

REWIRED

Outcompeting in the age of digital and AI

Trinity Washington University
Symposium on Artificial Intelligence
October 27, 2023

Agenda



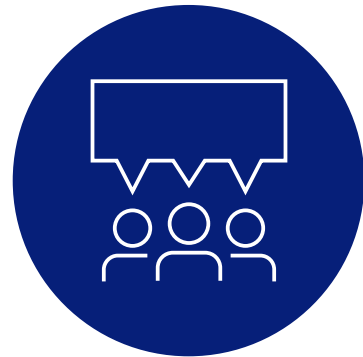
**What do we mean by AI and
Generative AI?**

What does it take for a company to
successfully deploy Digital & AI?

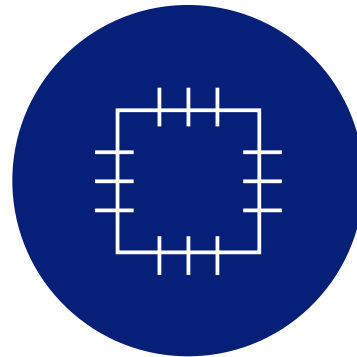
Why now?



More data



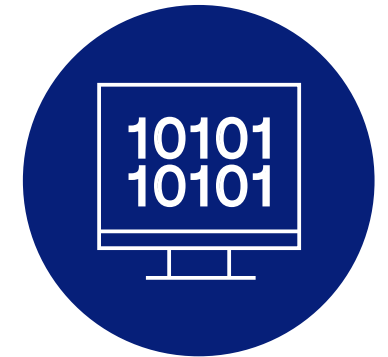
Consumer expectations



Faster processors

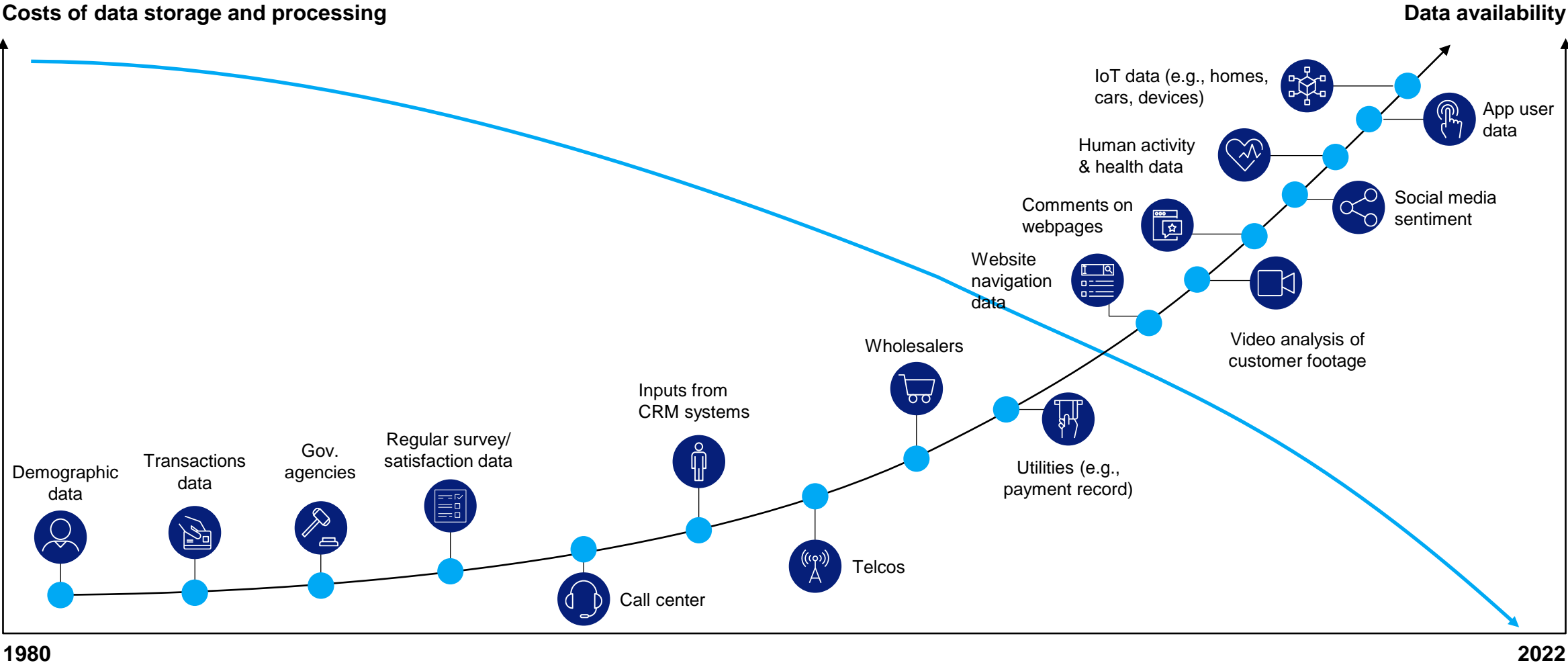


Cloud



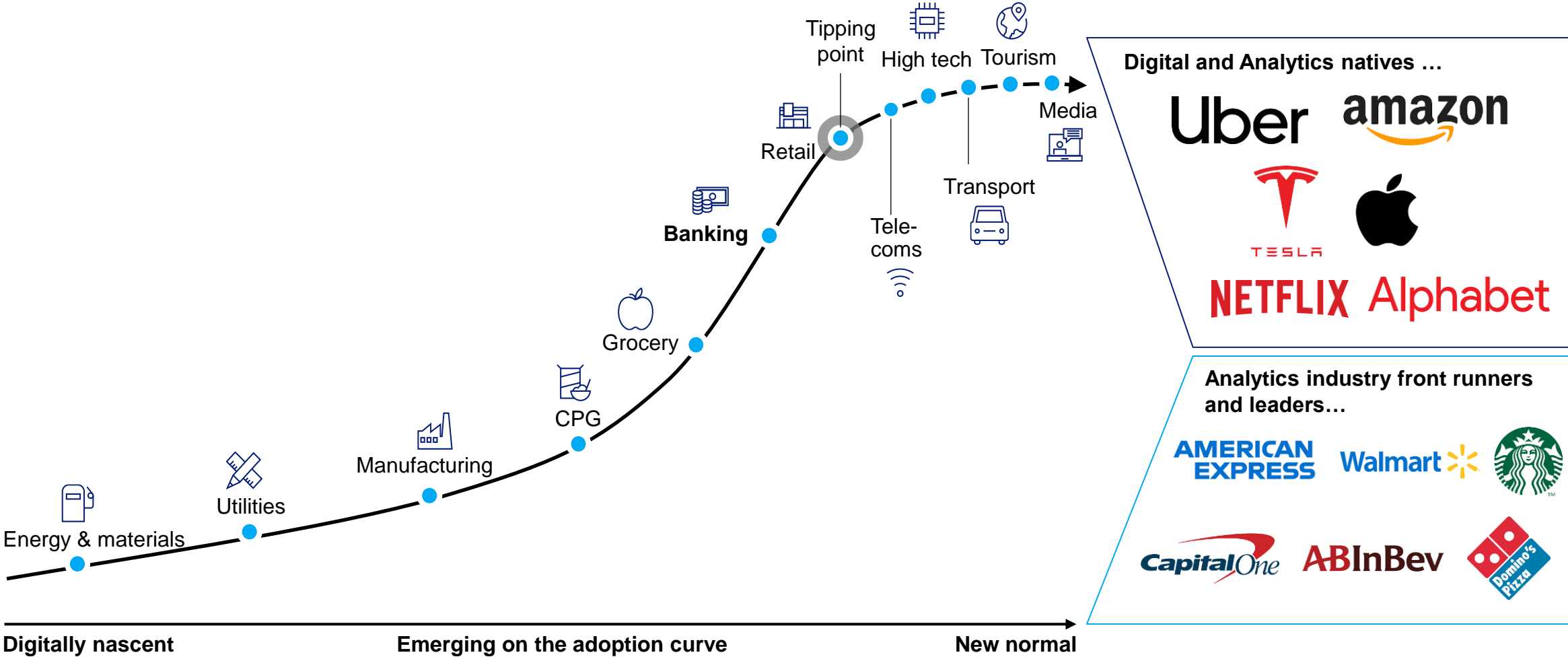
Commoditized algorithms

The last decade has witnessed an explosion in data availability



Source: Dave Evans (April 2011) "The Internet of Things: How the Next Evolution of the Internet Is Changing Everything"; McKinsey Analytics; Dave Evans "The Internet of Things: How the Next Evolution of the Internet Is Changing Everything"

Some industries have already reached the tipping point where AI is the new norm



Growth in AI is driven by better algorithms, with GenAI creating greater awareness and urgency around AI

Artificial Intelligence, the science and engineering of making intelligent machines



Intelligence exhibited by machines, which are capable of **mimicking human cognitive functions**, such as understanding language, recognizing objects/sounds and learning, among others

Machine Learning, a major approach to realize AI



Approach to realize Artificial Intelligence – It is a **way of “training” an algorithm** to learn how to make data-driven predictions. “Training” involves feeding huge amounts of data to the algorithm and allowing the algorithm to **improve itself over time**

