



AI. APPLIED.



FAKTION

Gert Van Looy, Business Development Manager

FAKTION—we put thought in everything

WE BUILD
DEEP LEARNING,
MACHINE LEARNING AND
ARTIFICIAL INTELLIGENCE
SOLUTIONS

Artificial Intelligence |A.I.

Why

YOU SHOULD CARE

What

IT'S ALL ABOUT

How

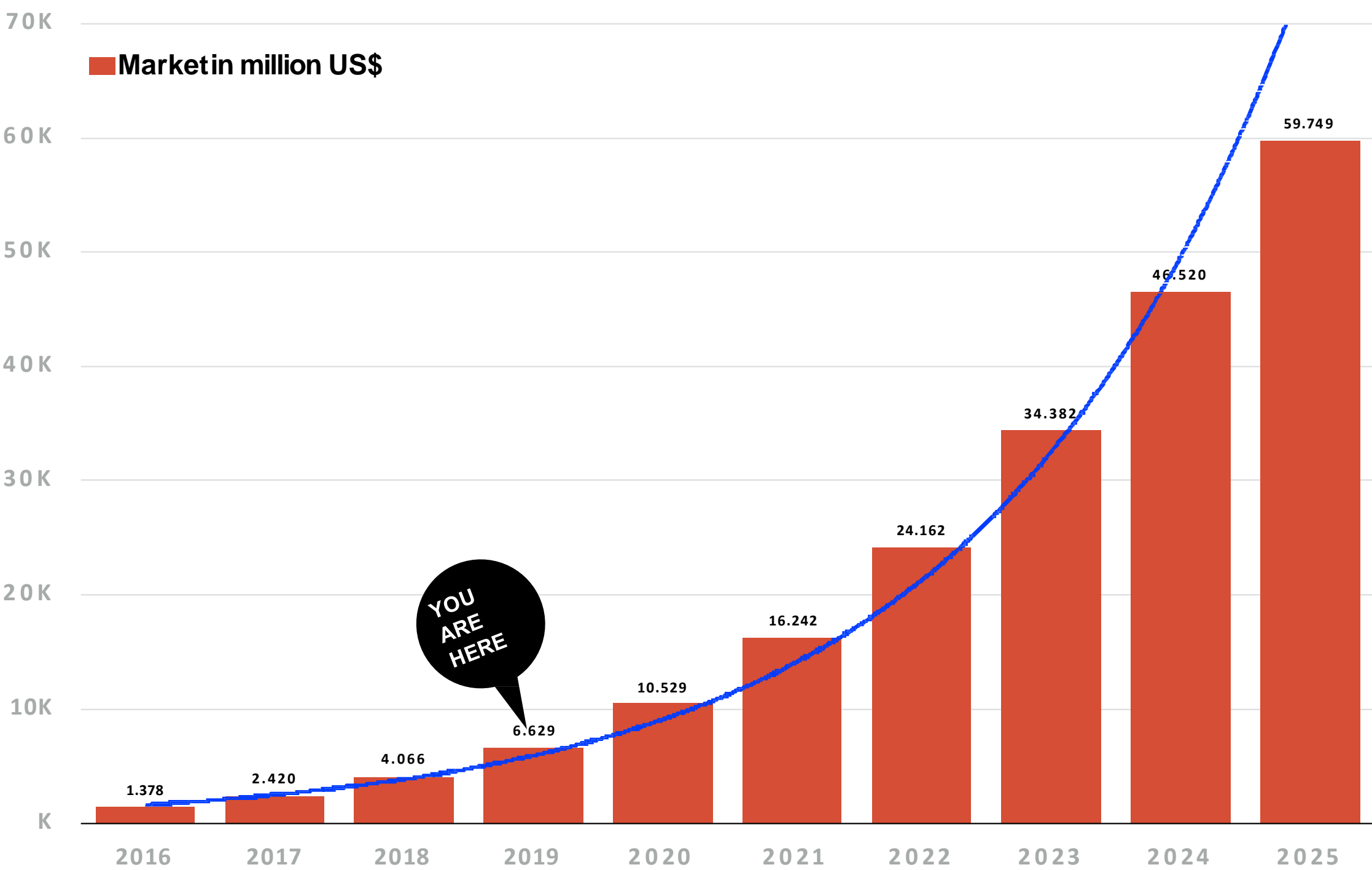
YOU CAN GET STARTED

Use cases

FAKTION PROJECTS

WHY
YOU SHOULD CARE

A disruptive technology, fueling the next industrial revolution



Source(s): World Economic Forum, Global Agenda. 2017 Tractica Report on A.I. - Tata Consulting Services, Global Trend Study 2017

WHAT

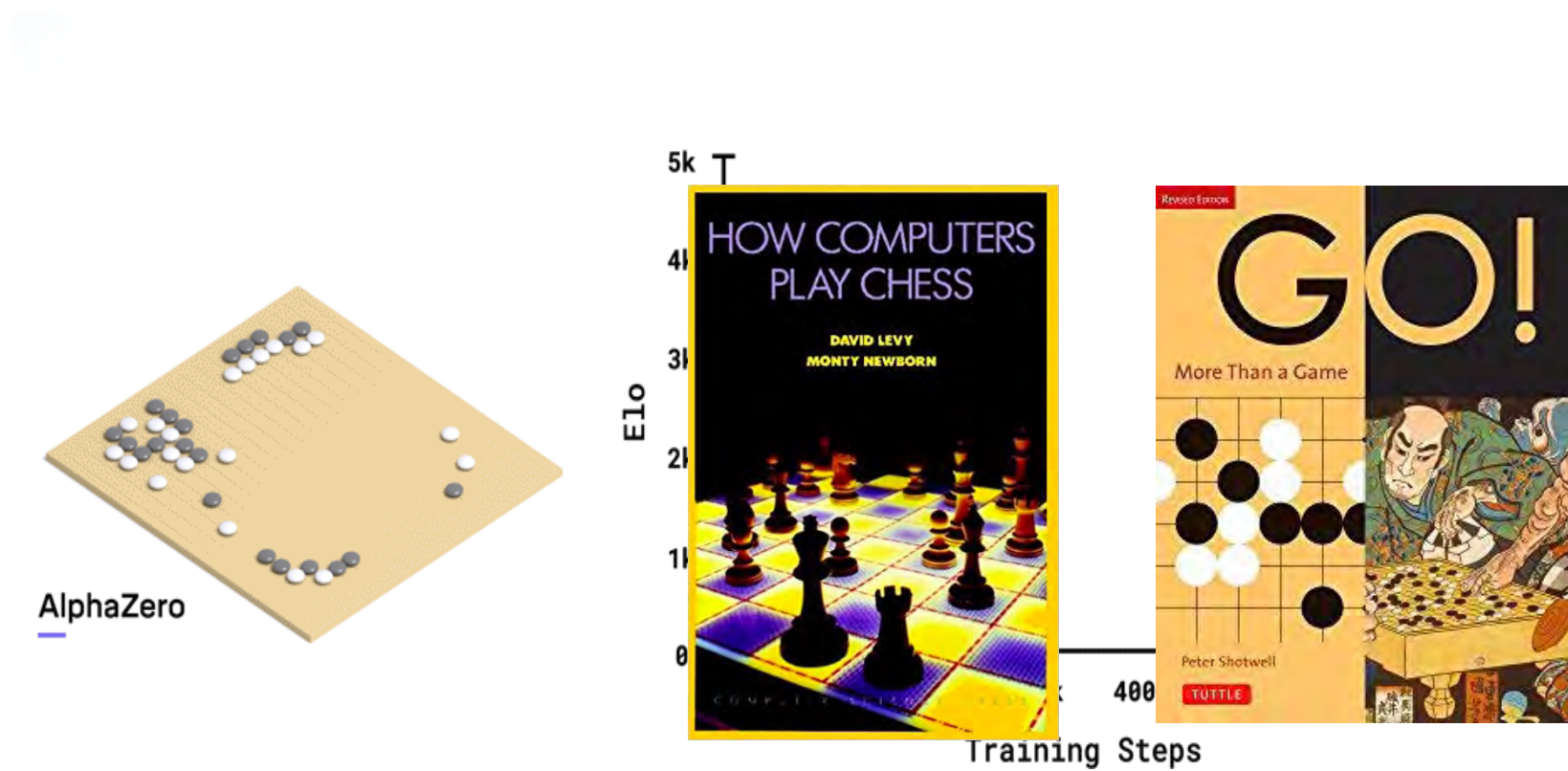
IT'S ALL ABOUT

What is AI?

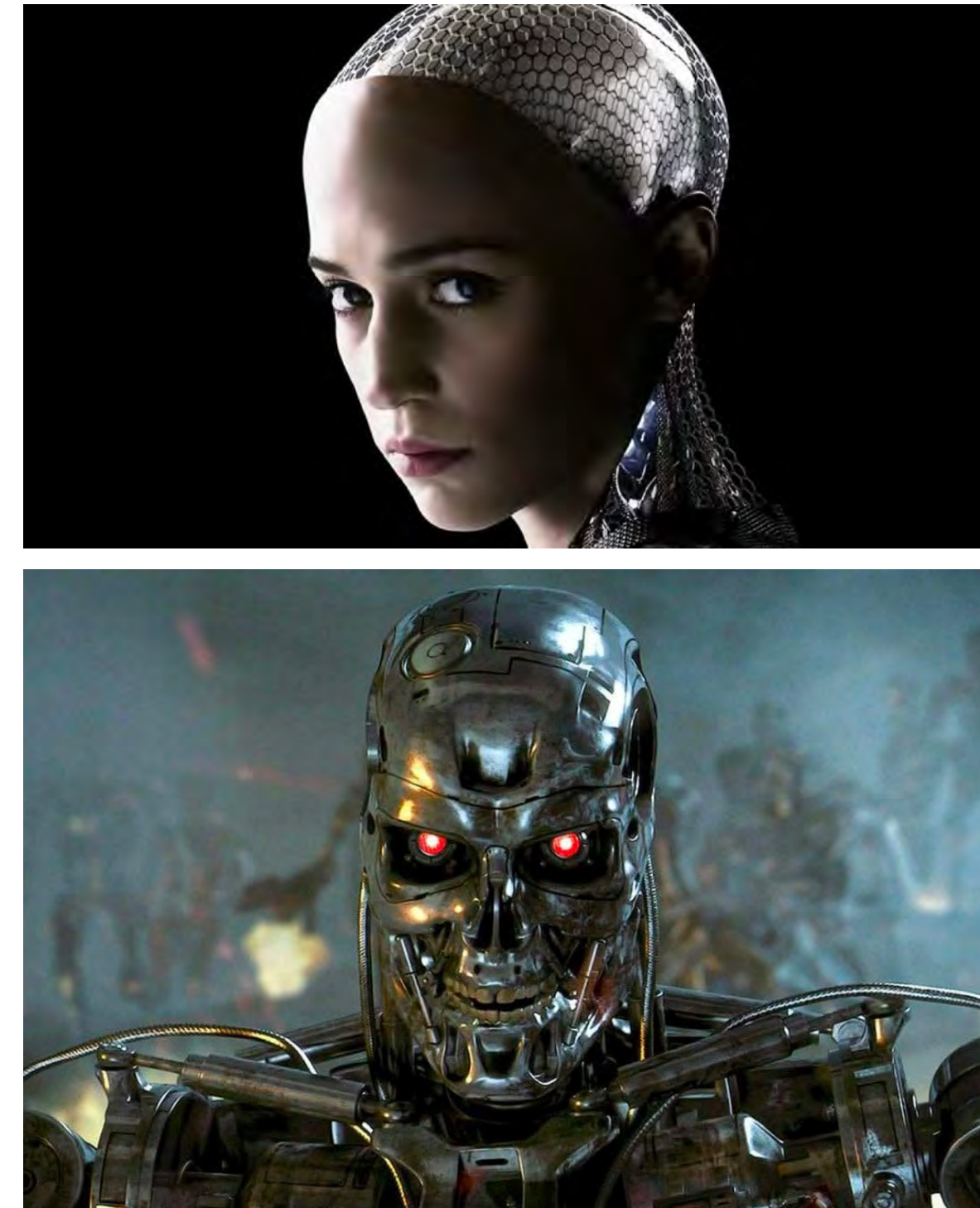
**THE SCIENCE
OF MAKING THINGS
SMART**

Narrow AI (ANI) vs General AI (AGI)

NARROW AI



GENERAL AI



What is Machine Learning?

