AI in Alberta and at ATB

Where you can find it, and where it's going next.

Ian Hargreaves

ATB

A provocative statement about the impact of AI

$340^B
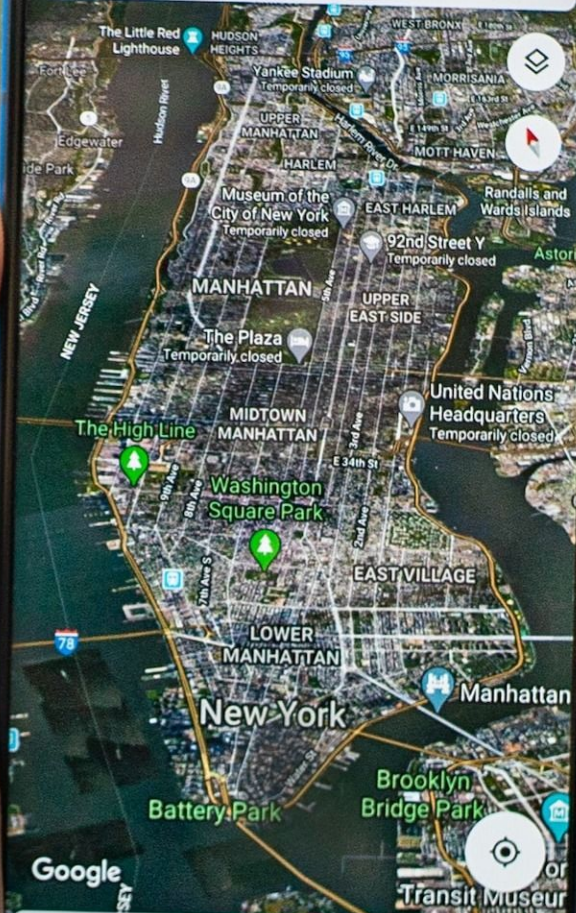
In value creation for Financial Services - McKinsey

7%

Increase in global GDP over 10 years - Goldman Sachs

AI will not replace people, but people who use AI will replace people who don't.

"

Economists have a poor track record of predicting the future...So a healthy skepticism toward any pronouncements about how artificial intelligence (AI) will change the economy is justified. Nonetheless, there are good reasons to take seriously the growing potential of AI...to transform the economy.
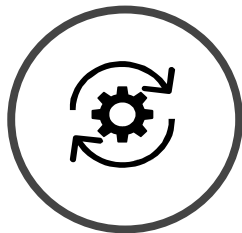
– Brynjolfsson & Unger

"

What is AI?

Automation, Discriminative AI & GenAI

Automation
'Doing tasks automatically'

Technology to perform tasks **without human intervention.**

We use this in ATB to **complete repetitive tasks and processes based on pre-defined flows and rules.**

Real World Example:
Home Depot automatically sends an email after a purchase in store or online. The system is set up to trigger these emails without manual intervention each time a sale is made.
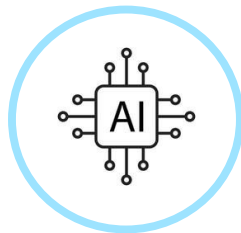
Discriminative AI
'Learning from data to make decisions'

Create systems that can **learn from data and make decisions or predictions.**

We currently leverage AI Modeling with best product recommendation powered by a suite of AIs that **extract patterns from client behaviors to predict client needs based on historical data.**

Real World Example:
Fraud detection models can be trained to learn patterns in client transaction data. The models can use this information to make a prediction about whether a new transaction is potentially fraudulent or not.
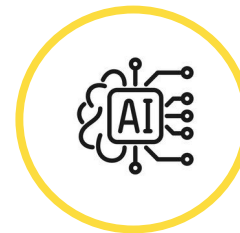
GEN AI
'Creates content based on learned patterns'

A type of AI that **generates content like text, images or music based on patterns it has learned.**

