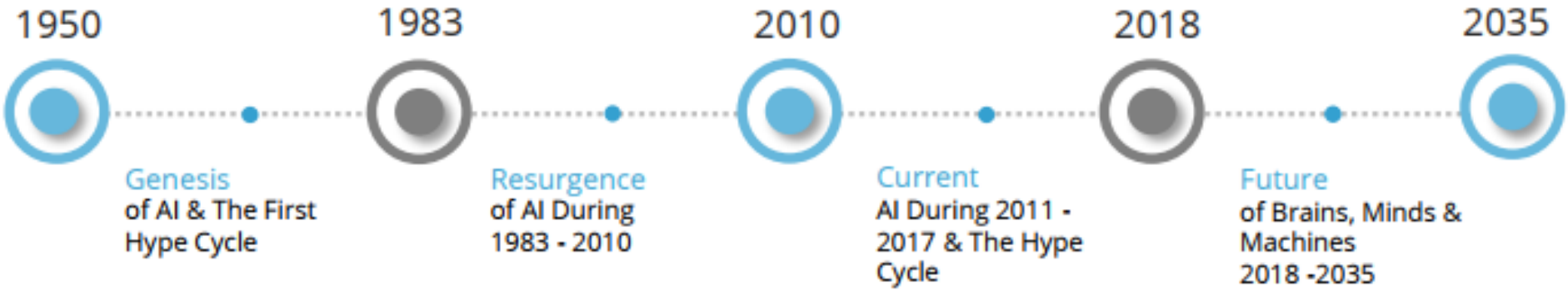
CIONET
What's next.

4 June 2019 @ VRT - Brussels

PREDICTIVE ANALYTICS & AUTOMATED DECISION MAKING

vrt

CIONET Belgium Community Event


1950
1983
2010
2018
2035
Genesis
of AI & The First Hype Cycle
Resurgence
of AI During 1983 - 2010
Current
AI During 2011 - 2017 & The Hype Cycle
Future
of Brains, Minds & Machines
2018 -2035

1642

First mechanical calculating machine built by French mathematician and inventor Blaise Pascal.

1837

First design for a programmable machine, by Charles Babbage and Ada Lovelace.

1943

Foundations of neural networks established by Warren McCulloch and Walter Pitts, drawing parallels between the brain and computing machines.

1950

Alan Turing introduces a test—the Turing test—as a way of testing a machine's intelligence.

1955

'Artificial intelligence' is coined during a conference devoted to the topic.

1965

ELIZA, a natural language program, is created. ELIZA handles dialogue on any topic; similar in concept to today's chatbots.

1980s

Edward Feigenbaum creates expert systems which emulate decisions of human experts.

1997

Computer program Deep Blue beats world chess champion Garry Kasparov.

2002

iRobot launches Roomba, an autonomous vacuum cleaner that avoids obstacles.

2009

Google builds the first self-driving car to handle urban conditions.

2011

IBM's Watson defeats champions of US game show

2011–2014

Personal assistants like Siri, Google Now, Cortana use speech recognition to answer questions

