CogX

Best Practice AI

Workshop
Boardroom AI Briefing

CogX Briefing

June 14, 2021

The seven conversations your Board need to have about AI

1. What is AI?
2. How are companies using AI?
3. Why is it hard to deliver AI?
4. What is the impact of AI on corporate strategy?
5. What is the impact of AI on your people?
6. What are the risks associated with AI?
7. How to manage AI Governance

We were key contributors to the World Economic Forum's Empowering AI Leadership Board Toolkit launched at Davos 2020

WORLD ECONOMIC FORUM

Introduction

Best Practice AI advises executives on AI strategy, implementation and risk

TIM GORDON
Partner

- 20+ years' international digital transformation leadership experience
- Leadership roles (to CEO) at the FT, BCG, PE-backed media and political party in Government
- Trustee for Full Fact; member of APPG on AI's Enterprise Adoption Task Force
- Studied at Cambridge, College of Europe, INSEAD

SIMON GREENMAN
Partner

- 20+ years of international digital transformation leadership experience in PE owned and public media, internet and technology companies
- Member World Economic Forum's Global AI Council
- Co-founder of early internet brand MapQuest.com
- Chair Harvard Business School Angels, DN Capital advisor, and AI Expert in Residence at Seedcamp
- MBA from HBS and BA in AI from Sussex University

Agenda

AI in seven narratives:

- What is AI?
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Board agenda

What is AI?

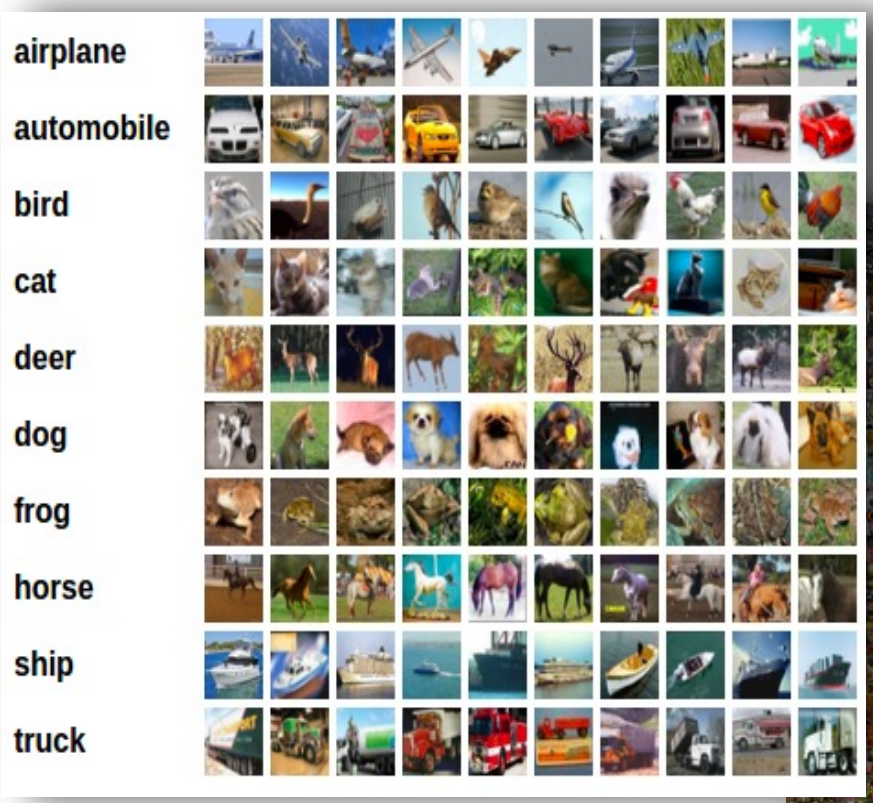
Myth: “General Intelligence”

Reality: “Narrow Intelligence”

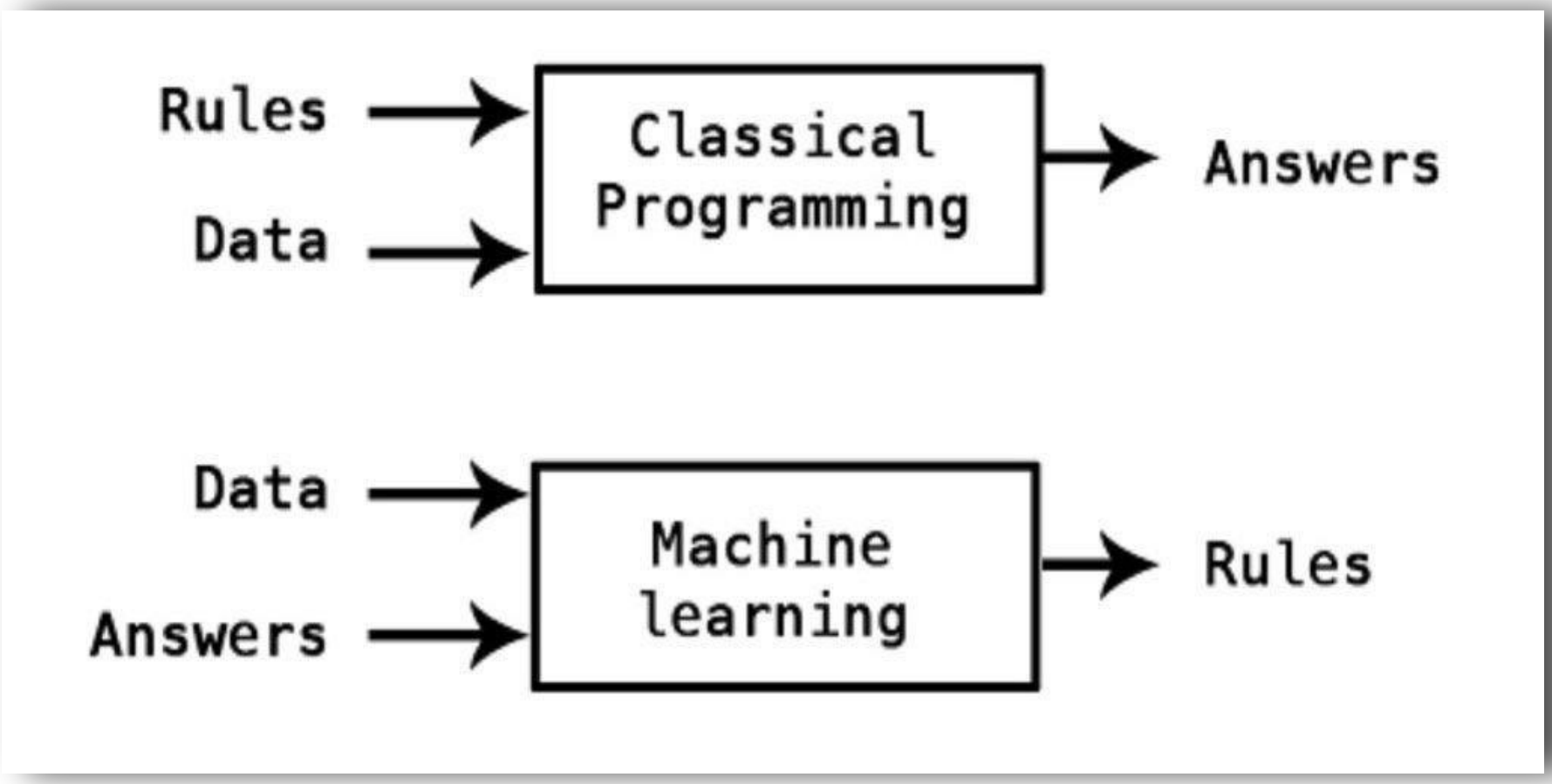
https://www.bestpractice.ai/studies/makoto_cucumber_farm_automatically_sorts_cucumbers_based_on_shape_length_and_distortion_using_deep_machine_visio