Deep Learning, a branch of ML



Deep learning is **one of many approaches to machine learning**. It can process a wider range of data resources, requires less data preprocessing by humans, and can often produce more accurate results than traditional machine-learning approaches.

GenAI, a subset of DL



Subset of deep learning that uses structured and unstructured data to produce new content be it text, images, code, or video

Generative AI has accelerated in diffusion and application in 2022



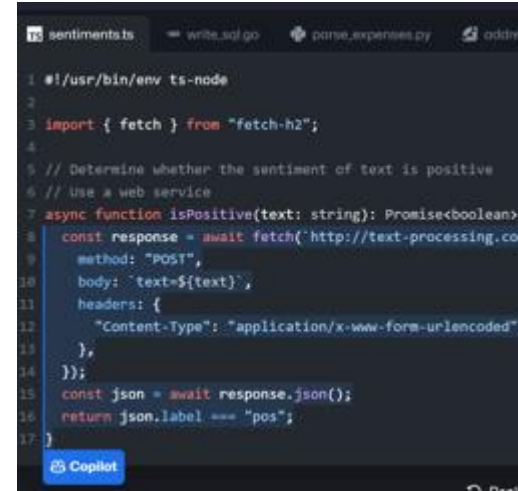
GenAI image wins art prize

AI generated “Théâtre D’opéra Spatial” from Midjourney took first place in the digital category at 2022 Colorado State Fair



Chatbot passes US lawyer bar exam

ChatGPT chatbot by OpenAI generates a text answer to almost any question asked and has also passed US lawyer exam



Code assistant increases productivity by 55%

Github coding assistant Copilot can auto-complete code and even turn text prompts into coding suggestions



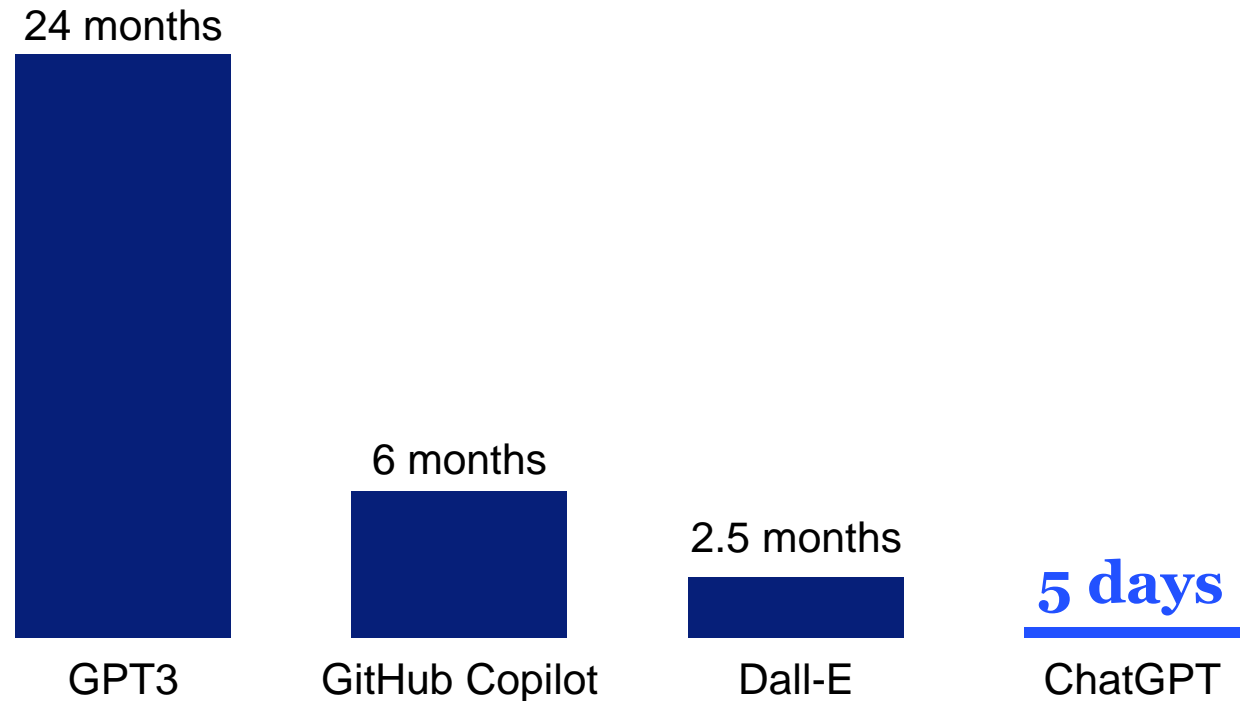
Deepfake Pope Francis goes viral

Fake AI-generated photos of Pope Francis in a puffer jacket go viral, highlighting the power and peril of AI

Early adoption of Generative AI indicates a major inflection point in the impact of AI in day-to-day life

Adoption rates are reaching scale faster than ever before with users actively engaging with multiple applications