ATB is currently experimenting with Generative AI to save time spent in all aspects of collaboration and content creation, from **images, docs, sheets, coding, to meetings and more**
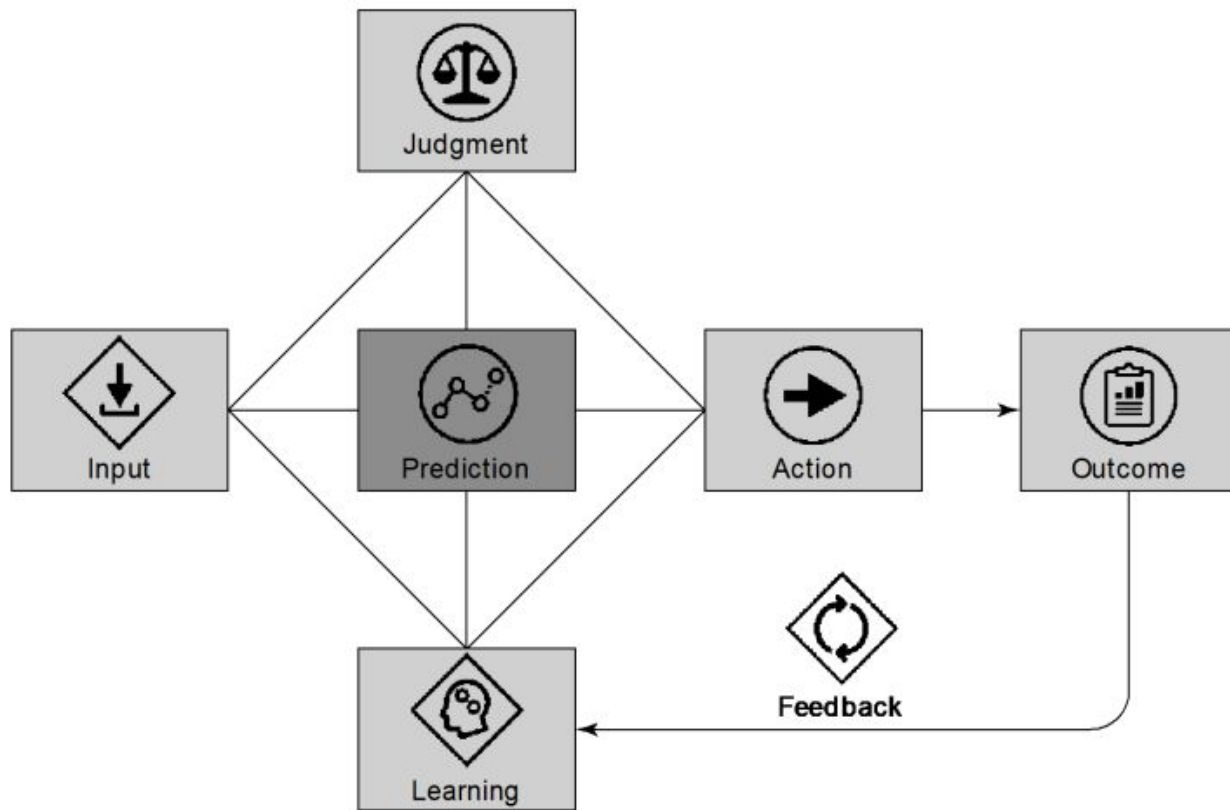
Real World Example:
Gemini for Workspace and Chat Agents are products that use Gen AI to deliver outputs based on your prompts such as texts, answer questions and is trained through prompts and learning.

What is AI FOR?

ANATOMY OF A TASK - AI SYSTEM

Prediction Machines: The Simple Economics of Artificial Intelligence
A Book by Ajay Agrawal, Avi Goldfarb, and Joshua Gans

AI SYSTEMS CAN...

SENSE...

- Navigation
- Natural language processing
- **Speech to text**
- **Computer vision**

Hear, See, Speak & Notice

THINK...