**IT'S THE MATHEMATICS
BEING PUT INTO
COMPUTER SYSTEMS
TO MAKE THEM WORK
BY PRINCIPLES
INSTEAD OF RIGID RULES**

What is Machine Learning?

THESE PROGRAMS

- » are taught – literally!
- » use knowledge to adapt
- » improve over time
- » become able to handle new (kinds of) data

What is Deep Learning?

**DEEP LEARNING
IS ONE OF THE
POSSIBILITIES
TO DEVELOP A
MACHINE LEARNING
APPLICATION**

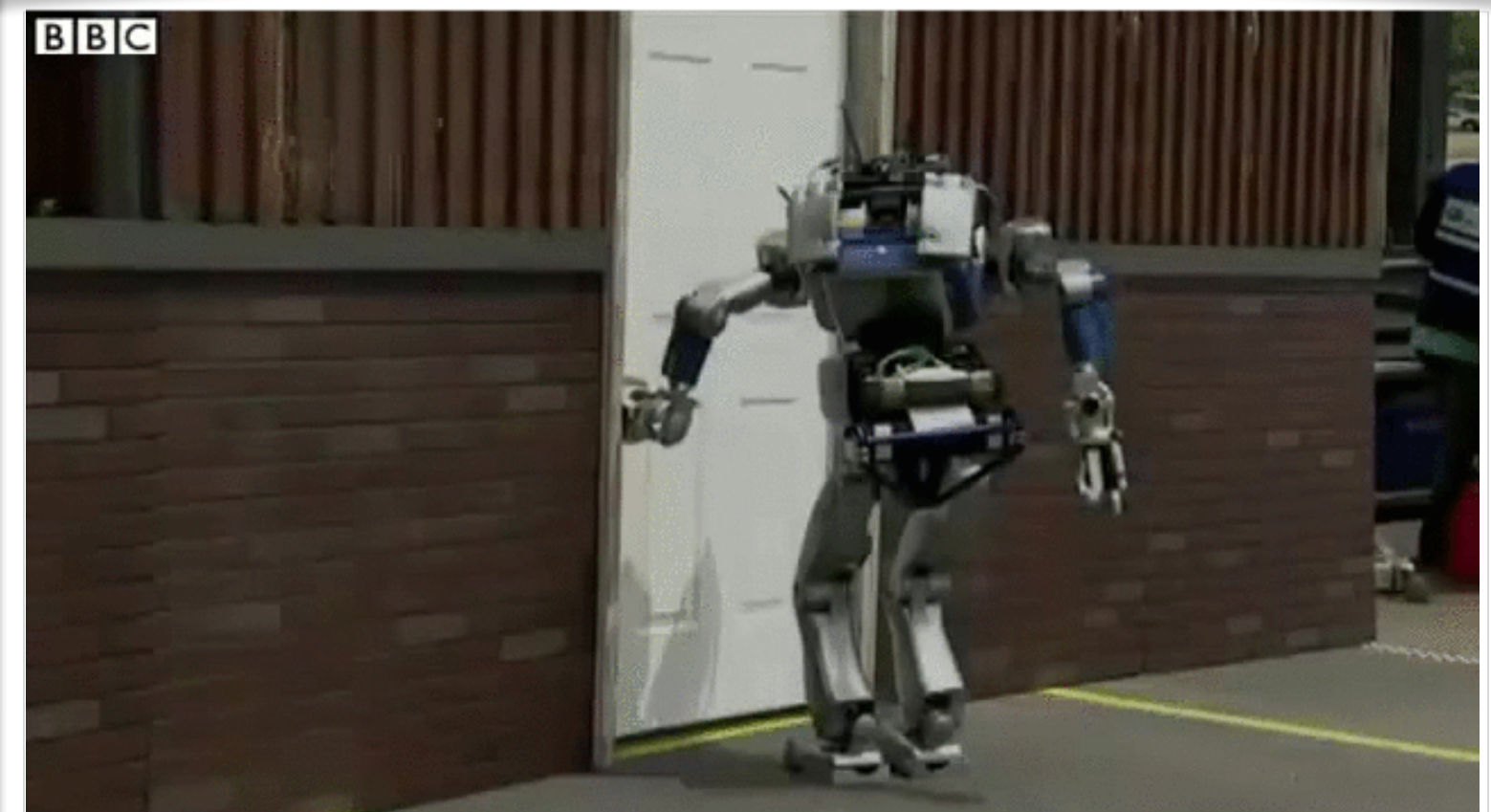
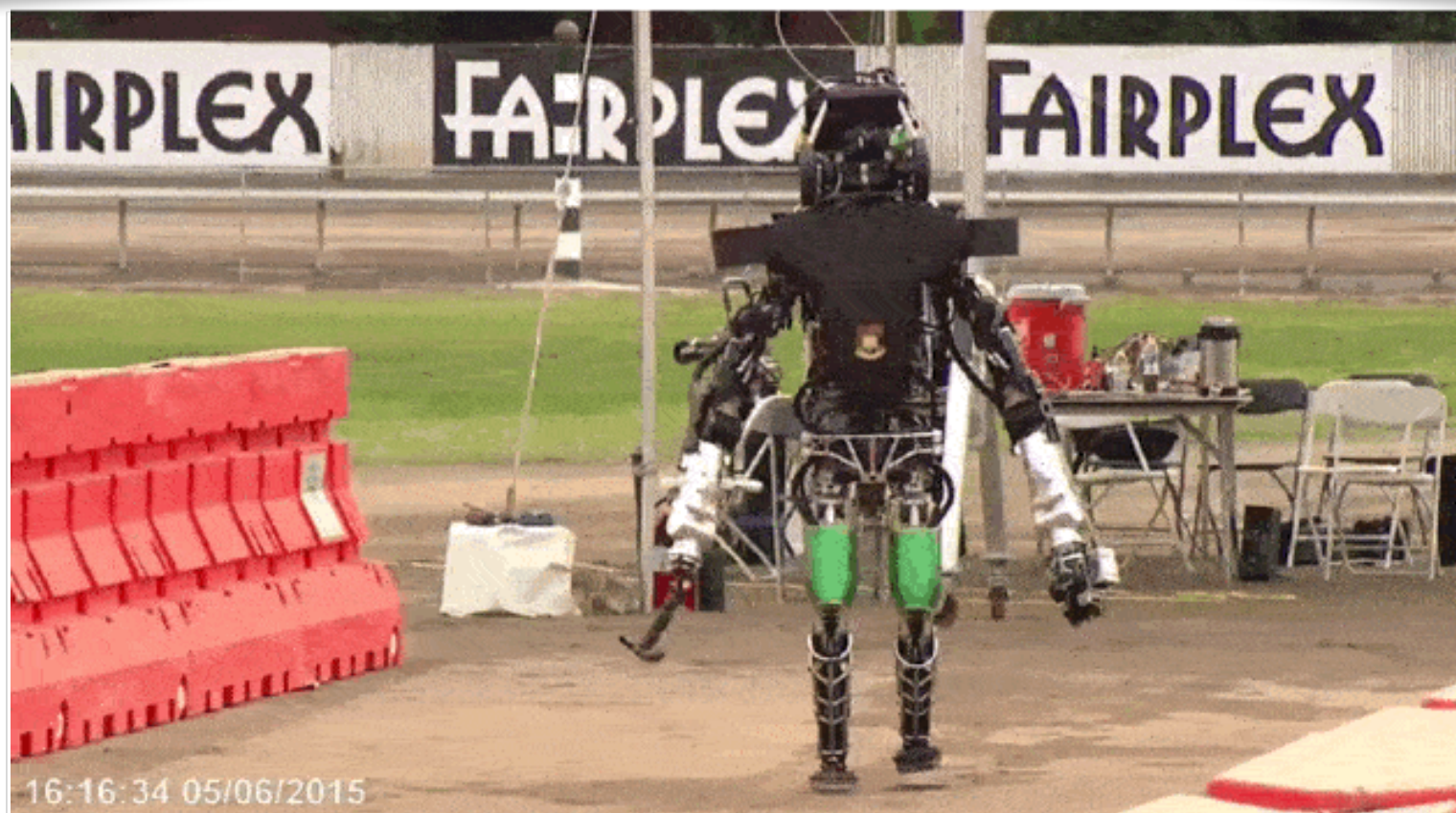
We're being fed with a caricaturistic view on AI