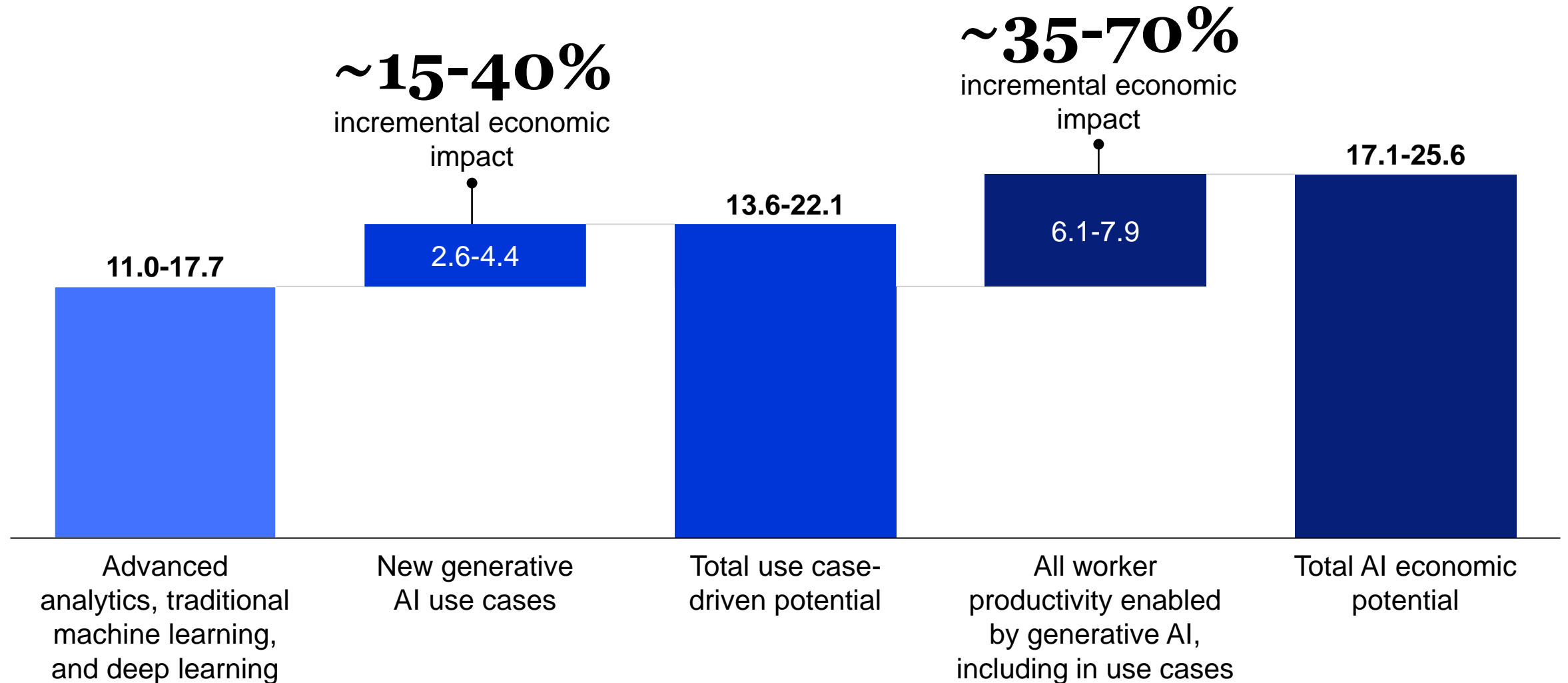
Time to 1 million users¹



1. OpenAI and GitHub data

GenAI is expected to create significant incremental value

AI's potential impact on the global economy, \$ trillion



A strategic view of GenAI

1 Taker

Integrate off-the-shelf GenAI solution into workflows

Git Hub Co-pilot
ChatGPT

Easy to deploy
Little capabilities needed

Table stakes

2 Shaper

Fine-tune existing GenAI models for custom applications

Maintenance support
Sales support tools
Contact center servicing

Harder than “traditional” AI
Requires new competencies

Differentiating

3 Maker

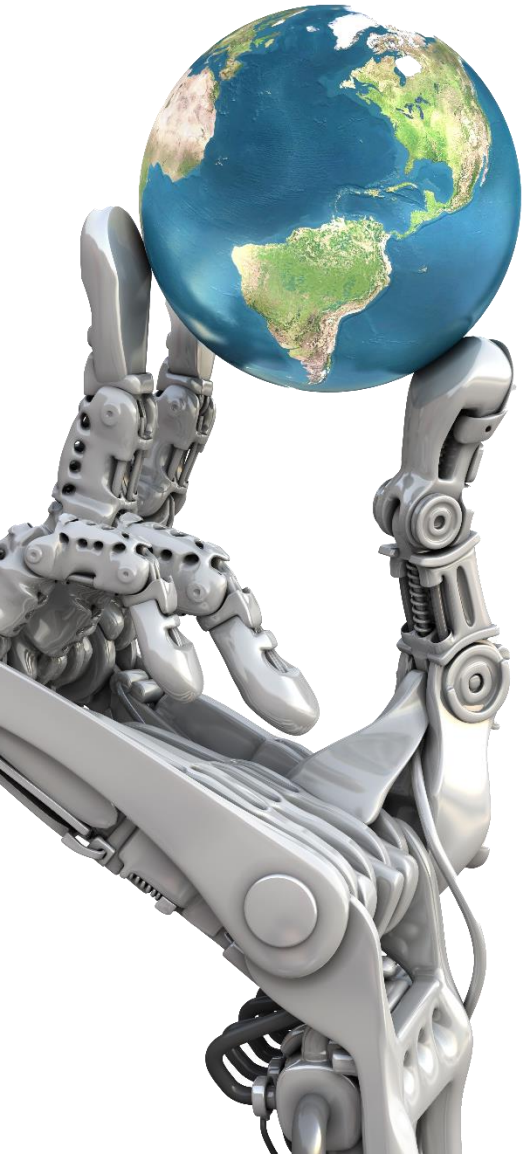
Develop a new foundational model to solve new problems

R&D
Engineering

Very difficult; uncharted territory
Big investments

Game changing

Gen AI has the potential to fundamentally transform the way work gets done – currently 4 archetypes gaining momentum



“AI is one of the most profound things we're working on as humanity. It's more profound than fire or electricity.”

“GenAI is going to impact every product across every company”

**Sundar Pichai,
CEO of Google**

Use Case Archetypes



1. Content generation
Generating tailored content at scale

Example impact

+20%

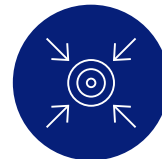
Increase in conversion rate for a EMEA-based conglomerate (insurance, retail, pharmacy)



2. Code acceleration
Decreasing tech debt and delivering SW faster

>55%

Productivity gains for developers utilizing coding co-pilots (e.g., Github Copilot)



