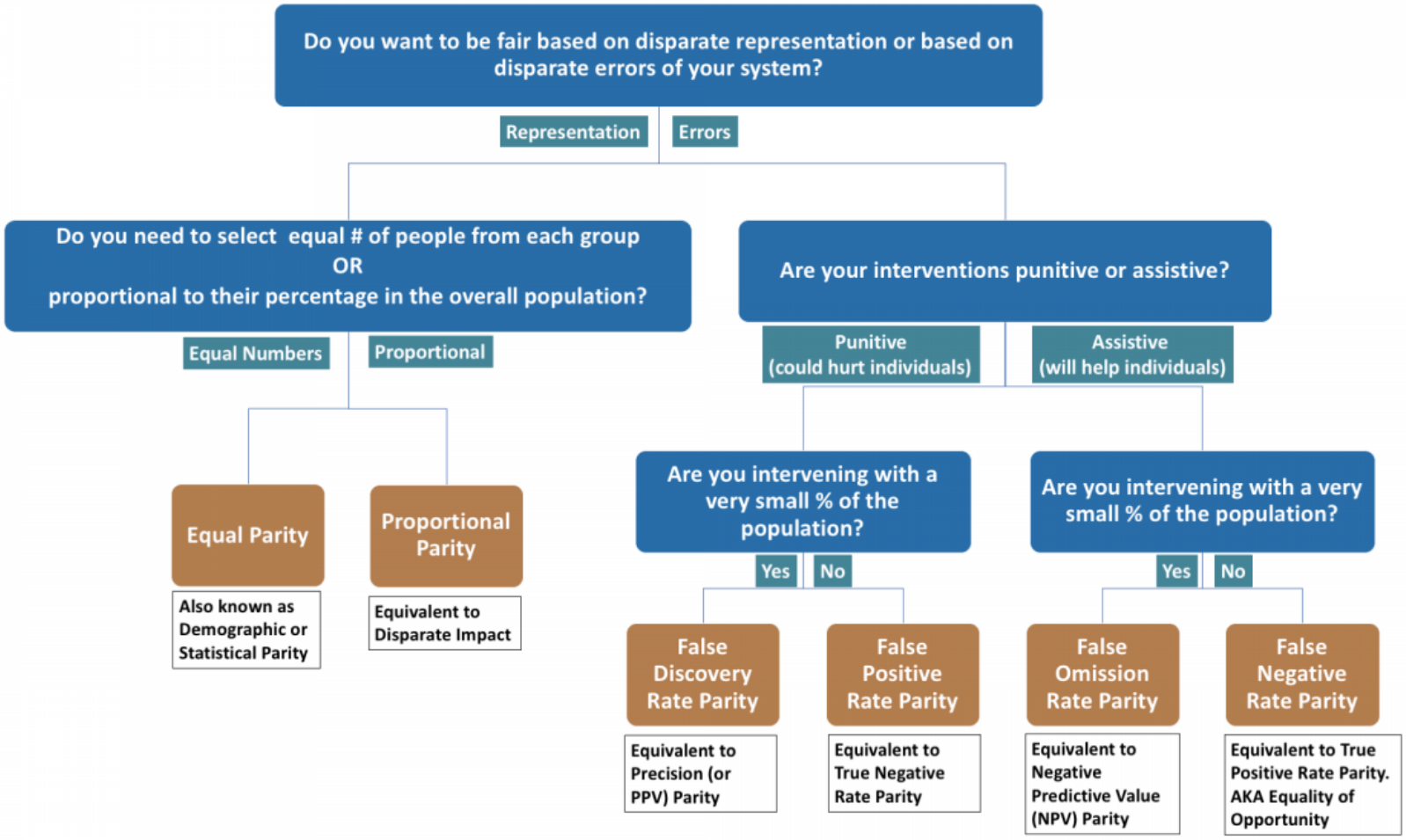


https://developer.ibm.com/open/projects/ai-fairness-360/

Univ. Chicago Aequitas

http://aequitas.dssg.io/

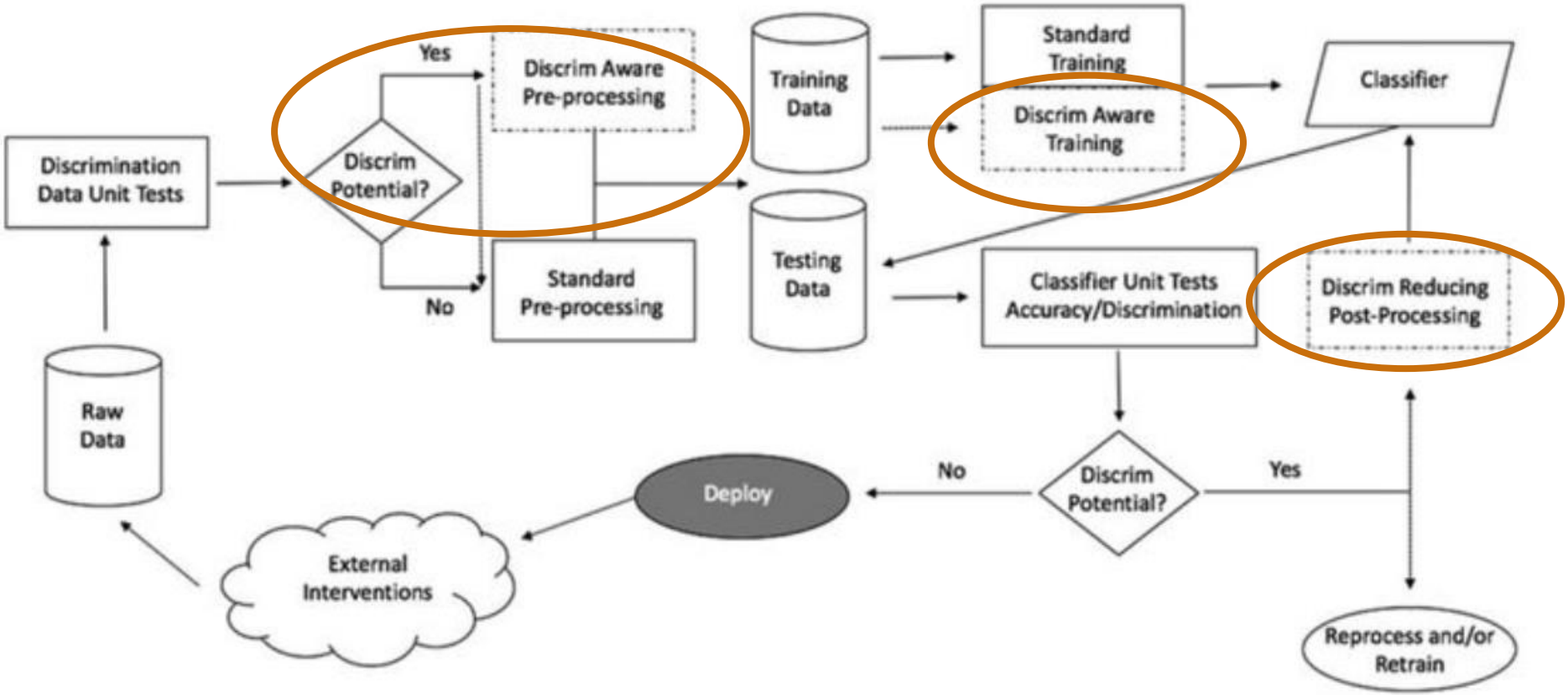
FAIRNESS TREE



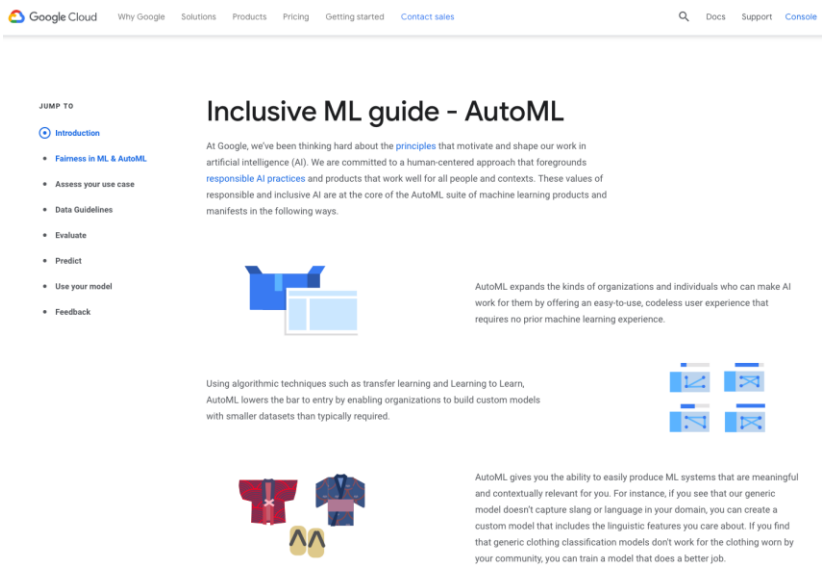
1. Fix the biased data

2. Train an un-biased model

3. Fix the decisions after prediction