What we see on the news

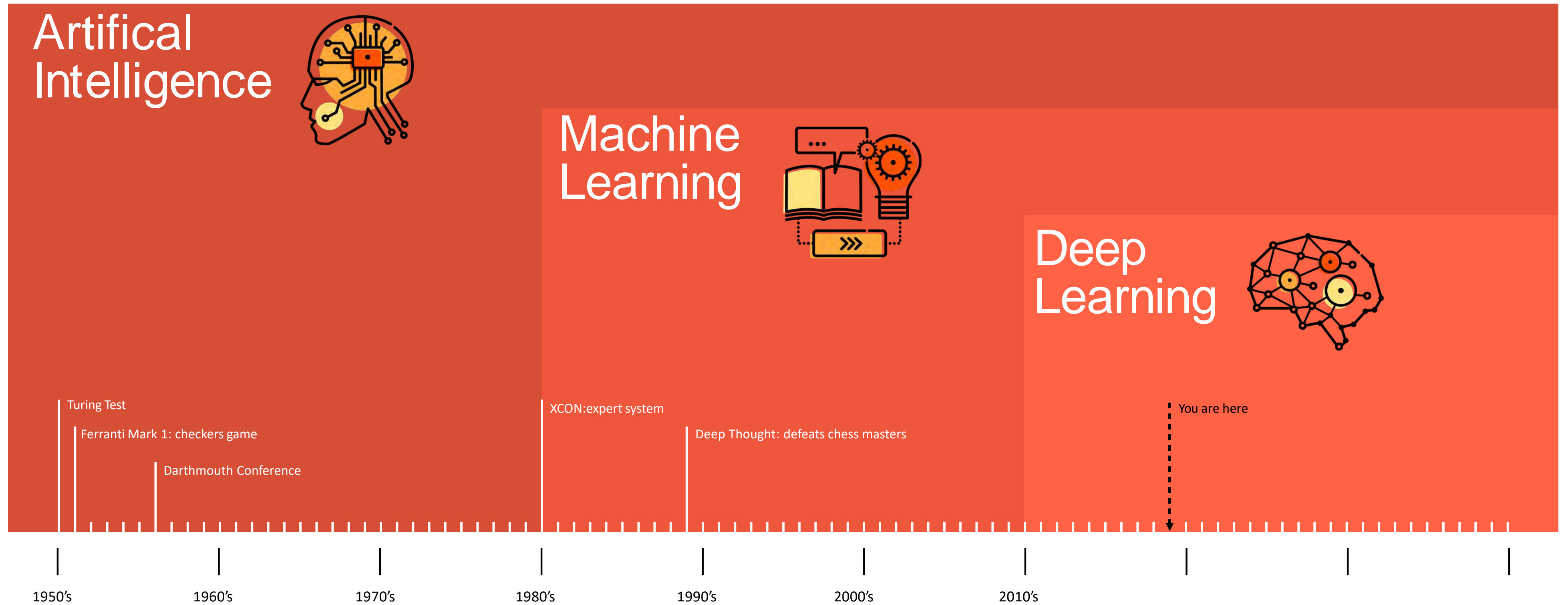


We're being fed with a caricaturistic view on AI

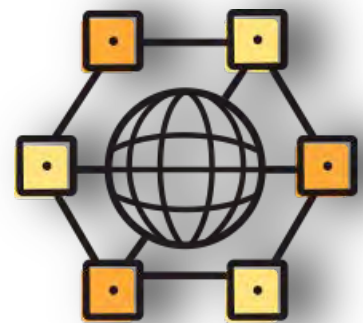
What happens in reality



The evolution of Artificial Intelligence

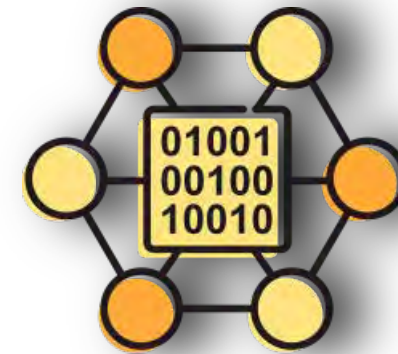


Why does it suddenly become achievable?



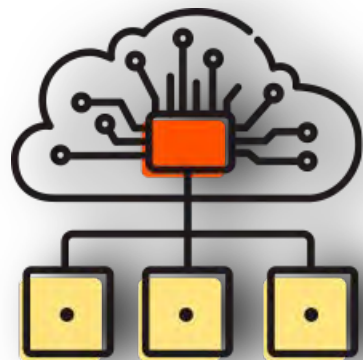
Interconnectivity

Internet of Everything



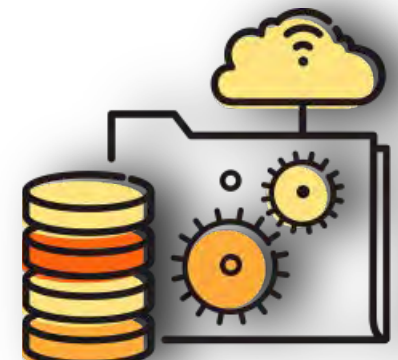
Data & Storage

Cheap and fast



Computing power

GPU / CPU / Cloud Based



Accessibility of ML

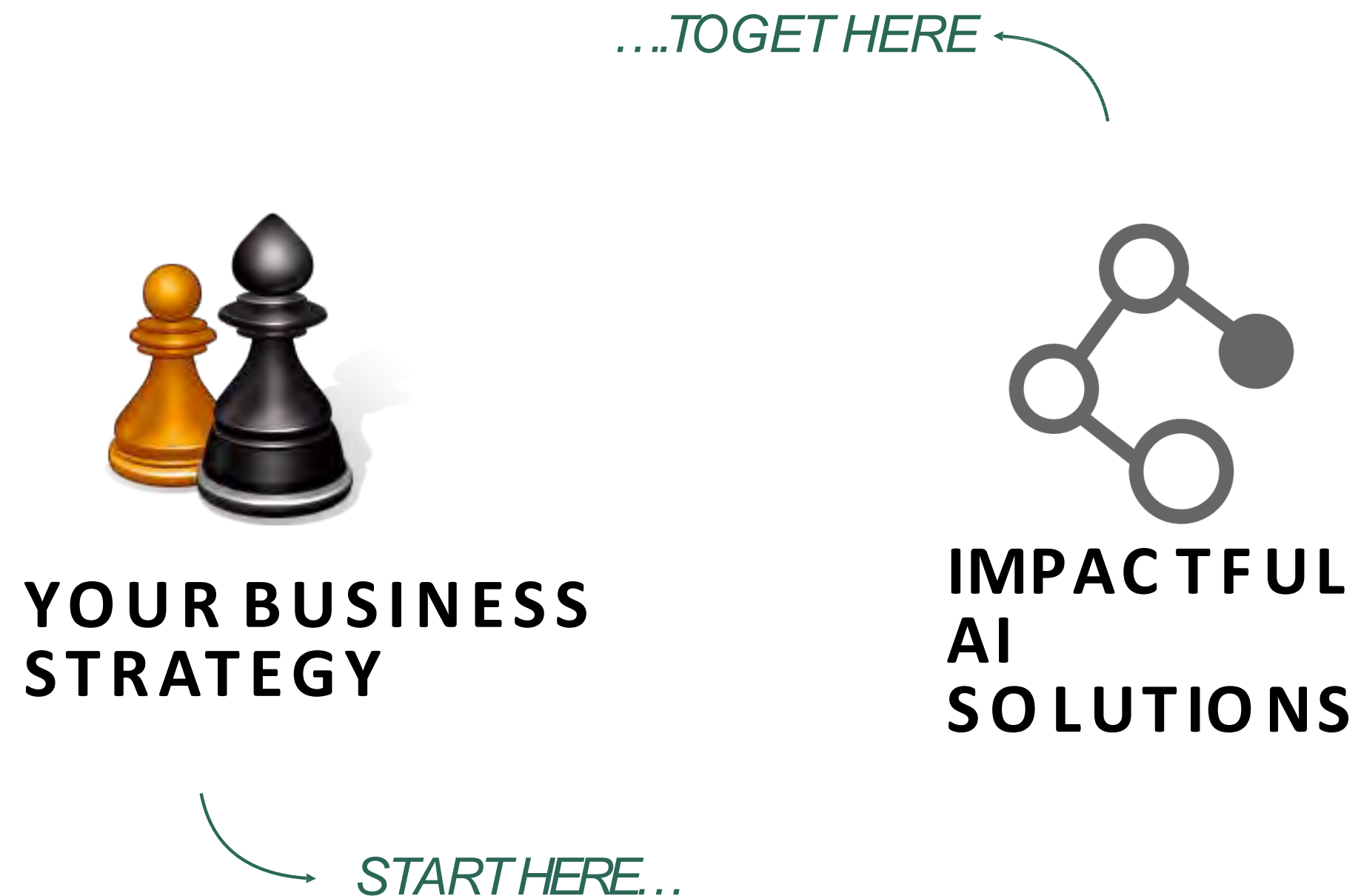
Knowledge and Software

HOW

YOU CAN GET
STARTED

Start from your business strategy – and keep the end in mind

“Always start at the end before you begin...” – R. Kiyosaki



FAKTION'S TAKE

**YOU'VE ALREADY
MAPPED OUT
YOUR DIRECTION
TO GO**

Never ever forget you've already decided where to go with your business, how to outperform competition, and what value proposition to bring to the customer... (if not, we can help out there as well!). Don't dismiss your strategy as not relevant when it comes to AI... Your strategy is the sole steady ground in this changing environment. Everything you do as a business leader should be measured against this strategy – So don't just blindly follow hypes & buzz, let your strategy guide you!