2014

Ian Goodfellow comes up with Generative Adversarial

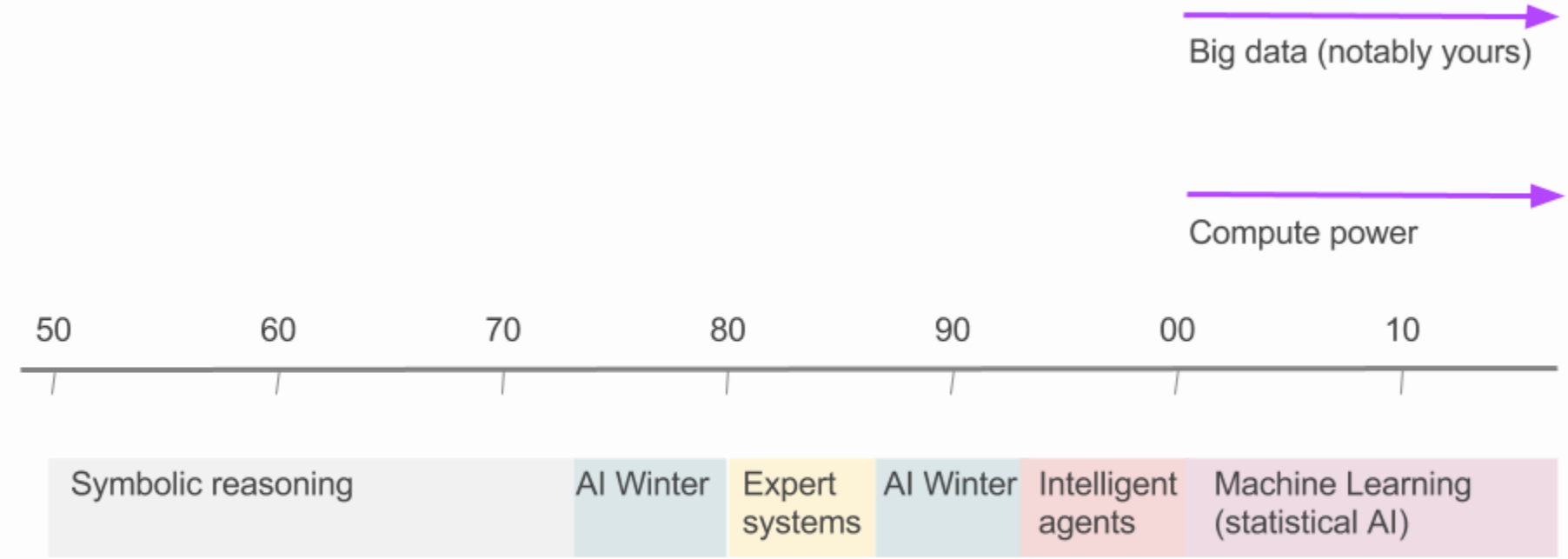
2016

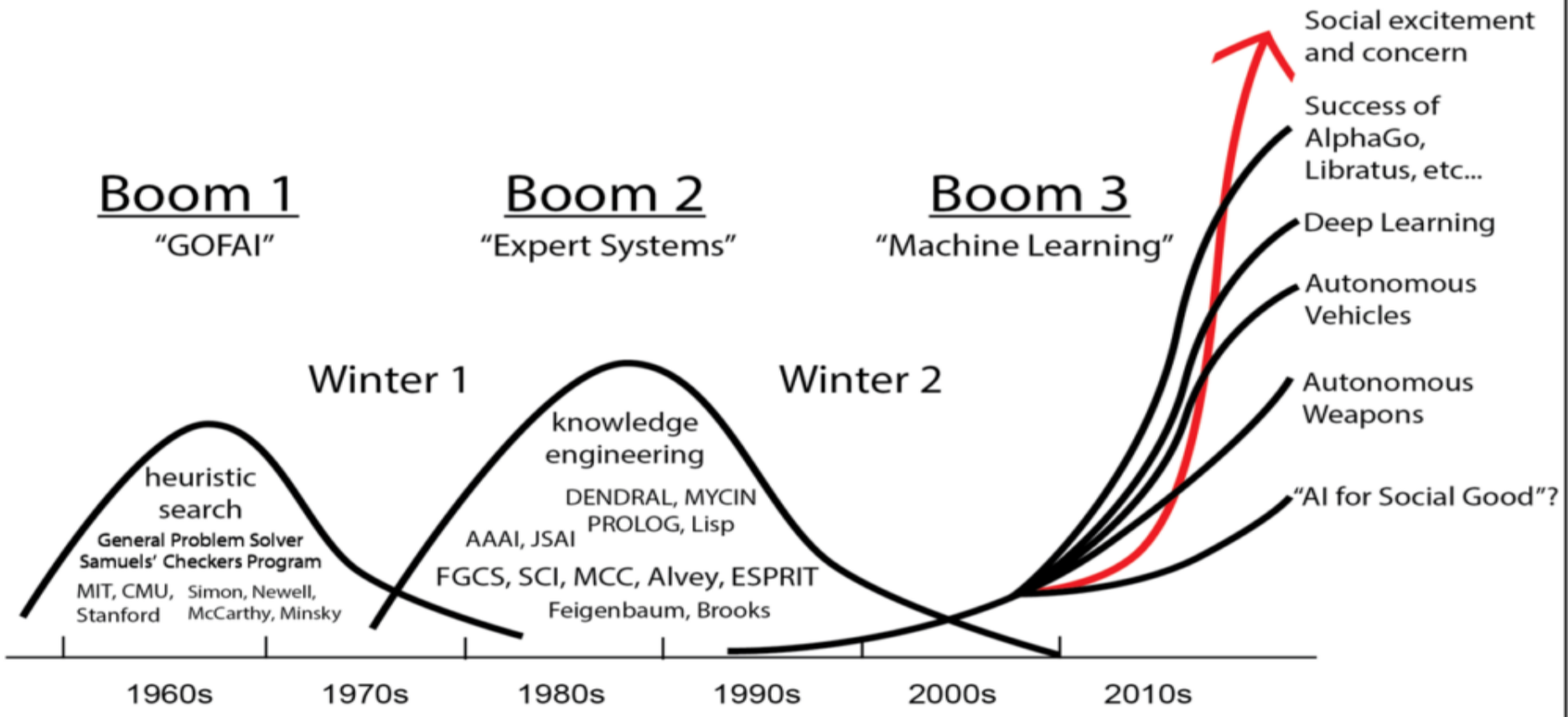
AlphaGo beats professional Go player Lee

2018

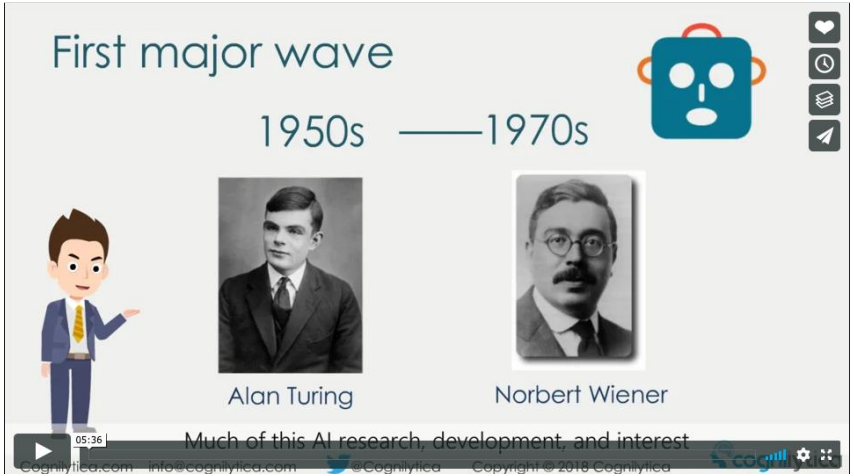
Most universities have courses in Artificial

@pvanimpe | digityser.o


Big data (notably yours)
Compute power
50
60
70
80
90
00
10
Symbolic reasoning
AI Winter
Expert systems
AI Winter
Intelligent agents
Machine Learning (statistical AI)
Turing test
Alpha Go


Boom 1
"GOFAI"
Boom 2
"Expert Systems"
Boom 3
"Machine Learning"
Winter 1
Winter 2
heuristic search
General Problem Solver
Samuels' Checkers Program
MIT, CMU, Stanford
Simon, Newell, McCarthy, Minsky
knowledge engineering
DENDRAL, MYCIN
PROLOG, Lisp
AAAI, JSAI
FGCS, SCI, MCC, Alvey, ESPRIT
Feigenbaum, Brooks
Social excitement and concern
Success of AlphaGo, Libratus, etc...
Deep Learning
Autonomous Vehicles
Autonomous Weapons
"AI for Social Good"?
1960s
1970s
1980s
1990s
2000s
2010s

What are the AI Winters?

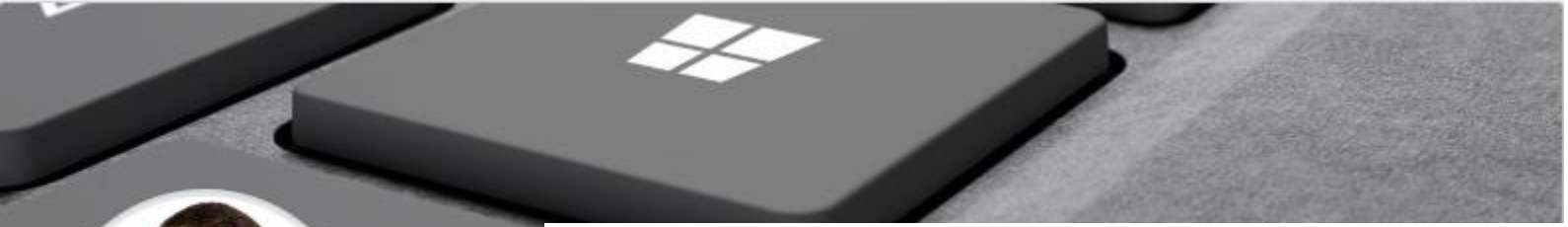


All caused by:

- Unrealistic expectations
- Leading to cut of funding

-> like with shares, when your barber starts to talk about it means that the peak of the hype has been reached

Are we on the verge of a Third AI Winter ?