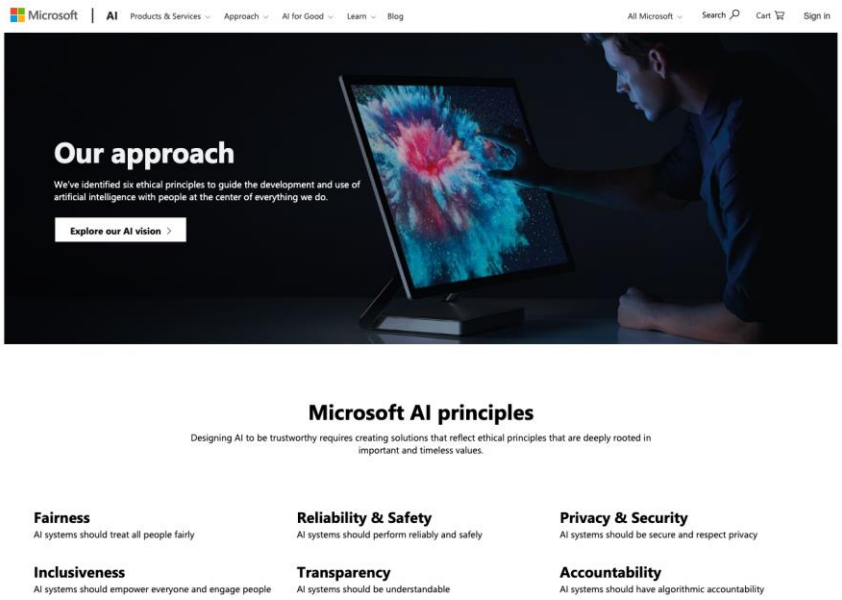


Google



https://cloud.google.com/inclusive-ml/#fairness-in-ml-automl

Microsoft



https://www.microsoft.com/en-us/ai/our-approach-to-ai

At this point, fairness is more a moral issue for society, not a technical issue with ML.

You need to decide which type of fairness you want to ensure.