Faktion Strategy project plan



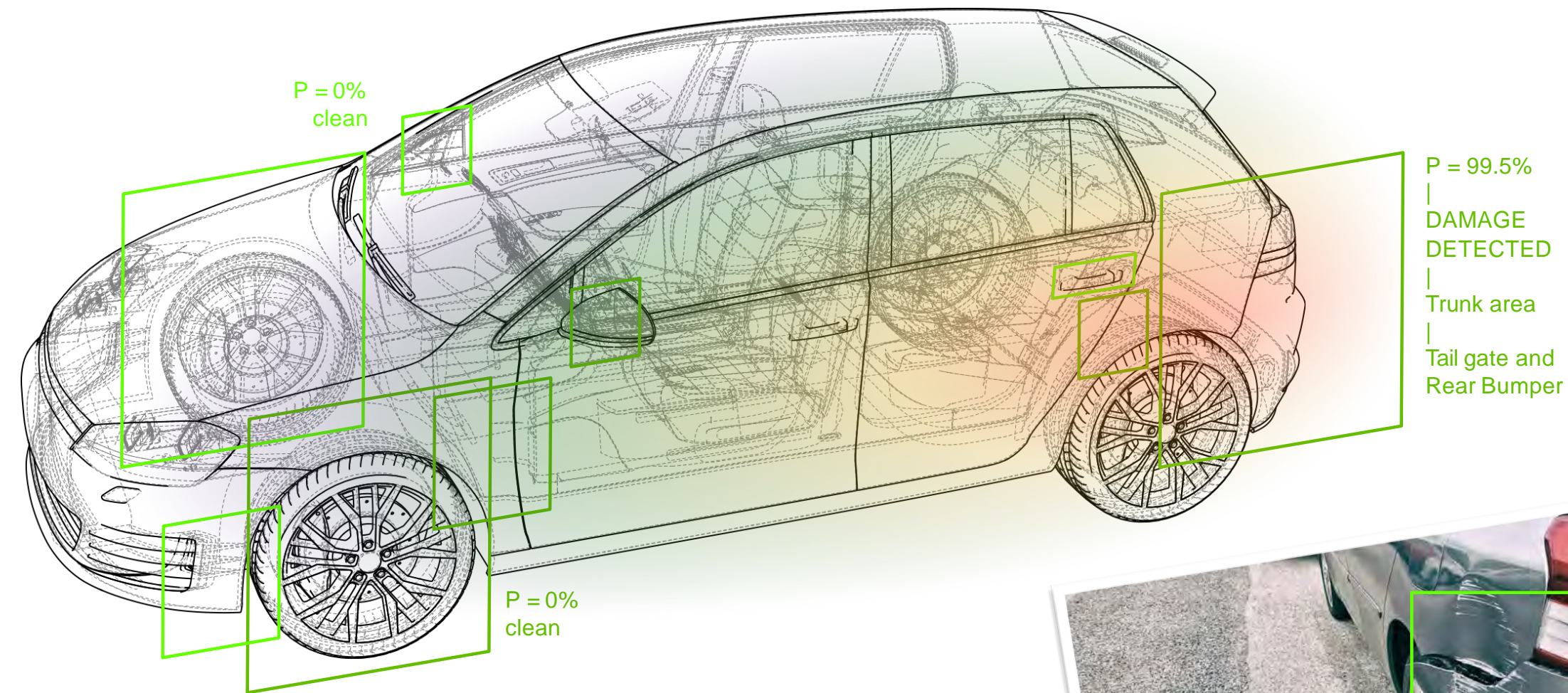
CASES

WHAT WE'VE BEEN
DOING LATELY

COMPUTER VISION

Car damageclassification

Using pictures to automate car damage assessments

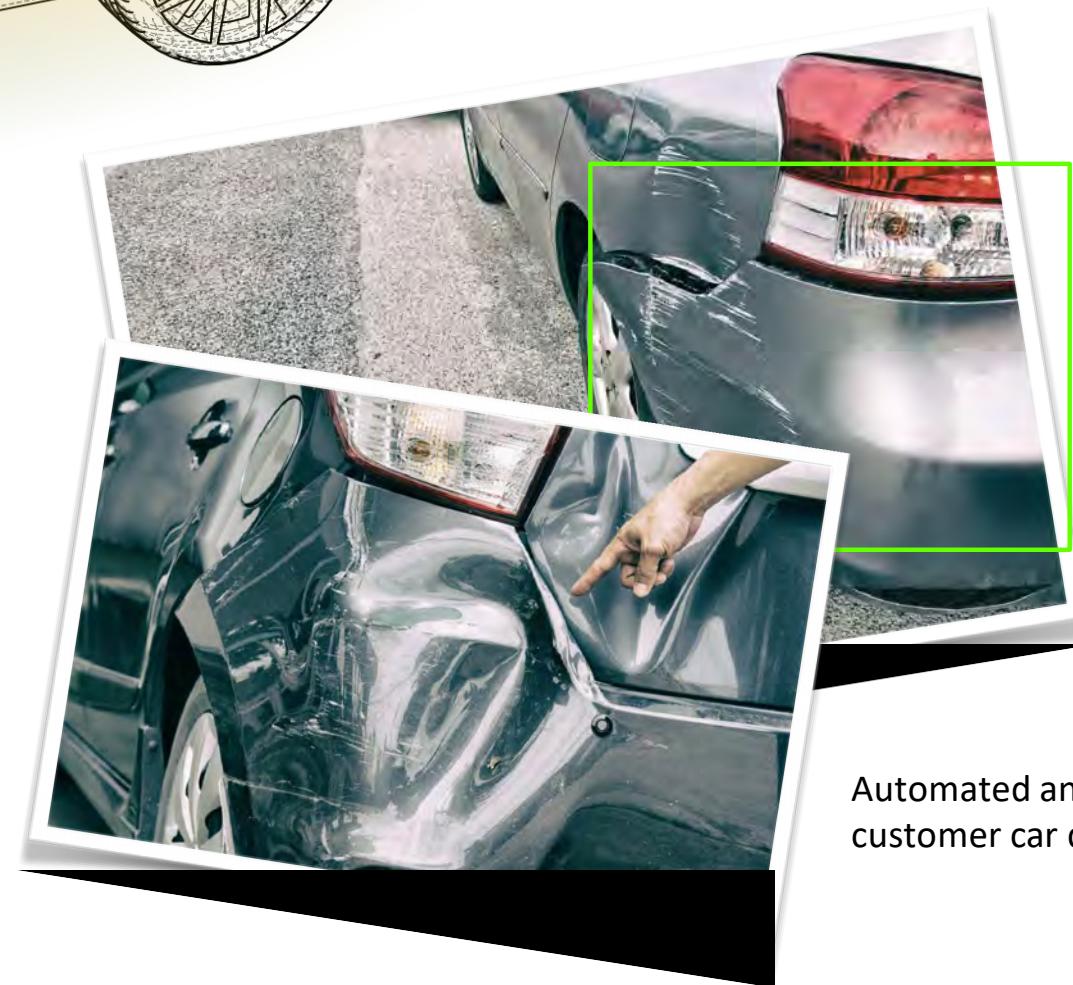


USEFUL CASES:

- » Maintenance automation
- » Cost calculation

POSSIBLE CLIENTS:

- » Insurance providers
- » Fleet owners



Automated analysis of customer car damage pictures



Real-time surveillance monitoring

Use live video feed to assess compliant behavior



USEFUL CASES:

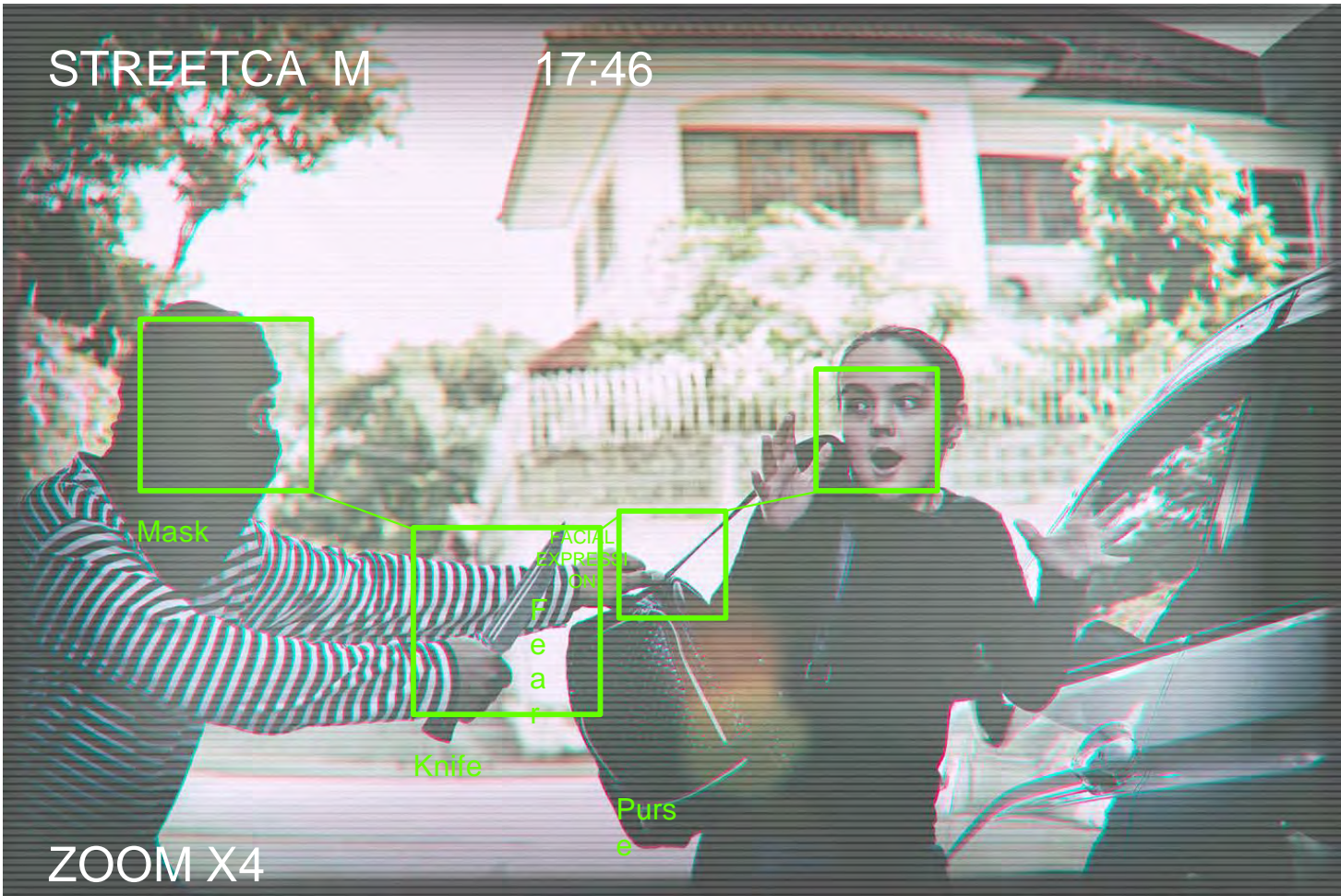
- » Monitoring safety regulations
- » Monitoring healthcare regulations

POSSIBLE CLIENTS:

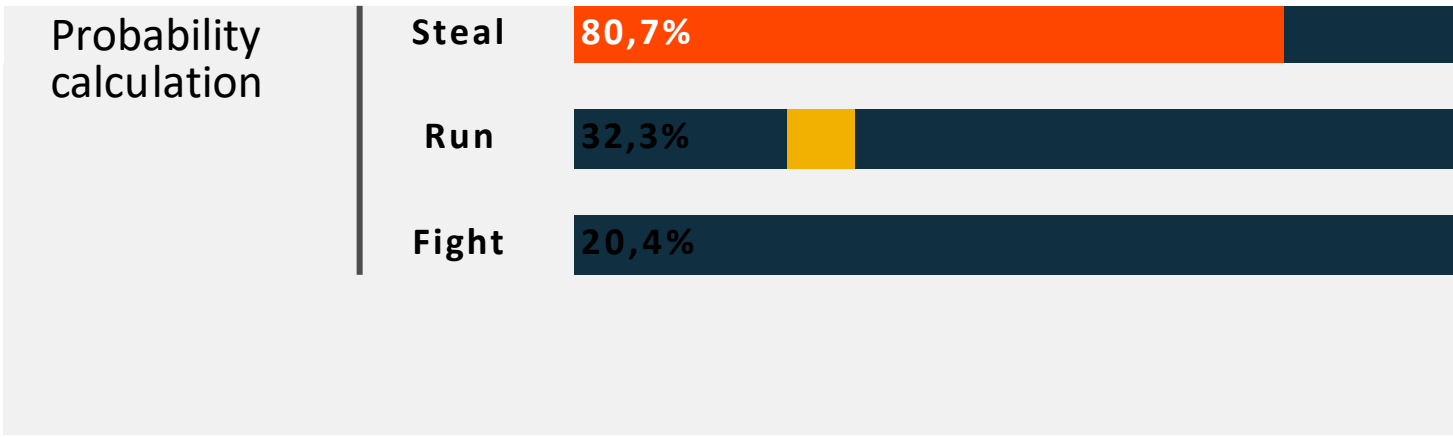
- » Heavy industry plants
- » Healthcare production
- » Military
- » Freight / Shipping