3. Content synthesis & virtual expert
Augmenting employee performance

~80%

Productivity gains in verifying statements in news and social media

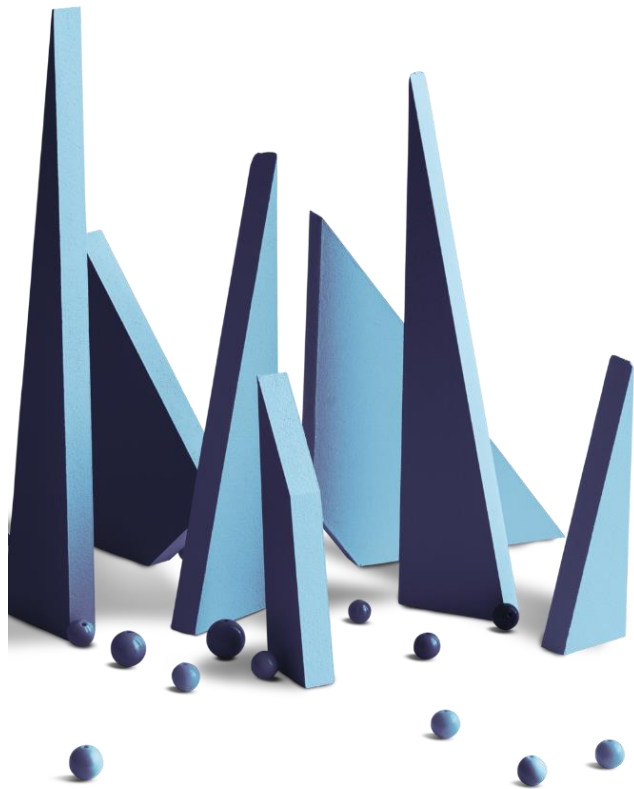


4. Customer services and engagement
Further simplifying tedious manual processes

>60%

Automation potential of customer interaction volumes over 5-10 years

There are 8 key risk categories associated with the use of generative AI



| Existing risk that manifests in new ways with generative AI

| Novel risk associated with generative AI

Risk category	Description of potential risk	Impact of generative AI on risk landscape
Impaired fairness	Algorithmic bias; lack of accountability behind algorithmic decision-making; misrepresentation of generated content as human-created	Generative AI may project algorithmic bias due to imperfect training data or engineering decisions in development/deployment phase Generative AI can produce content that is not clearly identifiable as AI-generated, leading to confusion or deception of users
IP infringement	Infringement on copyrighted, trademarked, patented, or otherwise legally protected materials	Generative AI and foundation models typically leverage internet-based data, leading to potential incidents of IP infringement (e.g., copyright violations, plagiarism)
Privacy concerns	Unauthorized use/disclosure of personal or sensitive information, violating privacy requirements or expectations	Generative AI may heighten privacy concerns through (potentially unintended) use of personal or otherwise sensitive information used for model training, thus generating potentially sensitive outcomes
Malicious use	AI-generated promulgation of malicious content (e.g., disinformation, fraud)	Generative AI can be leveraged to create and disseminate malicious content (e.g., falsehoods, hate speech, ad campaigns)
Security threats	Vulnerabilities in generative AI systems that may be breached or exploited, leading to security or compliance issues	Generative AI-driven applications may be subject to security vulnerabilities and manipulation (e.g., users or bad actors may bypass safety filters through obfuscation, payload splitting, virtualization)
Interpretability and reliability challenges	Inability to explain or interpret model outputs appropriately (i.e., the “black box algorithm” problem); model inaccuracies that may result in undesirable outcomes	Generative AI’s reliance on neural networks with multitudes of parameters (e.g., trillions) introduces challenges in ability to explain how outcomes were generated Foundation models may generate factually incorrect or outdated answers (e.g., model hallucination)
ESG impact	Non-compliance with ESG standards; reputational damage from social or environmental consequences of model development and usage	Training and deployment of foundation models may increase carbon emissions and exceed ESG commitments or expectations Generative AI may disrupt or displace workers, introducing new challenges (e.g., reputational risk, talent shortages)
Third-party risk	Risks associated with the use or integration of third-party AI tools, (e.g., lack of control, dependency, lock-in)	Organizations typically use or integrate external generative AI models and tools instead of developing them internally, imposing novel third-party risks pertaining to model outcomes and dependency

Key risks can further lead to **regulatory, legal, reputational and business consequences**

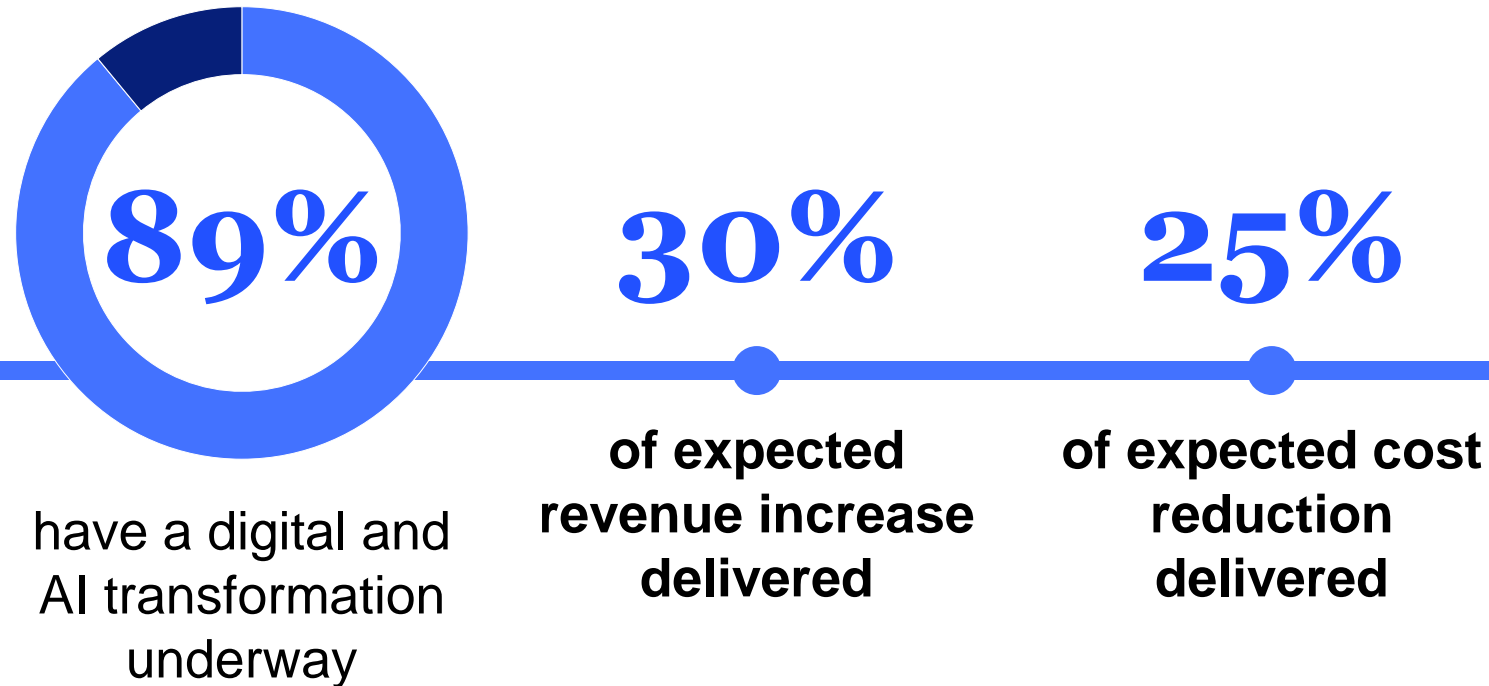
Agenda



What do we mean by AI and Generative AI?

What does it take for a company to successfully deploy Digital & AI?

Companies have had uneven success capturing value from digital and AI



Is it **worth** the investments and efforts?

Will it provide **competitive differentiation** or is this just **table stakes**?

Will we be **financially rewarded**?

...and if so, **what exactly should we do**?