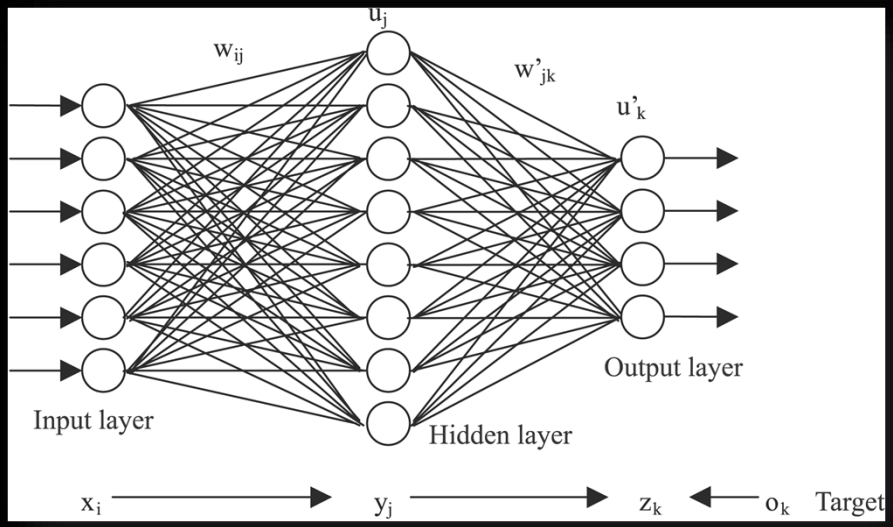
Transparency and Explainability

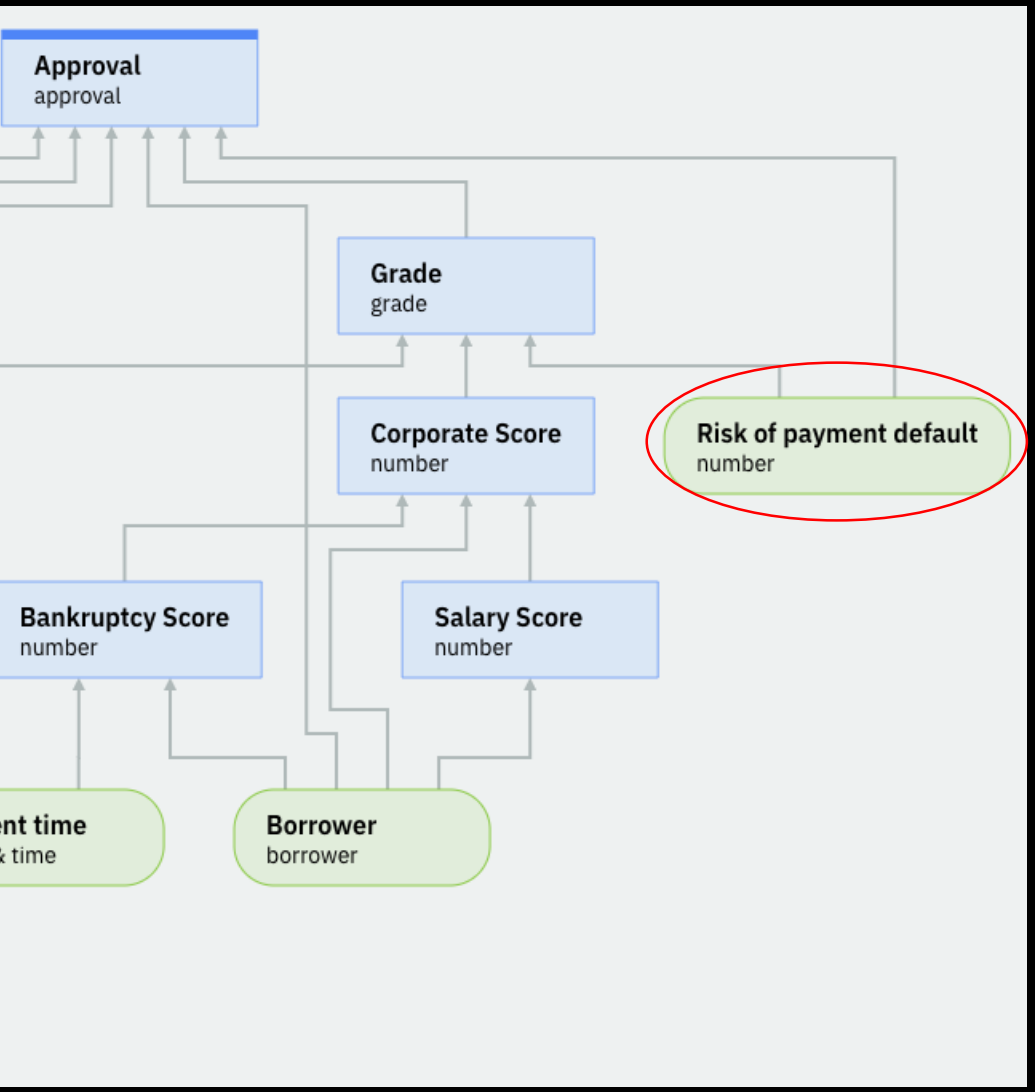
Previously, automation was based on business logic…
encoded as Business Rules.