Real-time security monitoring

Use live video feed to assess dangerous or suspicious behavior



- Continuous scanning
- Object recognition
- Subject recognition
- Emotion detection
- Linking information
- Calculating probabilities
- Deriving context/situation
- Triggering alarm-level
- Sending information



USEFUL CASES:

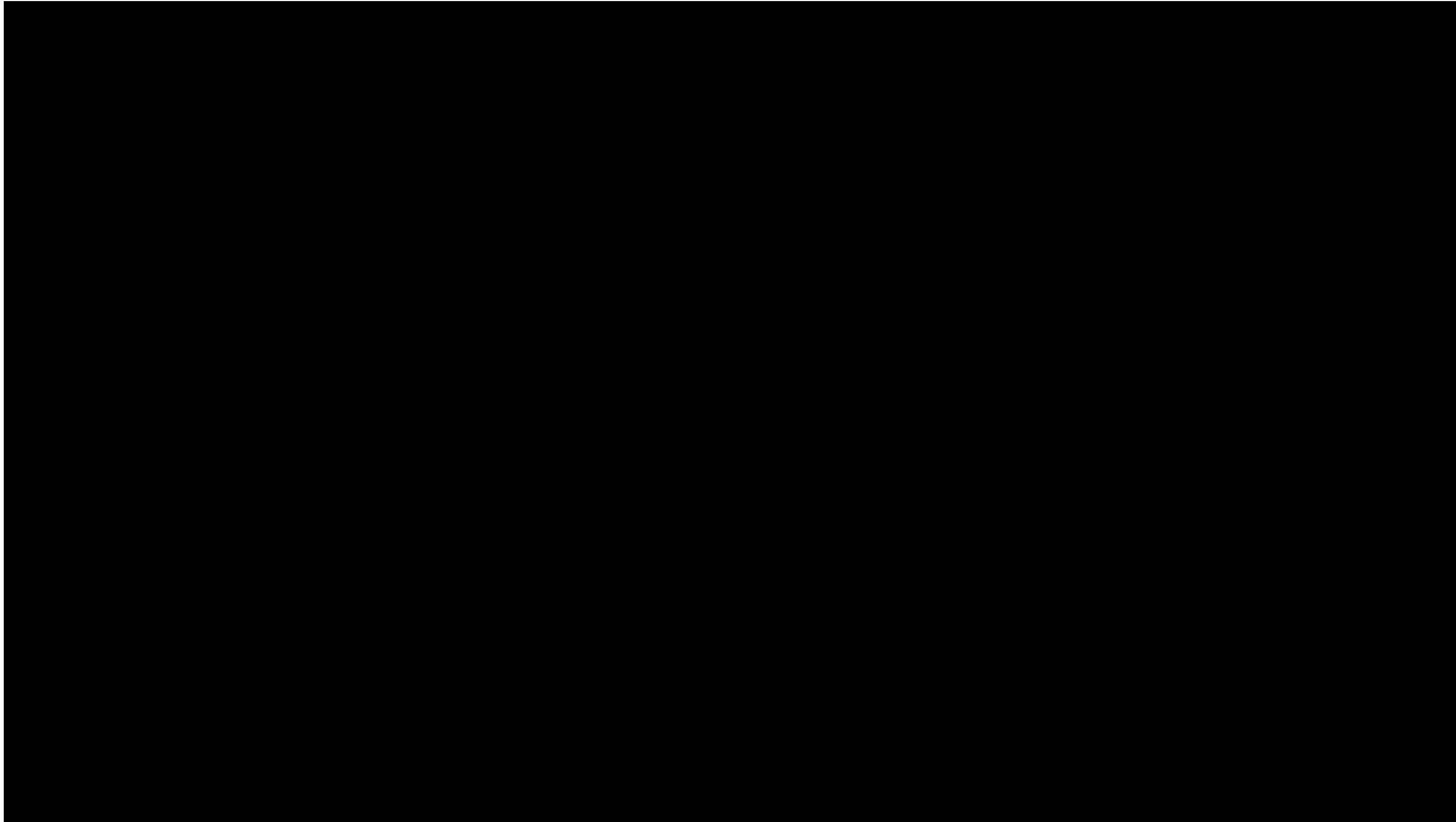
- » Publicspaces
- » Parkinglots
- » Big events
- » Risky environments

POSSIBLE CLIENTS:

- » Governments
- » Governmental institutions
- » Police and public services
- » Private security agencies
- » Event organisations



Real-time drowning monitoring



—
Continuous scanning
|
Subject recognition
Body parts detection
Body parts position and motion registration
|
Movement & (dis)appearance analysis
Calculating probability of drowning
|
Triggering alarm-level
|
Sending information
|

USEFUL CASES:

- » Swimming pools
- » Hotels/resorts
- » Coastguards
- » Themeparks

POSSIBLE CLIENTS:

- » Local governments
- » Real estate developers
- » Hotel/resort owners

Solar Panel Detection

Detecting the presence of solar panels based on satellite images

Satellite and airplane photos

Pattern detection of solar panels

Detection of panel absence

ROI calculation

Population profile analysis

Sales probability (roof space, orientation, ...)

Sales documentation preparation

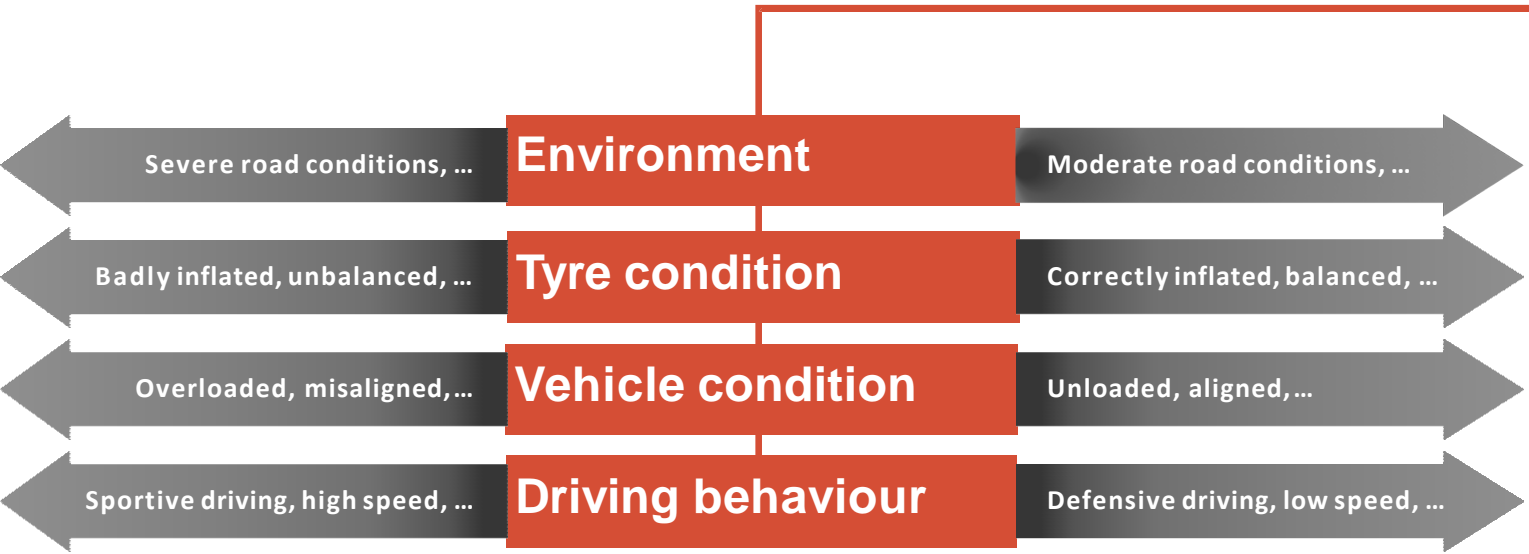


SENSOR DATA

Predictive Maintenance Platform for cars

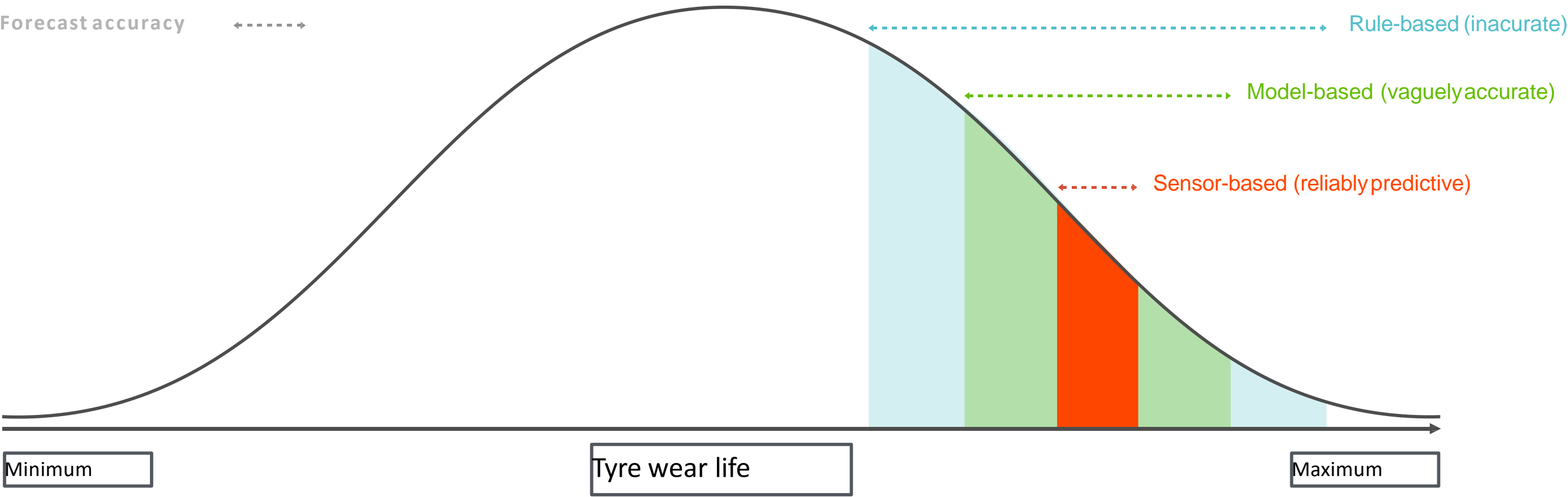
Revolutionizing the business model of a giant automotive company

Influences on tyre wear life



A dongle in the car gathers operation data to accurately measure all conditions and predict tyre lifetime with great reliance. A driver gets informed automatically when an appointment to renew tyres is at hand.