- **Personalization**
- **Recommendations**
- **Anomaly detection**
  - **Fraud monitoring**
- **Decisioning**
  - **Credit adjudication**
- **Information Retrieval**
- Assistive Scheduling

Perceive, Understand, Plan & Assist

ACT...

- **Robotic process automation**
- Question Answering
  - **Chatbots**
  - Visual Question Answering
- Adaptive Systems
- **Generative AI**
  - **Word/Image/Number/Sound Generation**

React, Predict, Do, Make, Say & Create
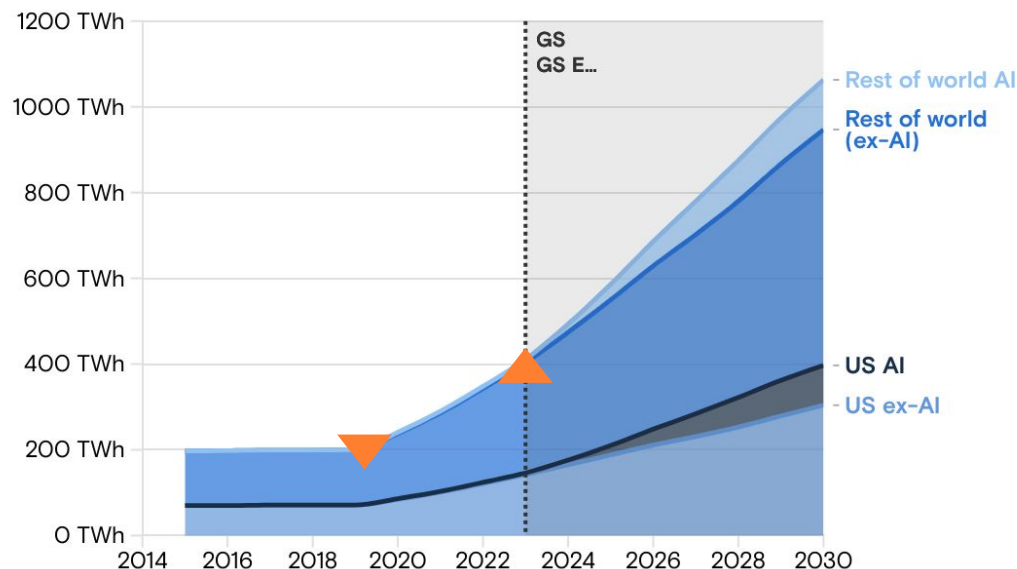
"Data is the New Oil" - Clive Humby, 2006

Once a fringe resource, oil's value surged with advances in drilling, alongside an emerging market driven by kerosene lamps and the combustion engine.

Once considered a byproduct of business, **data's value surged** with advances in cloud infrastructure, alongside a growing number of analytics and AI use cases.

Over the last five years, we have seen a massive spike in the demand for data.
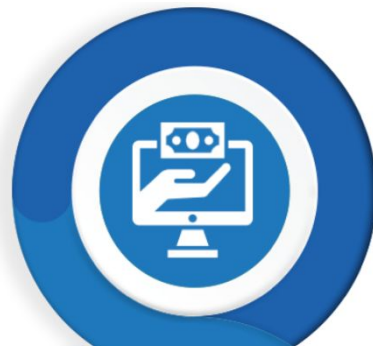
Data Center Power Demand

- Rest of world AI
- **Rest of world (ex-AI)**
- **US AI**
- US ex-AI

Source: Masanet et al. (2020), Cisco, IEA, Goldman Sachs Research

Goldman Sachs

https://www.goldmansachs.com/insights/articles/AI-poised-to-drive-160-increase-in-power-demand

Top Opportunities

—

for AI in Financial Services

1. Provide a more **personalized** banking experience to clients

2. Gain new **insights** into clients

3. Make current banking processes more **efficient**.

The largest Canadian FIs have already made – and are continuing to make – significant investments in AI and their data

Examples of investments made by FIs

Accelerating tech / code modernization
Converting legacy code into modernized infrastructure / systems (e.g., cloud-based SQL & Python) to improve accessibility and efficiency