Business Rules are human-readable and explainable

	Yearly income		Salary Score
	min	max	
1	< 10,000		21
2	10,000	20,000	50
3	20,000	30,000	80
4	30,000	50,000	120
5	50,000	80,000	150
6	80,000	120,000	200
7	120,000	200,000	250
8	≥ 200,000		300

Machine Learning models are complex and opaque



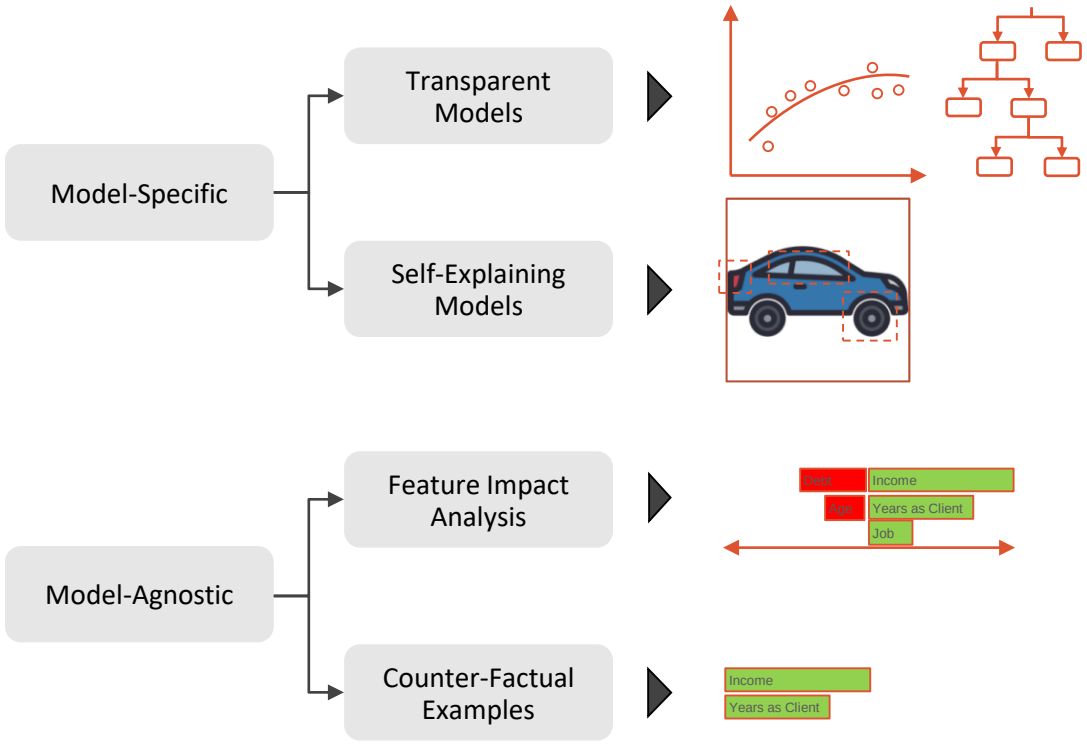


How do we retain trust when adding Machine Learning?

We need to explain the overall decision.

To do that, we need to explain the prediction made by the model, in the context of the rules.

Different approaches to explainable AI



Models are understandable.

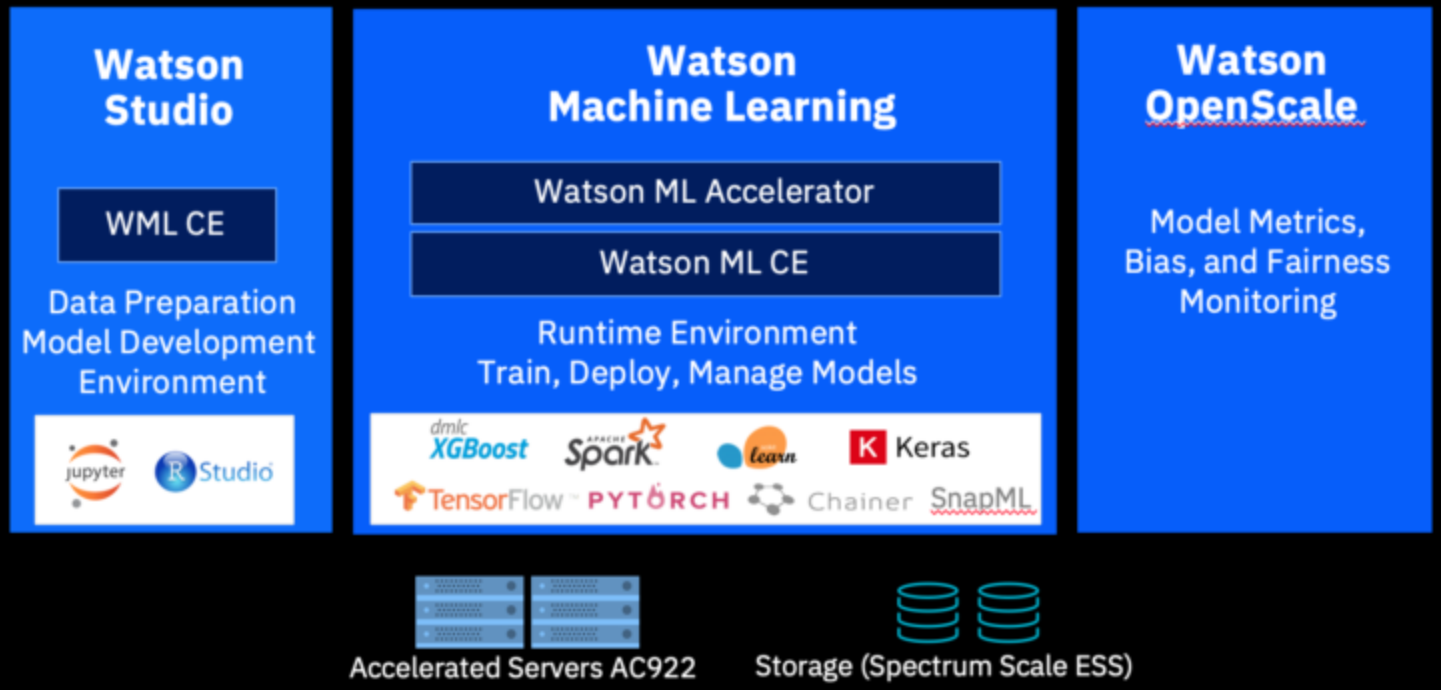
"It's a CAR (88% probability), because we detect WHEELS (93%), WINDOWS (64%) and LIGHTS (34%)."

