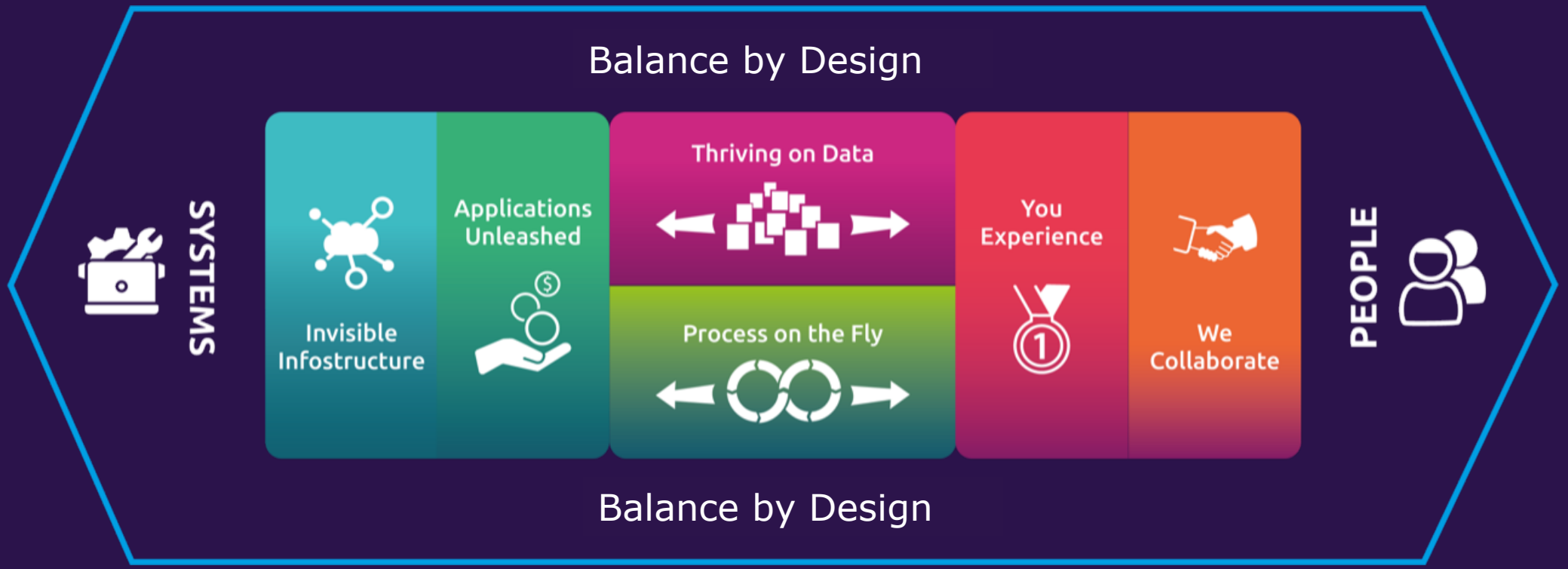
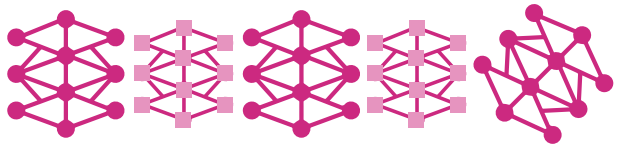
TRENDS THAT (MIGHT) MATTER IN 2021

Ron Tolido
CTO, Master Architect
Capgemini Insights & Data


Balance by Design
SYSTEMS
Invisible Infostructure
Applications Unleashed
Thriving on Data
Process on the Fly
You Experience
We Collaborate
PEOPLE
Balance by Design

How Deep is **Your Math**



Padmashree Shagrithaya
Expert in Residence

Challenge everything you've tried so far with analytics and algorithms, AI brings alternative, awesome ways to solve problems

Much of the current love for AI arguably comes from deep learning on neural networks. These are essentially brute force, pattern recognition machines that – if provided with enough training data – can go where more traditional data science (often based on statistics and mathematics) stops. Deep learning can be combined with other technology-enabled approaches, such as reinforcement learning, in order to provide even more raw, unmatched problem-solving power. Its simplicity is appealing, as it functions as a black box that simply needs lots of training data to become accurate. But as we live in a world of tools, it is now more than ever a matter of finding the right balance between man and machine powers.

What

- Many of the current breakthroughs in AI are due to deep learning machine learning models on neural networks; a way of detecting and classifying features through multiple layers in raw input.
- Provided there is abundant training data as input, deep learning neural networks can recognize patterns much more effectively than traditional (typically statistics and algorithm-based) data science approaches, increasingly more effectively than humans.
- Advances in the ability to collect, store and access large amounts of training, together with the emergence of powerful graphical processing units (GPUs) and other hardware accelerators have been instrumental to the current success.
- Deep learning neural networks prove to be useful in cognitive areas such as image, audio and speech recognition, natural language understanding, robotics, and in many complex analytical areas where traditional approaches are not sufficient, including drug discovery, customer behavior analysis, bioinformatics, medical applications, fraud and risk detection, predictive maintenance and notably Cyber Security and IT operations.
- Reinforcement learning uses an action/reward approach to learn from actual interaction (often in a simulated environment with synthetic data) to find optimized strategies and next steps. Combined with deep learning, it creates even more powerful AI applications in areas such as robotics, scheduling and gaming.

Use

- The German retailer, Otto uses an unconventional deep learning algorithm (originally developed by CERN for particle-physics experiments) to predict what customers will order. Finding hidden patterns across 3 billion transactions, it considers over 200 variables reducing product returns by 2 million per year.
- Using data features, including time stamps on transactions, American Express found deep learning - such as long short-term memory and temporal convolutional networks - can enhance fraud detection results.
- UCLA researchers have developed a deep learning, GPU-powered device that can detect cancer cells in a few milliseconds, hundreds of times faster than previous methods.
- Using AWS Rekognition, an AI system was built for retailers to analyze real-time footage of foot fall within a store – to improve customer engagement, thereby increasing sales.
- AWS's DeepRacer uses reinforcement learning on simulated, 3D virtual tracks to train models for fully autonomous 1:18 scale racecars; they can then compete on a real-life track without having been there before.
- Google's AlphaGo Zero made the South Korean Go world champion Lee Se-dol retire from professional playing, after he was conclusively beaten by the system. Considered otherworldly complex, the game Go was believed to be beyond the reach of even the most sophisticated analytical systems, with an almost infinite number of configurations.

Impact

- Solving problems that were deemed impossible to solve – or insufficiently successful – with more classic data science approaches.
- Creating powerful, complex autonomous systems, even with an occasional lack of sufficient volumes of training data.
- Building next generation predictive and prescriptive analytics going beyond human (or statistics-based) approaches in their capability can detect patterns in seemingly unmanageable volumes of unrelated data.

Tech

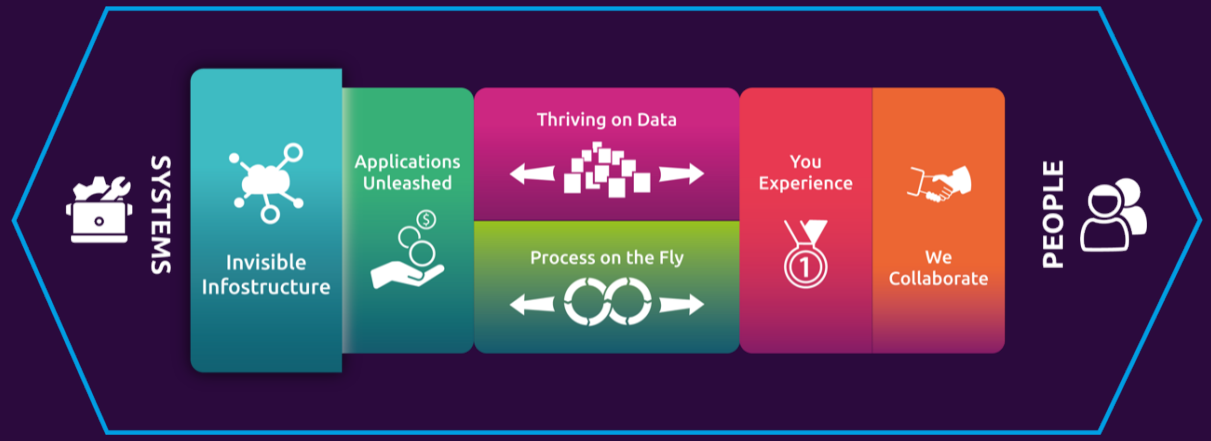
- Deep learning / neural networks:
  TensorFlow, Microsoft Cognitive Toolkit, Theano, MXNet, Keras, Chainer, PyTorch, Gluon, Horovod, AWS Deep Learning, Deepomatic computer vision
- Reinforcement learning:
  AWS DeepRacer, Facebook Horizon, Gym on OpenAI, Microsoft Project Malmo
- AI infrastructure accelerators:
  NVIDIA deep learning, AWS Deep Learning AMIs, Google Cloud TPU, Intel AI and Neural Compute Stick, Apple Neural Engine


LE ROI CLOUD
MOVEMENT
WHAT'S YOUR STORY?
DATA APART
ORCHESTRATE FOR SIMPLE
API ECONOMY
SILO BUSTERS
HAPPY TOGETHER
WE COLLABORATE
DATA IS Bigger
THE APPLIED INNOVATION APPROACH
YOU EXPERIENCE
REALITY BYTES
THERE'S A PLATFORM FOR THAT
APPLICATIONS UNLEASHED
HACK MY BUSINESS MODEL
PROCESS ON THE FLY
INVISIBLE INFOSTRUCTURE
KICK START MY APP


TECHNO VISION
Change Making
2021
BE LIKE WATER
Capgemini


"EMPTY YOUR MIND, BE FORMLESS, SHAPELESS - LIKE WATER.
NOW YOU PUT WATER INTO A CUP, IT BECOMES THE CUP,
YOU PUT WATER INTO A BOTTLE, IT BECOMES THE BOTTLE,
YOU PUT IT IN A TEAPOT, IT BECOMES THE TEAPOT.
NOW WATER CAN FLOW OR IT CAN CRASH.
BE WATER
MY FRIEND
Bruce Lee

Omnipresent
Elastic
Autonomous



INVISIBLE INFOSTRUCTURE

THE SOFT, THE HARD AND **THE VIRTUAL**

CROUCHING TIGER, **HIDDEN CONTAINER**

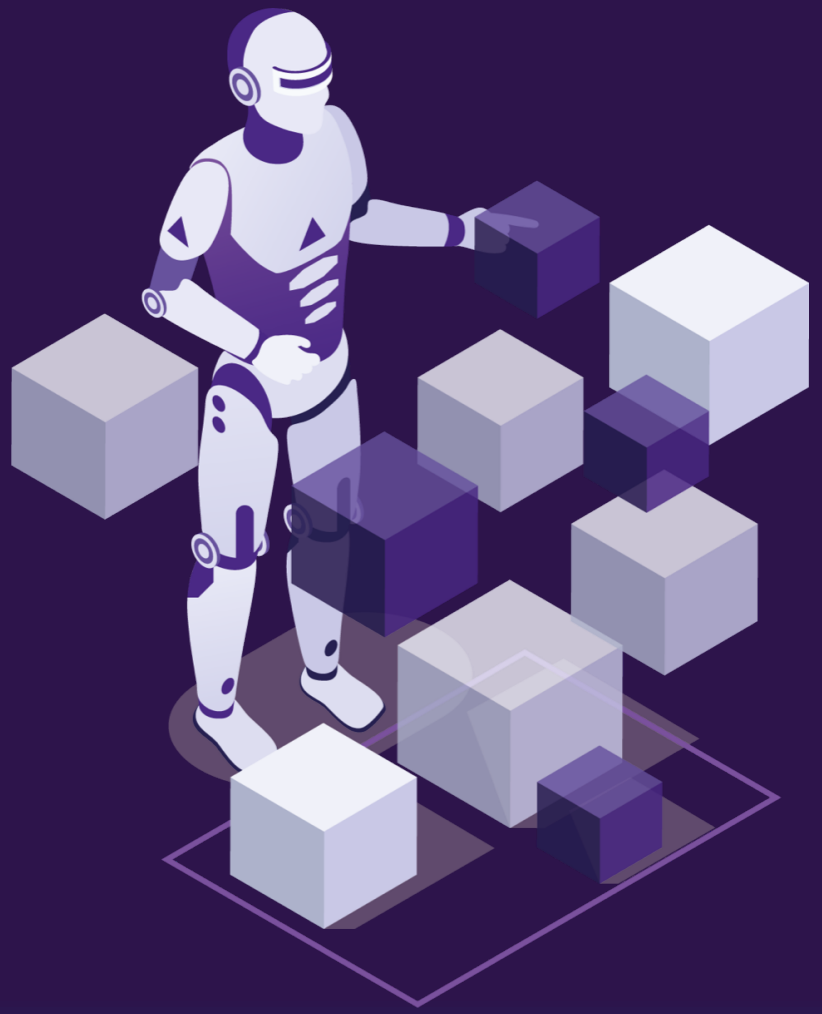
SIMPLY THE **EDGE**

OPS, AI DID IT AGAIN

CECI N'EST PAS UNE **INFRASTRUCTURE**

CROUCHING TIGER, HIDDEN CONTAINER

All the complex infrastructure an application needs to run on, nothing to see but containers



Infrastructure can be intimidating, showing its claws through different versions of operating systems, devices, connections, configurations, files, middleware and all other foundational elements needed to run an application. What worked yesterday may be extinct tomorrow, as even the tiniest change to infrastructure can bring the mightiest application down. Enter containers; they simply package an application with exactly the infrastructure and middleware components needed into a sealed-off, air-tight, standardized box. Any cloud, server or PC will then be able to run these containers, making them the silent, martial art masters of infrastructure.

#Containers

Open Service Mesh

Open Service Mesh (OSM) is a lightweight and extensible cloud native service mesh.