TD Scotiabank BMO

Accelerating speed-to-insights
Use of AI to build a system that can efficiently integrate client data from multiple sources and streamline the process of analyzing various data sources

TD

Automating processes and data mapping
Banks are automating source-to-target mapping in absence of data dictionaries / metadata documentation for faster data integration and migration

BMO

Risk monitoring and diligence
Scotiabank implemented an AI 'boosting' system for credit risk assessments to generate scorecards 6x faster and be more precise on client risk

Scotiabank

Front-to-back office chatbot integration
Virtual assistants interacting with clients over the digital app (e.g., RBC NOMI); while voice-controlled AI also helps IT staff automate manual tasks

TD CIBC RBC Royal Bank

Financial advisory support *(non-Canadian)*
Morgan Stanley is introducing AI 'Debrief' (2024) to aid >15k advisors in handling client meetings and documentation to boost productivity

Morgan Stanley
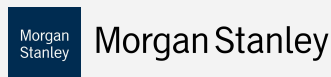
Loan and underwriting optimization
EQB partnered with FundMore in 2024 to use their AI-powered underwriting platform to augment their existing mortgage underwriting process
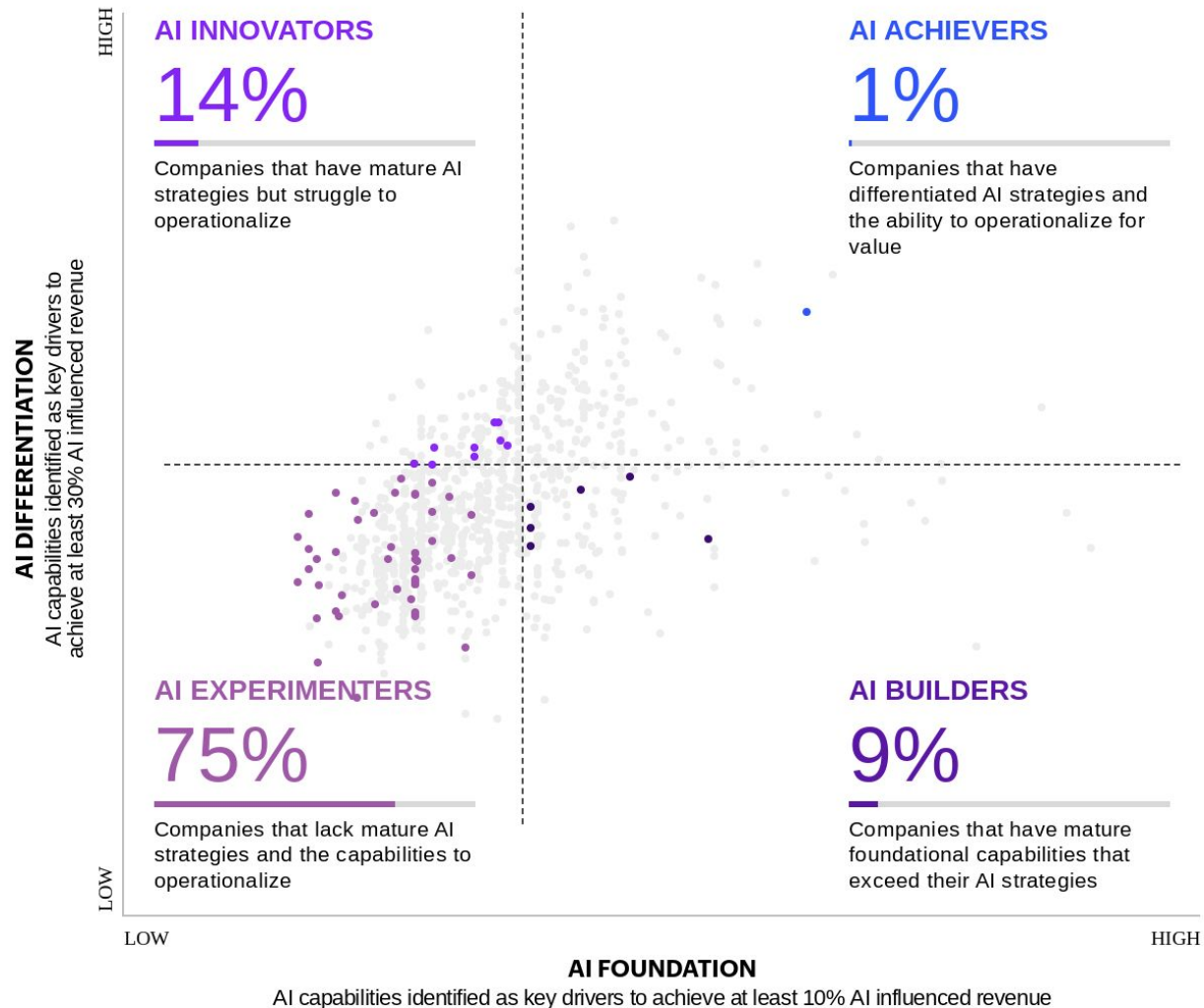
EQ Bank