"You were approved, because INCOME, YEARS AS CLIENT and JOB favored approval more strongly than DEBT and AGE favored rejection."

"You would have been approved if INCOME was $5,000 higher, **or** YEARS AS CLIENT > 5 years."

146

IBM Open Source Based AI Stack



A bit of optimism

Amazon's sexist hiring algorithm could still be better than a human

November 1, 2018 by Maude Lavanchy, The Conversation

New technology, old flaws. Credit: **Jirsak/ Shutterstock**

"We automatically expect an algorithm to make decisions without any discrimination when this is rarely the case with humans. Even if an algorithm is biased, it may be an improvement over the current status quo."

https://phys.org/news/2018-11-amazon-sexist-hiring-algorithm-human.html

Worst case, with ML we discriminate at scale, invisibly, all the time.

However, with automated decisions, discrimination is visible and can be corrected.

Thank you!

Merci!

« INTELLIGENCE ARTIFICIELLE ET RELATION CLIENT »
QUELS IMPACTS SUR LES PROCESSUS ET SUR LES SYSTÈMES D'INFORMATION

10ème Symposium 25 juin 2019 : Agenda

François MARICAL
Directeur Data CDiscount

Club Urba-EA
Enterprise Architecture

EY Building a better working world

Club Pilotes de Processus

L’IA au service de l’expérience client chez Cdiscount

Club Urba-EA

Pilotes de Processus

Dessinons ensemble l’avenir du management

EY

« La civilisation française, héritière de la civilisation hellénique, a travaillé pendant des siècles pour former des hommes libres, c'est-à-dire pleinement responsables de leurs actes : **la France refuse d'entrer dans le Paradis des Robots**. »

Georges Bernanos, 1946

L’IA au service de l’expérience client chez Cdiscount

1. **Environnement, organisation et enjeux**
2. **L’IA chez Cdiscount : pour quoi faire ?**
3. **La personnalisation : l’enjeu N°1 de l’IA au service du client**
4. **Comment avancer efficacement avec l’IA**

Cdiscount en bref

3,6 Mds €
VA

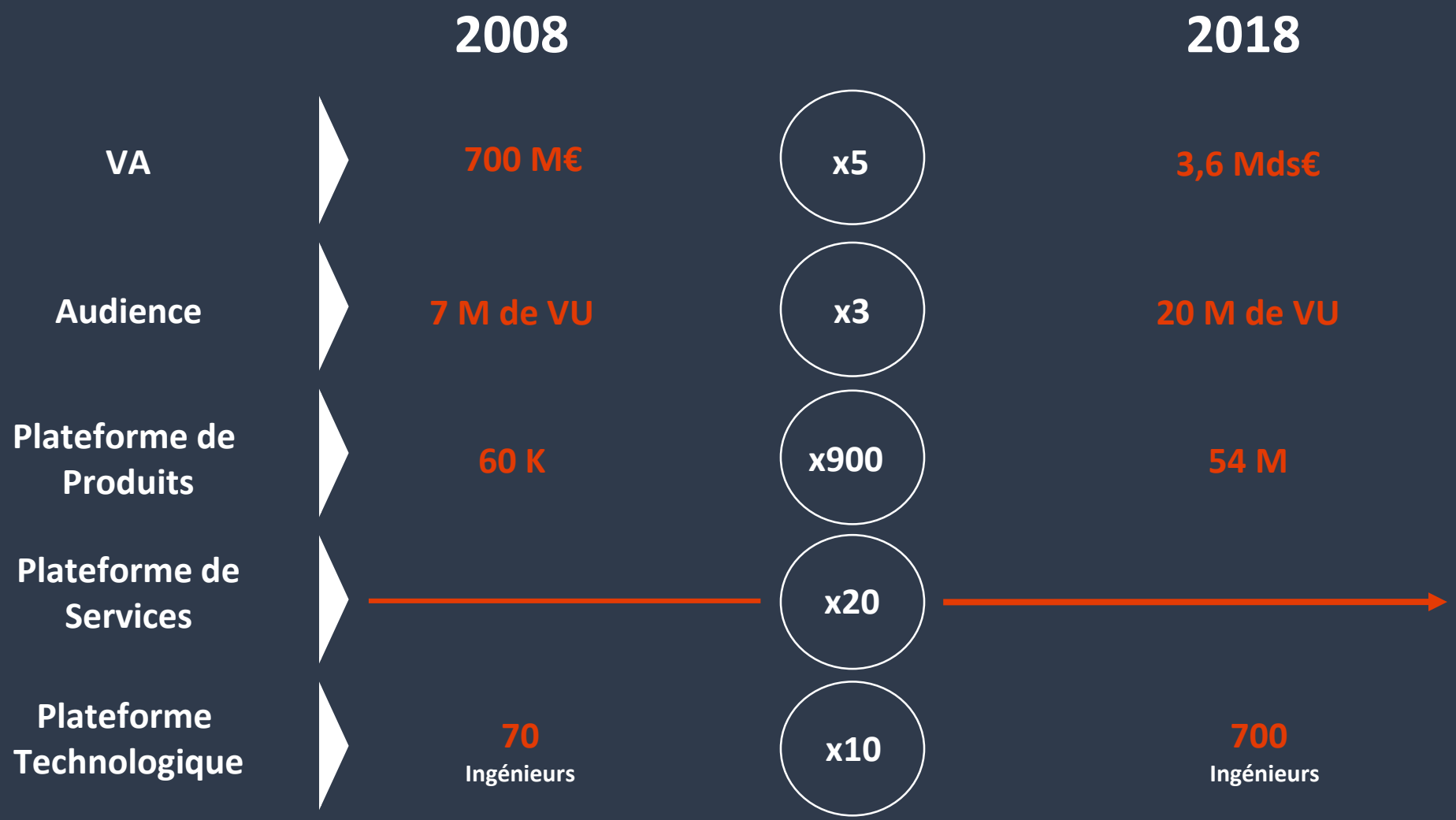
20 M
VU/mois

9 M
clients

30%
PDM (GFK)