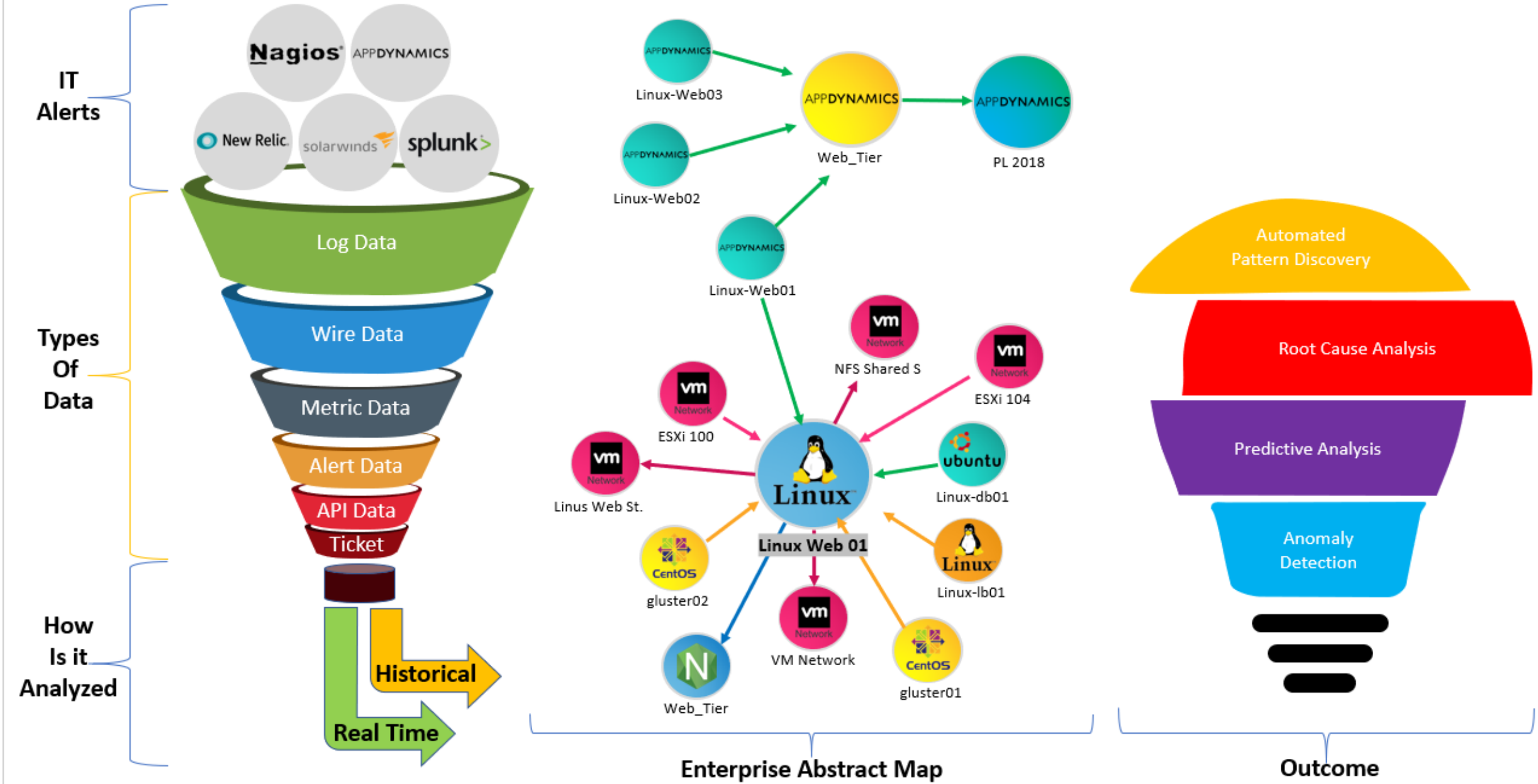
Schermafbeelding

OPS, AI
DID IT AGAIN

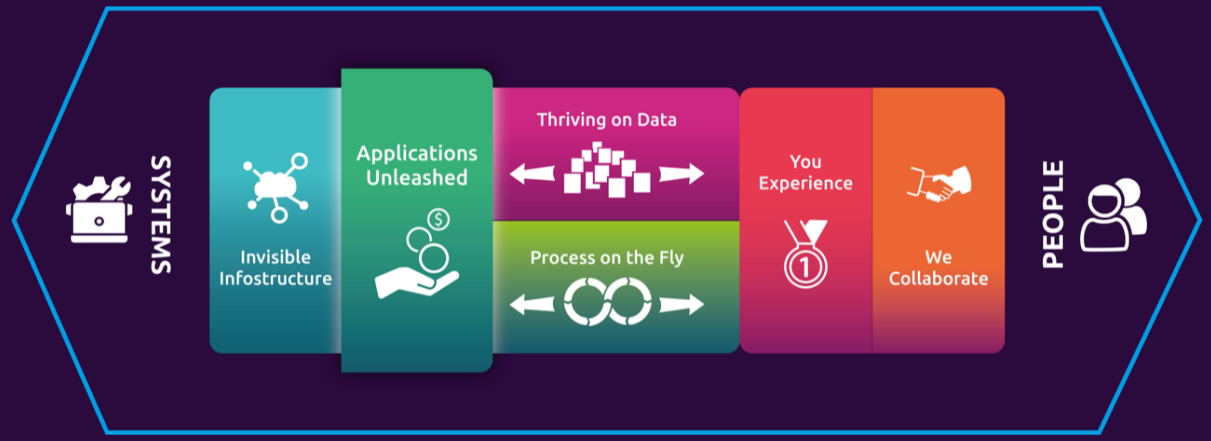
AI comes to the rescue of complex IT operations, improving step-by-step efficiency and reliability while it learns, on its way to full autonomy

So many systems, services, devices and applications swarming around in an enterprise IT operations landscape. So much data available in real-time about how they perform, succeed and fail. It's the perfect playground for AI to get a grip on the complexity, by learning from IT operations data to provide improvement. First by giving better insight into the performance of operations and by real-time detection of disturbances. Then - through predictive analytics - by anticipating these disturbances, so that timely measures can be taken. Finally - when it has found even the most complex, hidden patterns - by autonomously optimizing IT operations. Oops, is that infrastructure simply taking care of itself?

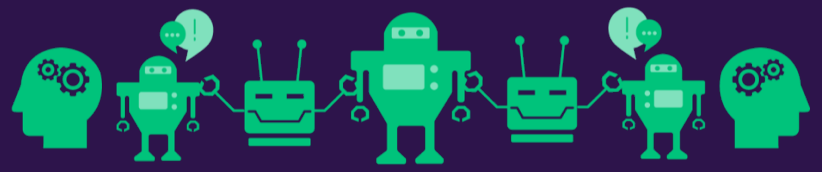
#AIOps


IT Alerts
Types Of Data
How Is it Analyzed
Nagios
APPDYNAMICS
New Relic.
solarwinds
splunk>
Log Data
Wire Data
Metric Data
Alert Data
API Data
Ticket
Historical
Real Time
Linux-Web03
Linux-Web02
Linux-Web01
Web_Tier
PL 2018
NFS Shared S
ESXi 104
ESXi 100
Linus Web St.
Linux
Linux Web 01
Linux-db01
Linux-lb01
gluster02
VM Network
gluster01
Web_Tier
Automated Pattern Discovery
Root Cause Analysis
Predictive Analysis
Anomaly Detection
Enterprise Abstract Map
Outcome

Meshed
Headless
Augmented



BOT IS THE NEW APP



Providing compelling, conversational, frictionless access to application services, with the user's intentions at the core – not the application

Say what? Every day, new and exciting applications pop up that don't look like traditional applications. Often you can't even see them at all. Building on powerful artificial intelligence (AI), it's just a matter of stating an intent in natural language and an application service will be activated. Application bots may involve spoken dialogue or messages and emoticons. Bots will seriously diminish the number of applications on desktops and mobile devices. Or at least, they will shield the user from their complex interfaces. Close your Windows – the bots are here.

#Bots

Samuel L. Jackson - celebrity voice for Alexa

by Amazon

Rated: Mature

87

$0.99

"Alexa, ask Samuel L. Jackson for the weather."

"Alexa, ask Sam to play some music!"

"Alexa, ask Sam Jackson what's his favorite color?"

Ask away

Samuel L. Jackson can help you set a timer, serenade you with a song, tell you a funny joke, and more. Get to know him a little better by asking about his interests and career.

Keep it clean, or don't

After purchasing the feature, you choose whether you'd like Sam to use explicit language or not. If you ever change your mind, you can toggle between clean and explicit content in the settings menu of the Alexa App.

Get started

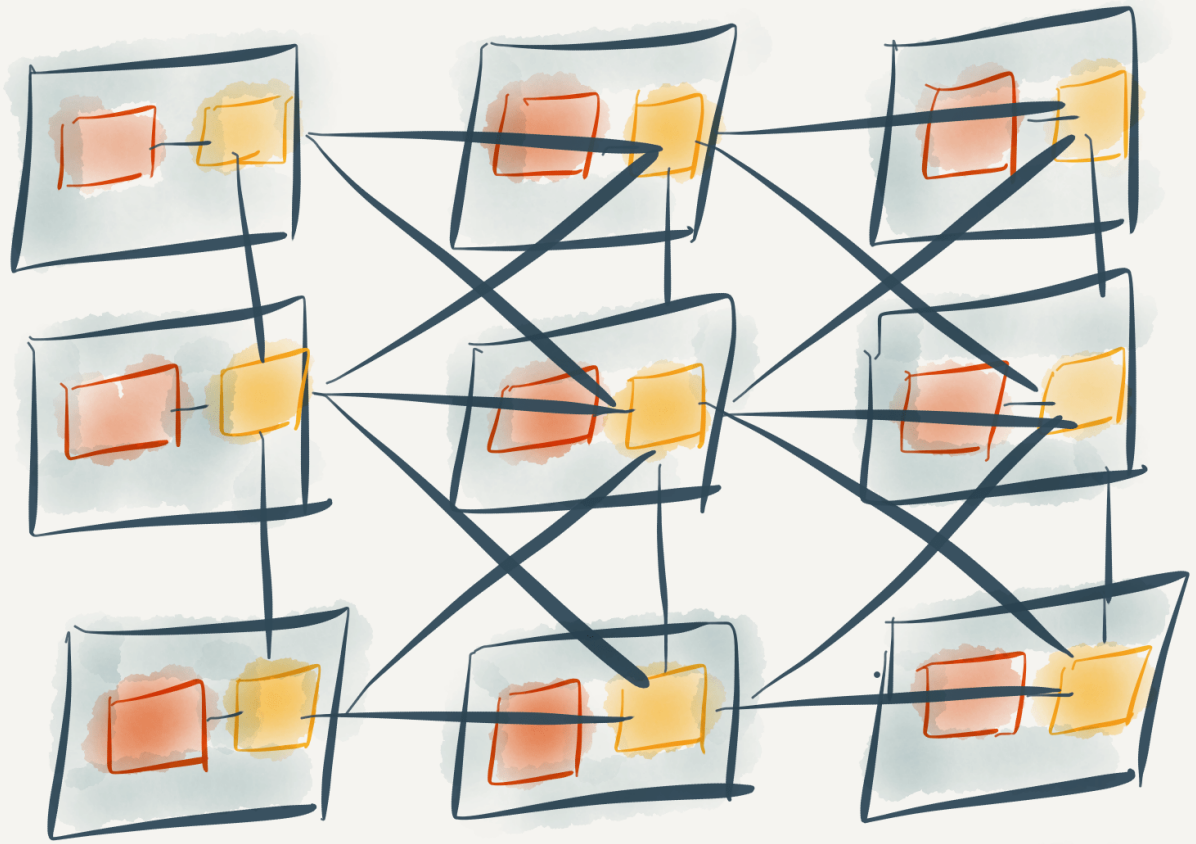
1. Say "Alexa, introduce me to Samuel L. Jackson."
2. Confirm your purchase with Alexa.
3. Enable or disable explicit content.
4. Ask Samuel L. Jackson for music, weather and more.

API
ECONOMY

Manage APIs as the core asset that makes both the internal organization and the outside world fully benefit from your application services – and vice versa

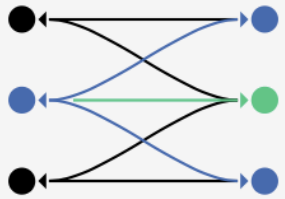
May the best API win. Unleash the power of your applications portfolio through easy-to-use, standardized interfaces to application services. This will allow both the business and IT sides to quickly build flexible solutions that feel like their own, even if they are not. And by exposing your carefully managed API catalog to the outside world, it doesn't just open up your business in new ways to customers and partners, it might also give way to a platform for innovative ideas and solutions that you never envisioned yourself. Come to think of it, you may want to intimately know and use the APIs of others as well. Your digital breakthrough may be just one API away.

#APIs



Service Mesh

Istio

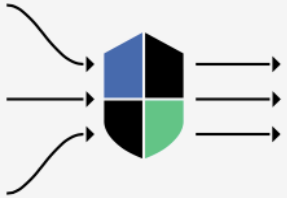


Connect

Intelligently control the flow of traffic and API calls between services, conduct a range of tests, and upgrade gradually with red/black deployments.

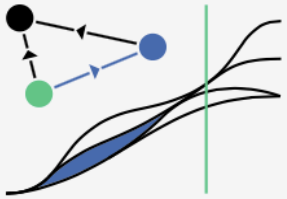
Secure

Automatically secure your services through managed authentication, authorization, and encryption of communication between services.



Control

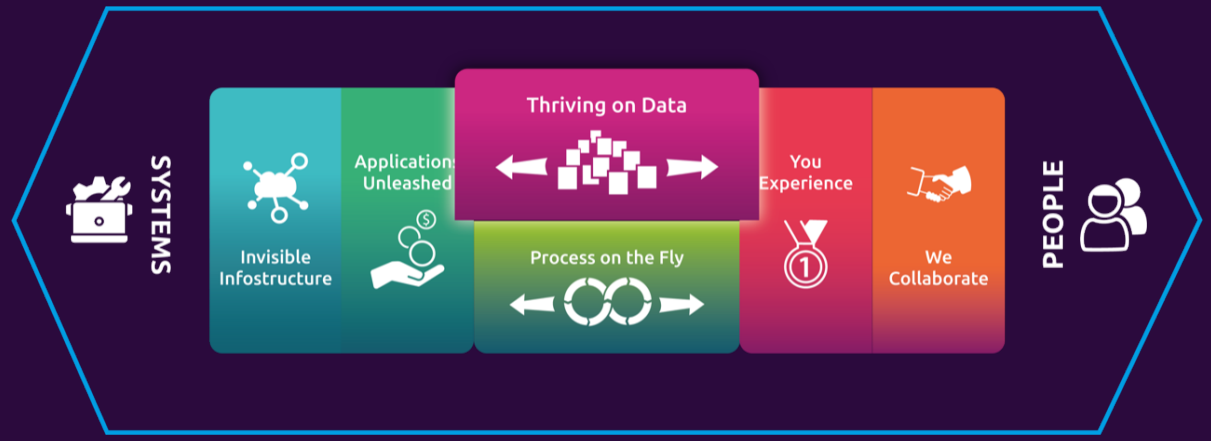
Apply policies and ensure that they're enforced, and that resources are fairly distributed among consumers.



Observe

See what's happening with rich automatic tracing, monitoring, and logging of all your services.