Front-end digital banking tools
BMO's Insights (2019), in partnership with Personetics, leverages AI to proactively predict client cash shortfalls and provide real-time alerts

BMO

FAILURE TO LAUNCH

Despite sitting atop a wealth of data, banks in particular are struggling to leverage AI to influence additional revenue.
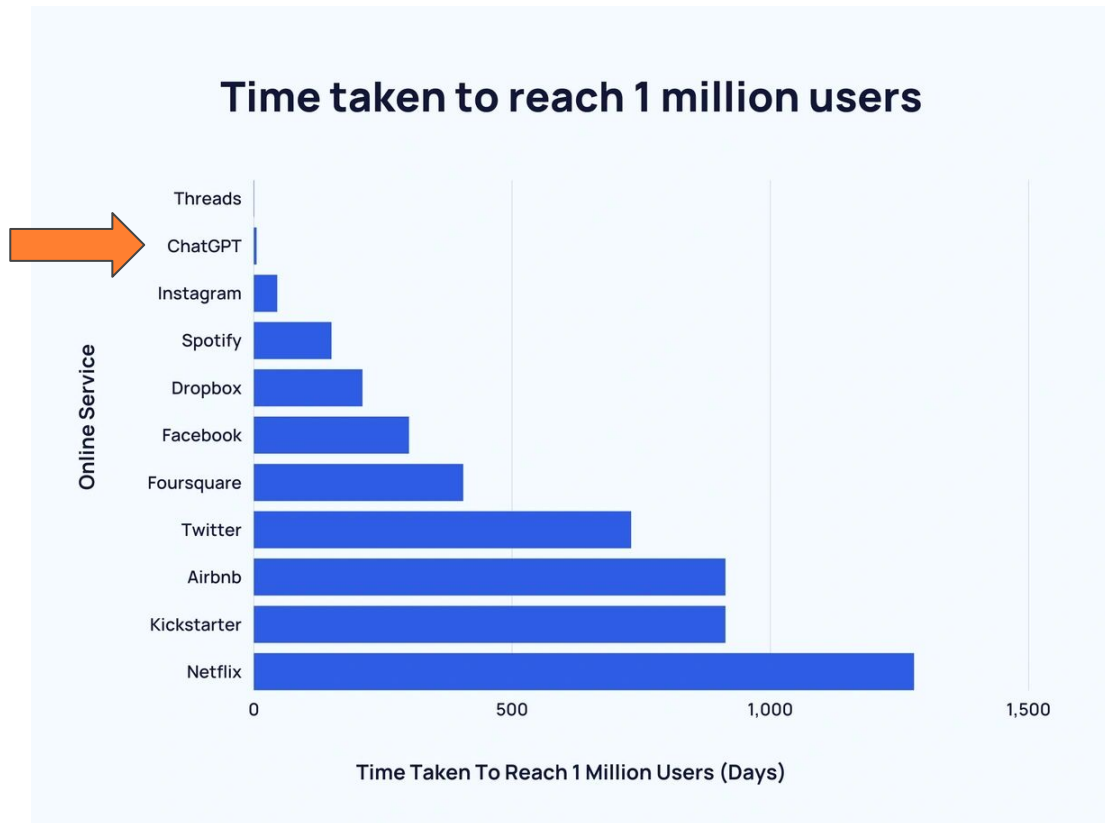
-Accenture