Machine learning identifies patterns in large datasets to make predictions

Example show labelled images of objects



Practically, AI / ML is a new way to create software



Deep learning lacks human level robustness.

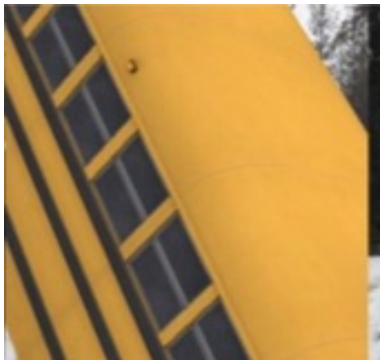
It recognises high dimensional patterns, not higher order concepts

School Bus

100%

Garbage Truck

99%



Punch Bag

100%

Snow Plough

92%

Source: https://arxiv.org/pdf/1811.11553.pdf

Tesla’s Smart Summons shows the brittleness of pattern recognition and the challenges of a world of edge cases

https://arstechnica.com/cars/2019/10/i-watched-over-100-tesla-smart-summon-videos-heres-what-i-learned/

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Board Agenda

AI lets computers interact directly with the real world

Seeing

Hearing

Reading

Analysing

"What could I do with 1M interns?"

"How can I increase the productivity of my top people 100x?"

Scaled observation of the world*

*Surveillance

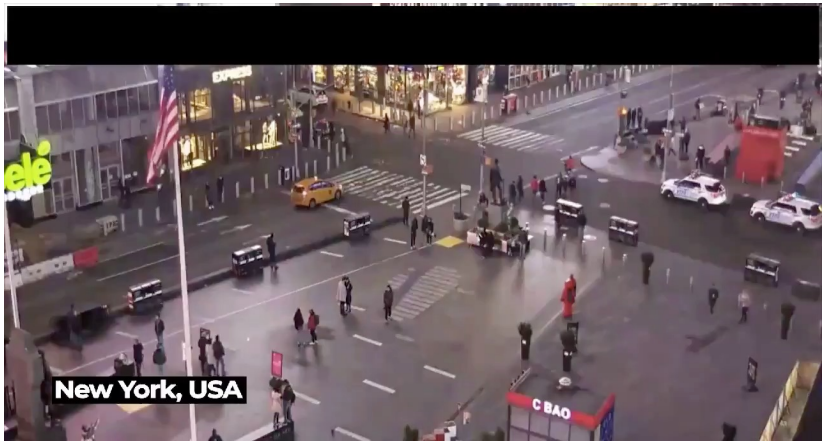
Which has accelerated surveillance use cases

Thermal screening in stations and airports

FRT to detect those wearing masks & enforce quarantines

Thermal cameras used on on drones to identify fevers and crowds

Enforcing social distancing



AI is a general purpose technology that will driving the ubiquitous adoption of a vast number of use cases

	AI Technologies	Production			Front Office			R&D	Back-Office					
		Operations	Supply Chain	Manufacturing	Marketing	Sales	Customer Service	R&D	HR	Legal & Risk	Finance	IT	Data	Strategy
Cognitive Capabilities	Knowledge management													
	Vision													
	Speech													
	Natural language processing													
	Conversational - interaction													
Data Science	Analysis , optimisation and prediction													
Creativity	Generative													
Process Automation	RPA													
Acting and Sensing	Robots and Sensors													

Predict future customer demand - Help screen CVs - Optimise supply chain purchasing - Reduce cyber risks - Improve customer service -Automate data entry with RPA - Better market and engage prospective customers - Improve product offerings - Predict customer churn - Score top customer prospects

Best Practice AI has published over 700 use cases and 1,200 case studies at www.bestpractice.ai