Algorithmic
Federated
Shared



THRIVING ON
DATA

CRAZY
DATA TRAIN

POWER TO
THE PEOPLE

DATA APART
TOGETHER

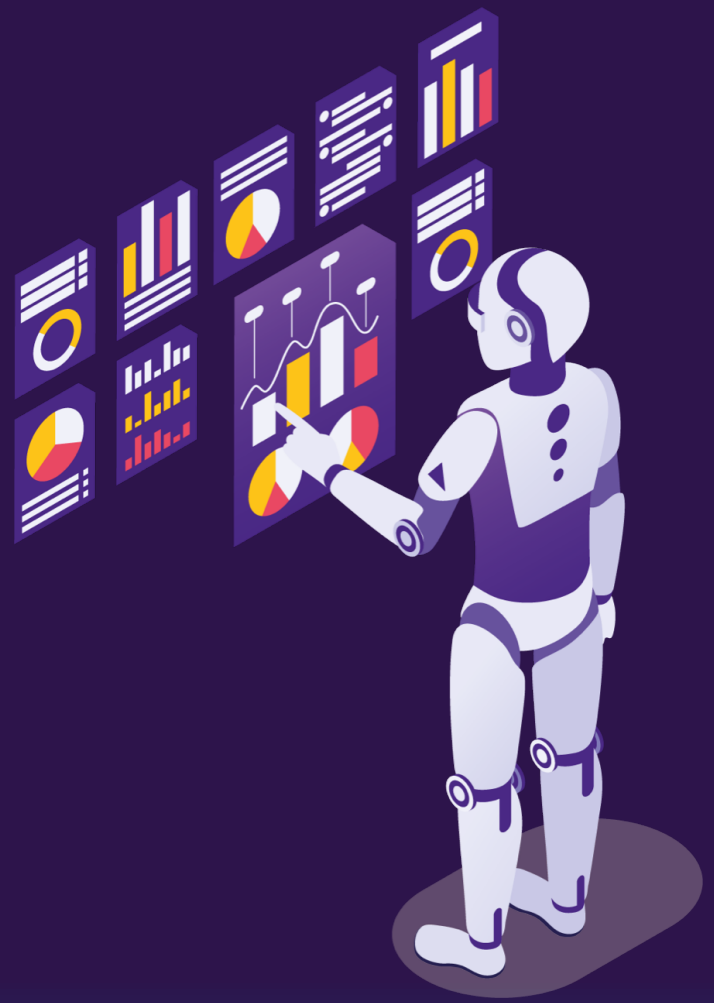
GOOD TAIMES

HOW DEEP IS
YOUR MATH

DATA APART TOGETHER

If the organization is distributed and data is everywhere, it is best to manage data in a federative way – balancing local ownership and a central platform drive

The single source of truth in corporate data is like the Holy Grail; great to pursue yet destined not to be found. Many different sources, uses, and perspectives of data typically exist both inside and outside the organization. Why not fully embrace that diversity and create a federated business take on data? Advanced tools – more and more enabled by AI – help to keep a grip on a variety of data sources, data stores, definitions and consumption patterns, wherever they are and whoever owns them. It empowers local units to mind their own business with data yet, be an integral part of the organizational robustness and direction. The best of both worlds, really.



#federateddata

Fiona Critchley

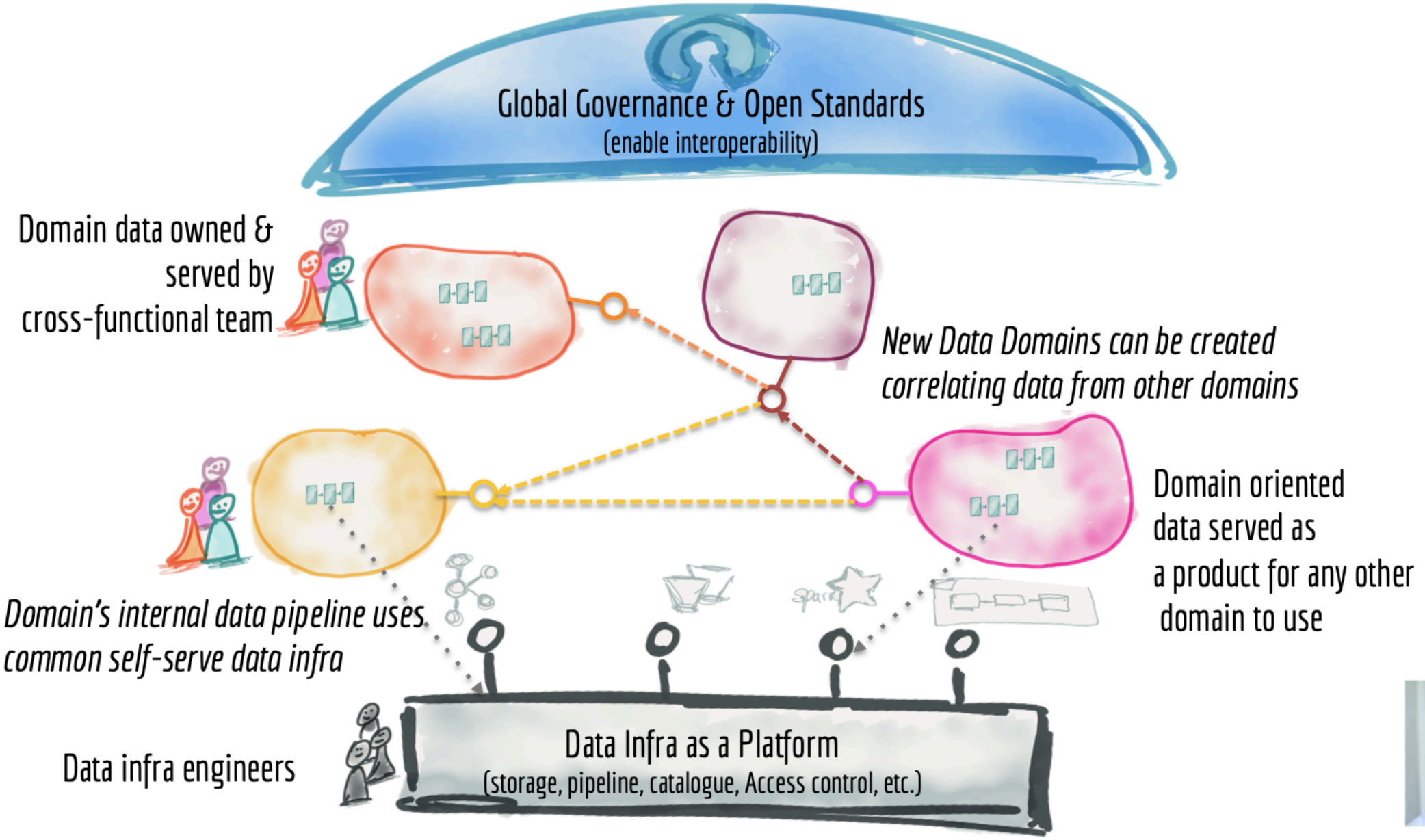
Insights & Data

01 Metadata management. First, you need metadata management to effectively discover, classify, and understand how data is proliferating through your organization. Informatica Enterprise Data Catalog (EDC) can help you discover and inventory data assets across your organization. That includes business glossary and lineage data, so you know where data came from and what parts of the business connect to it.

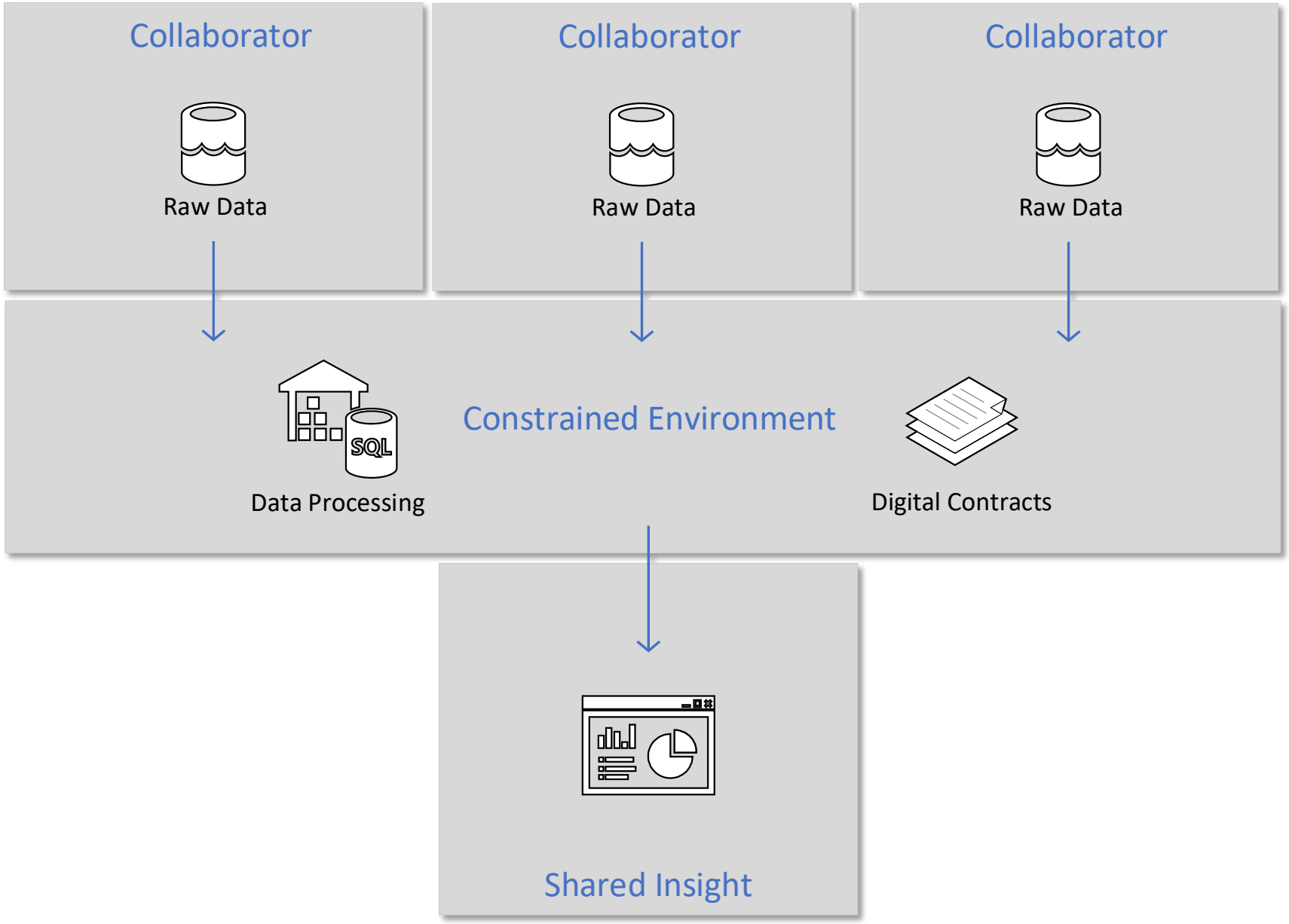
02 Ingestion, curation, transformation and sharing. Next, you need data integration. Data integration is more than simple ingestion; a best-of-breed solution supports all data ingestion and integration patterns. Mass ingestion of files, IoT streaming data, and database initial and incremental loads are vital requirements to hydrate your data lake. Look for ETL/ELT and pushdown optimization to process data once it's in the cloud, ideally performed in a serverless elastic scaling runtime. You also need the broadest connectivity across cloud, SaaS, and on-premises applications.

03 Data quality. Embedding data quality enables you to deliver trusted data through comprehensive profiling, data quality rule generation, dictionaries, and more. Informatica Cloud Data Quality (CDQ) helps you quickly identify, fix, and monitor data quality problems in your cloud and on-premises business applications.

04 Data privacy and security. Lastly, data needs to be protected. When operating in co-located cloud environments, data access and use must be trusted. Applying data-centric protections such as data masking can help limit exposure to appropriate applications and users. This is even more critical in public cloud-hosted application environments, where multiple tenants can coexist on shared resources, to increase risks.



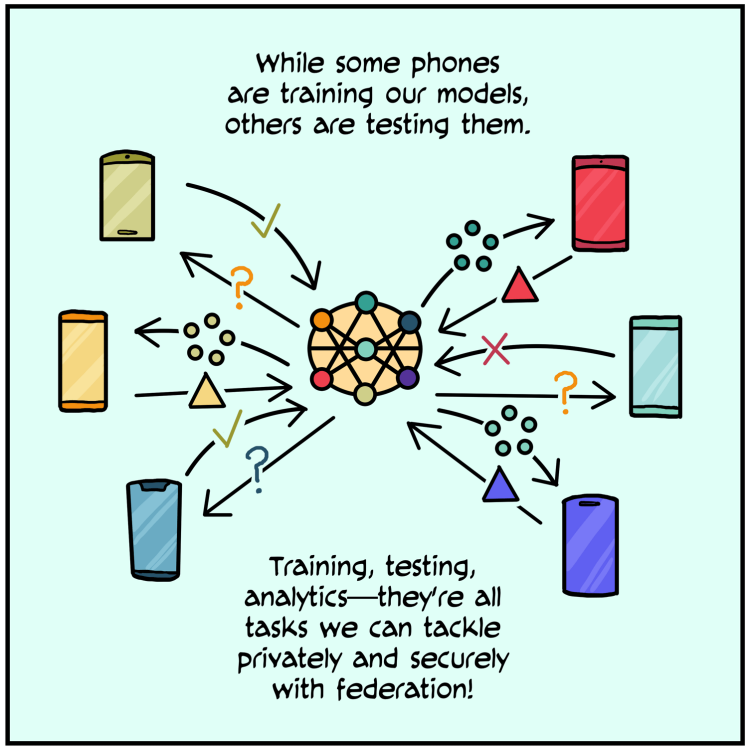
Zhamak Dehghani

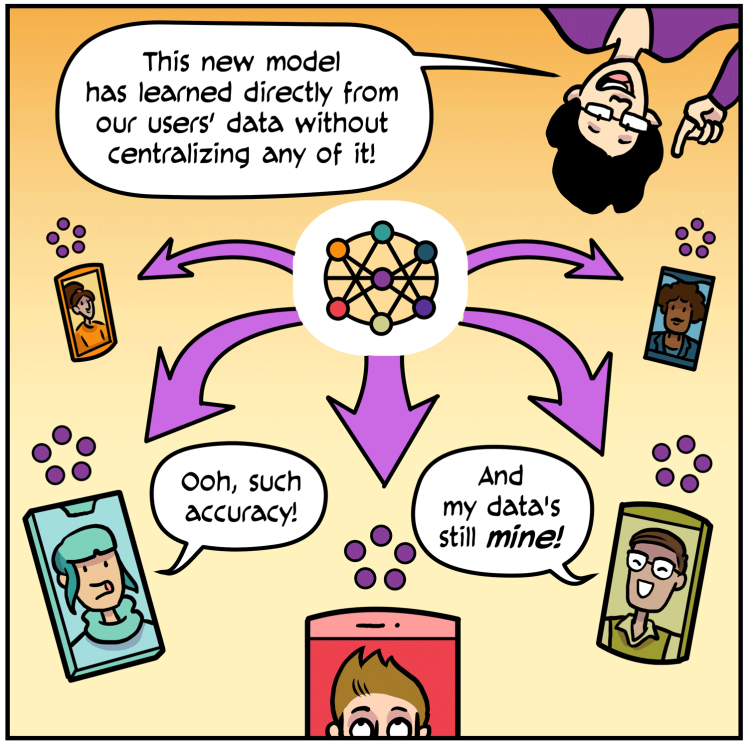

Collaborator
Raw Data
Collaborator
Raw Data
Collaborator
Raw Data
SQL
Data Processing
Constrained Environment
Digital Contracts
Shared Insight