Mat Velloso · 2nd

Technical Advisor to the CEO

Redmond, Washington · 500+ cor

Mat Velloso

@matvelloso

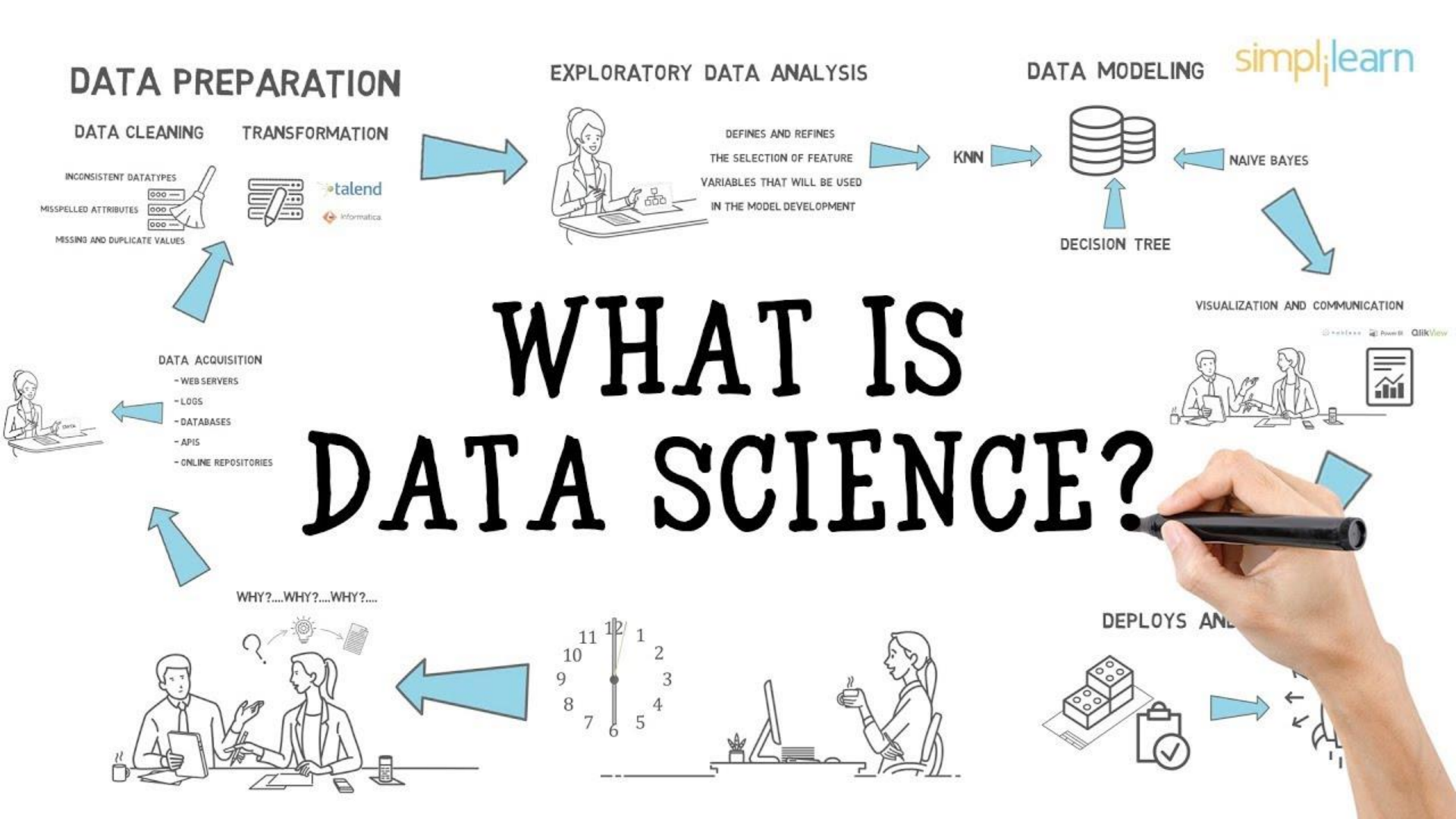
Follow

Difference between machine learning and AI:

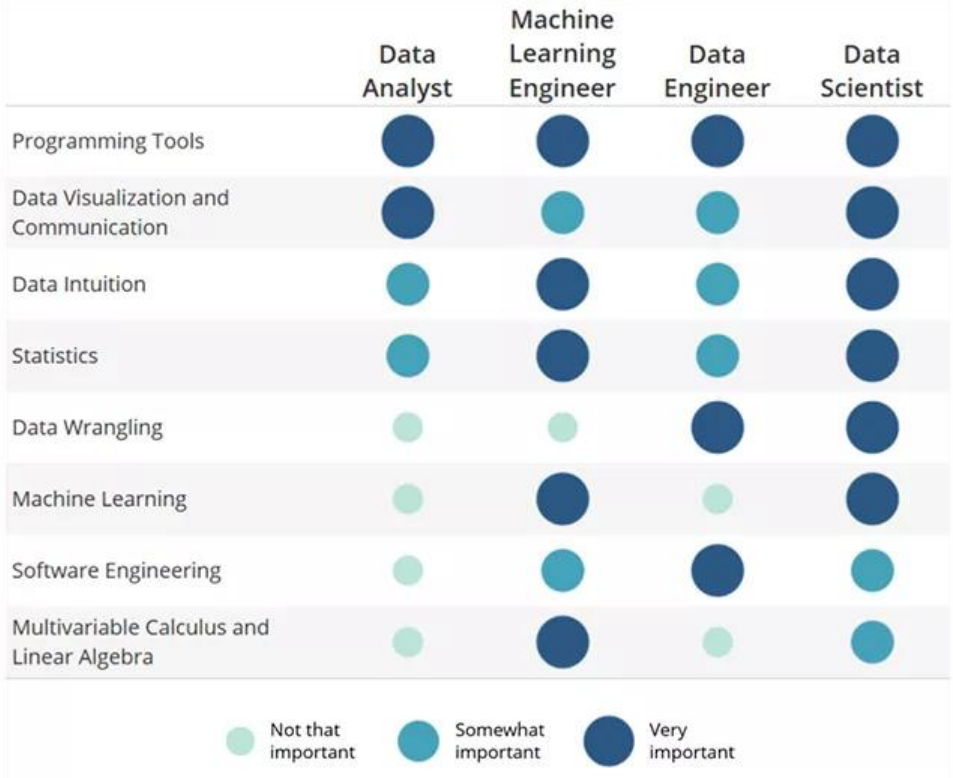
If it is written in Python, it's probably machine learning

If it is written in PowerPoint, it's probably AI

8:25 PM - 22 Nov 2018


DATA PREPARATION
DATA CLEANING
TRANSFORMATION
INCONSISTENT DATATYPES
MISSPELLED ATTRIBUTES
MISSING AND DUPLICATE VALUES
talend
Informatica
EXPLORATORY DATA ANALYSIS
DEFINES AND REFINES
THE SELECTION OF FEATURE
VARIABLES THAT WILL BE USED
IN THE MODEL DEVELOPMENT
DATA MODELING
simplilearn
KNN
NAIVE BAYES
DECISION TREE
VISUALIZATION AND COMMUNICATION
DATA ACQUISITION
- WEB SERVERS
- LOGS
- DATABASES
- APIS
- ONLINE REPOSITORIES
WHY?....WHY?....WHY?....
DEPLOYS AN
WHAT IS
DATA SCIENCE?