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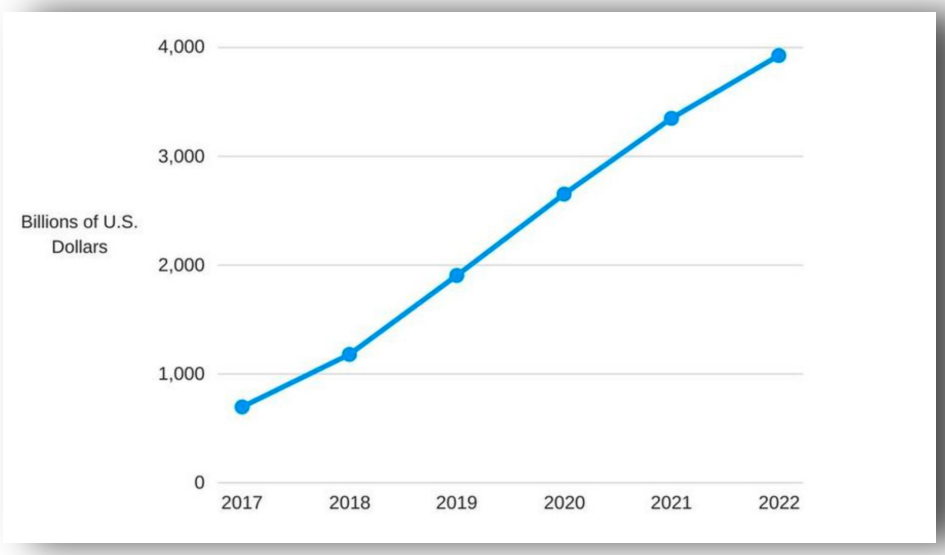
Board agenda

Huge projected macro impact…
But ROI challenges at the micro level

Gartner Research predicts AI-derived business value will reach up to $3.9 T by 2022



But individual project ROI is often hard to deliver

Competitive advantage in AI is as much about being ready to do AI as actually doing AI

AI is a better pump – but you need to get the plumbing right

-> Building a Proof of Concept or a simple AI tool might take two months

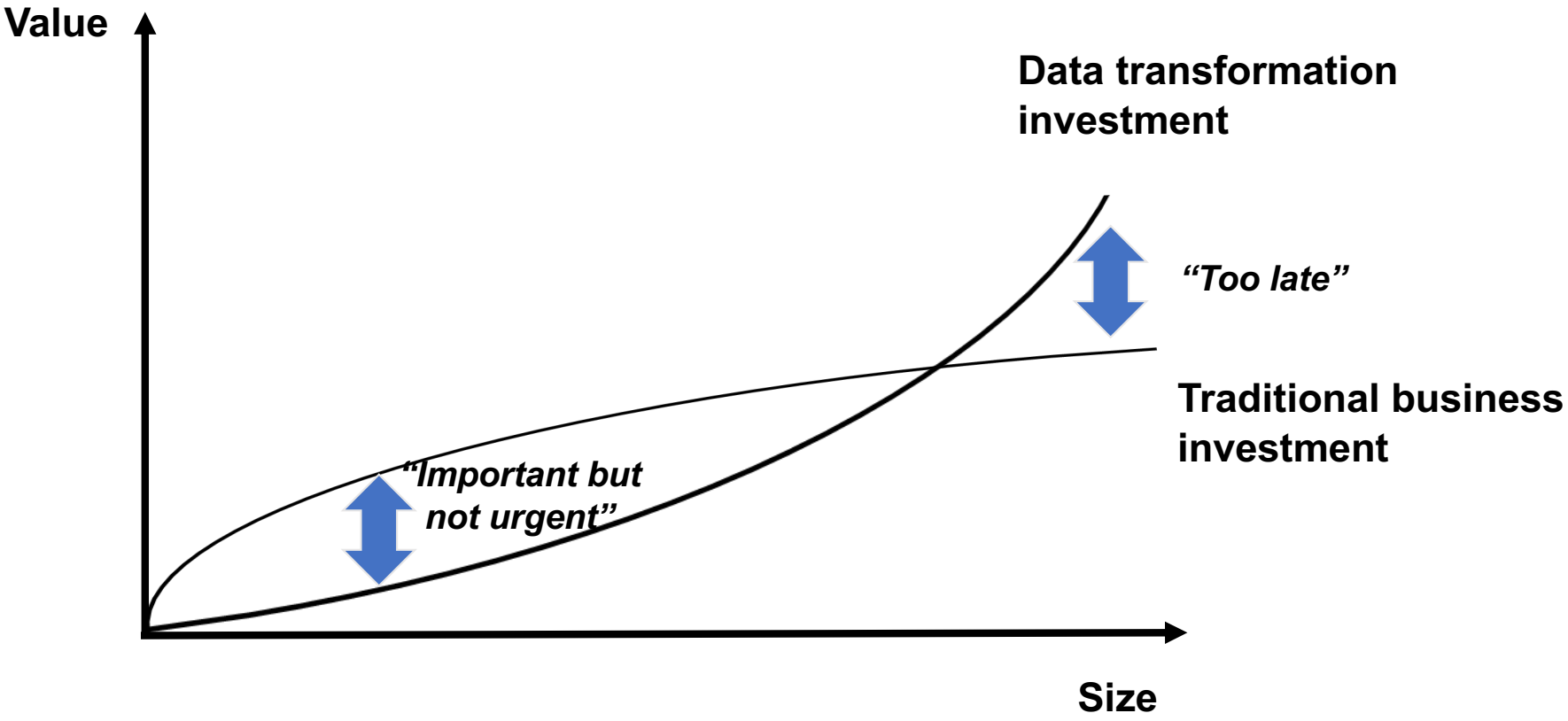
-> Getting underlying processes and data ready for the next stage might take 6 – 18 months

Strong data plumbing characterised by:

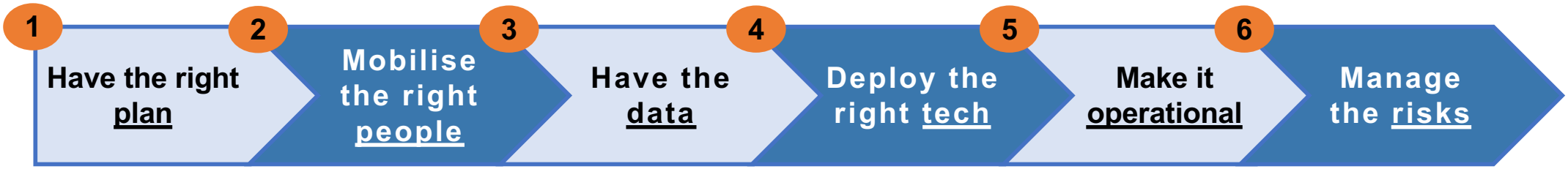
- Digitisation of processes, functions and capabilities
- Connectivity across IoT, supply chain, customers…
- Integrated and holistic view of data such as 360° view of customers
- Labelled and clean data
- Flexible and rapid access to data
- Modular technology architecture

Crossing the transformation gap

It is hard to make the investment case for AI



To make it happen six dimensions need to be aligned



Have the right plan	Mobilise the right people	Have the data	Deploy the right tech	Make it operational	Manage the risks
Be very clear what you want to achieve	Agree project ownership + governance / oversight	Plan how to get the right data at right stage of preparation (e.g. labelled and complete)	Plan approach, testing and refinement of key algorithm(s)	Decide how prediction will lead to action (degree of automation)	Identify potential regulatory / legal issues (e.g. GDPR)
Understand what you need to predict / optimise – and levels of confidence required	Ensure domain expertise and cross-functional buy-in in place	Consider what bias issues potentially faced	Ensure right IT architectural stack in place	Ensure measurement and feedback loops in place	Map stakeholder set and prepare clear comms plan
Agreed metrics that measure success	Ensure skilled team in place –whether internal or vendor	Ensure relevant regulations complied with	Check impact of tech choices on broader tech stack	Map and manage barriers to deployment	Ensure alignment and information to empowered 'ethics' governance
Implement a portfolio of AI projects				Ensure key staff bought in	

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Board agenda

AI Platform companies breaking traditional customer proposition trade-offs between speed, scale and scope

Scope: Personalisation

Speed: Immediate availability

Scale: Lowest price

amazon

Data-native platform companies positioned to exploit AI

“Traditional” US platforms

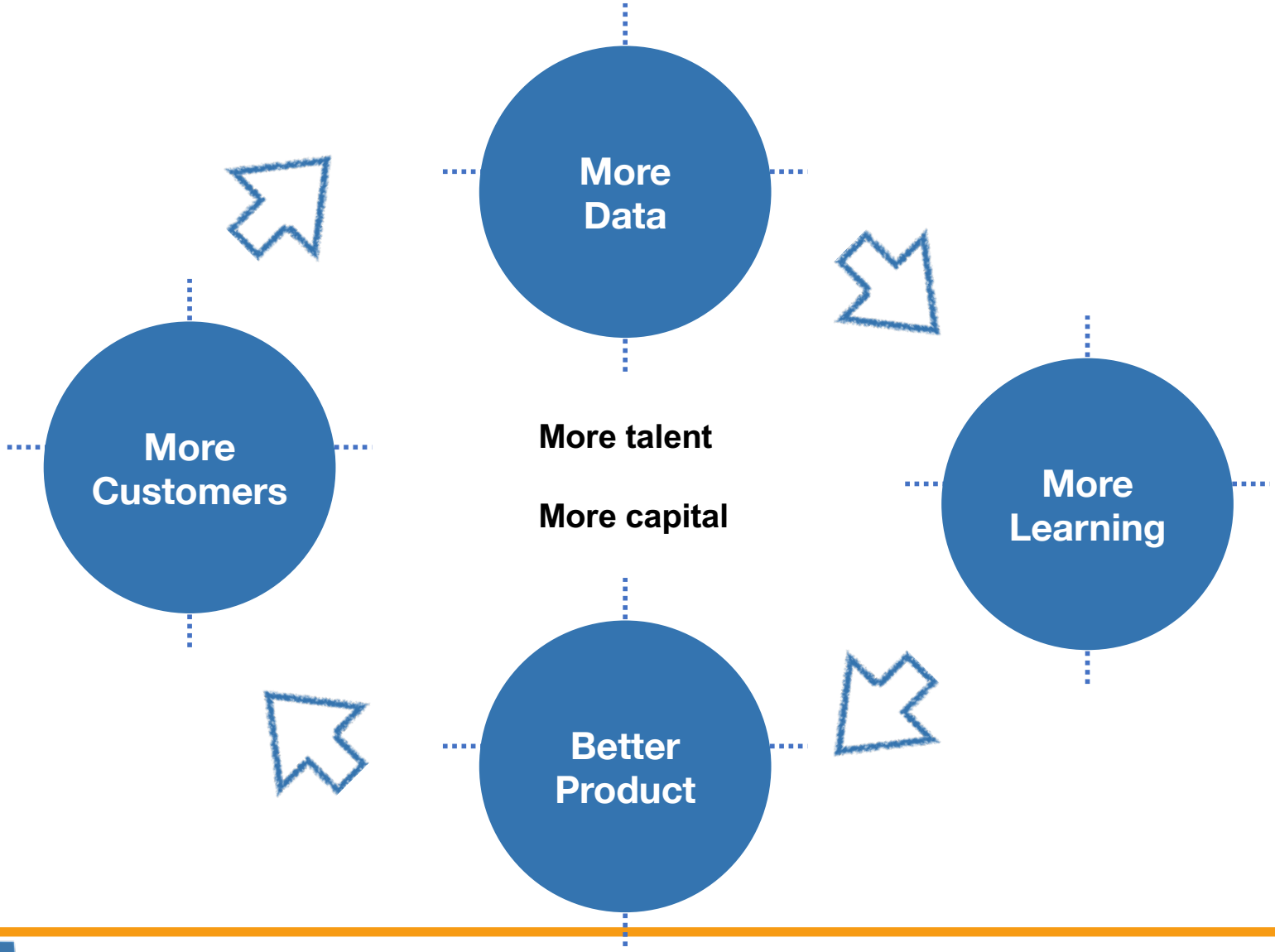
Emerging Chinese competitors

STATE GRID CORPORATION OF CHINA

蚂蚁金服 ANT FINANCIAL

Alibaba.com™

Platforms exploit AI flywheel economics



We foresee three organisational design impacts

1) Products become solutions

Rise of subscription business models (e.g. Rolls Royce flying hours, Mercedes taxis)