Learning from retail banking

Dataset of 80 global banks benchmarked every year against a set of 50 normalized digital metrics

Integrated financial performance metrics

Independent assessment from McKinsey client service Partners



McKinsey
Corporate Performance
Analytics

McKinsey
& Company

20
Leaders

2018

2022

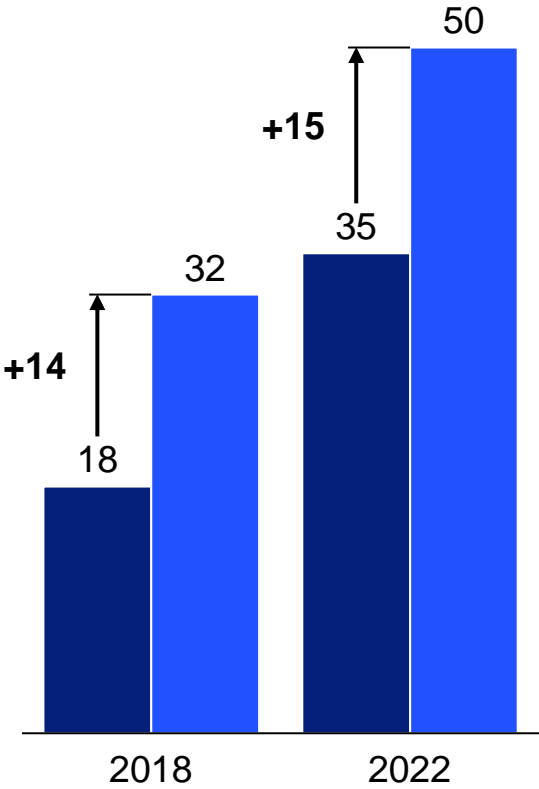
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Laggards

Source: Finalta's benchmark on digital trends for Banking over last 5 years

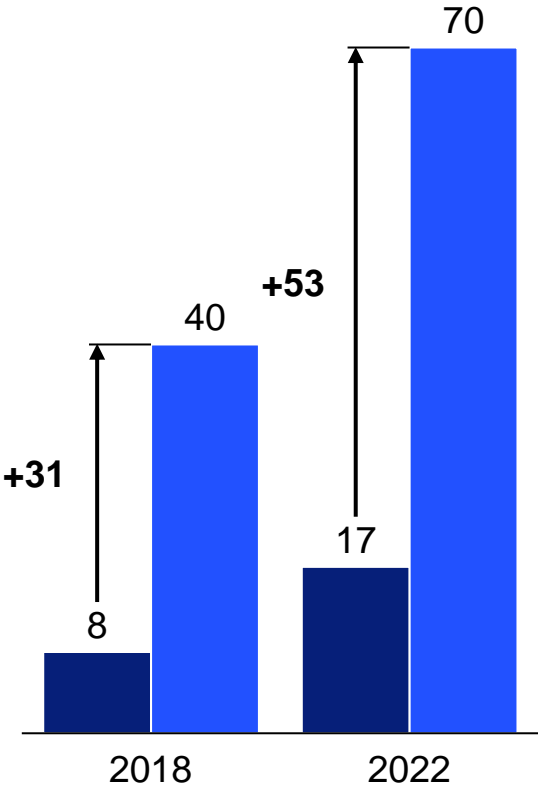
Digital leaders creating competitive distance

■ Laggards ■ Leaders

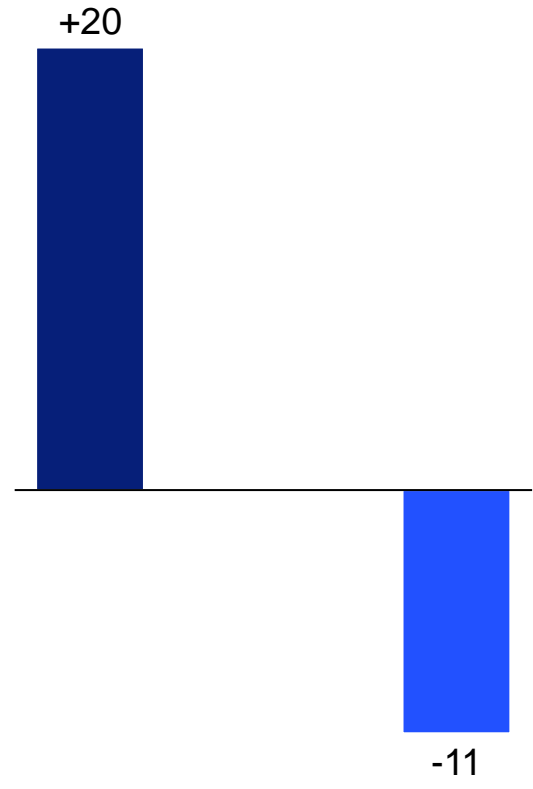
Adoption of mobile app
% of total customers



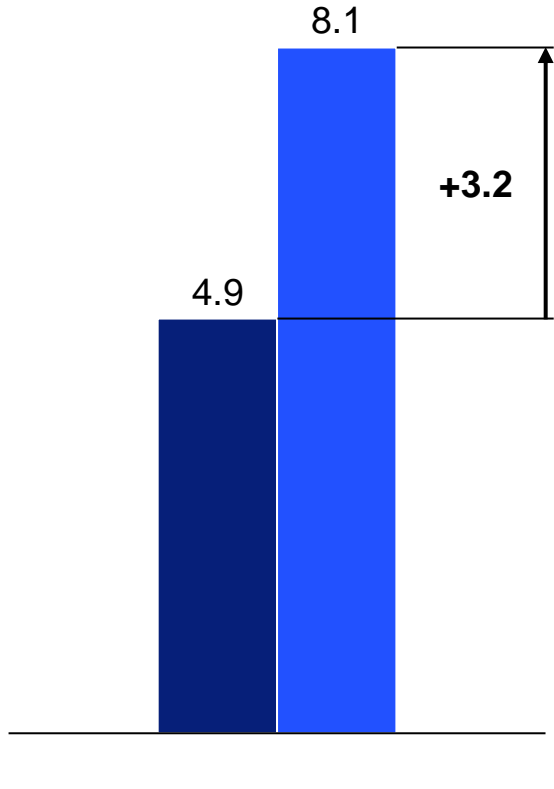
Digital Sales
% of sales through digital channel