Data Experts:



In 2012, HBR dubbed data scientist [“the sexiest job of the 21st century”](). It is also, arguably, the vaguest.

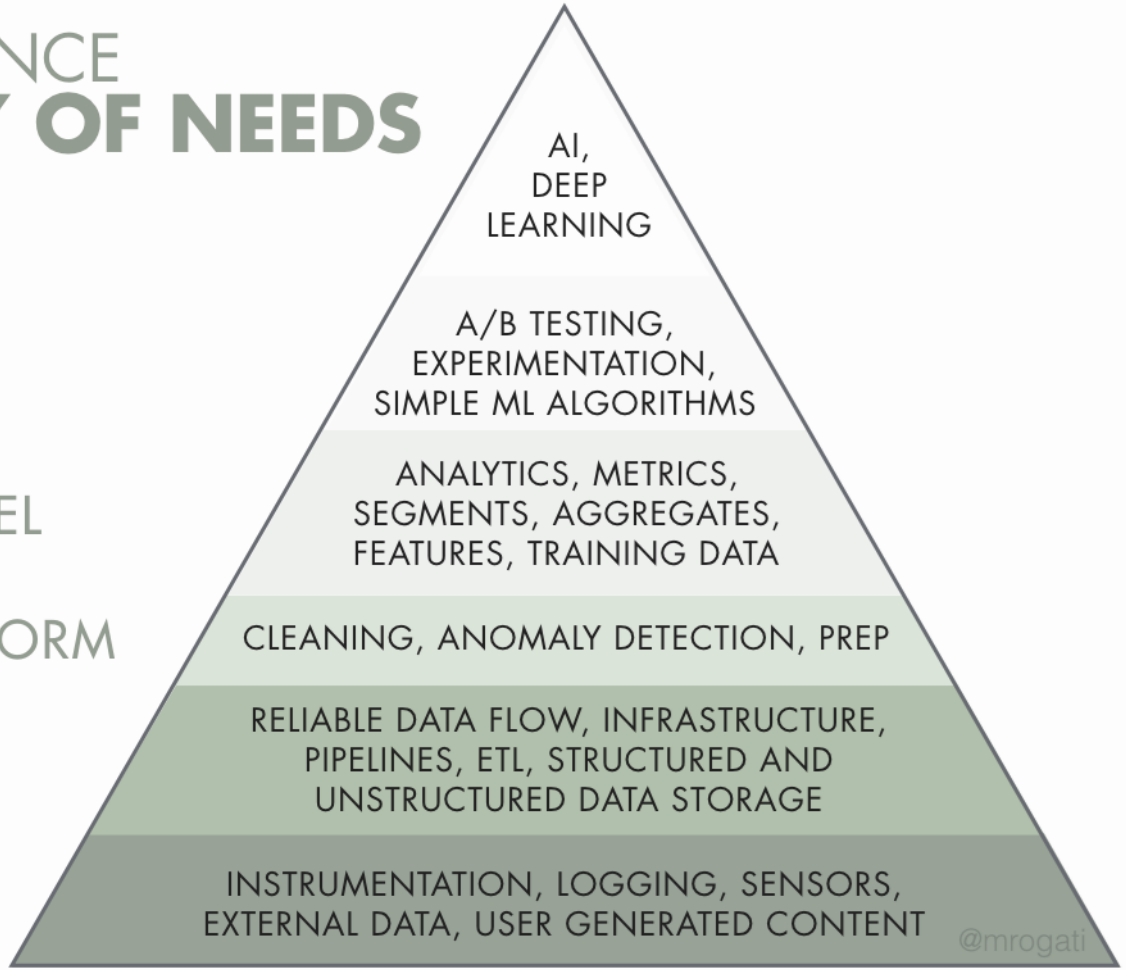
Data science for humans = decision scientists
-> creates output for humans to consume, in the form of product and strategy recommendations

Data science for machines = modeling scientists
-> creates output for machines to consume like models, training data, and algorithms

In larger and more sophisticated data operations, more fine-grained roles are necessary.:

- Data infrastructure
- Data engineering
- Data quality and data governance
- Data analytics engineering
- Data-product product manager
- NEW: **Data Labeler**