2) AI factory at core of enterprise

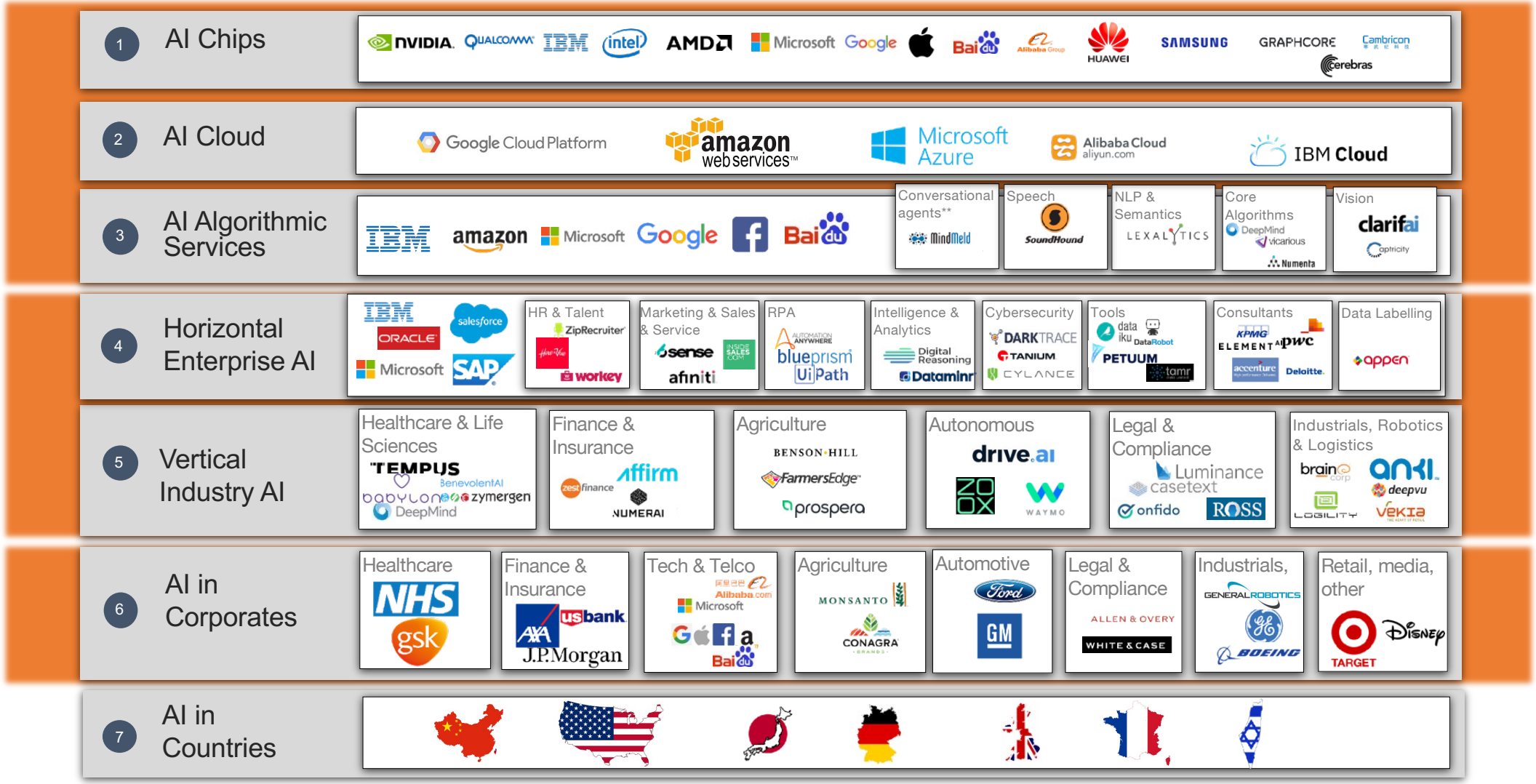
Humans, supported and directed by algorithms, move to oversight roles or are directed by AI

- Data scientists
- Uber drivers, Amazon warehouses

3) Virtual value chain becomes an eco-system

Value of a firm will increasingly be in eco-system orchestration

Layers of the AI industry – where value is captured



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* Excludes SMB sectors. The companies noted are representative of larger players in each category but in no way is this list intended to be comprehensive or predictive.