42 M
De Produits

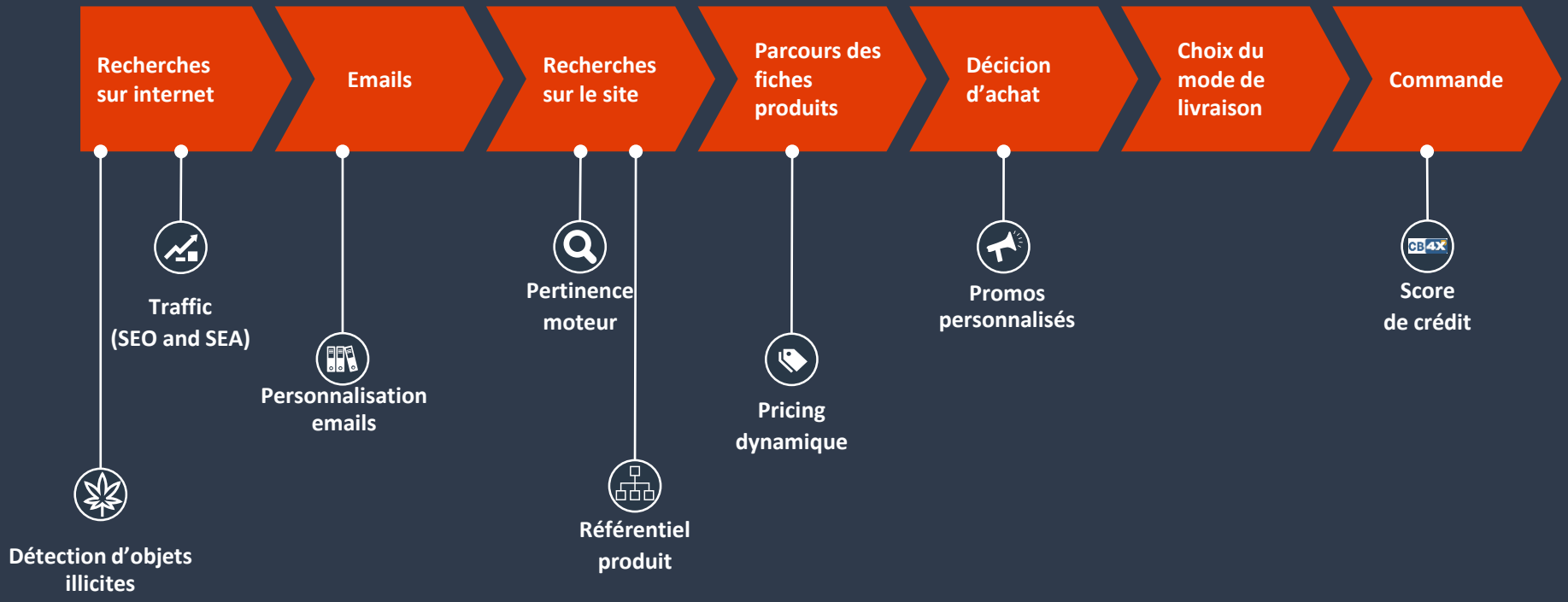
100 K
commandes/jour


2008
2018
VA
700 M€
x5
3,6 Mds€
Audience
7 M de VU
x3
20 M de VU
Plateforme de Produits
60 K
x900
54 M
Plateforme de Services
x20
Plateforme Technologique
70
Ingénieurs
x10
700
Ingénieurs

L’IA au service de l’expérience client chez Cdiscount

1. Environnement, organisation et enjeux
2. **L’IA chez Cdiscount : pour quoi faire ?**
3. La personnalisation : l’enjeu N°1 de l’IA au service du client
4. Comment avancer efficacement avec l’IA

Quel apport de l'IA pour l'amélioration de l'expérience client chez Cdiscount aujourd'hui ?