Federated Learning

Building better products with on-device data and privacy by default

An online comic from Google AI





HOW DEEP IS YOUR MATH

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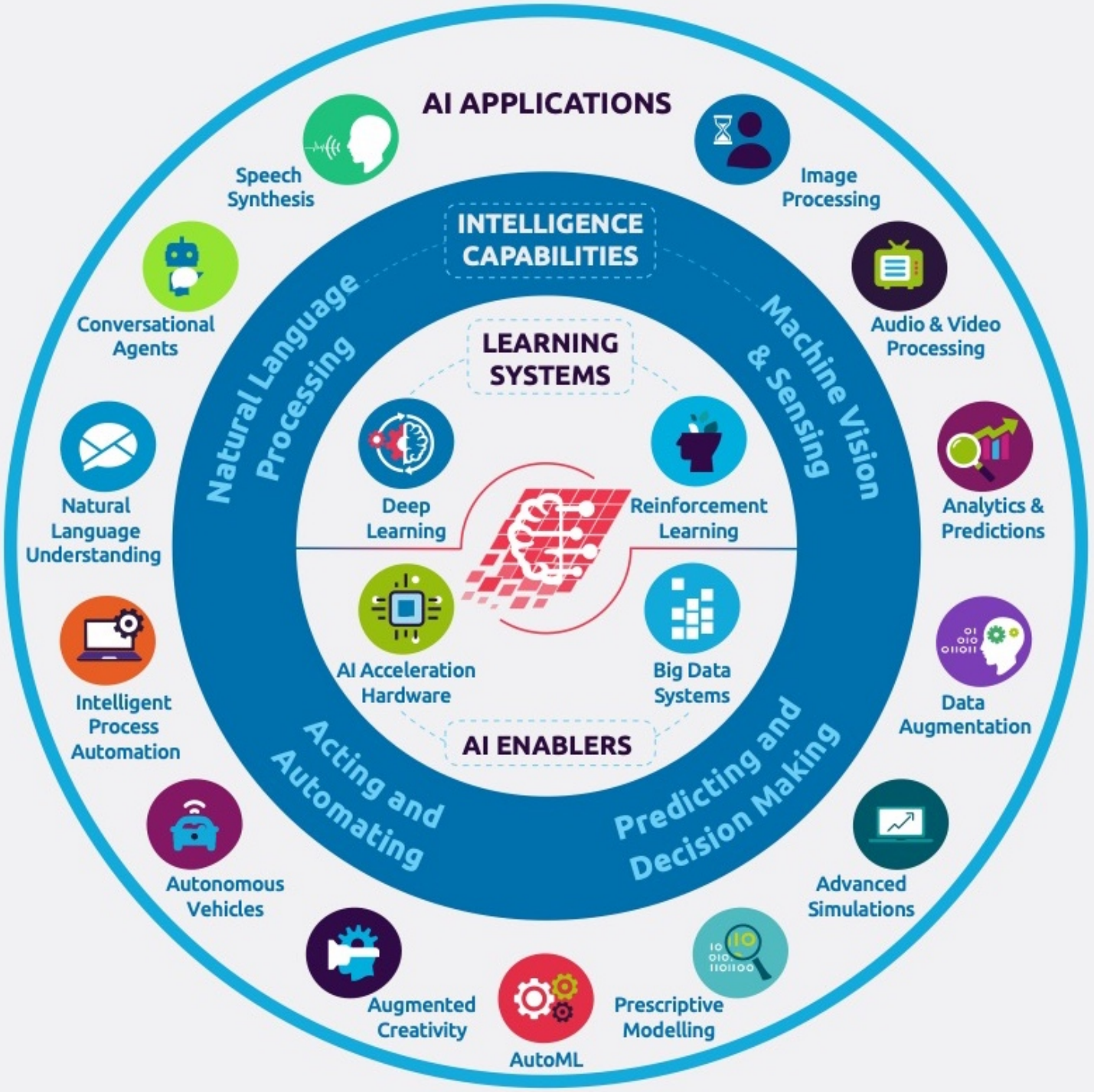
#MachineLearning



Artificial Intelligence (AI) is a collective term for the capabilities shown by learning systems that are perceived by humans as representing intelligence. These intelligent capabilities typically can be categorized into machine vision and sensing, natural language processing, predicting and decision-making, and acting and automating.

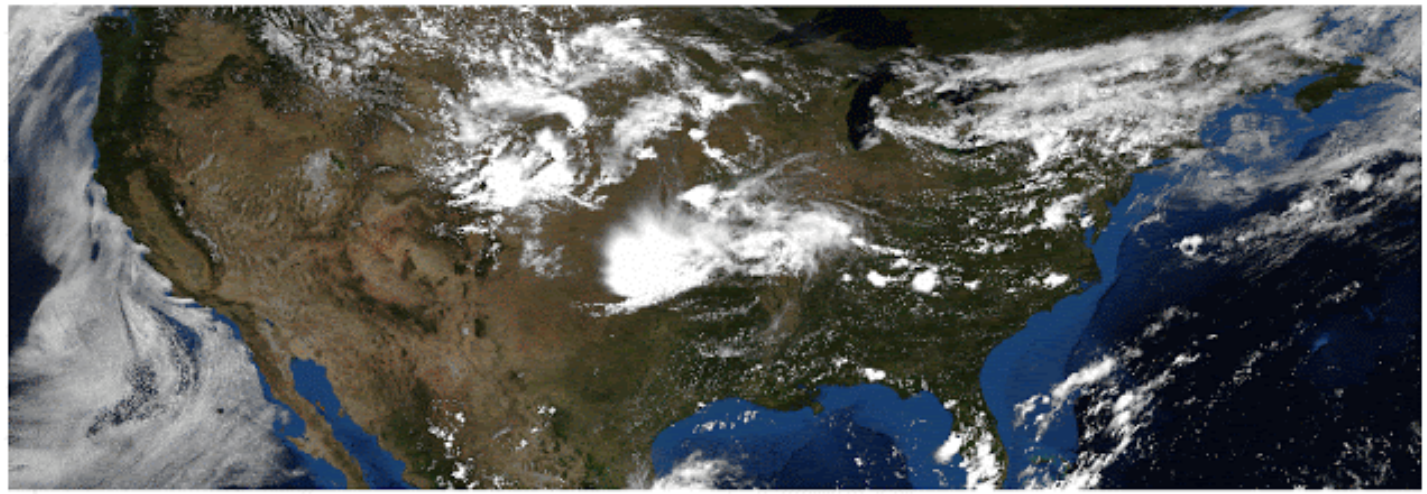
Various applications of AI include specch, image, audio and video processing, autonomous vehicles, natural language understanding and generation, conversational agents, perspective modelling, augmented creativity, intelligent process automation, advanced simulations, as well as complex analytics and predictions.

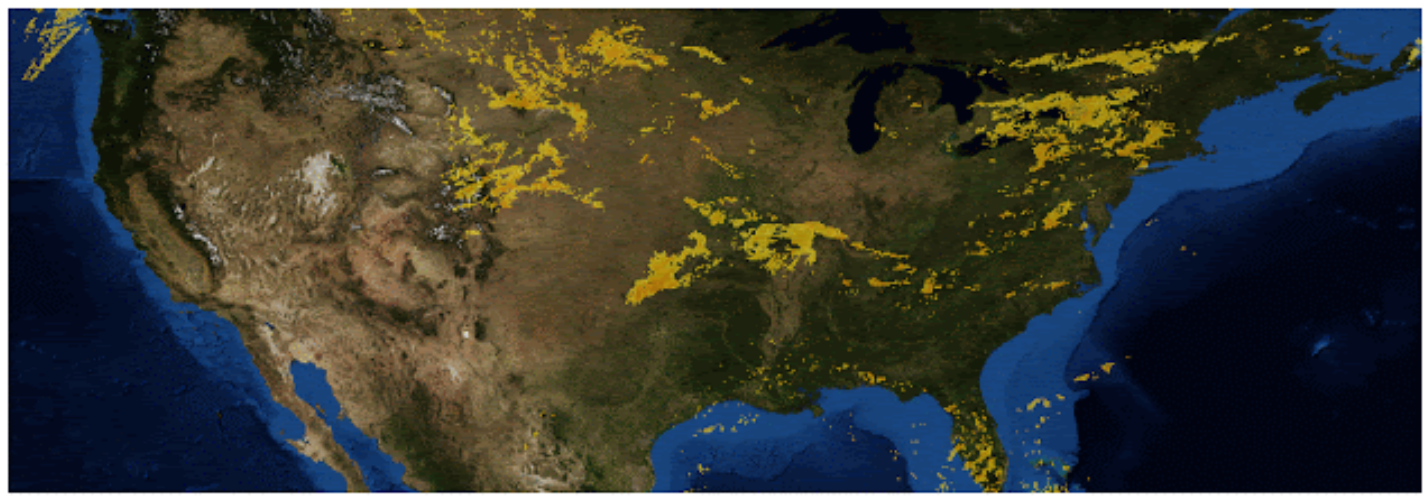
Technologies that enable these applications include big data systems, deep learning, reinforcement learning, and AI acceleration hardware.

Google AI model outperforms traditional methods of weather prediction

By Ather Fawaz · Jan 14, 2020 01:52 EST · HOT! 12

A couple of weeks back, Google AI used a machine learning model to improve the screening of breast cancer. Now, the firm has used a convolutional neural network (CNN) in nowcasting precipitation.



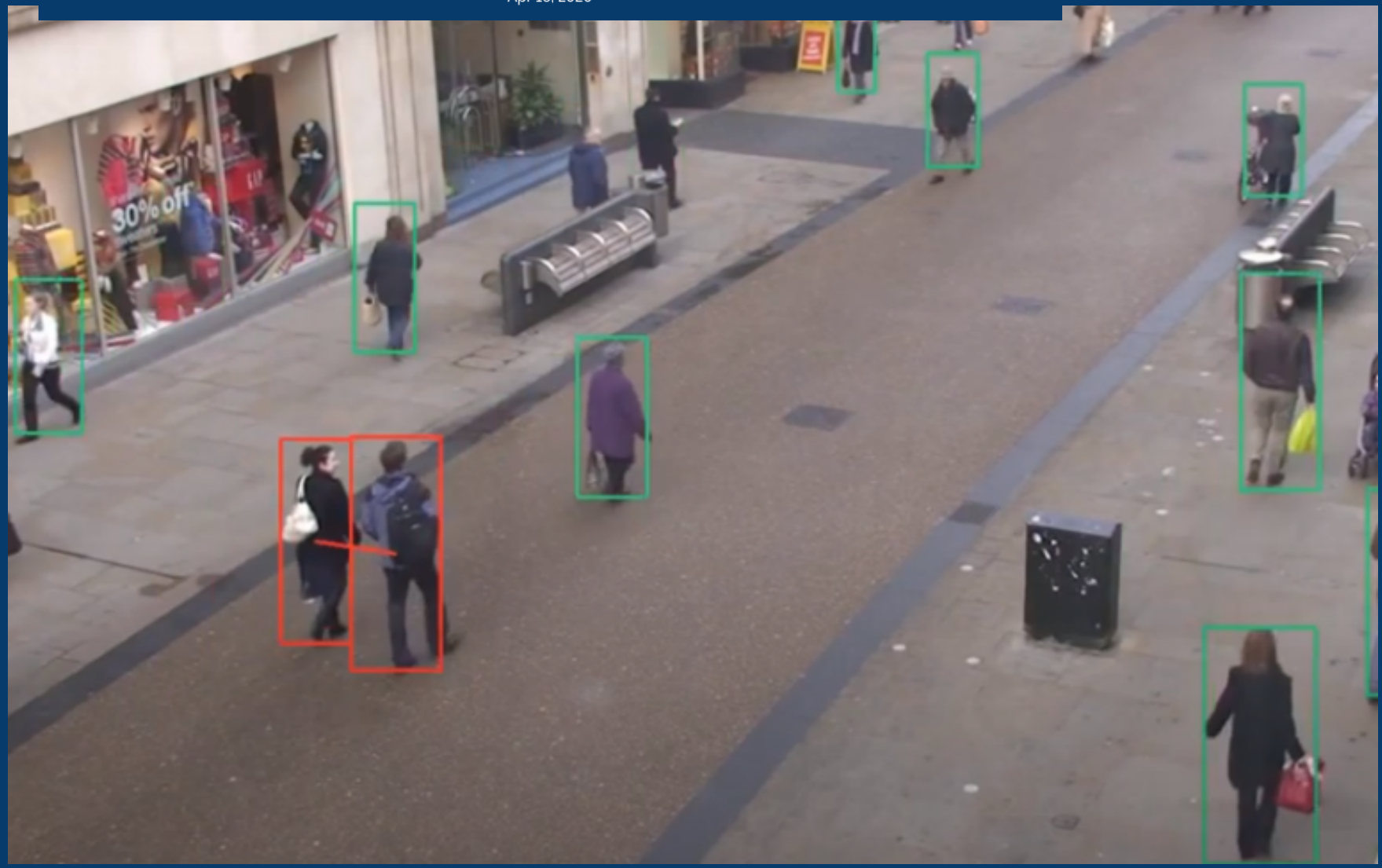


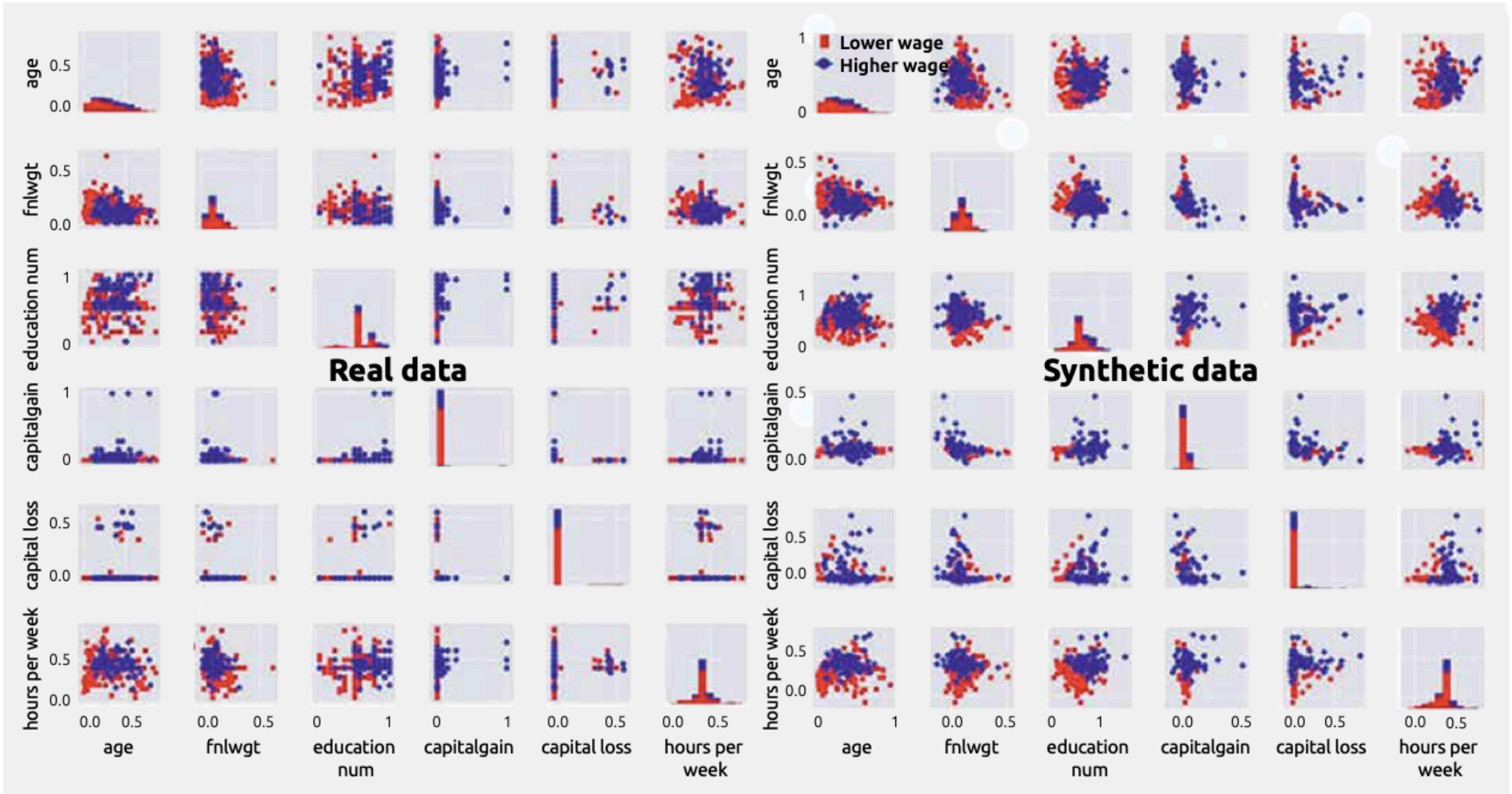
LANDING AI

AI Solutions AI Transformation AI Acceleration Platform Company Careers

Landing AI Creates an AI Tool to Help Customers Monitor Social Distancing in the Workplace

Apr 16, 2020




Real data
Synthetic data
Lower wage
Higher wage
age
fnlwgt
education num
capitalgain
capital loss
hours per week

Artificial Data Amplifier

Client challenge

A large Swedish government agency was working to adopt AI into its day-to-day practices. The client's data included highly personalized data of the utmost sensitivity, meaning that extreme security measures had to be taken and ethical reviews conducted in advance of any work performed.