AI DIFFERENTIATION
AI capabilities identified as key drivers to achieve at least 30% AI influenced revenue

HIGH

AI INNOVATORS
14%
Companies that have mature AI strategies but struggle to operationalize

AI ACHIEVERS
1%
Companies that have differentiated AI strategies and the ability to operationalize for value

AI EXPERIMENTERS
75%
Companies that lack mature AI strategies and the capabilities to operationalize

AI BUILDERS
9%
Companies that have mature foundational capabilities that exceed their AI strategies

LOW

LOW   HIGH

AI FOUNDATION
AI capabilities identified as key drivers to achieve at least 10% AI influenced revenue

Why is change so hard?

AI had its iPhone moment.

Time taken to reach 1 million users

Online Service (y-axis)

Online Service	Time Taken To Reach 1 Million Users (Days)
Threads	
ChatGPT	
Instagram	
Spotify	
Dropbox	
Facebook	
Foursquare	
Twitter	
Airbnb	
Kickstarter	
Netflix	

Time Taken To Reach 1 Million Users (Days) — axis: 0, 500, 1,000, 1,500

Expectations among clients and executives have been forever changed.

The pace of commercialization and adoption is accelerating faster than anticipated.

Sparking a Global Conversation.

A new market of generative AI tools is quickly emerging and risks & can broadly be categorized in five groups:

Regulatory

Regulators require high degrees of explainability and traceability on algorithmically driven decisions which are free from biases

- **Trust and Explainability**
- Bias
- Keeping Up with the Regulatory Changes

Data Security

Generative AI models requires access to large amounts of data - without sufficient guardrails it could provide sensitive information to users who do not have the requisite permissions

- **Privacy Issues**
- Fake/Fraudulent Data
- **Data Storage and Transmission Security**

Robustness

As the tool is 'trained' on an expansive yet limited dataset with an algorithm focused on providing the 'most likely' outcome - generative AI can be wrong

- Accuracy
- Truthfulness
- **Ethical & Moral Issues**
- Input Phrasing

Originality

As the new work created by generative AI is 'inspired' from an 'original' idea - authorship, ownership and permissibility of use cannot be guaranteed

- **Intellectual Property**
- Limitations in Creativity
- Closed World Assumptions

Capability & Cost

To effectively leverage the new technology, organizations will not only need consider re-skilling / re-tooling their workforce but also consider the associated investment in uptake / integration