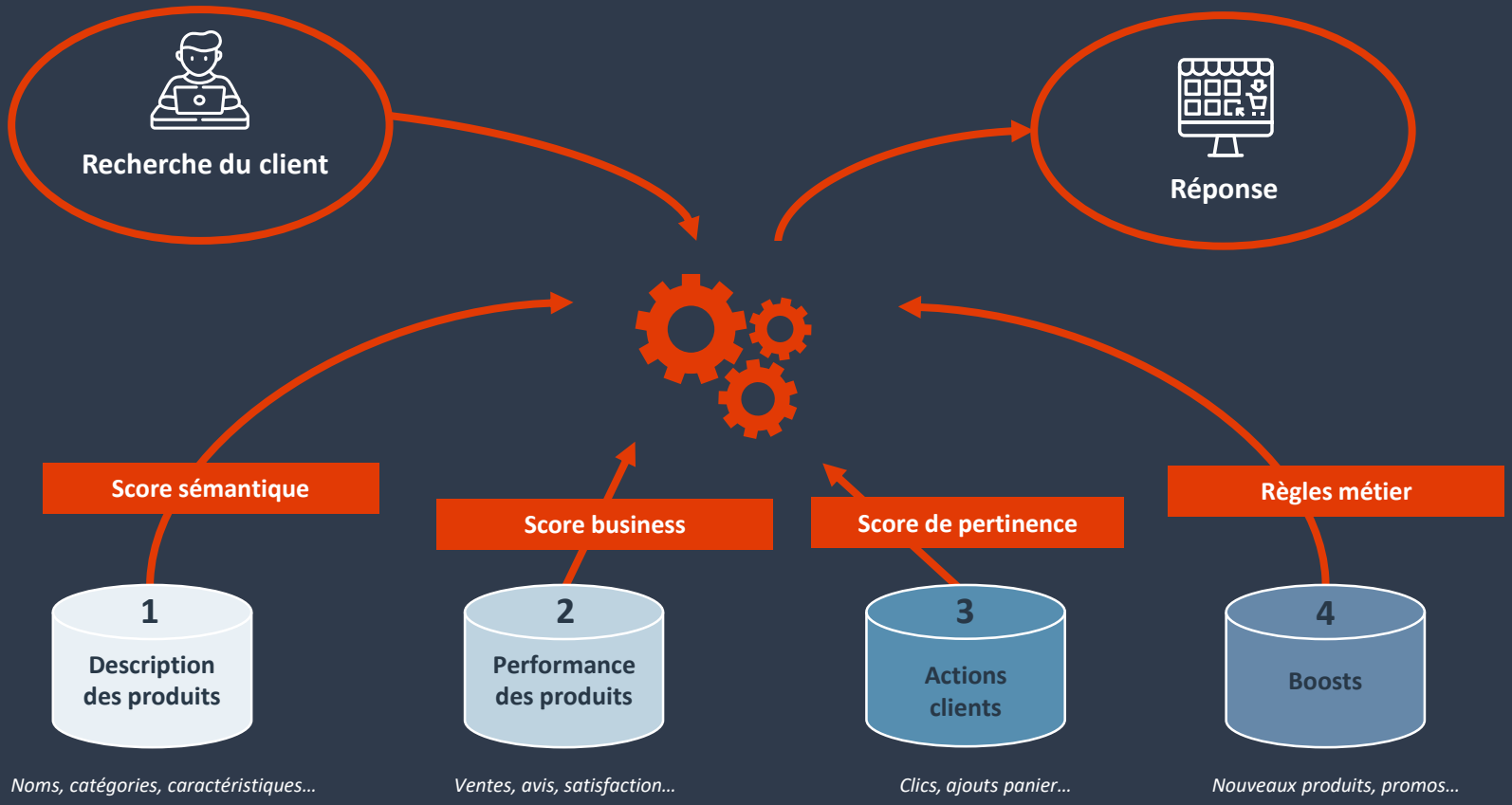


L’IA au service de l’expérience client chez Cdiscount

1. Environnement, organisation et enjeux
2. L’IA chez Cdiscount : pour quoi faire ?
3. **La personnalisation : l’enjeu N°1 de l’IA au service du client**
4. Comment avancer efficacement avec l’IA

Comment présenter 54 millions de produits ?

Un moteur de recherche pertinent… mais pas que



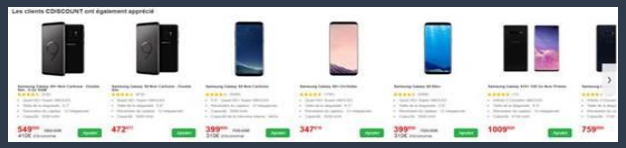
Un merchandising de plus en plus personnalisé

CARROUSSEL « INSPIRÉ DE VOS VISITES »
> Algorithme : histo de nav (complété de produits similaires si insuffisant)
> Impact VA et taux de clic

CARROUSSEL « SELECTIONNÉ POUR VOUS »
> Algorithme : produits dans catégories préférées du client
> Impact sur le taux de clic

RERANKING DES SLIDERS PA
> Algorithme : réordonnancement sliders en fonction des intérêts client
> Impact sur le taux de clic

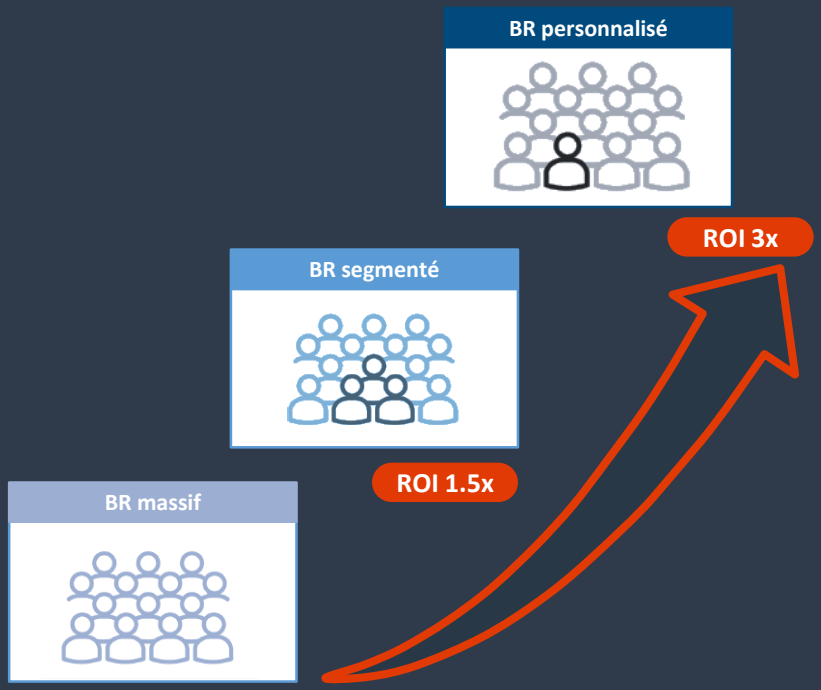
CARROUSSEL « NOS CLIENTS ONT AUSSI APPRÉCIÉ »
> Algorithme : produits similaires personnalisés (prix, marque, CDAV etc…)
> Impact sur le VA