Forecast accuracy



Modelling coastline erosion

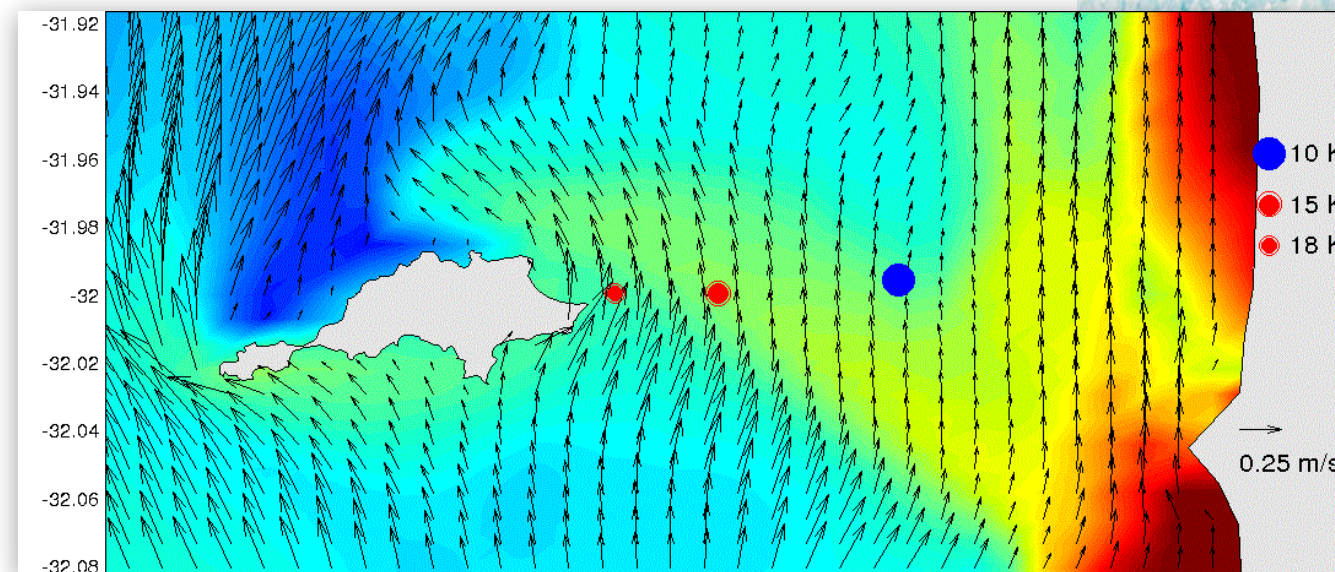
artificial intelligence for natural disaster prediction, based on surfer sensor data

Predictive analytics at street and neighborhood levels that enhance the accuracy and recency of existing models and forecasts, to allow decision-makers to get ahead of high frequency coastal disasters including flooding, beach loss, and sea level rise.

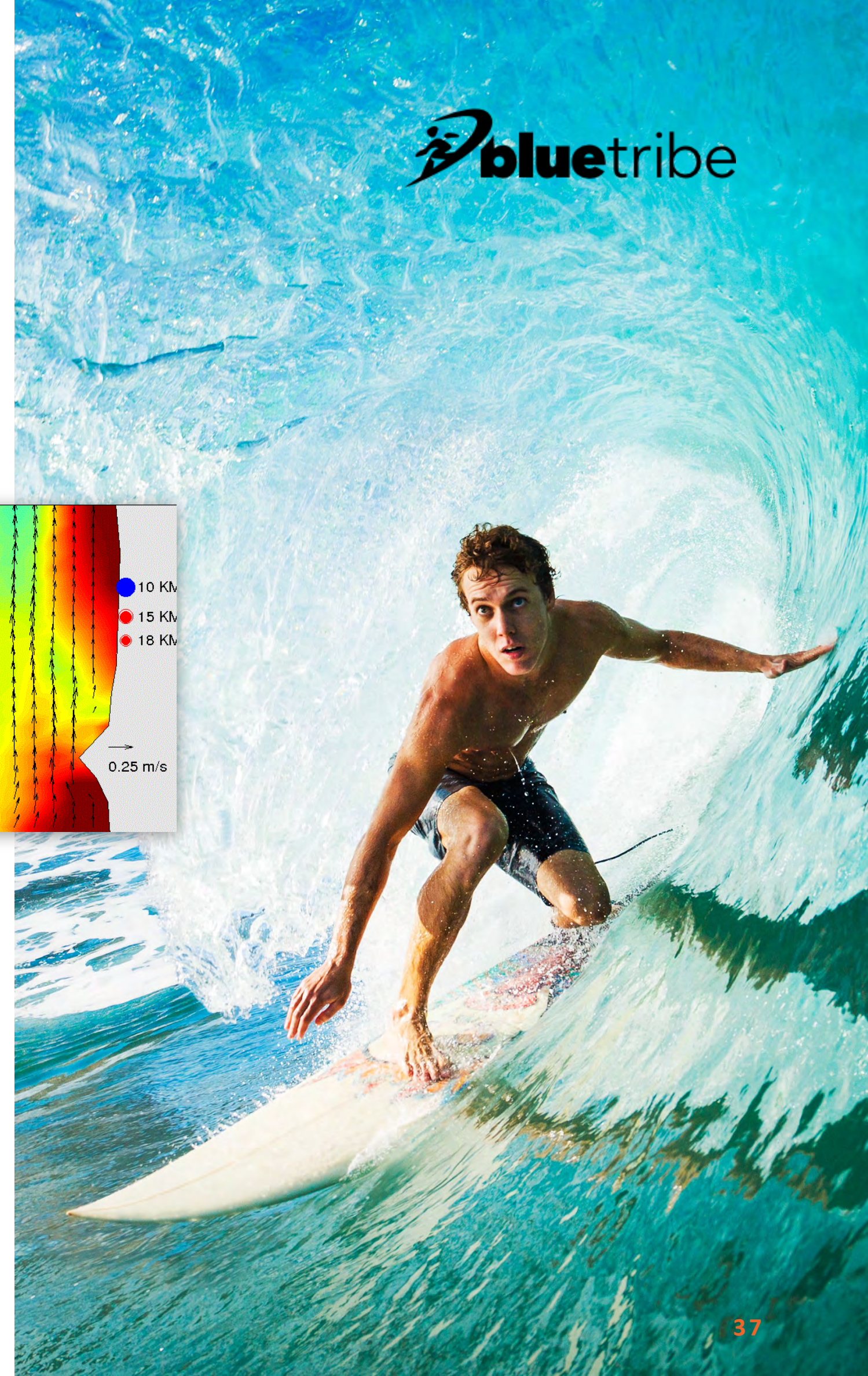
We did it for ecological reasons. Better predictions mean better care of our coastal regions and humans.

Oh, and surfing!

STRAVA™



bluetribe



CUSTOMER INTELLIGENCE

Sales AI

Help your account managers sell more

- » Cross-sell, up-sell recommendations

» Purchase anomaly detection

» Segmentation
- » Lifetime value prediction

» Churn prediction

» Customer Journey analysis

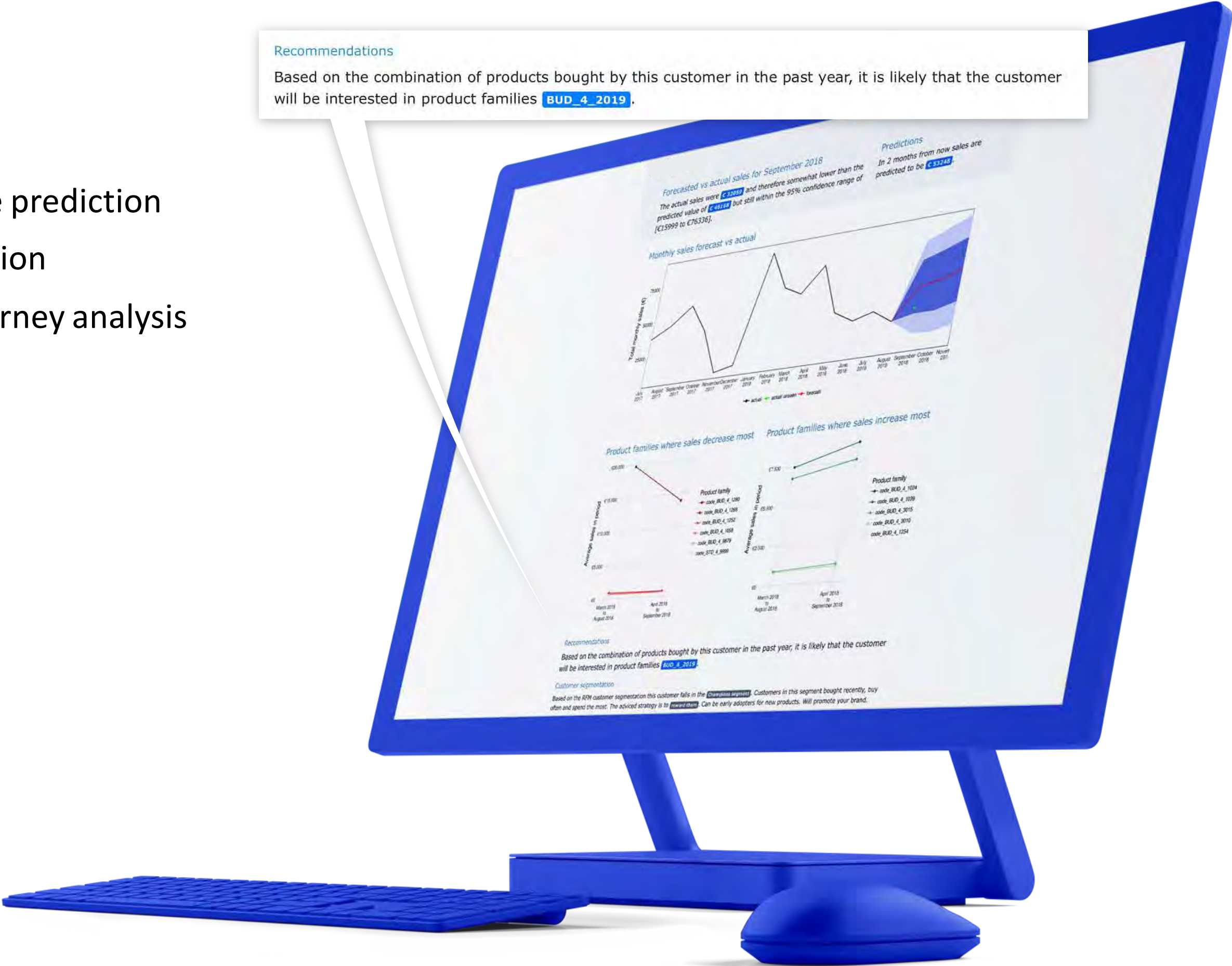
» ...