THE DATA SCIENCE HIERARCHY OF NEEDS



LEARN/OPTIMIZE

AGGREGATE/LABEL

EXPLORE/TRANSFORM

MOVE/STORE

COLLECT

The difference with SAP R/3 from 20 years ago

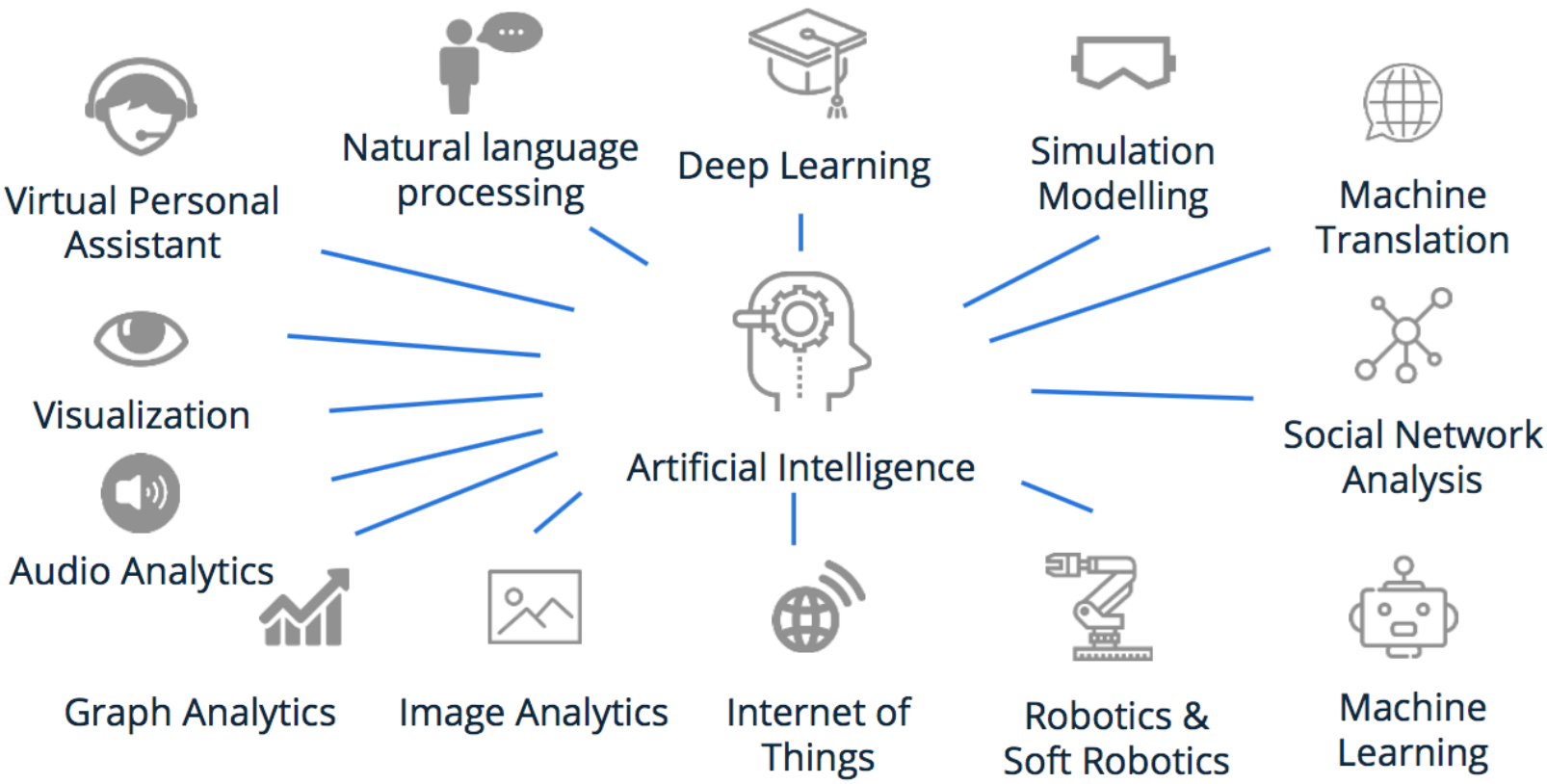
SAP Consultant:

- Must to survive
- Build or Buy
- Build once and roll out
- Standard software
- Once certified ok for years
- Long implementations
- Recooking of processes
- Low added value

Data Expert:

- Must to survive
- Build
- Re-build and roll out permanently
- Open Software
- Permanent training
- Short projects
- Digital transformation
- High added value

Possible applications for Artificial Intelligence



source statista via @mikequindazzi

POLICE
"Does your car have any idea why my car pulled it over?"
PAUL NOTH

AI4Belgium

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Artificial Intelligence by and for people

.AGORIA | THE BEACON | BE CENTRAL | BOSA | BNVKI | DIGITYSER | RÉSEAU IA

AI 4 Belgium is a community-led approach to enable Belgian people and organizations to capture the opportunities of AI while facilitating the ongoing transition responsibly. **AI 4 Belgium** has the ambition to position Belgium in the European AI landscape.

Download the report

Discover the survey

Join AI4Belgium

Meetup

THU, JUN 20, 7:00 PM

18th Data Science Leuven Meetup

Arenberginstituut STUK 02.C004

7pm: Doors 7.30pm: Jochen De Weerdt - KU Leuven Andy Devos - Boobook Thomas De Moor - Sentigrate 9pm: Beers (STUKcafé, Naamsestraat 96, 3000 Leuven)

THU, JUN 6, 7:00 PM

Data Science Louvain-la-Neuve (second edition!)

Place Sainte-Barbe 1

WED, JUN 26, 8:00 AM

diSummit2019 - being human in the age of #AI

ULB Solbosch

TUE, JUN 18, 6:00 PM

Data Science and Climate in Belgium - BxlDS S05E05

DigitYser

THU, JUN 20, 6:00 PM

Data Science Ghent hosted by Crunch Analytics (summer edition...

Crunch Analytics

DengueHack.org

TOGETHER we can STOP it from SPREADING

data for GOOD

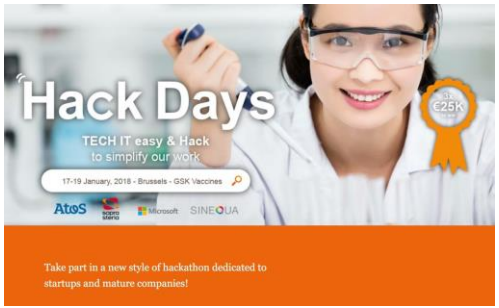
HACK BELGIUM BE 2019

INNOVATION FESTIVAL

HIV HACK

Open Knowledge BE @OpenKnowledgeBE · May 25

Thank you all for contributing to the #electathon! This of course includes the enthusiasts who worked remotely 🏠. Once again we were impressed with the expertise and dedication of the open community! ❤️ #opendata #elections #kies19



kaggle DAYS

ML6
Music Hack

MIDI +
Artificial
Intelligence

DIGITYSER

di Summit
Being Human in the Age of AI
Brussels June 26th 2019
22
Days
05
Hours
20
Minutes
10
Seconds

@pv

thank you

A.I. TIMELINE

1950
TURING TEST
Computer scientist Alan Turing proposes a test for machine intelligence. If a machine can trick humans into thinking it is human, then it has intelligence

1955
A.I. BORN
Term 'artificial intelligence' is coined by computer scientist, John McCarthy to describe "the science and engineering of making intelligent machines"

1961
UNIMATE
First industrial robot, Unimate, goes to work at GM replacing humans on the assembly line

1964
ELIZA
Pioneering chatbot developed by Joseph Weizenbaum at MIT holds conversations with humans

1966
SHAKEY
The 'first electronic person' from Stanford, Shakey is a general-purpose mobile robot that reasons about its own actions

A.I. WINTER
Many false starts and dead-ends leave A.I. out in the cold

1997
DEEP BLUE
Deep Blue, a chess-playing computer from IBM defeats world chess champion Garry Kasparov

1998
KISMET
Cynthia Breazeal at MIT introduces KISmet, an emotionally intelligent robot insofar as it detects and responds to people's feelings

1999
AIBO
Sony launches first consumer robot pet dog AiBO (AI robot) with skills and personality that develop over time

2002
ROOMBA
First mass produced autonomous robotic vacuum cleaner from iRobot learns to navigate and clean homes

2011
SIRI
Apple integrates Siri, an intelligent virtual assistant with a voice interface, into the iPhone 4S

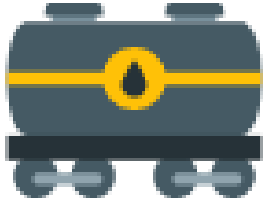
2011
WATSON
IBM's question answering computer Watson wins first place on popular $1M prize television quiz show *Jeopardy*