Sources: CBInsights, Crunch Base, and misc. others

** Acquired by Cisco and Google respectively.

Data is the 21st Century equivalent of real estate

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Future of work

Automation	Platform Economics	Centaurs (Augmentation)	Creative economy
			
Algorithms replace humans	**Algorithms 'manage' humans**	**Human + algorithm > algorithm or human**	**Human > algorithm**

Flexibility and willingness to learn key attributes

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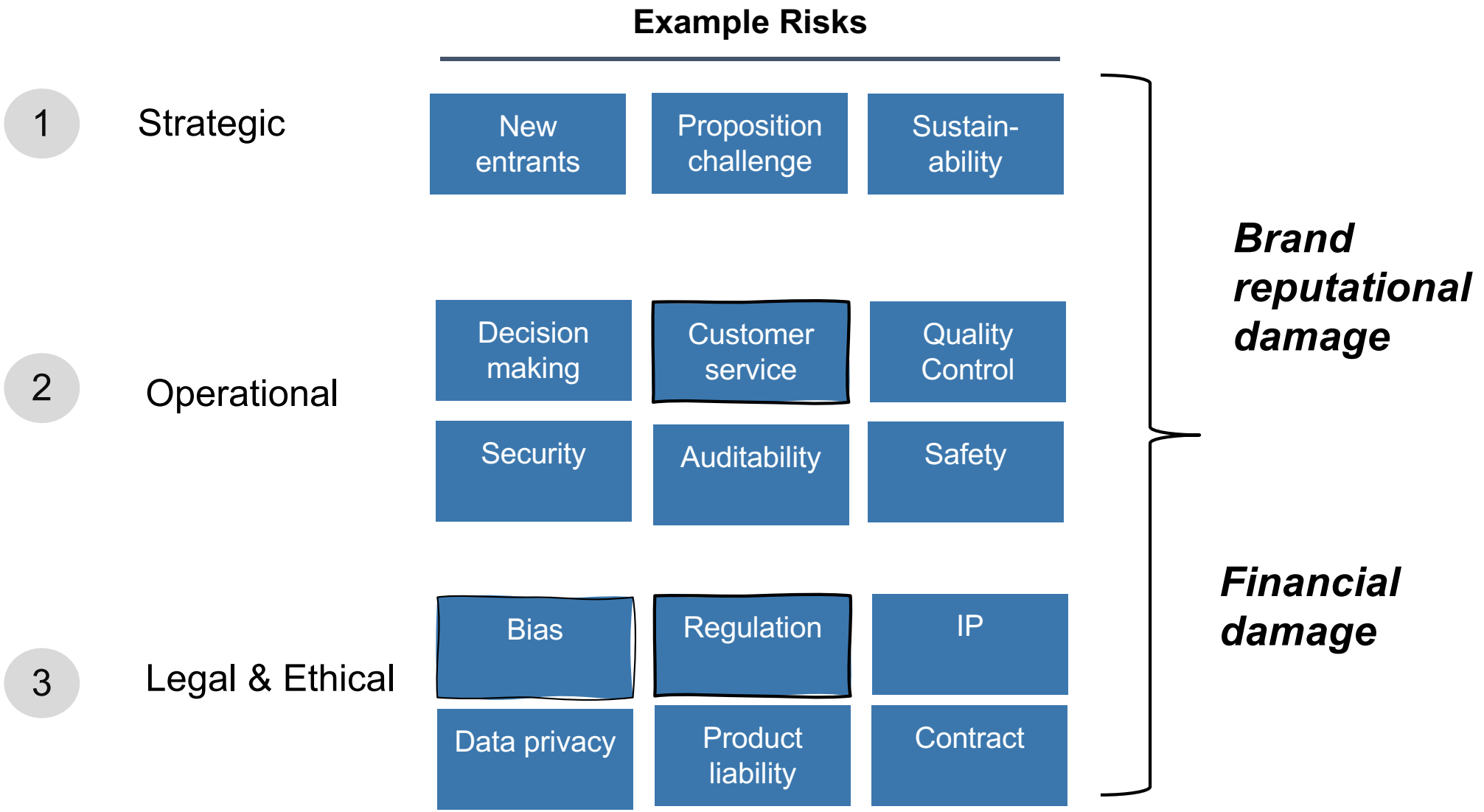
Board agenda

The risks of AI are strategic, operational, legal and ethical



100+ “Ethical AI” frameworks boil down to similar principles

And principles need to be turned to policy and practice

1) **Inclusive**, diverse and **fair** (avoid or don’t reinforce bias)

2) **Explainable** and transparent decision making

3) Be built and tested for **safety**

4) Be **socially** beneficial

5) **Responsible** by design and default

6) People are **accountable** → ultimately the Board

AI regulation is already here under GDPR: Explainability

Article 22 under GDPR states:

Fully automated decisions with legal effect or similarly significant effect needs to be explainable

and

data subjects have the right to human-made decisions

Explainability will spotlight company historical practices

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Board agenda


The Fourth Industrial Revolution starts with one very important point: trust
Marc R. Benioff
Chairman and CEO, Salesforce

Trust is the key currency for value creation in the European AI world

Stakeholders	Impact
1. Customers	Are they willing to share data to build AI-enabled propositions? If not = cost disadvantage
2. Suppliers	Increasingly interlocked eco-systems of suppliers and distributors need to share data
3. Staff	Trust in management will allow AI tools to shift productivity and effectiveness to a new level
4. Regulators	As data-driven tools and algorithms get pervasive, regulators will get more involved, earlier
5. Society	Broader society will judge organisations by how they behave on AI ethical issues

"Building trust is crucial…it starts with us taking accountability…" Satya Nadella, CEO Microsoft

Microsoft's approach to building trust:

1. Implement governance with a "hub-and-spoke model" driven by an Office of Responsible AI with on-the-ground Responsible AI Strategy in Engineering (RAISE) teams
2. Agree AI principles (see right)
3. Turn principles into practice with Responsible AI standards practices implemented across the system development lie-cycle
4. Educate and offer responsible innovation workshops and exercises to help developers anticipate and address the potential negative impacts of technology on people (e.g. Judgement Call game right)
5. Offer dashboard and remediation tools to help make ML models more transparent, intelligent and interpretable
6. Measure the cultural change.