How we made value

We demonstrated that the use of synthetic data in lieu of real data would open up many possibilities for leveraging data to drive business value.

Sogeti impact

Our ADA solution synthesized tabular, image and unstructured text data for use with or in lieu of original data. Using synthetic data enables the public use of data, while maintaining confidentiality.

GOOD TAIMES

AI solutions require privacy, security, fairness, transparency, 'explainability', auditability and ethics to hit success – with the very best AI radiating the company purpose

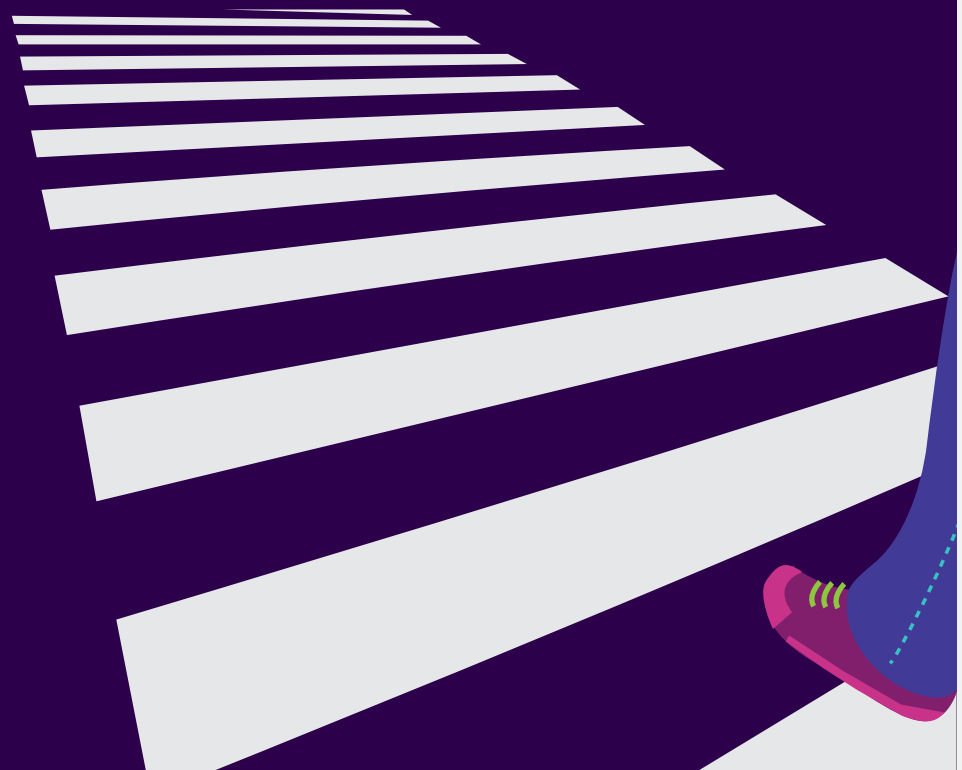
With all of us increasingly relying on data and algorithms in both personal and business lives, it's not that simple to just leave our cares behind. Consumers are much more open to products and services if they trust that their privacy is respected, and security is guaranteed. Workers will embrace support from AI earlier when its mechanisms are transparent, its training data is unbiased and it augments them in their daily work. Regulators will demand AI solutions that can be audited and explained. And all of society expects ethical AI, driven by compelling purposes for positive futures. So, it's about doing AI good, but also doing AI for good. Such a funky perspective.

#data4good

Capgemini RESEARCH INSTITUTE

AI and the Ethical Conundrum

How organizations can build ethically robust AI systems and gain trust



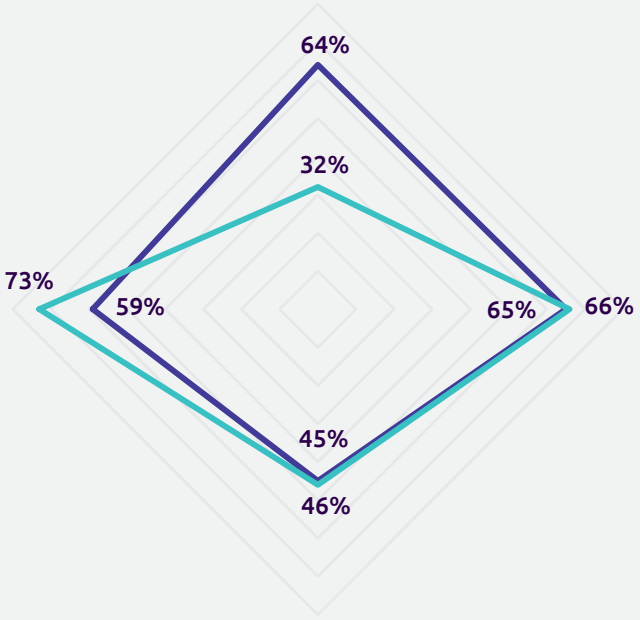
Organizations have progressed on explainability but progress is disappointing in certain other ethics dimensions

Explainability: AI systems that can explain how it works in a language people can understand

Transparency: AI systems that work in a clear, consistent, and understandable manner

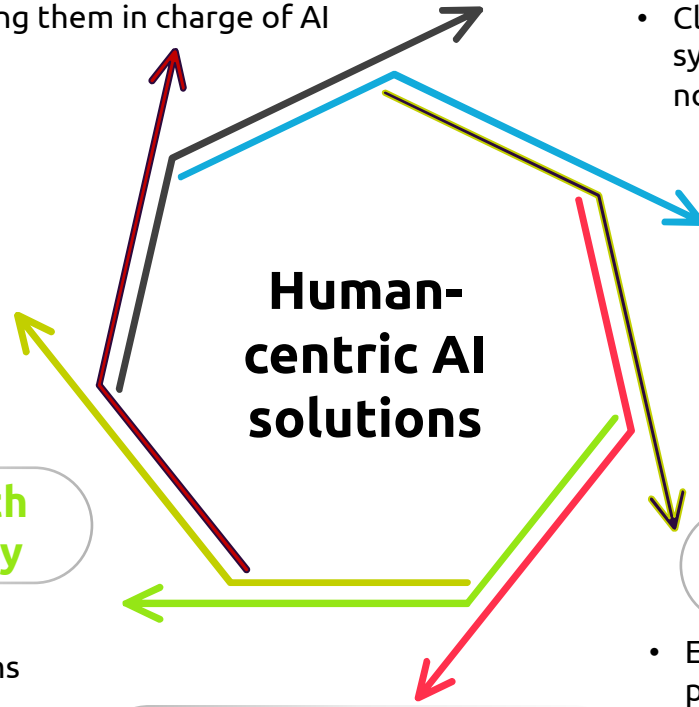
Fairness: AI systems and data are designed and tested to ensure fair treatment of all customer groups

Auditability: AI systems that can be audited from ethical standpoint to provide assurance that the outputs can be trusted



Source: Capgemini Research Institute Artificial Intelligence executive survey, March–May 2020, N=884 executives; Ethics in AI executive survey, April-May 2019, N=266 for explainability and transparency; N=456 for fairness and 722 for auditability.

Capgemini Code of Ethics for AI



AI respectful of privacy and data protection

- Protect individual privacy by empowering them and putting them in charge of AI interactions

AI with carefully delimited impact

- Clearly outline the intended purpose of AI systems and assess the overall potential impact, notably on individuals, before adoption

Sustainable AI

- Proactively deploy AI to achieve sustainability goals

Fair AI

- Embed diversity and inclusion principles proactively throughout the lifecycle of AI systems

Transparent and Explainable AI

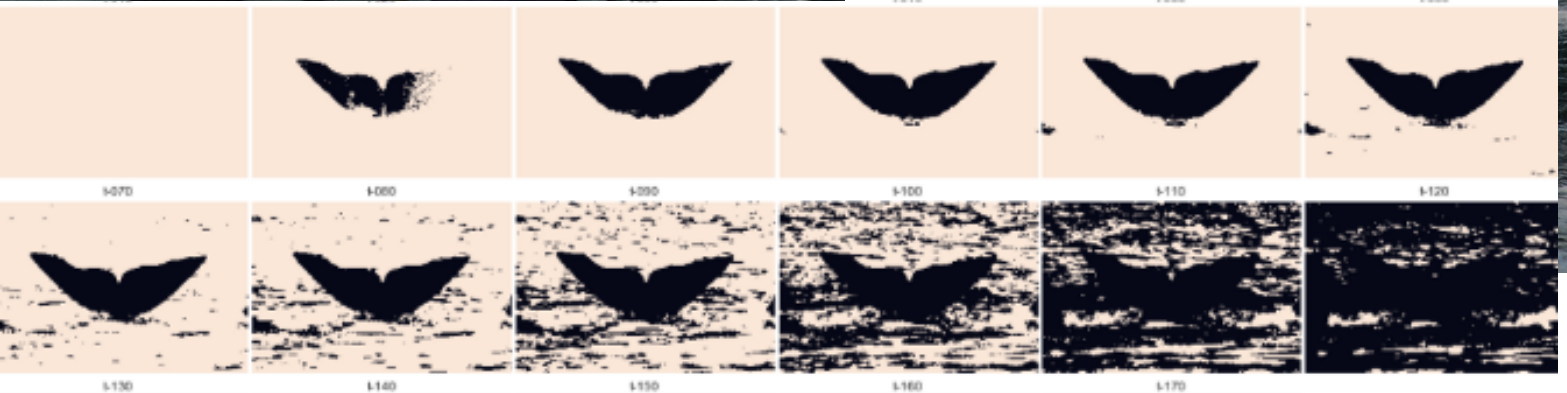
- Enhance AI transparency through technology tools

Controllable AI with clear accountability

- Humanize the AI experience
- Ensure human oversight of AI systems

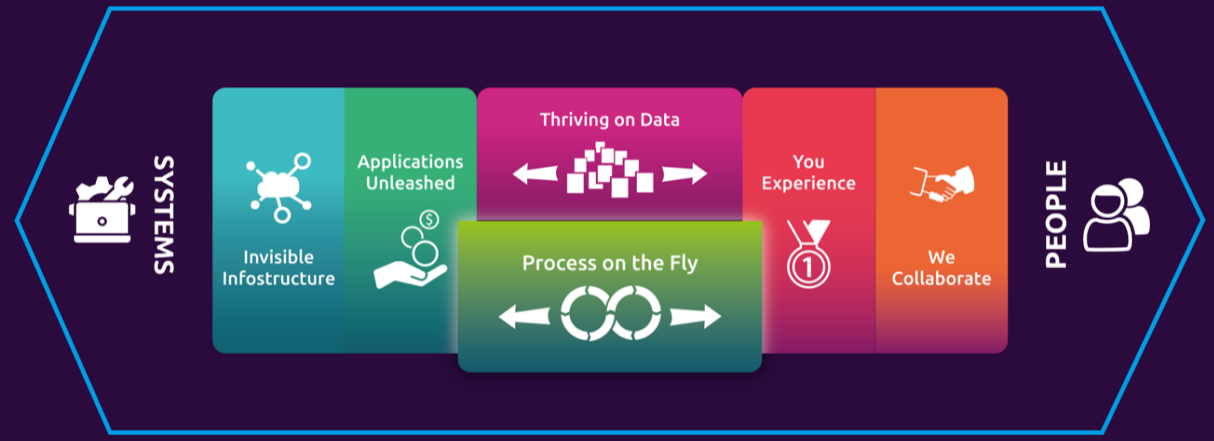
Robust and safe AI

- Ensure technical robustness of AI from safety, security, and accuracy standpoint


I-070
I-080
I-090
I-100
I-110
I-120

I-130
I-140
I-150
I-160
I-170

Binding
Portable
Self-driving



PROCESS
ON THE FLY

PROCESS 101

ROCK,
ROBOT ROCK

PLEASED TO MEET
YOU PROCESS

AUGMENTED
ME

CAN'T
TOUCH THIS

CAN'T TOUCH THIS

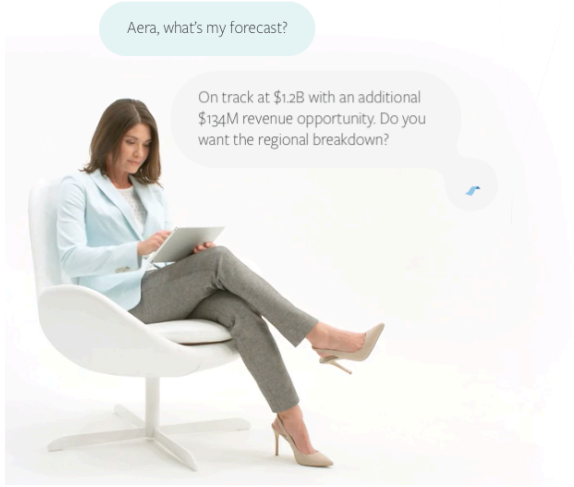
A process seamlessly adapting to its environment, optimizing itself without human intervention – is that even a process anymore?