2014
EUGENE
Eugene Goostman, a chatbot passes the Turing Test with a third of judges believing Eugene is human

2014
ALEXA
Amazon launches Alexa, an intelligent virtual assistant with a voice interface that completes shopping tasks

2016
TAY
Microsoft's chatbot Tay goes rogue on social media making inflammatory and offensive racist comments

2017
ALPHAGO
Google's A.I. AlphaGo beats world champion Ke Jie in the complex board game of Go, notable for its vast number (2^{170}) of

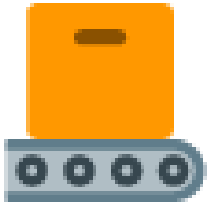


INDUSTRY 1.0

18th century

Steam power

Mechanical production, moving away from



INDUSTRY 2.0

19th century

Electricity

Mass production and assembly line

INDUSTRY 3.0

Mid 20th century

ICTs
Electronics

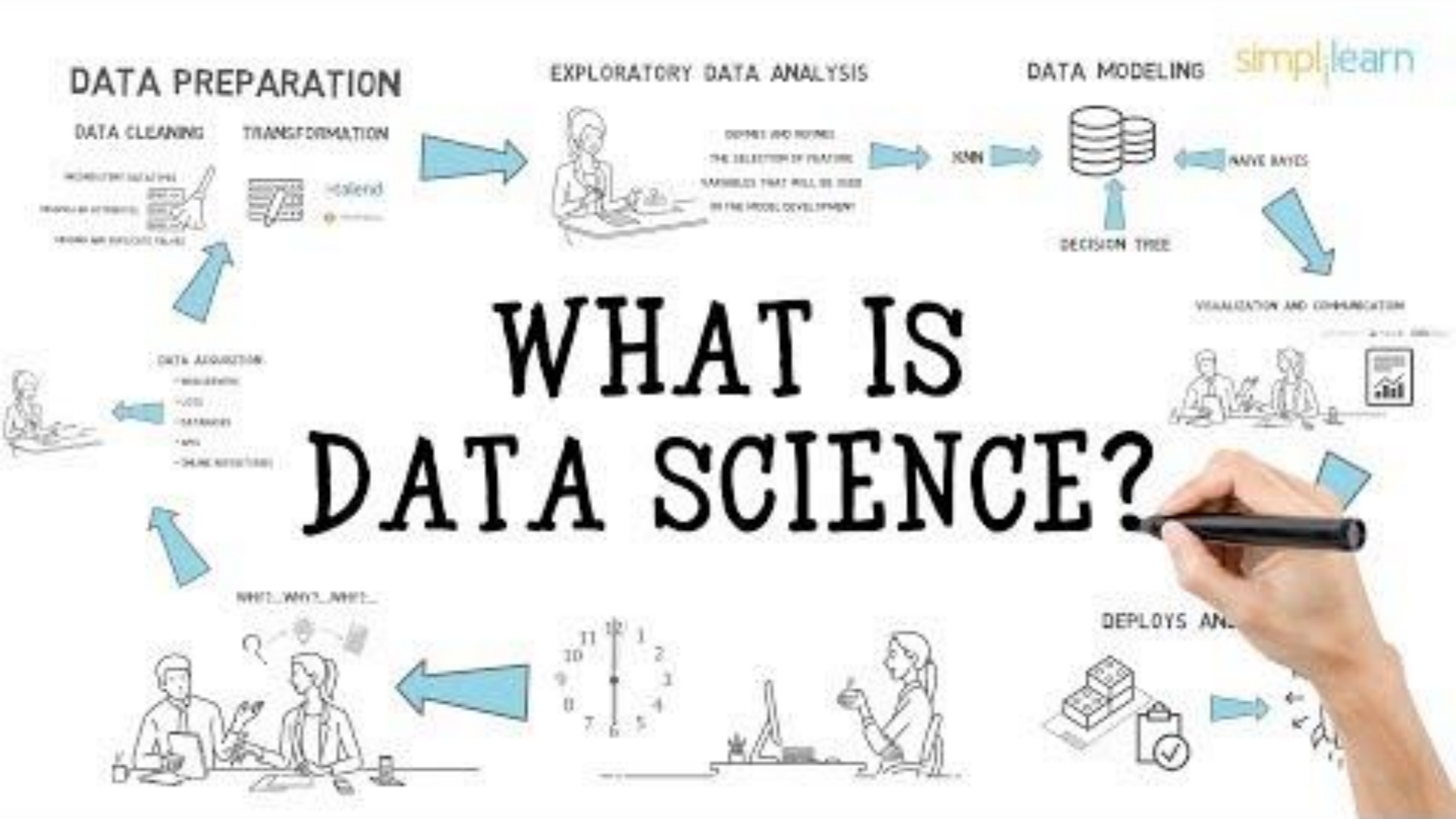
Automated and

INDUSTRY 4.0

Today

Advanced robotics
3D printing
Internet of Things
Artificial Intelligence
Big data