Client ABC - EUR 10.756 predicted potential

Last contact on Tue Oct 28th at 12:33

Product	Win probability	Estimated revenue	Feedback	
Extra great banking opportunity 1	99%	EUR 2.433	▲ Good lead	▼ Bad lead
Extra great banking opportunity 2	95.2%	EUR 2.433	▲ Good lead	▼ Bad lead
Extra great banking opportunity 3	87.1%	EUR 2.433	▲ Good lead	▼ Bad lead
Extra great banking opportunity 4	55%	EUR 433	▲ Good lead	▼ Bad lead
Stretch goal	53%	EUR 15.433	▲ Good lead	▼ Bad lead

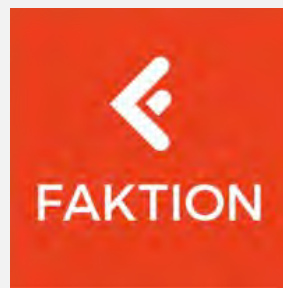
Each sales representative receives a personal report regarding the goals, sales expectations and recommendations for the clients he's responsible for.



NATURAL LANGUAGE

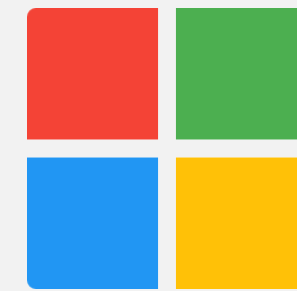
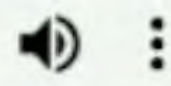
Reality - generic vs specialized speech models

Google speech stack vs. specialized Belgian firm in NLP / ASR with the purpose of transcribing spoken, Flemish sentences



Select File

0:00 / 0:21



het heel goed bekeken stop wordt
er tegenwoordig vrijdag gebruikt en
wel heel fijn eerst meer willen zijn
van de vergadering in vlaanderen
we starten in vijfenveertig weer nog
procent 88 fan half 2 0 0 0 nemen
af en werd het eten van 26% van
harte



het woord betonstop wordt
tegenwoordig vrijdag
gebruikt en waar we heen
zijn is van de vergadering in
Vlaanderen en we starten in
76 3 0 0 % 88 A5 2 0 0 9 half
verwachten 2016 20 %
verhard

Specialized firms perform at near human level understanding of the spoken language, with a somewhat Flemish accent.

While generic models perform well in controlled conversations, they start to degrade and fail fast when used in real-life scenarios, with real people talking, with real accents and intonations.

Extracting data in the lab

Optimizing the work of lab workers by automating the administrative processes

Our client noticed that a lot of technical data was missing. Laborants had to write the information down when they had finished the tests, which was an inconvenient procedure, prone to errors.

Thanks to Faktion’s speech-to-text technology and an easy to use interface, we managed to make the process more accurate while saving time as well.

Processing...

American English

FAKTION

Ingredient #	Premix?	Barcode	Weight (g)	pH	Comment	Action
1	a					<div></div>

Final pH

pH measurement

pH meter ID

pH meter ID

Balance ID

Balance ID

To start and stop processing press  button. To save results press  button. To delete a row in the table press  button.

To start a new row in the table simply say: **start ingredient 1** for instance. To switch and update a row in the table simply say: **update ingredient 1**.

To fill-in any cell in an active row simply say something like: **barcode 'C1234567'** or **weighed '10.23' grams** or **pH measurement '11.23'**. To fill-in input fields say: **pH meter ID is '12'** or **balance ID 'Z12345'** or **final measurement is '11.23'** or **final comment 'gobbledygook'**. The 'quoted' values will be imputed.

Faktion NLP

Setting the benchmark for Natural Language Processing

Transcript data is messy. NLP models capture and classify the meaning of the transcripts. These deep learning based AI models are used to tag, label and extract information and entities from unstructured text.

FAKTION NLU

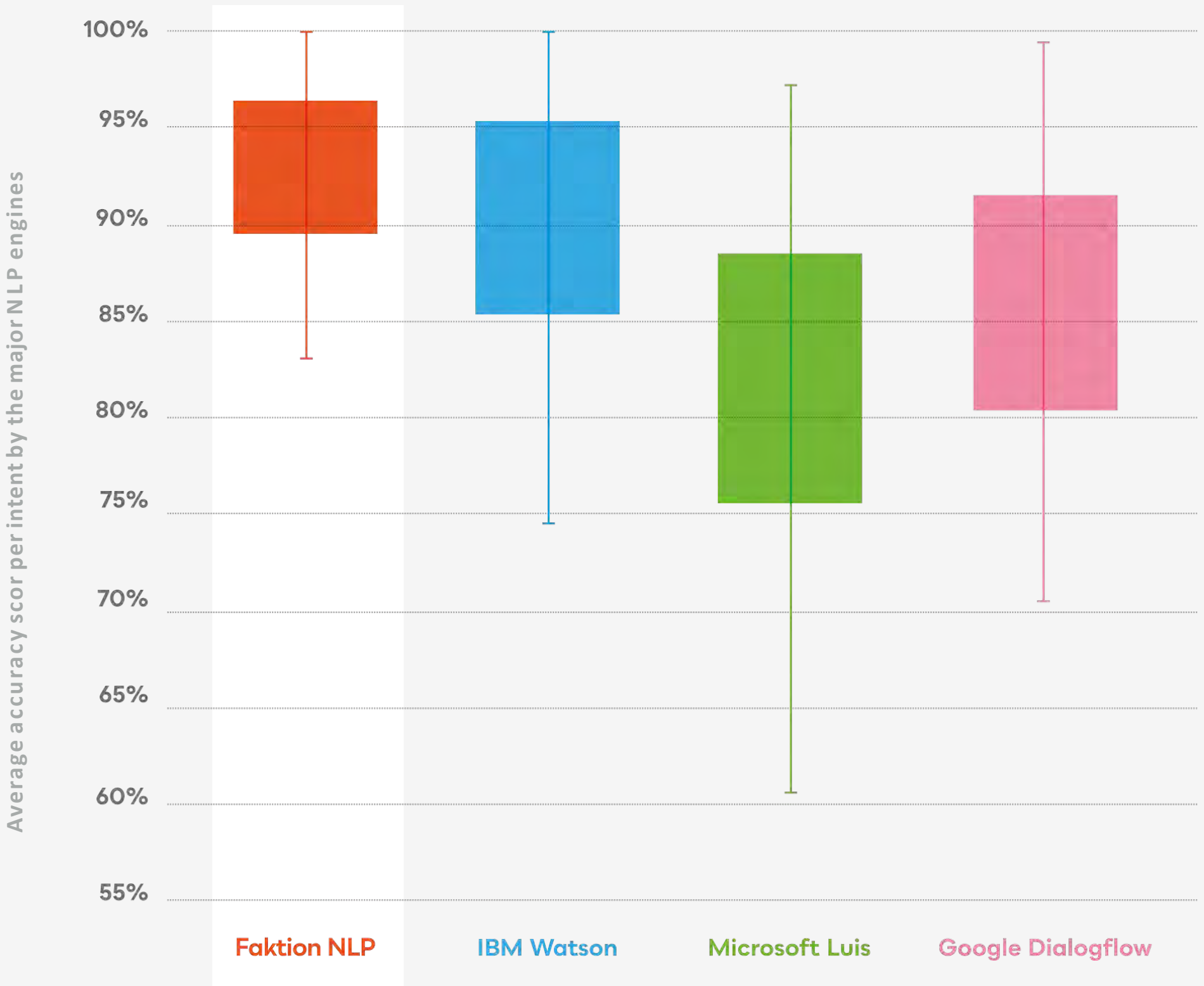
Run on premise or in a private cloud. There is no need to send your data to external parties in the US. Call center data is sensitive, so inherent GDPR compliance is necessary.

Best-in-class accuracy for Flemish, French, English and German. Other additional languages on request.

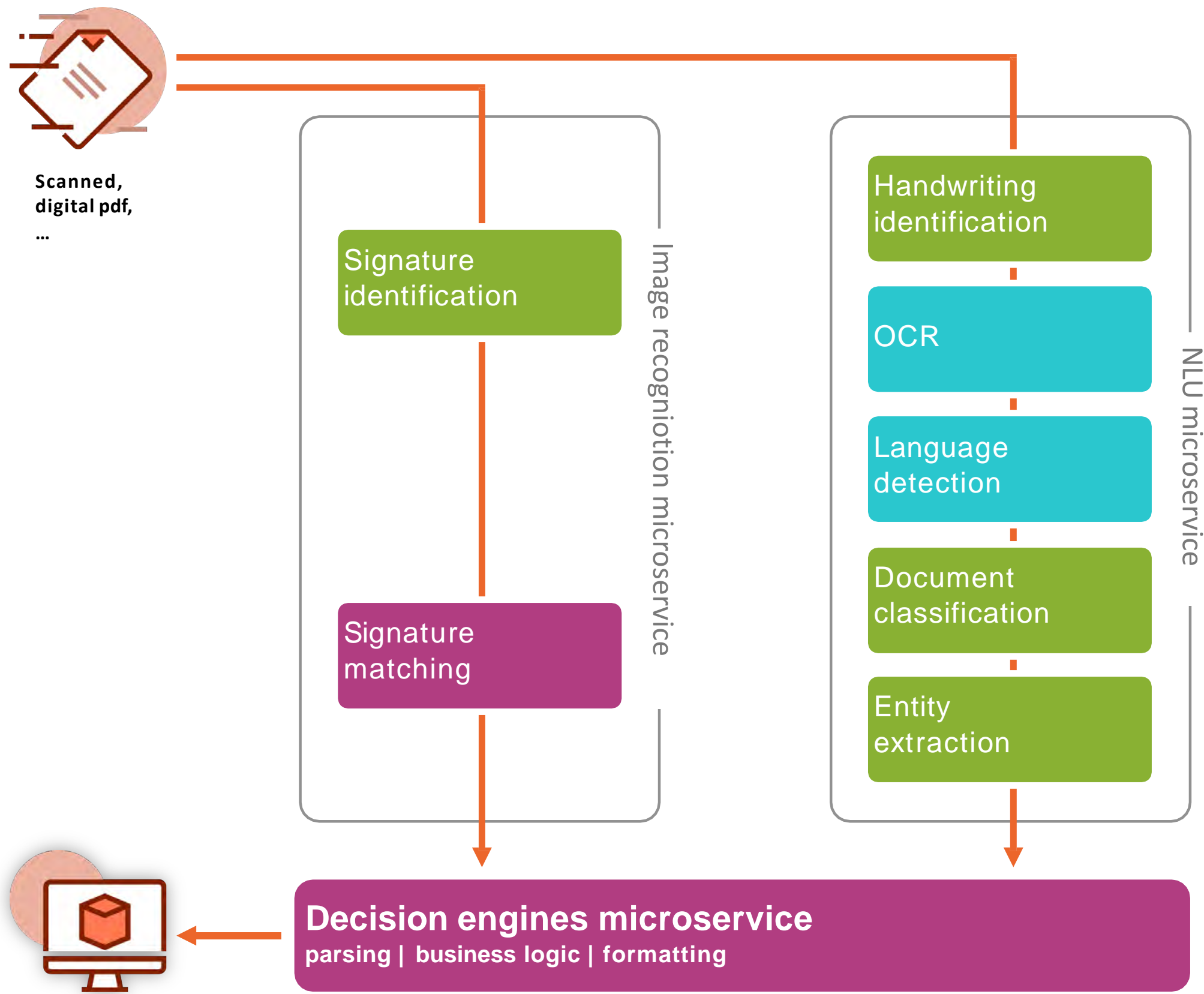
Accuracy is all that matters.