Contact center staffing
Change in inbound FTE per 100k customers '18 to '22

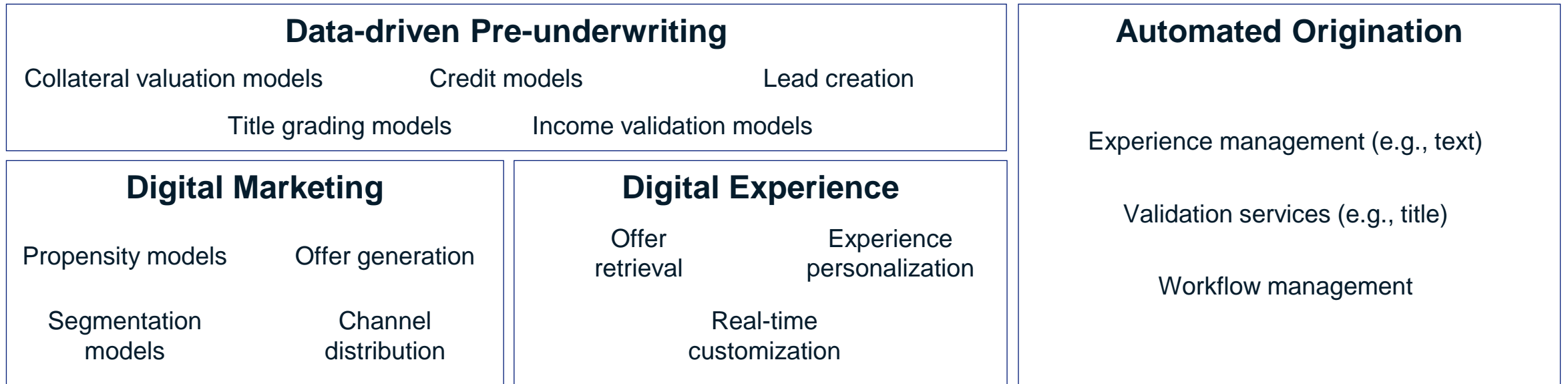
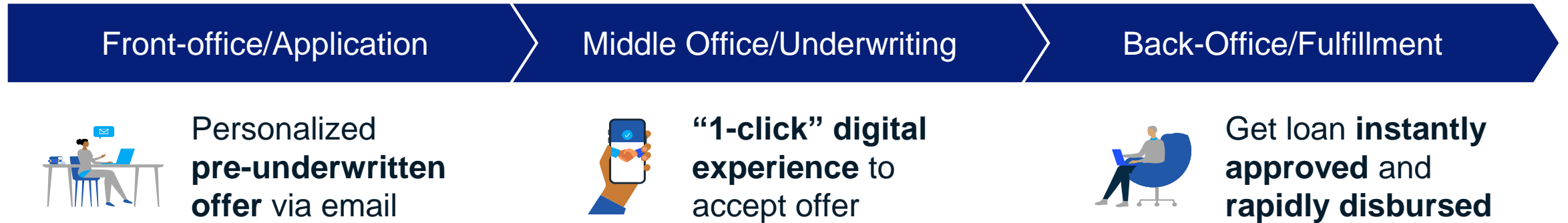


Total shareholder returns
'18-'22 CAGR



Source: Finalta's benchmark on digital trends for Banking over last 5 years

Example: Secured lending



Freeport-McMoRan: Unlocking new mining production through AI transformation

With a well-defined agile digital roadmap and support from McKinsey's industry and tech experts, Freeport-McMoRan was able to deploy and scale AI technology throughout its mines in the Americas and take its operations to the next level for increased efficiency and production

200 million pounds

Increase in copper production across all mines, equivalent to one new processing facility

\$350-500M

EBITDA improvement by scaling AI

\$1.5-2B

The cost of a new processing facility was avoided

Lessons learned



Align ELT to drive roadmap and constantly reinforce Digital as a priority



Tap into talent's full potential through cross-functional collaborations



Design modularized tools and platform to enable scalability



“One of the key things that McKinsey brought to the table was developing the model with the users in the room, so that they're building ownership and conviction right from the very get go. This helped with the acceptance and the adoption, creating co-ownership across the team”

Cory Stevens, President, Freeport-McMoRan Mining Services

We started with an AI solution at site #1

Productionized artificial intelligence models advise operators how to optimize the plant every 3 hours