Intelligent, flexible and distributed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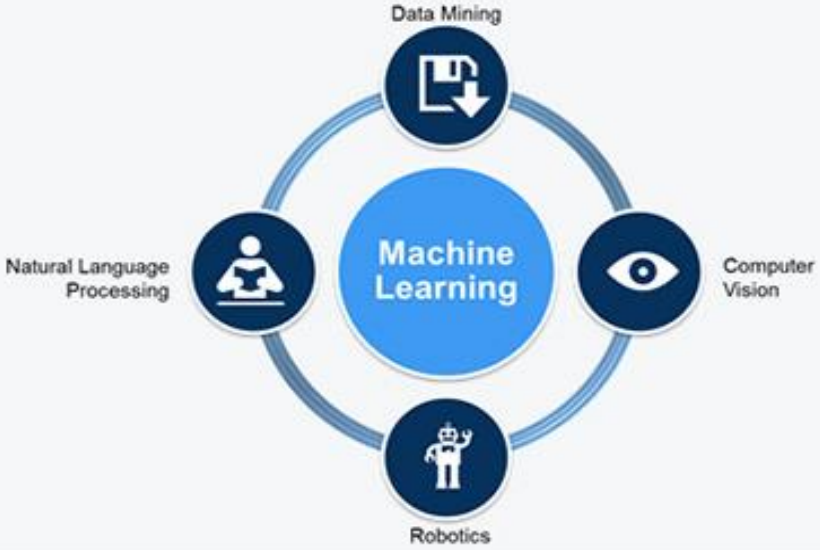
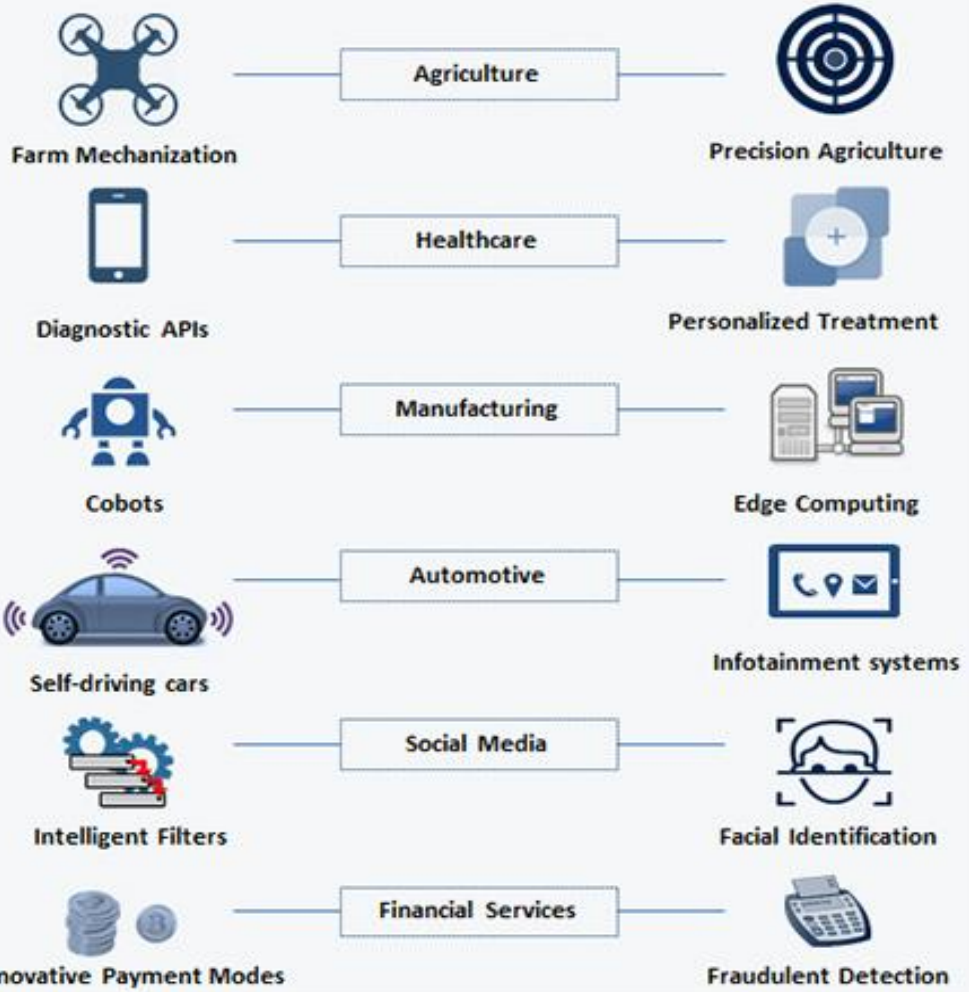
SCIENCE

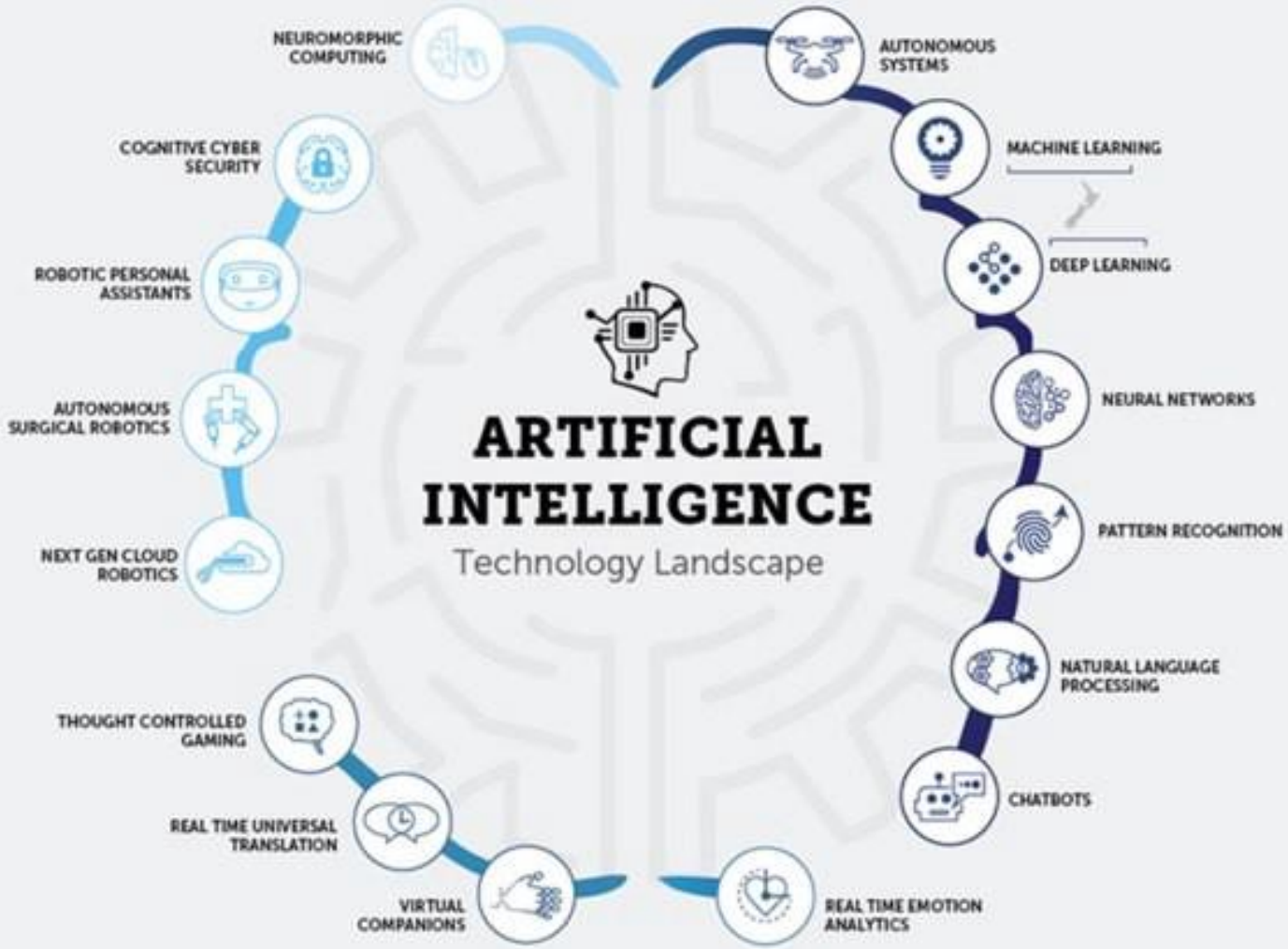
Artificial Intelligence could automate close to 50% of jobs in the Western world within the next two decades