Six AI ethical principles

Fairness	Reliability and safety	Privacy and security
AI systems should treat people fairly	AI systems should perform reliably and safely	AI systems should be secure and respect privacy
Inclusiveness	**Transparency**	**Accountability**
AI systems should empower and engage people	AI systems should be understandable	People should be accountable for AI systems

Judgement Call – game cultivating stakeholder empathy via scenario-imagining

https://docs.microsoft.com/en-us/azure/architecture/guide/responsible-innovation/
http://www3.weforum.org/docs/WEF_Responsible_Use_of_Technology_2021.pdf

Salesforce is helping its 100,000+ customers operationalise the responsible use of AI and technology

Salesforce developed five key guiding ethical AI principles

With a "ethics-by-design" vision:

The "platform is built with ethics from the ground up, enabling customers to pursue their digital transformations from a foundation of product ethics." Out of the box capabilities include:

1. Changeable gender-based spectrum field (e.g. non-binary)
2. Explainability features
3. Removal of cultural bias attributes (e.g. within bot models)
4. Model cards to give high level briefs on the key dimensions of the model

They also offer customers a Risk Assessment Methodology including:

1. Ethics by Design tools
2. Consequence scanning workshop – generative approach to risk identification and assessment
3. Offer ethical pre-launch reviews to identify high risk use cases

Deutsche Telekom is using AI Ethics as a competitive differentiator. With over 600 AI embedded IT projects they offer nine key lessons.

1. Commit to digital ethics as a strategic advantage
2. Co-create AI Ethics Guidelines with technical and non-technical staff
3. Obtain credible, visible leadership to the AI Ethics programme
4. Build AI Ethics controls into the technology life-cycle
5. Provide broad education and engagement on AI Ethics both internally and externally
6. Implement explainability processes
7. Ensure AI systems have a “kill switch”
8. Extend the AI Guideline to suppliers
9. AI Ethics is a journey that needs to start now

https://www.telekom.com/en/company/digital-responsibility/digital-ethics-deutsche-telekoms-ai-guideline

In summary, eight things to do implement responsible AI governance in your organization

1. Appoint an organizational leader for Responsible AI – with a link to the Board
2. Appoint cross-functional teams to co-create and define AI ethics code and policies
3. Implement AI governance leadership groups to ensure company-wide adoption and compliance
4. Implement responsible AI into the product development life-cycle to address data privacy, bias and fairness, explainability and transparency
5. Ensure education and training on responsible AI across relevant departments with clear use cases of the risks
6. Ensure policies are extended to 3rd party providers
7. Ensure explainability and transparency with all stakeholders especially customers – produce an AI Explainability Statement

Example of tools and guidance from WEF contained in their AI Empowering Toolkit
https://adobe.ly/2w8P8JW
https://www.weforum.org/agenda/2020/01/8-ways-to-ensure-your-companys-ai-is-ethical

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Board agenda

The seven conversations your Board need to have about AI

1. What is AI?	Artificial General Intelligence is exciting – but less relevant than narrow Artificial Intelligence (AI) and Machine Learning (ML)
2. How are companies using AI?	AI / ML is a “superpower”: how would you deploy 1,000 interns? But beware brittleness
3. Why is it hard to deliver AI?	Macro-economic impact projected to be huge, yet many organisations struggle to make ROI stack up for the simplest project
4. What is the impact of AI on corporate strategy?	Real competitive advantage is in being able to do AI; not necessarily doing it
5. What is the impact of AI on your people?	Despite the hype, AI / ML will reframe how we build organisations and employ people
6. What are the risks associated with AI?	“AI Ethics” is articulating this generation’s ethical dilemmas – but Boards need to plan now for real regulatory, legal and reputational risks
7. How to manage AI Governance	The Board is ultimately responsible for the economic, legal, regulatory, reputational and operational risks from AI: how should you provide governance and oversight

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How to approach AI governance at the board and executive level. Examples of recommendations from the WEF

What boards can do?

- ❑ Understand the strategic opportunities and risks of AI
- ❑ Ensure identify scope of AI activity that requires governance and controls. Conduct a risk review.
- ❑ Ensure ethical AI code is in place
- ❑ Decide whether to keep, reassign or set up new governance responsibilities in the company
- ❑ Update board committees and responsibilities as appropriate to cover AI responsibilities

What management should do?

- ❑ Develop a strategic business plan for AI
- ❑ Develop a public-facing Explainability Statement
- ❑ Identify potential risks of AI across a mapping of potential use cases
- ❑ Develop an AI ethics code and policies incl. stakeholder AI communication
- ❑ Ensure AI governance and controls to cover 3rd party advisors, internal decision making, etc
- ❑ Ensure education and training on responsible AI across relevant departments
- ❑ Implement data privacy, explainability, auditability and responsible AI by design
- ❑ Consider separate internal audit team

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Example of tools and guidance from WEF contained in their AI Empowering Toolkit https://adobe.ly/2w8P8JW.

Generate an Explainability statement

The ICO identified six main types of explanation that form an explanatory statement:

1. **Rationale** explanation: the reasons that led to a decision, delivered in an accessible and non-technical way.