Live anomaly detection and clustering

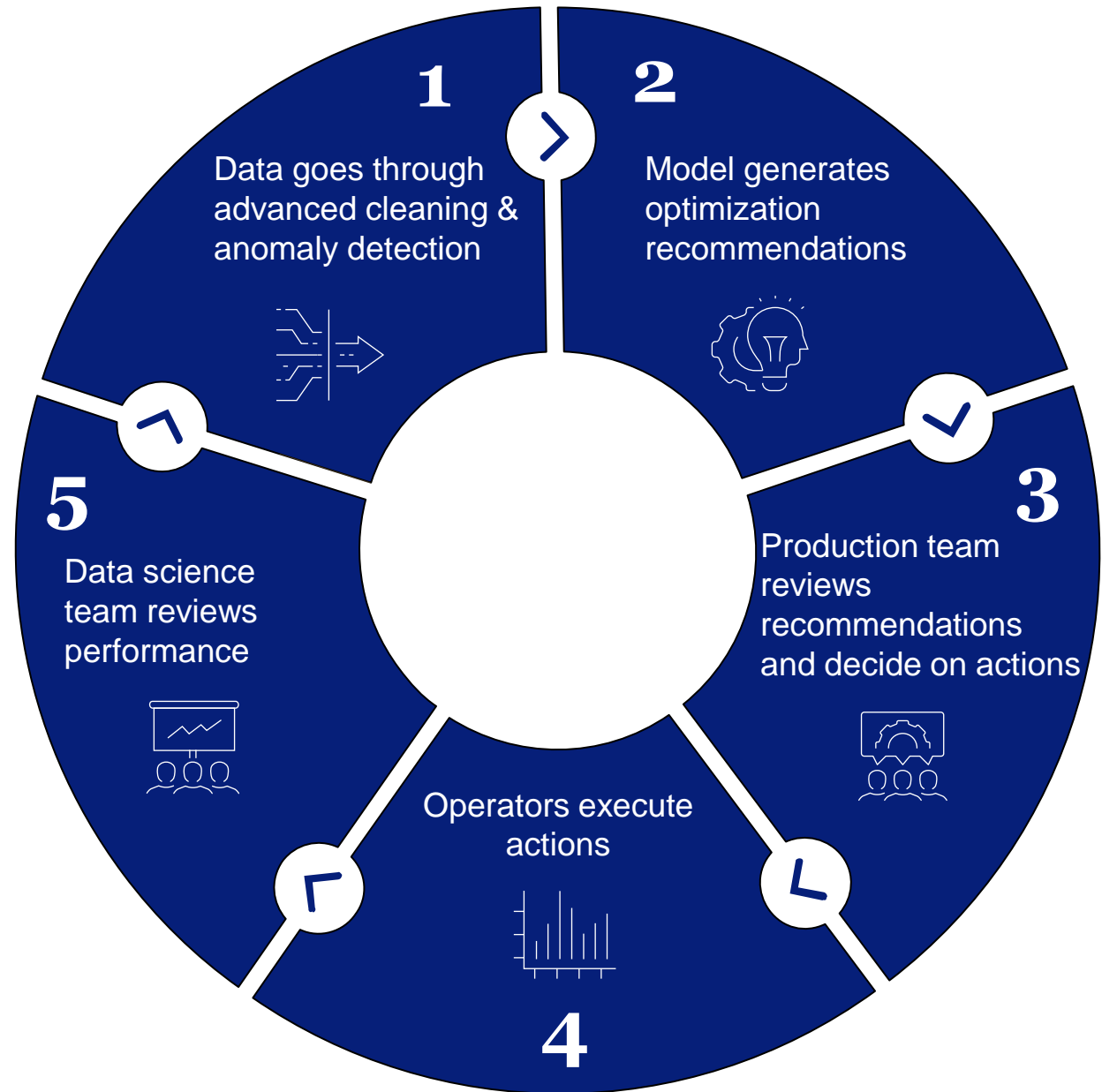
15-20% total production impact

Running independently for ~7 months

Highest cost mine to the lowest cost mine

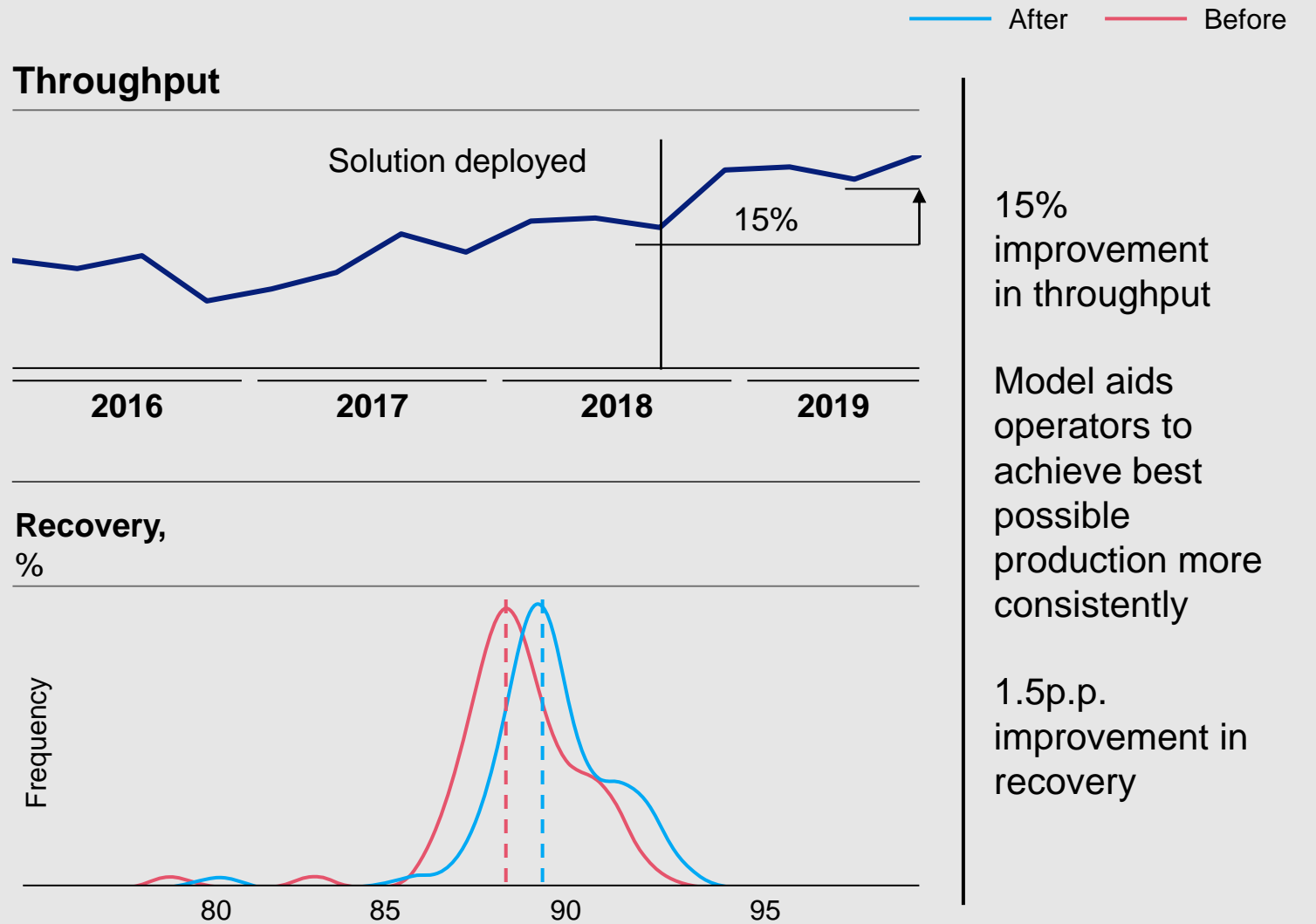
>\$100M Capex avoidance

How the AI solution works

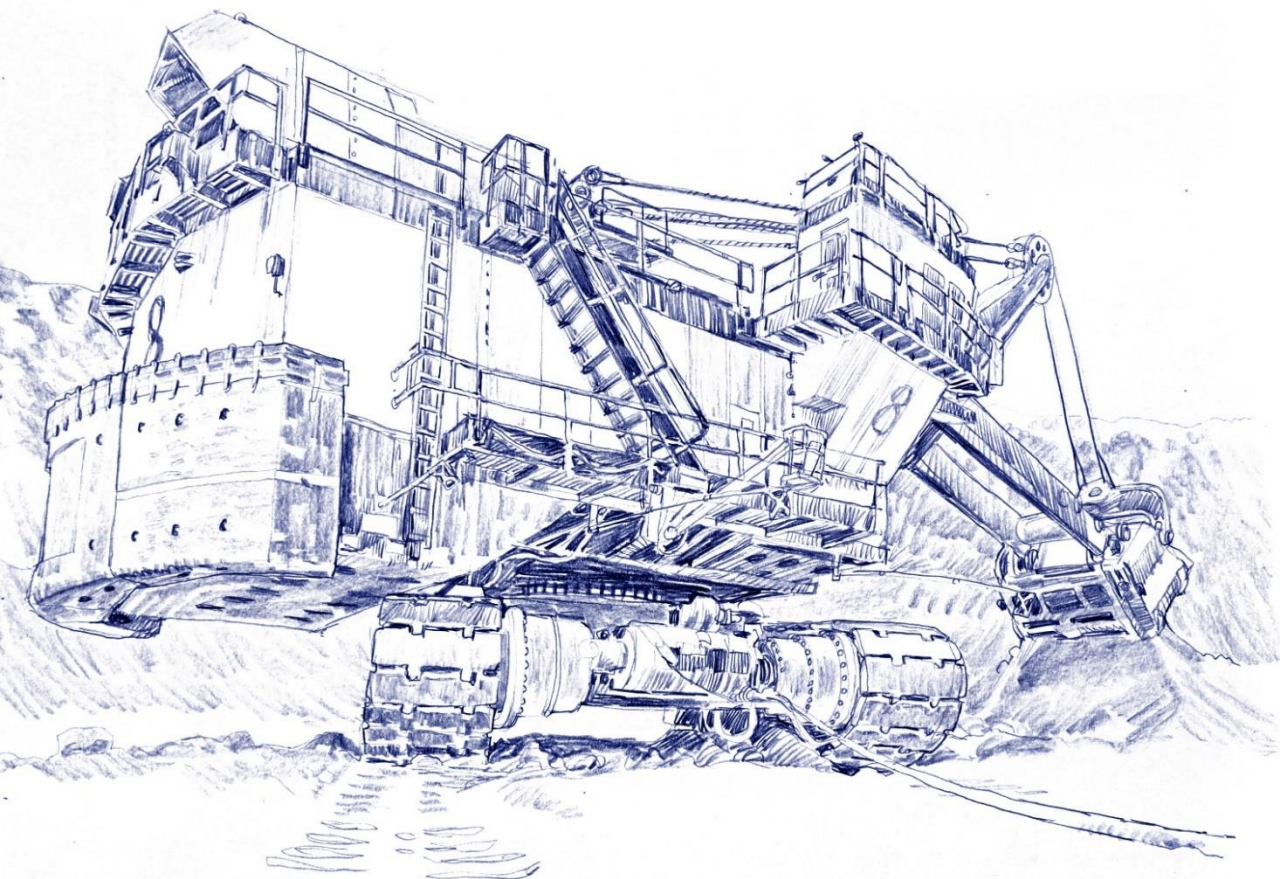




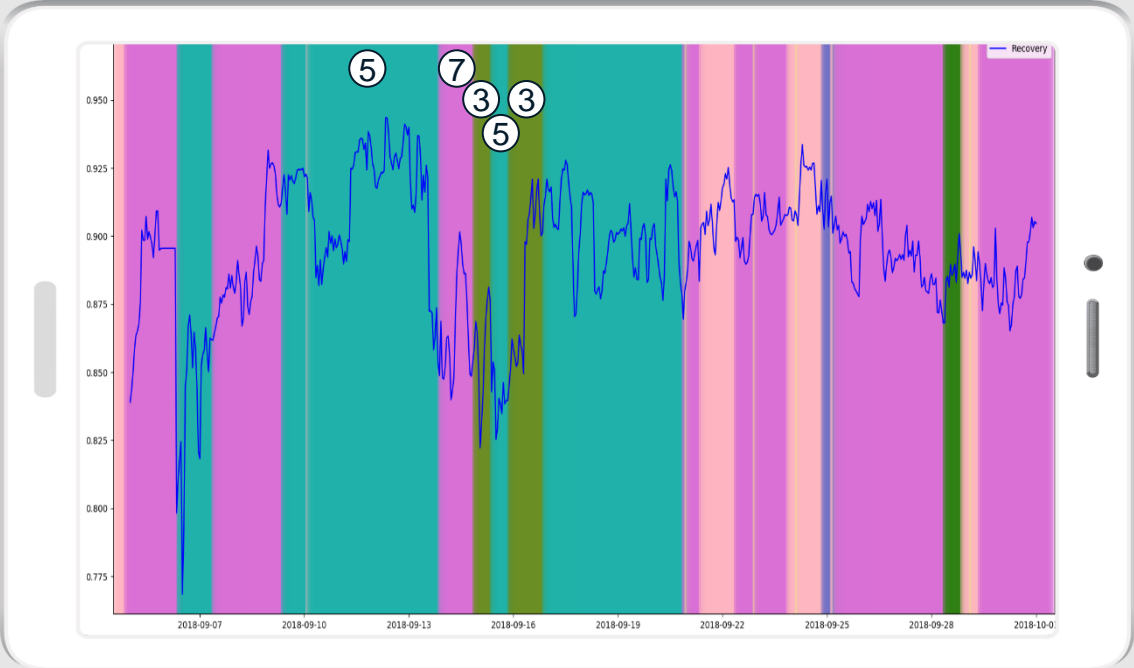
Recommendations shift throughput and recovery upward



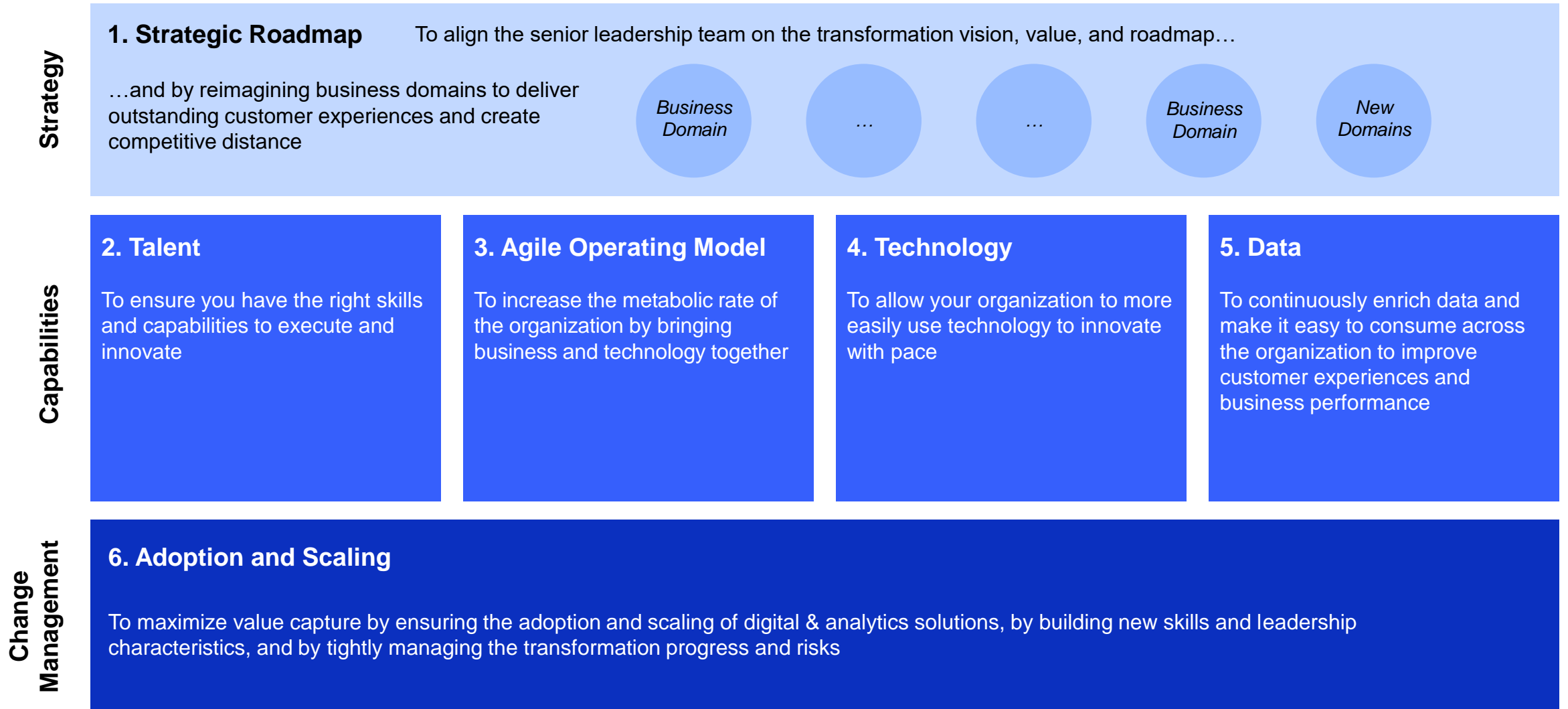
Ore types change as the shovel works; we identify “ore clusters” and help operators respond



- ① Low hardness
- ② High Clay
- ③ High Metal 1
- ④ High Impurity 1
- ⑤ High Metal 2
- ⑥ High M2/Low M1
- ⑦ High hardness



Rewired approach for successful digital transformations, developed from 200+ at-scale transformations



Signature moves of REWIRED companies

Stage 1

Experimenting

Experimentation and early successes

<5% **EBIT** value created from siloed use cases

Stage 2

Rewired

Enterprise-wide business innovation with digital & AI

>20% **EBIT** value created, enterprise-wide

Value Roadmap	Siloed use cases	Business-led roadmap, C-suite owned plan
Talent	Pockets of digital hires	Sweeping shift in talent mix
Operating model	Side cars	Product & Platform model
Technology	Centralized	Distributed, easy to use
Data	Controlled by data specialists	Embedded everywhere, easy to consume
Adoption and scaling	Last mile challenges	Business owned and architected to scale