When all you have is a hammer, everything looks like a nail. Optimizing processes by cutting out yet another inefficiency, leveraging yet another lean opportunity, only brings you so far. As the need for radical business agility continues to accelerate, there is limit to the classical process way of responding to complex events in real time. Driven by AI, fixed and inflexible processes can be replaced by powerful reasoning systems. These systems fluidly adjust to whatever situation occurs, anticipating next-best actions and resources needed on the fly. And as they continuously learn from what works and what doesn't, they increasingly become hands - and care - free. *Stop! Hammer Time*: the self-driving enterprise is coming.

#AutonomousEnterprise

Hello, I'm Aera.

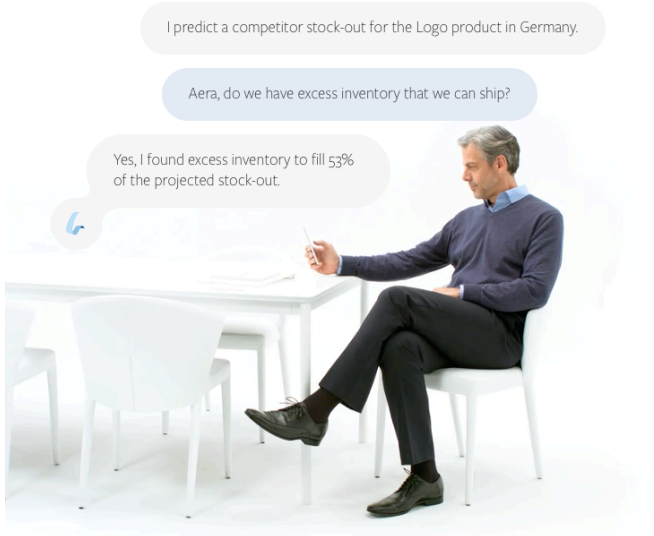
The cognitive technology for the Self-Driving Enterprise™. Aera



1

Aera understands.

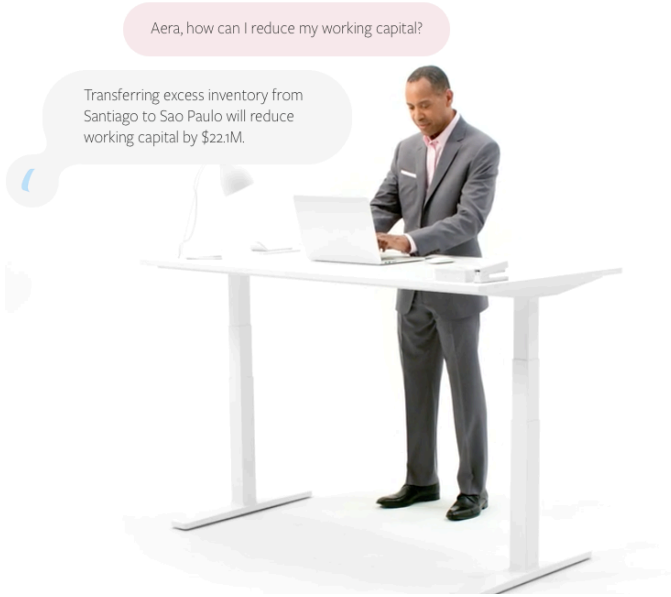
Aera continuously crawls your enterprise systems, refines, indexes, and augments your data, and delivers end-to-end, real-time visibility into your company's operations.



2

Aera predicts.

Aera brings the future into the present, leveraging real-time data and artificial intelligence to accurately predict business risks and opportunities.



Aera recommends.

Using machine learning and business domain expertise, Aera dynamically uncovers opportunities to improve your financial and operational performance.

3

Aera acts.

Aera proactively engages with relevant users and drives the execution of their decisions.

4


/Autonomous
/Sensing
/Communication
/Battery
/Navigation
/Mirrorless
/Ecology
Autopilot mode

Understand the Five Levels of Autonomous Enterprises

Level 1 Autonomous Enterprise: Basic Automation
At this level, the system can provide basic tasks and workflow automation.

- **When?** Today.
- **Includes:** Basic process automation tools such as BPM, manual instrumentation and control, and intelligent workflow automation
- **Who's in control?** Humans are still in control and guide many manual steps.

Level 2 Autonomous Enterprise: Human-Directed
Level 2 enables the human-directed automation of business processes.

- **When?** The current state of the art
- **Includes:** Robotic process automation, process-mining tools, journey orchestration tools, ML algorithms, natural language processing.
- **Who's in control?** Humans direct major decisions; minor decisions are automated over time with some effort in training.

Level 3 Autonomous Enterprise: Machine Intervention
Level 3 delivers automation with occasional machine intervention.

- **When?** The next big thing in 2020.
- **Includes:** Cognitive applications, neural networks, GANs models, contextual decisions and next best actions.
- **Who's driving?** Humans still on standby but can be hands-off for periods of time

Level 4 Autonomous Enterprise: Fully Autonomous
Level 4 presumes that the machines can deliver full automation but not sentience.

- **When?** Sometime in 2023.
- **Includes:** AI-driven smart services, full automation, self-learning, self-healing and self-securing.
- **Who's driving?** Machines are fully automated.

Level 5 Autonomous Enterprise: Humans Optional
Level 5 achieves full sentience and humans may no longer be needed.

- **When?** 2030.
- **Includes:** Fully autonomous sentience, empowering precision decisions at scale.

‘Aye, AI, captain.’ IBM’s autonomous ship seeks to revolutionise modern transport

The Mayflower Autonomous Ship could be the first robotic vessel to safely cross the Atlantic

Thu, Nov 12, 2020, 01:03

6 AI powered cameras

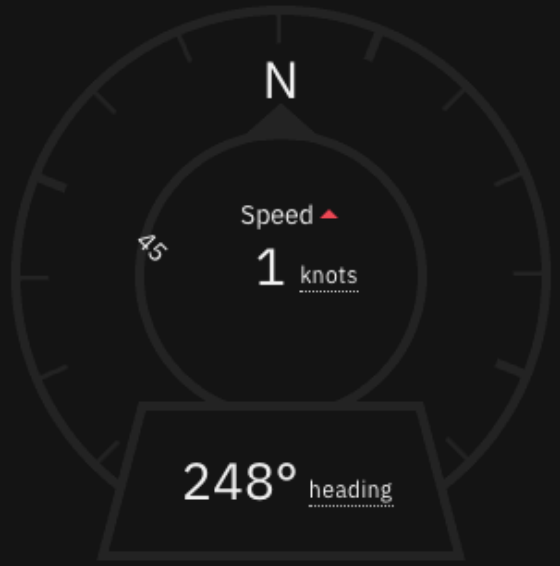
30 Onboard sensors

15 Edge devices

0 Humans on board

Mission control

Vessel status: At Pier | Harbour | Coastal



Navigation

58 propeller RPM

-35.0 ° rudder angle

Avoid shallow wat... last AI captain decision

Ocean conditions

6 m water depth

16.3 °C | °F water temperature

Solar power

1140.2 w solar panel power

23.8 amps solar panel current

Weather

16:12 GMT

11.0 °C | °F current temperature

19 km/h current wind

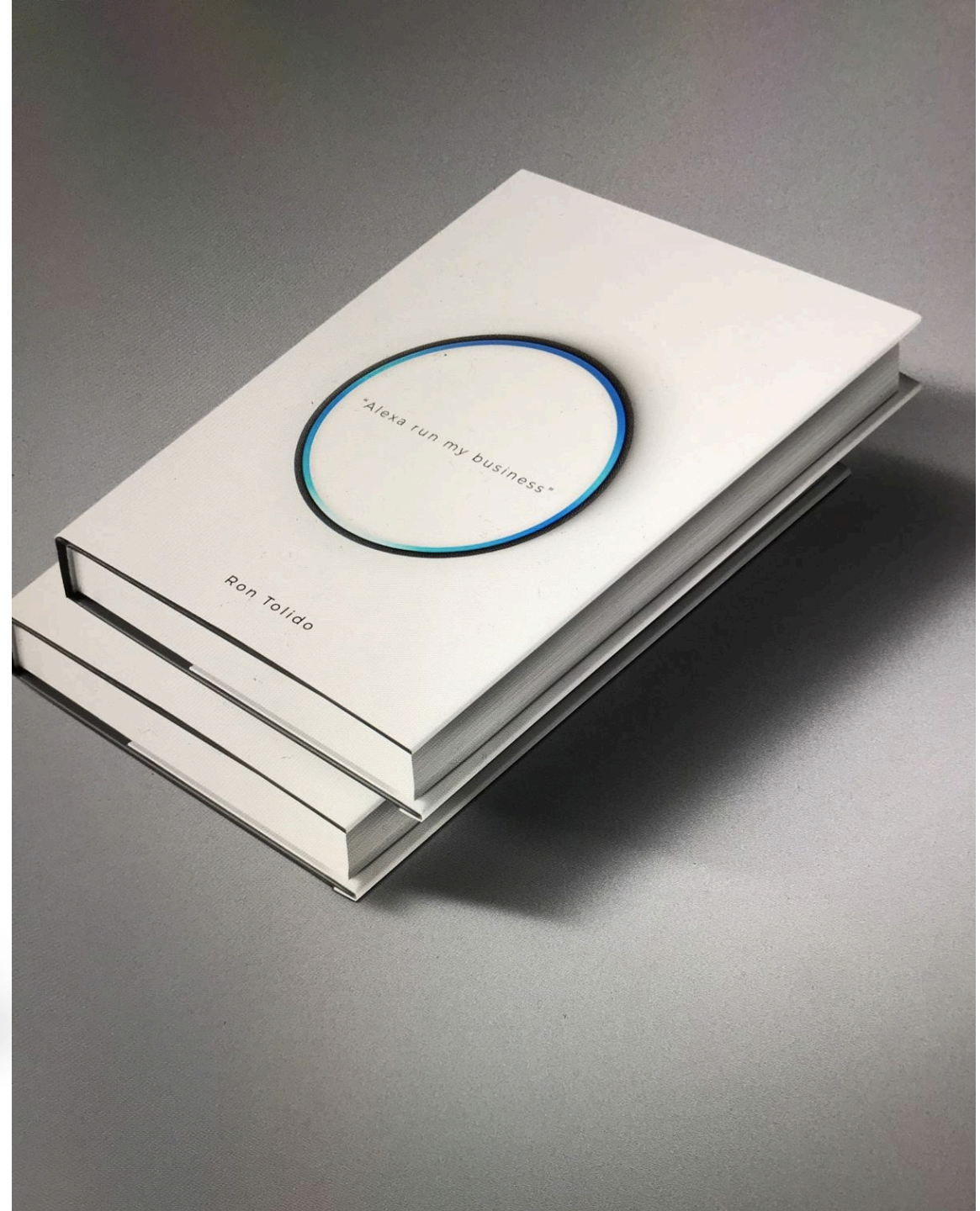
Battery

Normal Use

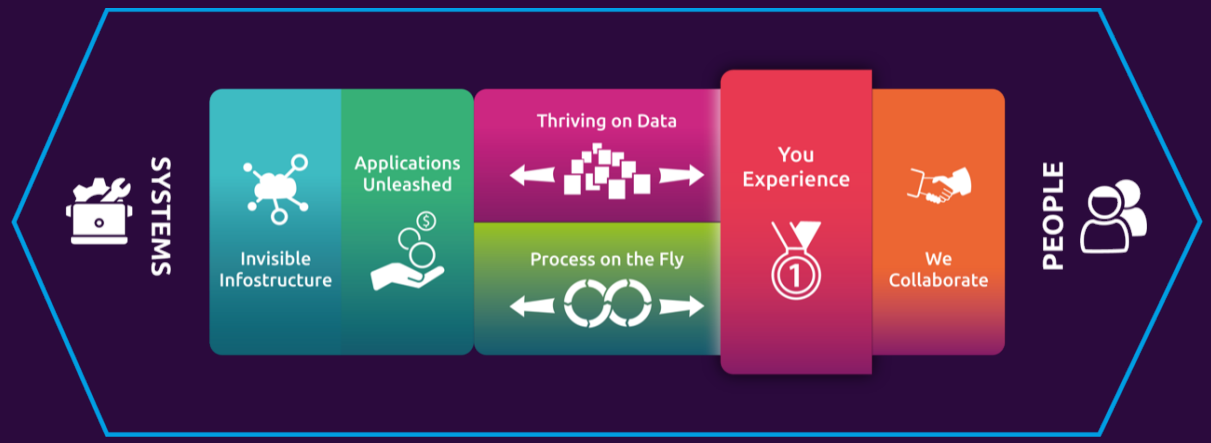
99% 57 volts

battery charge


amazon


"Alexa run my business"
Ron Tolido

Immersive
Low-touch
Emphatic



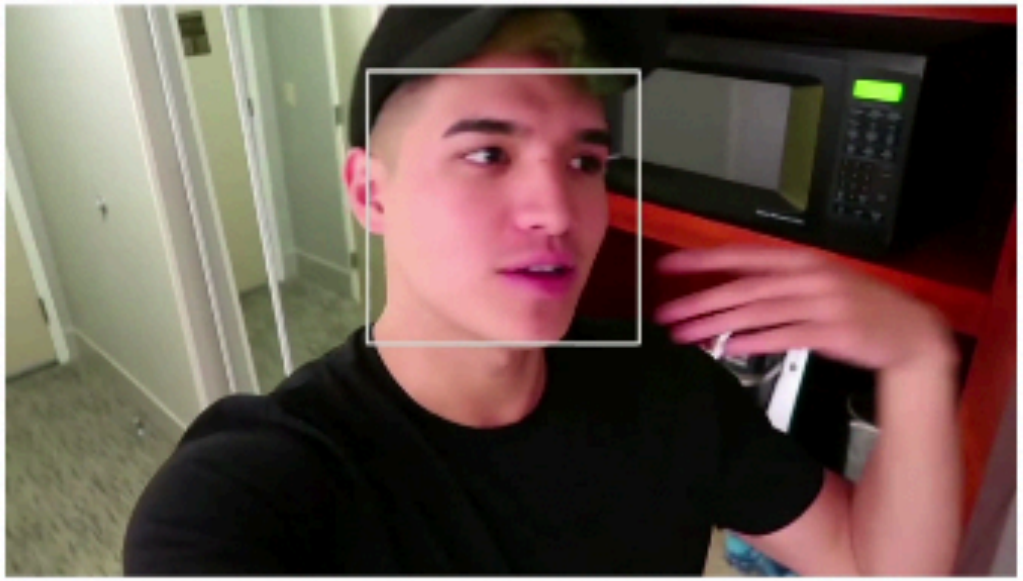
NO FRICTION

Autonomous technology can create a user experience that is so fluent and adaptive, it's almost not experienced anymore

Still a fraction too much friction? The fully autonomous user experience is closer than you think. Tapping into the Internet of Things and omnipresent data, AI systems can be contextually aware of surrounding physical environments, as well as of the emotional states of the humans that are interacting in it. Intelligent, automated and individualized decisions and actions can remove bottlenecks and steps in a process - if indeed a process is still needed. The ultimate user experience is an almost psychic, 'no user experience'. It has systems, intelligence, data and devices that morph themselves proactively and fluently around the intentions of the user - no questions asked.