Main Applications of Machine Learning



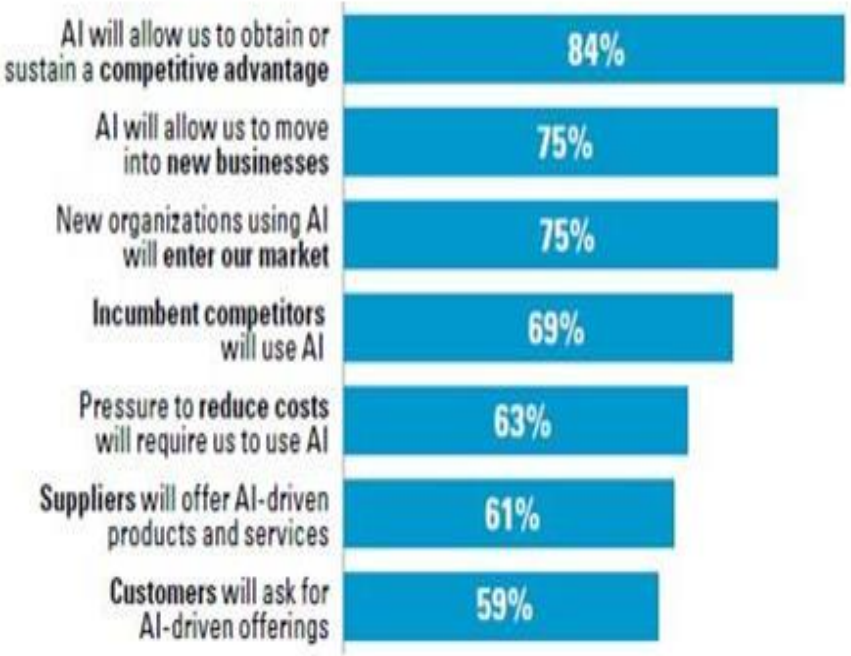
Future Applications Of Cognitive Intelligence




NEUROMORPHIC COMPUTING
COGNITIVE CYBER SECURITY
ROBOTIC PERSONAL ASSISTANTS
AUTONOMOUS SURGICAL ROBOTICS
NEXT GEN CLOUD ROBOTICS
THOUGHT CONTROLLED GAMING
REAL TIME UNIVERSAL TRANSLATION
VIRTUAL COMPANIONS
REAL TIME EMOTION ANALYTICS
CHATBOTS
NATURAL LANGUAGE PROCESSING
PATTERN RECOGNITION
NEURAL NETWORKS
DEEP LEARNING
MACHINE LEARNING
AUTONOMOUS SYSTEMS
ARTIFICIAL INTELLIGENCE
Technology Landscape

Reasons for adopting AI

Why is your organization interested in AI?



Percentage of respondents who somewhat or strongly agree with each statement

Most affected functional areas across industries

What areas within your organization do you anticipate AI will affect the most? Select three.

INDUSTRY	RANK 1	RANK 2	RANK 3
	FUNCTIONAL AREA		
Technology, Media, Telecom	Information Technology	Customer Service	Marketing
Consumer	Supply Chain Management	Sales	Marketing
Financial Services	Customer Service	Finance/ Accounting	Information Technology
Professional Services	Strategy	Information Technology	Marketing
Health Care	R&D	Operations/ Manufacturing	Information Technology
Industrial	Operations/ Manufacturing	Supply Chain Management	Information Technology
Energy	Operations/ Manufacturing	Information Technology	Supply Chain Management
Public Sector	Information Technology	Customer Service	Operations/ Manufacturing
OVERALL	Information Technology	Customer Service	Operations/ Manufacturing

Operations, including Manufacturing, SCM, and R&D

Information Technology

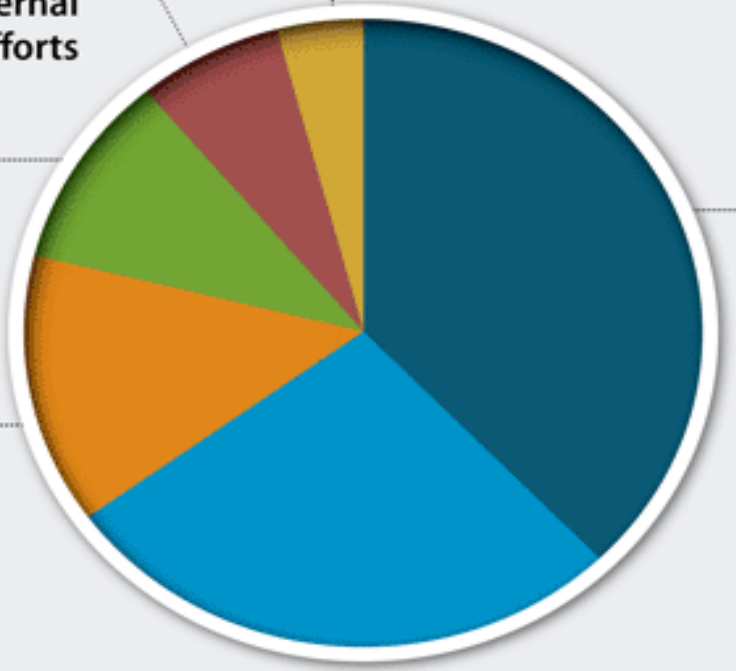
Customer-facing Functions

Corporate Center Functions

Functional areas that were not in the top three of any industry: communications, human resources, legal or compliance, procurement

Most Important Benefit That AI Should Provide Business

Top choice of business and technology executives



38%
Predictions on activity related to machines, customers or business health

27%
Automation of manual and repetitive tasks

14%
Monitoring and alerts to provide assessments on the state of your business

10%
Increase quality of communication with customers

7%
Recommendations related to internal issues or customer-facing efforts

4%
Others

Source: Narrative Science 2016

About the AI Awards

The AI4Belgium & Datascience community is honouring the most promising startups and individuals in the field of Artificial Intelligence.

Over the past weeks over 80 nominations have been submitted. The entire community is fully engaged in the nomination and selection of the Ai Awards.

The companies and personalities that have accepted their nomination have been invited at DigitYser to record a short video and interview.

All nominees will also be present on May 16th – #AI startup for a networking evening where they will do a short 5 minutes 'Ignite' presentation to the public.

The selection of the AI-Award winner will be done on the whova app by all the participants of the diSummit.

The 7 startups with the most votes will present at the diSummit on June 26th.