A team of 9 developers – of which 6 PhD’s in a relevant field – constantly improve the NLP.

Faktion conducts continuous research into newer and better techniques in NLP and in this way implements proven innovations in the framework.



Automated document & e-mail processing



OCR

Entity extraction

Field: Statute
Field value: arbeider
Approved
Automatically extracted on 9/9/2018 at 11:23

Field: Occupation
Field value: Heftruckchauffeur
Save changes
Corrected by [user] on 9/9/2018 at 11:23

100310910000931

acerta

LOONBON

aard : gevone berekening
periode : 01/04/2018 - 30/04/2018
opgesteld op : 03/05/2018
munteenheid : EUR

Ond.nr. 0486362538 0318912 0000730 001

BASISGEGEVEN VAN DE BEREKENINGEN

geboortedatum	: 13/02/1964	paritair comitè	: 116050
datum indienst	: 01/08/1999	statuut	: arbeid(st)ler
in organisatie	: 20/08/1994	loonschaal	: 40,00/ 40,00
datum uitdienst	:	functie, enz.	: HEFTRUCKCHAUFFEUR
einde vergoeding	:	teverksstelling	: 40,00/ 40,00
voornummer rsm	: 087	werkplaats	: TIELT
BV-schaal	: echte(n)o(t)e met beroepsinkosten		
ten laste	: parte. kind. and. werks. berekeningsfrequentie : per maand		
valide	/-65+ : neen 1 0 /0 ja	aantal dagen/week	: 5.00
mindervalide/-65+	: neen 0 0 /0 neen		

PRESTATIES EN BEDRAGEN

dagen	eenh	basis	%	bedrag	code	omschrijving
	15,00	2,8600		54,34	25	ander vervoer dan openb./georg.
		15,5540			100	gewone prestaties
9,00	72,00	15,5540		1119,89	102	zorgenploeg
10,00	80,00	15,5540		1244,32	103	namiddagploeg
		15,2490			116	speciale toeslag
	72,00	1,0223		73,61	126	toeslag voorsiddagploeg
	96,00	1,0223		98,14	127	toeslag namiddagploeg
1,00	8,00	15,5540		124,43	220	vettelijke feestdag
1,00	8,00	15,5540		124,43	232	arbeidsduurverm. betaald

Application forms - Waiting on review

Search

Verification

Customer 0123456 - payslip application.pdf
Uploaded on 9/9/2018 at 15:32
Fields found 26/32
Confidence 93%
Open >

Customer 0123456 - payslip application.pdf
Uploaded on 9/9/2018 at 15:32
Fields found 32/32
Confidence 98%
Open >

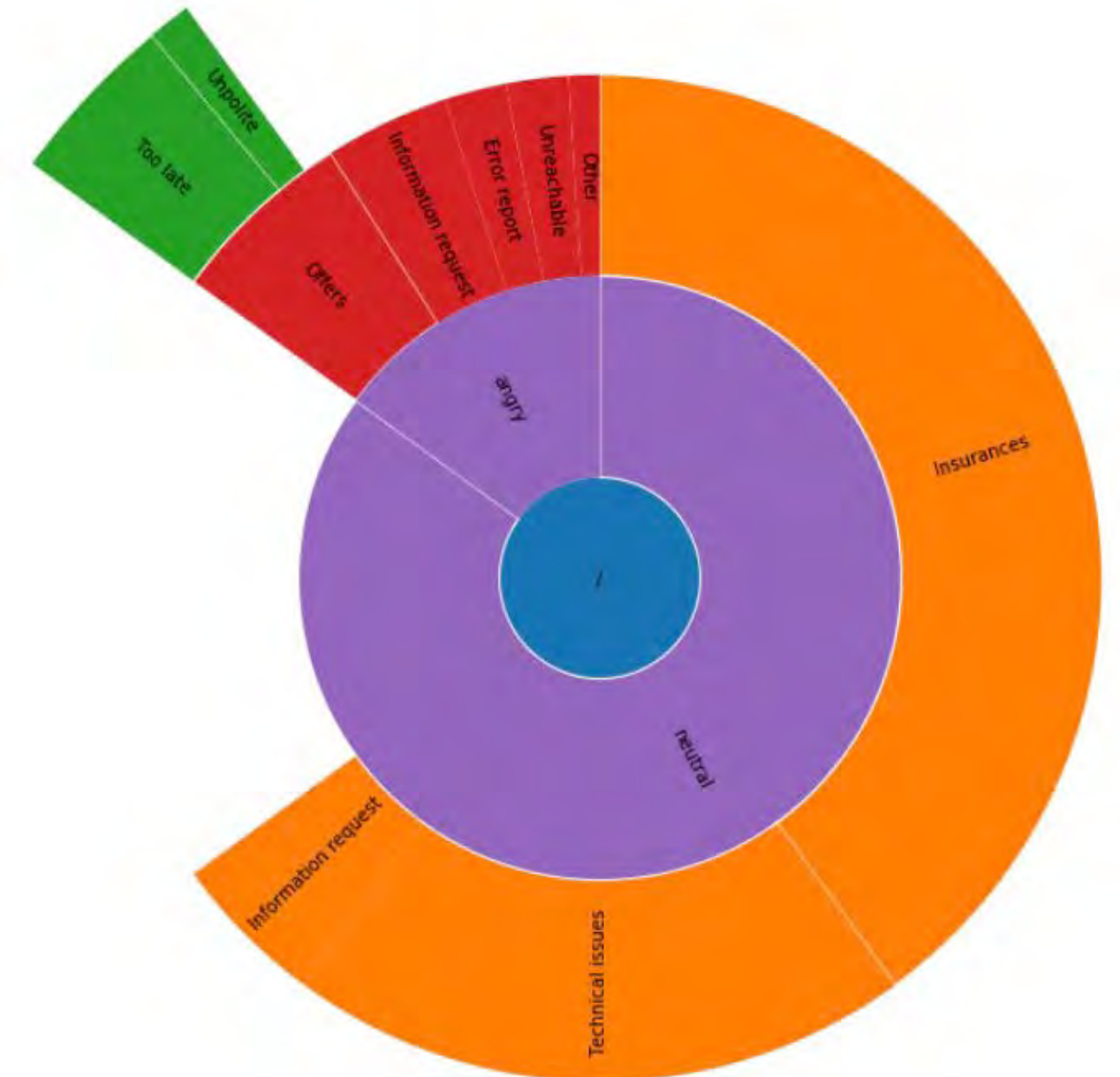
Email processing

Advanced analytics and automation

Automatically analyzing emails in order to get more insight into what lives among your customers. The gained insights will allow the company to optimize several processes and **pro-actively address detected problems** before they become unmanageable.

By making use of the **Faktion NLU engine**, each email receives one or several **labels** (eg. product, stage in customer journey, sentiment etc.) and relevant **entities** will be extracted (eg. Product name, polis nr°, ...)

Future extensions: Prioritising, Automatic & Intelligent Reply, Routing and Distribution.



A Faktion company

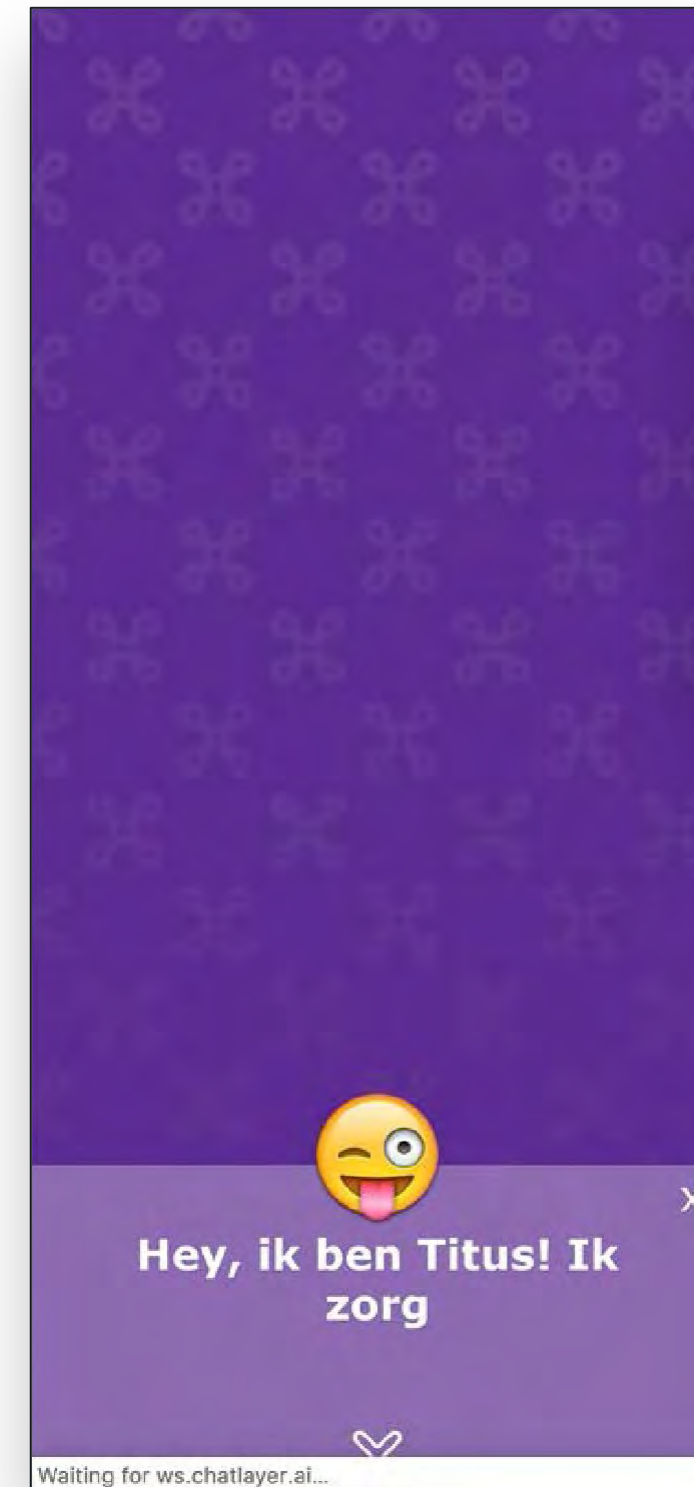


Chatlayer.ai

Automating customer conversations for enterprises

Salesbot solution “Titus”

Chatlayer has been built on **experience**, serving some of the largest enterprises in their conversational channel rollout.



up to

257%

increase of product
page visits after
contact with chatbot

visitors spent

6'50"

longer on the website
and got more
information

THIS IS ONLY THE TIP OF
THE ICEBERG.

ARE YOU GETTING
MORE
CURIOUS ?

Contact us

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FAKTION