- Upskilling
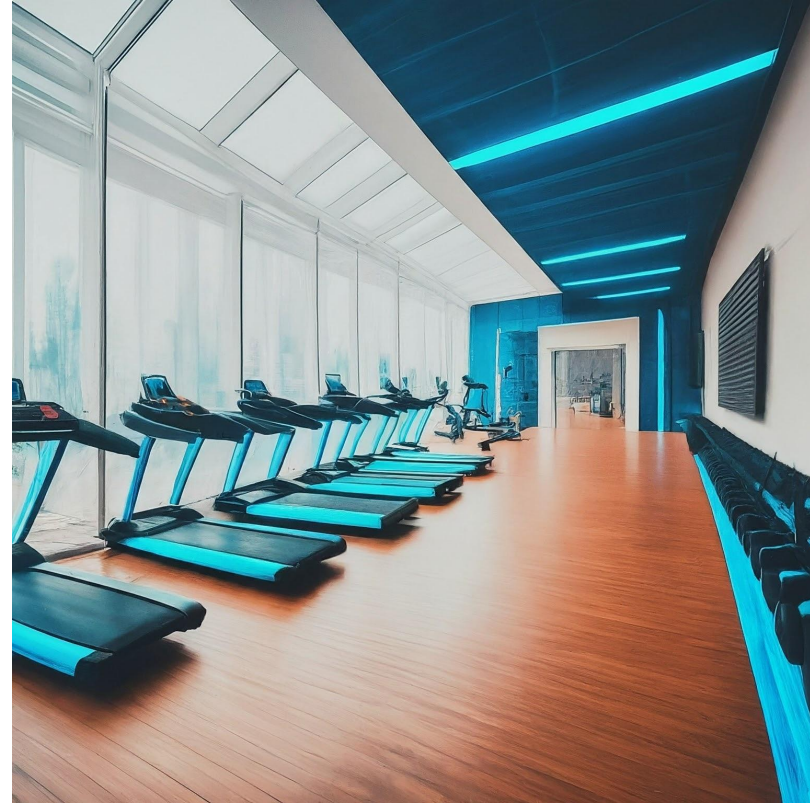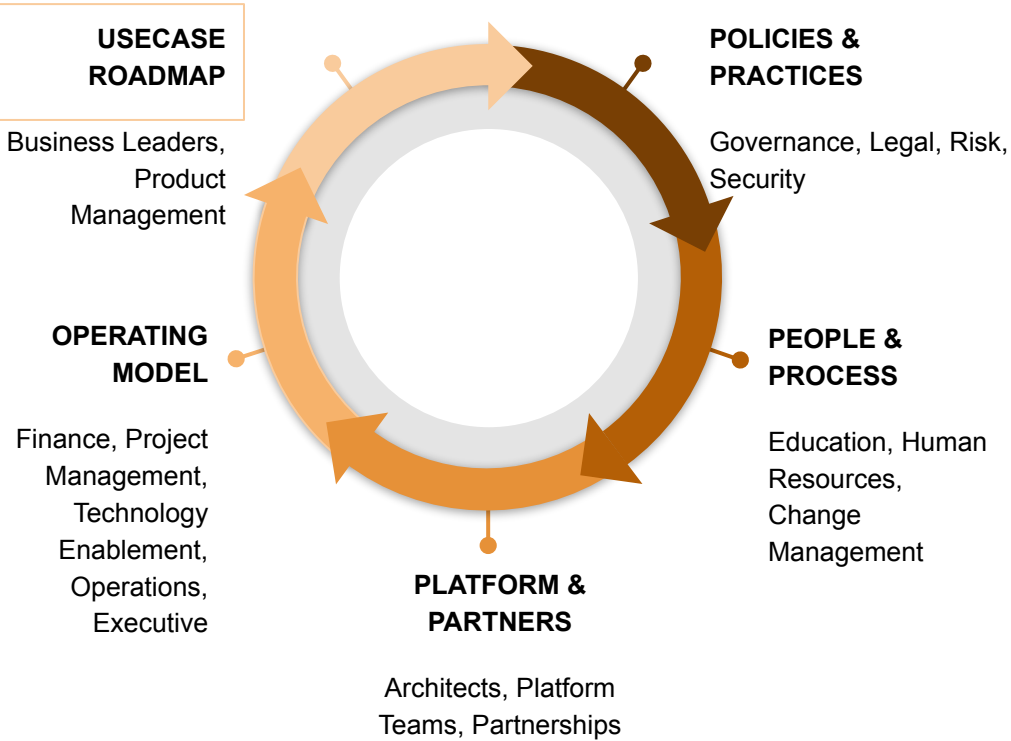- **Environmental Impact**
- Technology Investment and Operating Costs

"The secret to success? Organizations with a first-mover's advantage today have been iterating, experimenting, and building their AI solutions for years."