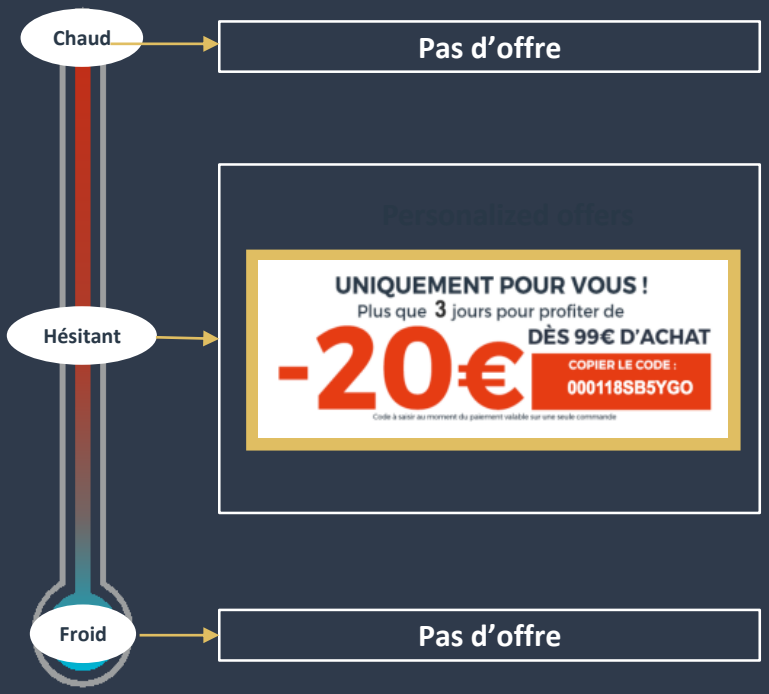
RELAIS GEOCIBLES DE SERVICES « LOCAUX »
> Algorithme : ciblage suivant adresse IP / géoloc
> Impact sur le taux de clic

La personnalisation des promotions booste leur efficacité

Les différentes stratégies

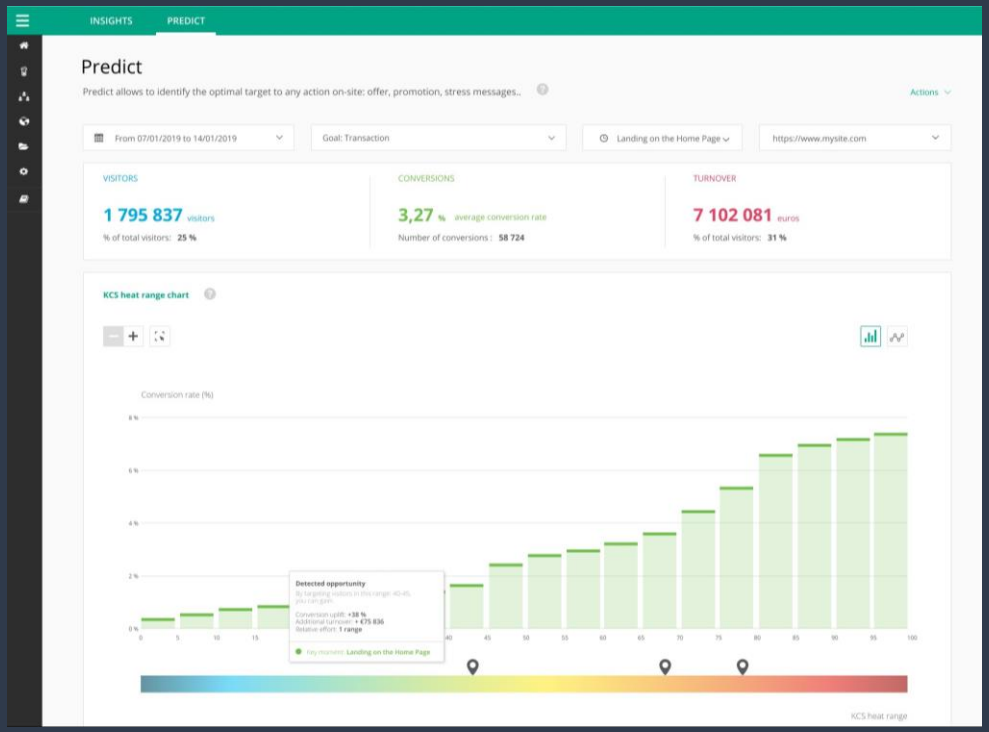


Le principe de personnalisation



Un enjeu autant technique qu'algorythmique

Calcul en temps reel du taux de conversion



L’IA au service de l’expérience client chez Cdiscount

1. Environnement, organisation et enjeux
2. L’IA chez Cdiscount : pour quoi faire ?
3. La personnalisation : l’enjeu N°1 de l’IA au service du client
4. **Comment avancer efficacement avec l’IA**

Quelques constats issus de l’expérience de Cdiscount

Mixer les équipes
Métier + IT + data

Donner du rythme
en fixant des objectifs

Responsabiliser les
équipes data / IA

Autoriser et
assumer les échecs

« INTELLIGENCE ARTIFICIELLE ET RELATION CLIENT »
QUELS IMPACTS SUR LES PROCESSUS ET SUR LES SYSTÈMES D'INFORMATION

10ème Symposium 25 juin 2019 : Agenda

Michel RAQUIN
Président C2P

Michel DARDET
Secrétaire Général
Club Urba EA

Club Urba-EA
ENTERPRISE ARCHITECTURE

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MERCI POUR VOTRE PARTICIPATION
N'OUBLIEZ PAS DE REMPLIR LA FICHE D'ÉVALUATION

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