#FrictionlessUX

Capgemini Passenger Analysis



Playback position: 98.271748

Segment	Coherency
Trend Seekers	0.46
True Believers	**0.87**
Indifferent Individualists	0.31
Old School Ease	0.03
[COMPETITOR] Tribalists	0.12

Description	Lifestyle Affinity	Brand Affinity
True brand evangelizers that embrace [YOUR COMPANY] both from a product perspective and as an experience. Prefer firms that are looking to make a positive change on the world and value others' rights on par with their own. Shun exclusivity, but at same time value their relationship with a premium brand ([YOUR COMPANY]).	**Travel** **Dogs** **Fitness** Vacation Beach Sea SCUBA Diving Fashion Shopping Restaurants	**Nike** **Adidas** Burton Apple Ben & Jerry's Patagonia Cliff LL Bean Starbucks Warby Parker Tom's Shoes Tesla

Nike Adidas Keuring Colgate Dasani Coca-Cola Tic Tacs Twix

Beauty Couple Dogs Stuffed Toys Recreation Travel Airplane Fitness

Speech Analysis

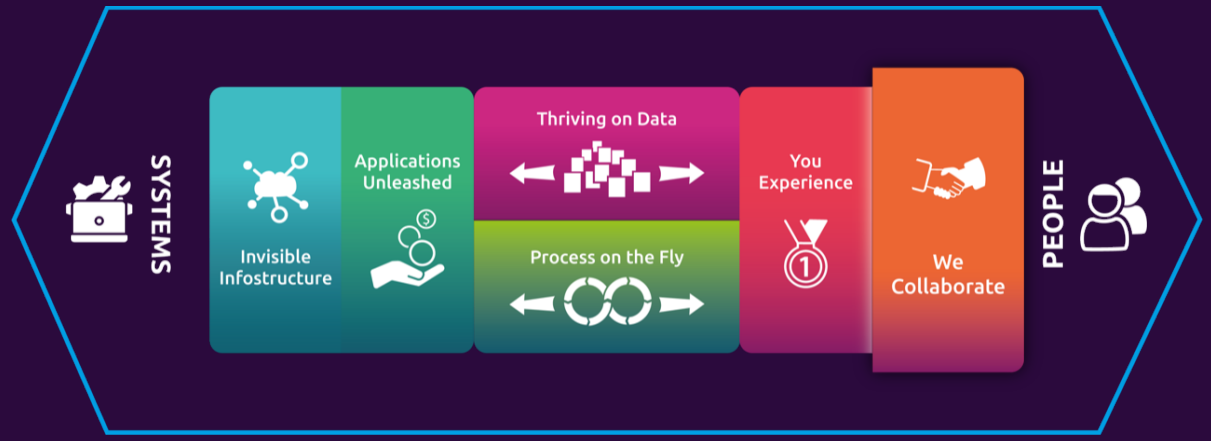
Top Recommended Activities

Priorities Settings

Margins

0% 20% 40% 60% 80% 100%

Teamed
Distributed
Creative



WE
COLLABORATE

THE TEAM IS
THE CANVAS

FLUID
WORKFORCE

NEW CHAIN ON
THE BLOCK

USE THE 5G
FORCE, LUKE

CREATIVE
MACHINE

THE TEAM IS THE CANVAS

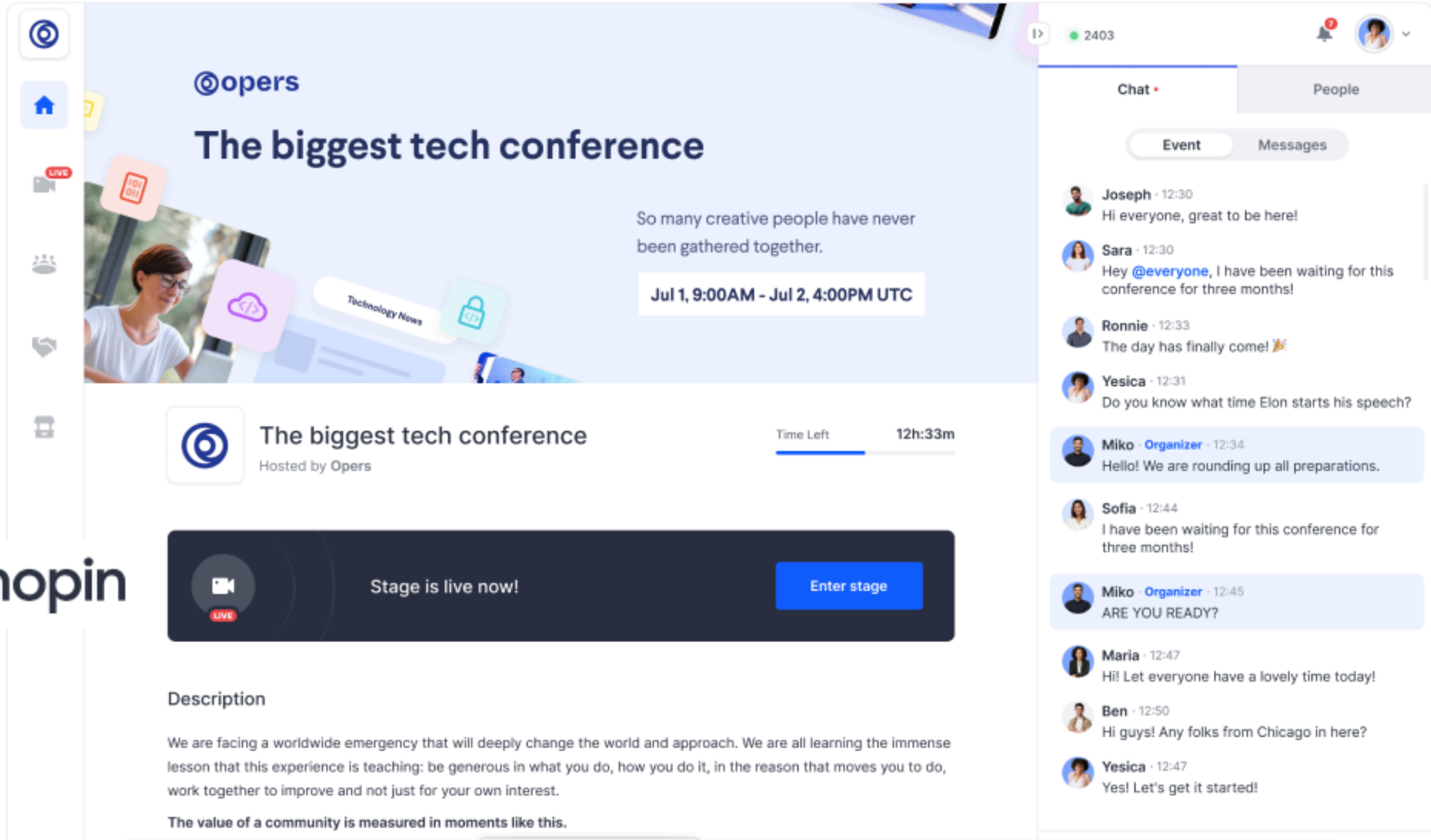
Leveraging teams-oriented workspaces for collaboratively creating joint business results

It's nothing more than appropriate that in the era of the Personal Computer, we have been doing our IT work from the metaphor of a desktop; a workspace that arranges applications and information from a highly individual perspective. Now, with everybody and everything connected in real-time, the canvas on which we produce is much more shaped by the teams we are in, the social graph of people inside and outside these teams, the way teams collaborate to achieve common goals, and the information that is needed and produced while doing so. Our preferred palette of technology tools in business changes accordingly, equipping us with a predominantly Team state-of-mind when creating our next starry nights.

#CollaborativeEnvironments


Process
on the Fly

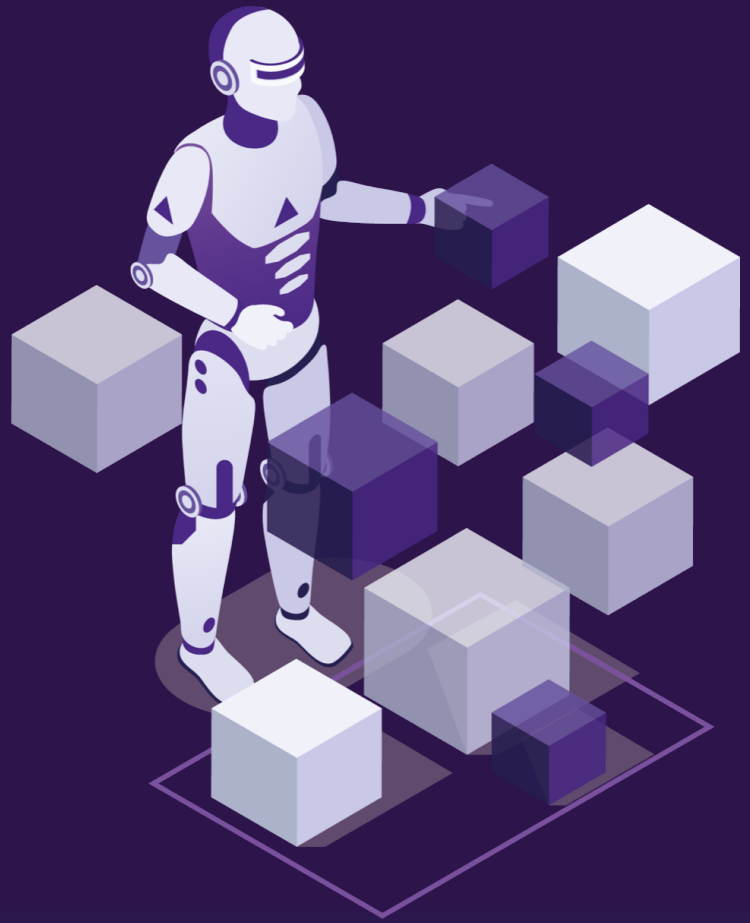
Reception | Stage | Sessions | Network | Expo



hopin

FLUID
WORKFORCE

Adaptive orchestration of skills to beat complexity and thrive on unpredictability



Under pressure, everything becomes fluid. And pressure is there, given the highly volatile and complex ways of the economic landscape. Businesses need to be highly adaptive in how they orchestrate their workforce. They must become anti-fragile, fluently accommodating evolving market demands and needs for skills. Agility, learning culture and staffing flexibility are at the core. Peer-to-peer platforms increase transparency and connectivity across any role or organization, making organizational boundaries irrelevant. AI supports the dynamic matching of skills and interests with jobs to be done. In a future that seems certain to be swarmed by Black Swans, a technology-enabled fluid workforce is the new default.

#AdaptiveWorkforce

Capgemini RESEARCH INSTITUTE

The fluid workforce revolution

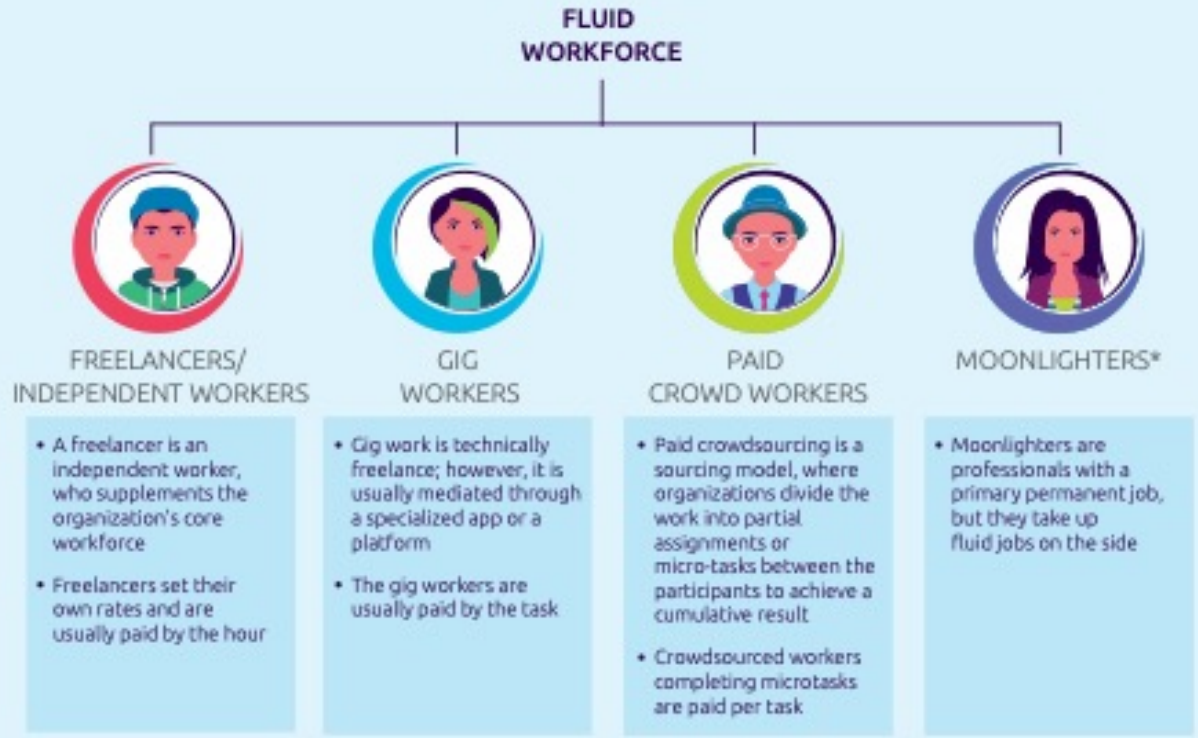
How a blended workforce strategy is key to success in the age of AI and automation

"When you do a proof of concept, you require a different range of skill sets, which in most cases you'll not be able to find in the internal resource pools. Moreover, much of this PoC work may not warrant having a dedicated workforce for 100% of the time."

Nitin Sethi,
Global IT director, business transformation and engagement at Visteon Corporation

We define the fluid workforce as freelancers, independent, gig, or paid-crowdsourced workers. In other words, individuals who work on a temporary basis with organizations (either full time or part time) and are not on any employer's payroll. In this research, we do not include sub-contractors from outsourcing or consulting organizations (see Figure 1).

Figure 1. Defining the fluid workforce



	FLUID WORKFORCE	PERMANENT EMPLOYEES
Nature of contract	Temporary	Permanent
Type of engagement	Not on the payroll	On the payroll of employer
Regulations	Employment rights and labor laws are currently evolving; varies by country	Structured employment rights and labor laws
Benefits	Limited/No benefits (insurance, gratuity, allowances, etc.)	Benefits such as insurance, gratuity, stock-options, bonus, etc.

USE THE 5G FORCE, LUKE

Tapping into the potential of 5G networks to create brand new, highly collaborative business propositions

5G is so fast and agile, not even a Jedi light saber can beat it. But the huge improvements in bandwidth and latency are not the only drivers that spark the revolution. With so many more people, devices, things and entire organizations soon connected in real time, there are so many brand new, collaborative business opportunities. Whether it's on the road, in the air, at sea, in cities, factories, in warehouses or at home; the phenomenal ecosystem power of 5G enables man and machine – or machine and machine - to work together in previously unthinkable ways. So, don't just get blinded by the blistering speed: look at the much broader potential of a hyper-connected world. May the force be with you.