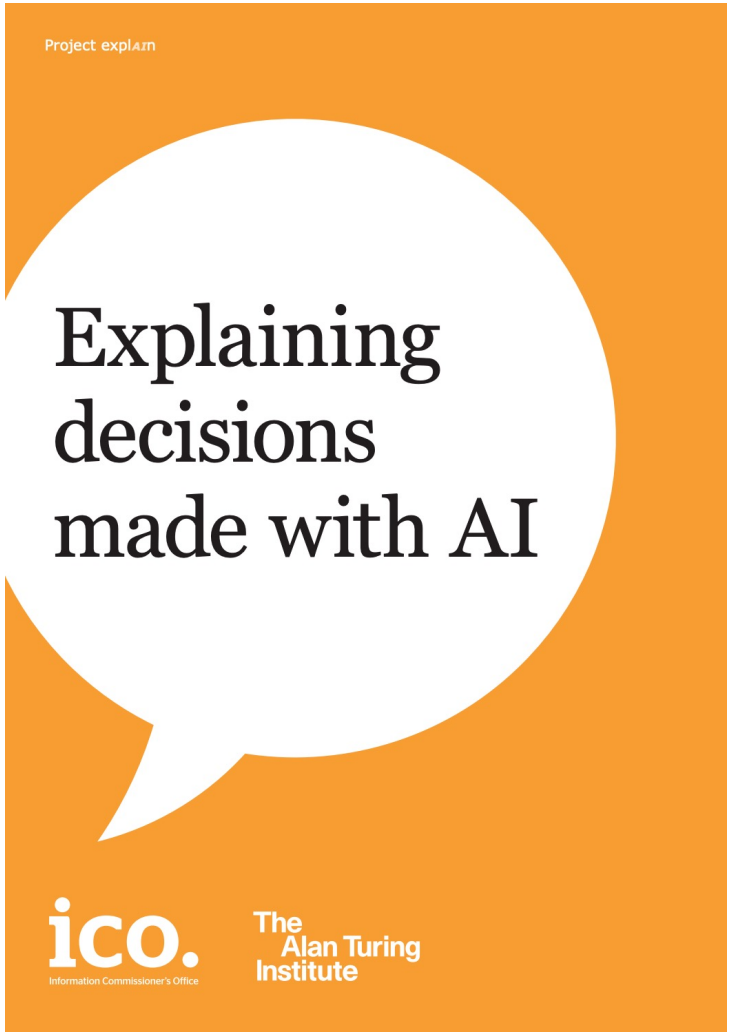
2. **Responsibility** explanation: who is involved in the development, management and implementation of an AI system, and who to contact for a human review of a decision.

3. **Data** explanation: what data has been used in a particular decision and how; what data has been used to train and test the AI model and how.

4. **Fairness** explanation: steps taken across the design and implementation of an AI system to ensure that the decisions it supports are generally unbiased and fair, and whether or not an individual has been treated equitably.

5. **Safety** and performance explanation: steps taken across the design and implementation of an AI system to maximise the accuracy, reliability, security and robustness of its decisions and behaviours.

6. **Impact** explanation: the impact that the use of an AI system and its decisions has or may have on an individual, and on wider society.



Further reading

Board agenda

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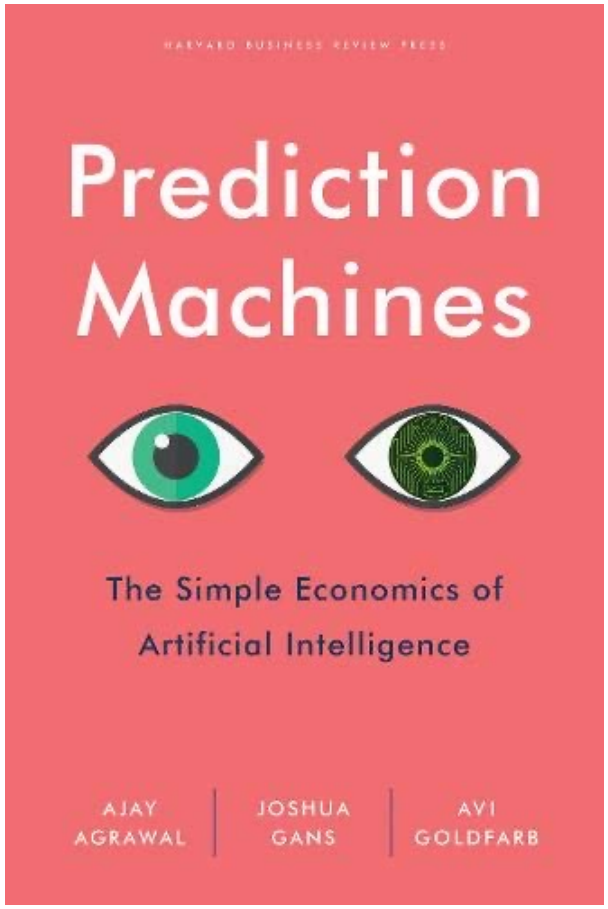
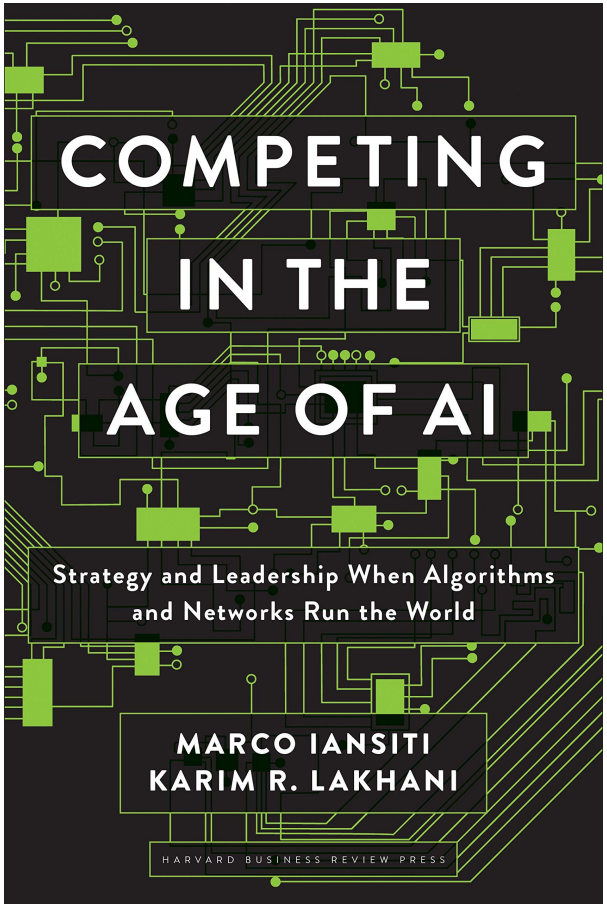
Business economics



Competitive challenge



Thank you. Best Practice AI

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