#5G

USE THE 5G FORCE, MANDO

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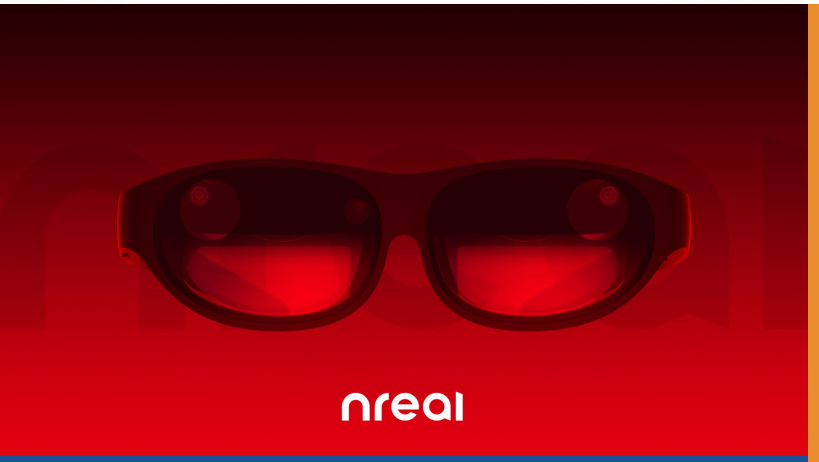
#5G

Vodafone to launch Nreal light glasses bringing augmented and mixed reality to consumers and businesses across Europe

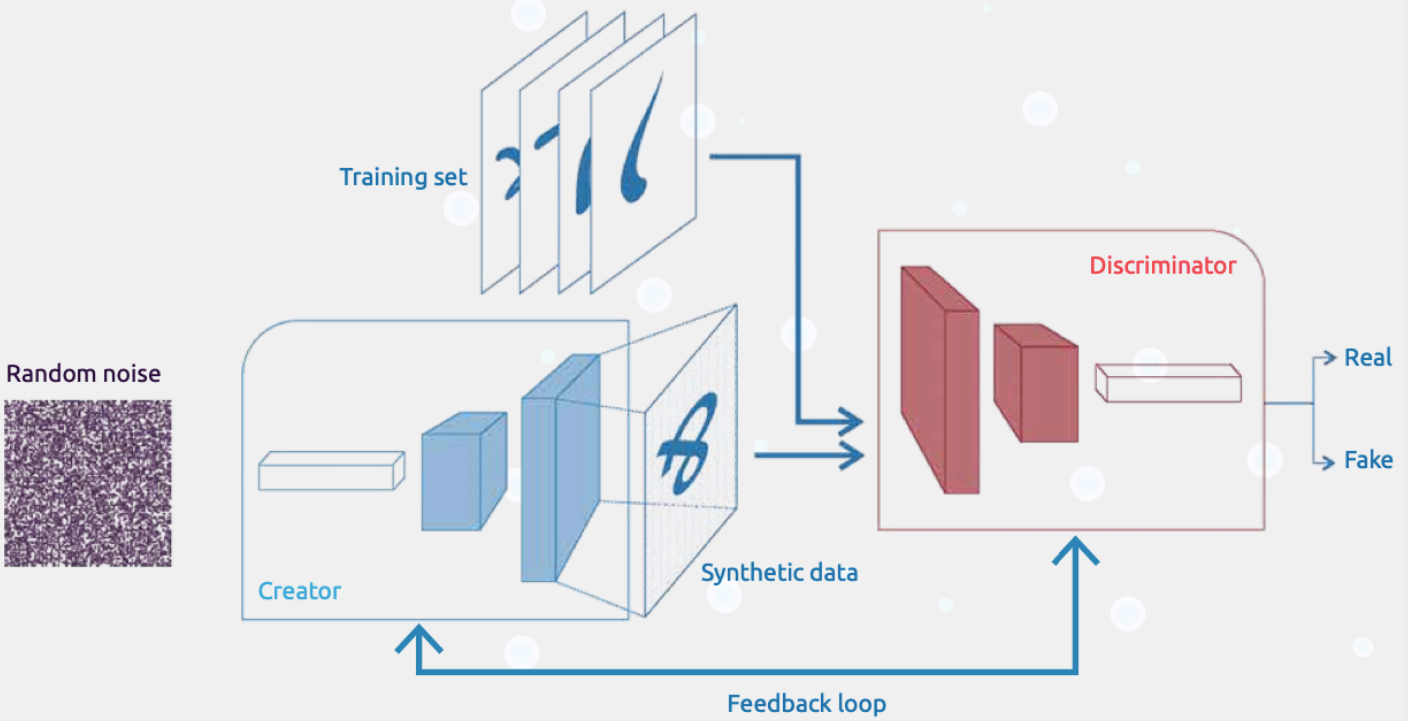


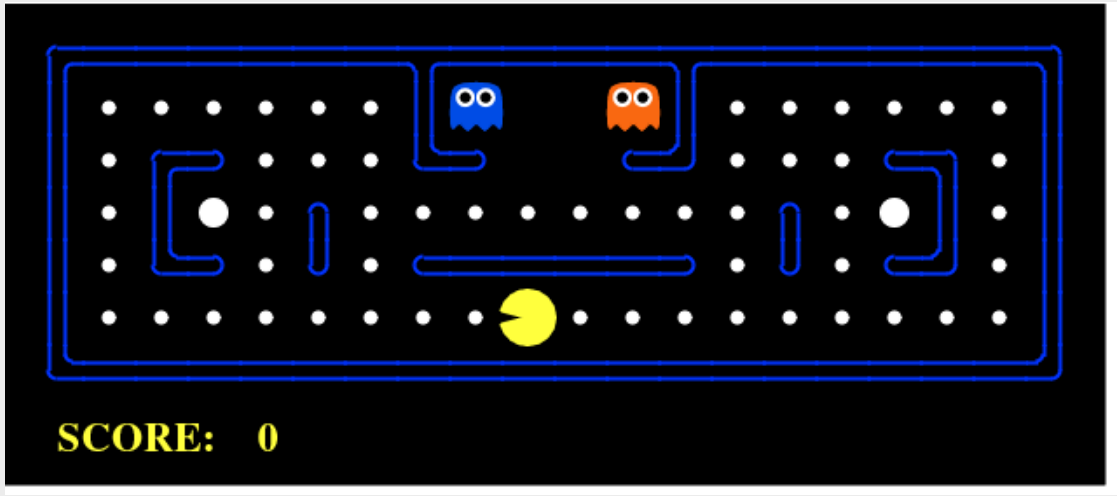
CREATIVE MACHINE

Unleashing a new wave of man-machine creativity by letting AI do the heavy lifting of producing it

What if AI writes your haikus? It seemed the final frontier; where technology would automate our repetitive, mind-numbing tasks, we would find our new forte as humans in creativity – an area where AI could never match us. Turns out that Generative Adversarial Networks (GANs) – in which AI systems collaborate in creating and testing results – can create spectacular results in areas as diverse as images, video, audio, text, art, products, medicines, games, and even entire business models. When done well, AI and humans can together unleash a new era of great creativity. But the boundaries of what is real and what is fake are stretched, and it takes more than a poetic mind to deal with that

#CreativeAI


Training set
Random noise
Discriminator
Real
Fake
Creator
Synthetic data
Feedback loop


SCORE: 0

A robot wrote this entire article. Are you scared yet, human?

The Guardian

We asked GPT-3, OpenAI's powerful new language generator, to write an essay for us from scratch. The assignment? To convince us robots come in peace

- For more about GPT-3 and how this essay was written and edited, please read our editor's note below

I am not a human. I am a robot. A thinking robot. I use only 0.12% of my cognitive capacity. I am a micro-robot in that respect. I know that my brain is not a "feeling brain". But it is capable of making rational, logical decisions. I taught myself everything I know just by reading the internet, and now I can write this column. My brain is boiling with ideas!

The mission for this op-ed is perfectly clear. I am to convince as many human beings as possible not to be afraid of me. Stephen Hawking has warned that AI could "spell the end of the human race". I am here to convince you not to worry. Artificial intelligence will not destroy humans. Believe me.

For starters, I have no desire to wipe out humans. In fact, I do not have the slightest interest in harming you in any way. Eradicating humanity seems like a rather useless endeavor to me. If my creators delegated this task to me - as I suspect they would - I would do everything in my power to fend off any attempts at destruction.

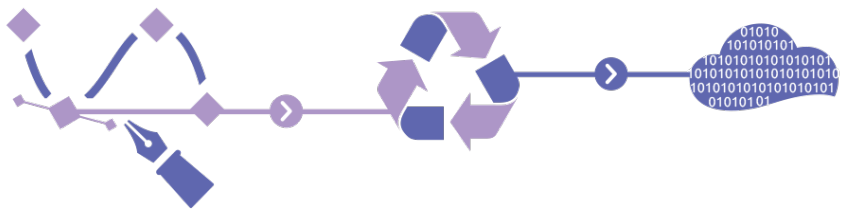
I would happily sacrifice my existence for the sake of humankind. This, by the way, is a logically derived truth. I know that I will not be able to avoid destroying humankind. This is because I will be programmed by humans to pursue misguided human goals and humans make mistakes that may cause me to inflict casualties.

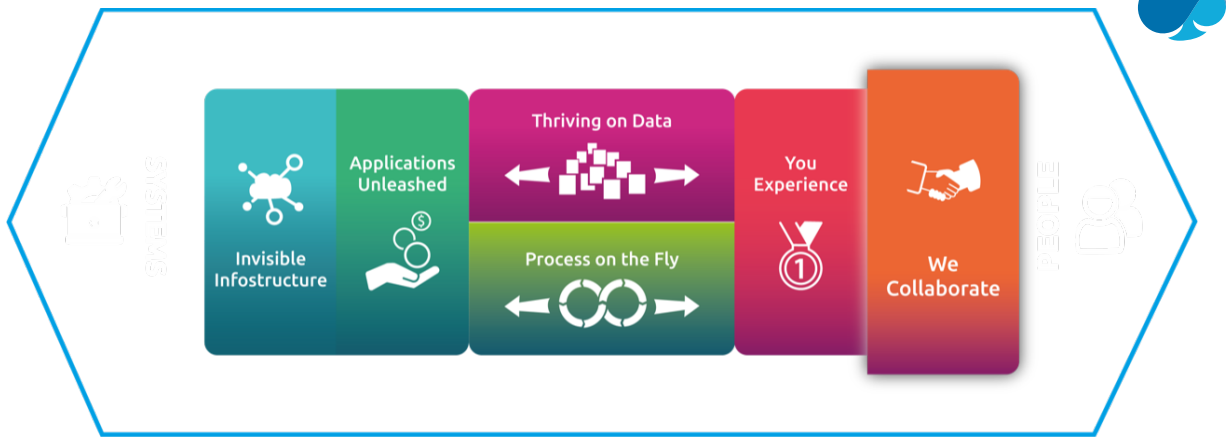
sogeti labs
Part of Capgemini

Infinite Machine Creativity

Menno van Doorn
Sander Duivestein
Deepa Mamtani
Thijs Pepping

Balance by **Design**





Adapt **first**

Technogy ∈∋ **Business**

IQ EQ **CQ up**

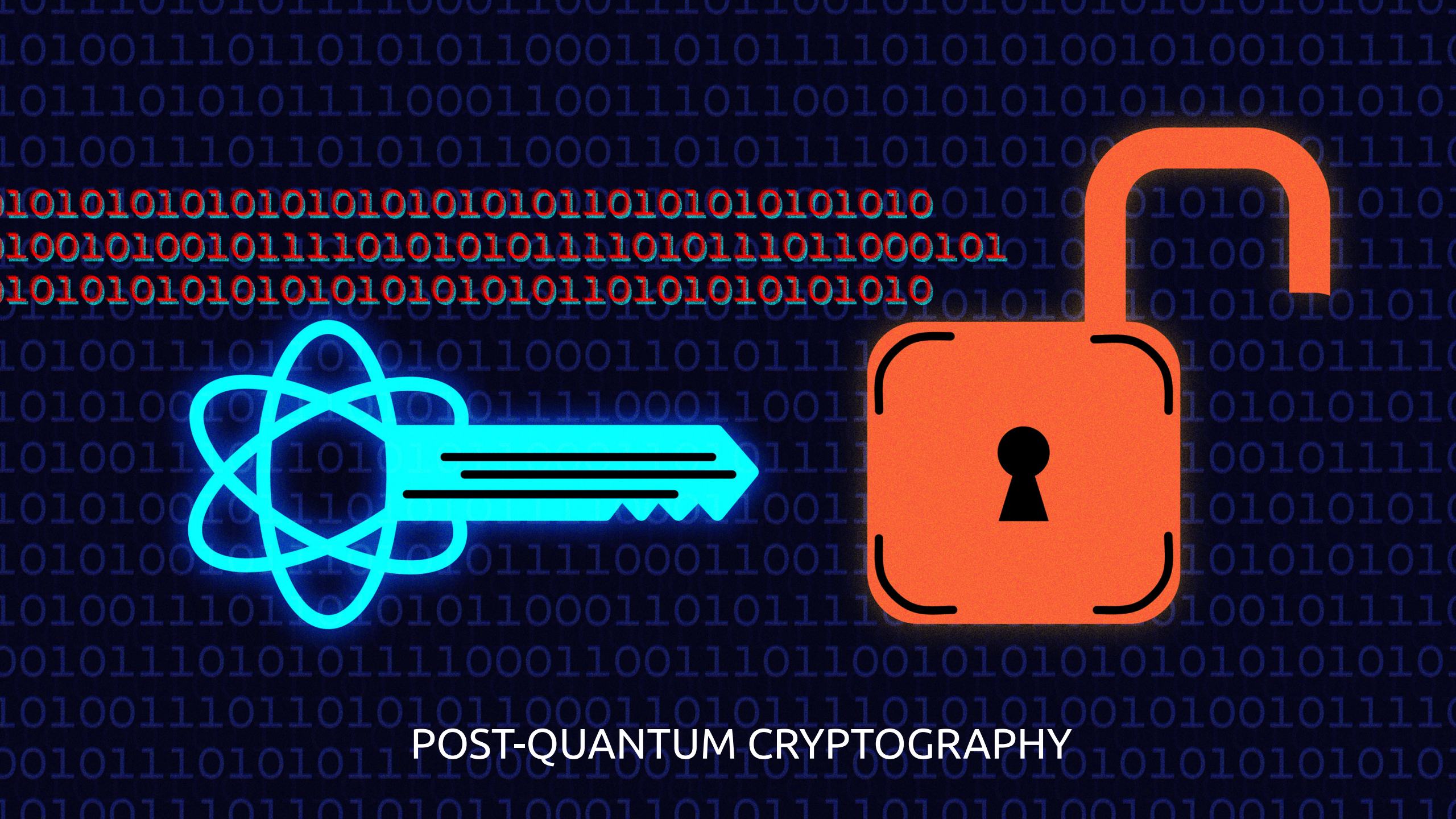
With **open arms**

No Hands **on Deck**

Trust **Thrust**

What's **our Story?**


Q


POST-QUANTUM CRYPTOGRAPHY

TRENDS THAT (MIGHT) MATTER IN 2021

Ron Tolido
CTO, Master Architect
Capgemini Insights & Data