Carrie Tharp VP Google Cloud
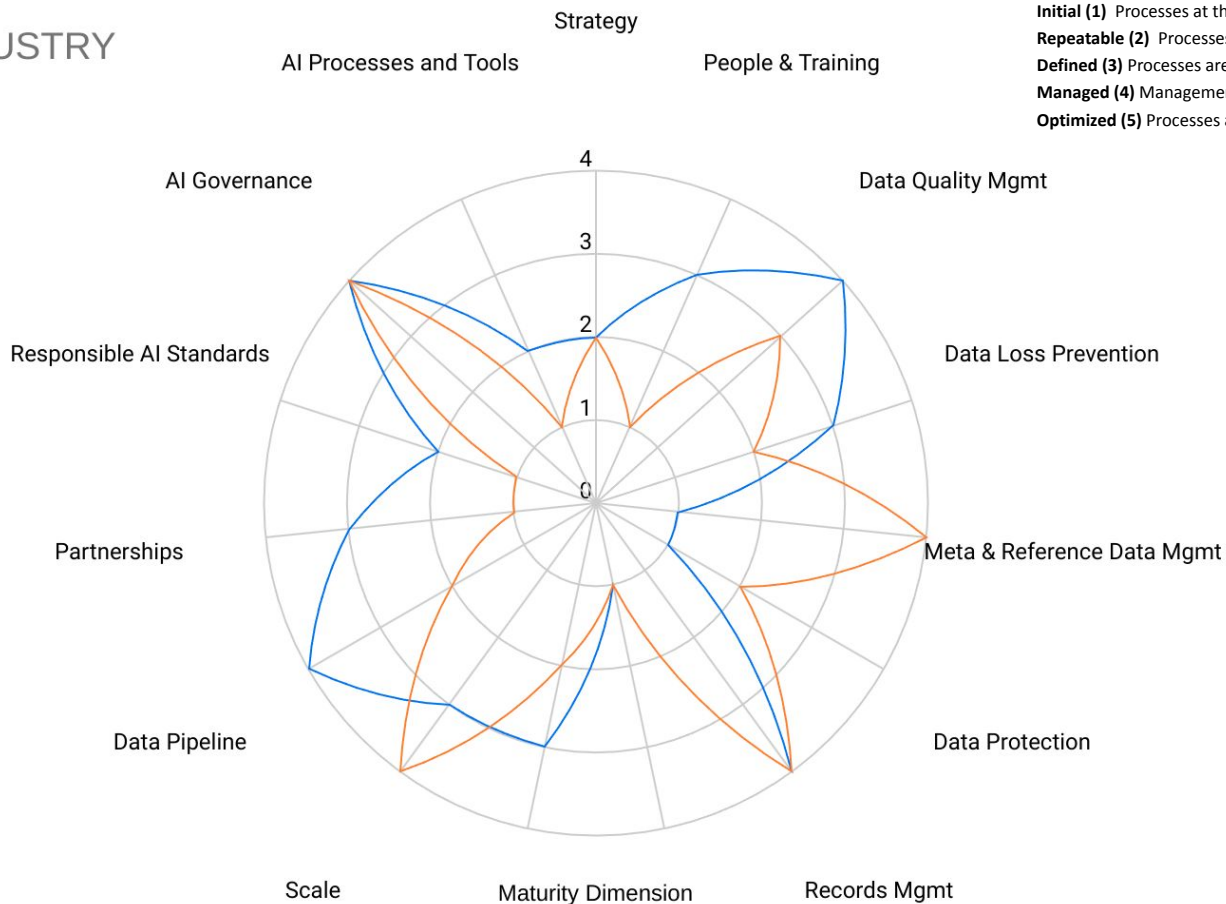
Why is That?

Changing BEHAVIOUR is hard.

USECASE ROADMAP

Business Leaders, Product Management

POLICIES & PRACTICES

Governance, Legal, Risk, Security

OPERATING MODEL

Finance, Project Management, Technology Enablement, Operations, Executive

PEOPLE & PROCESS

Education, Human Resources, Change Management

PLATFORM & PARTNERS

Architects, Platform Teams, Partnerships

ATBs
approach

How we work | **AI Maturity Benchmarking**

YOU and INDUSTRY

— YOU
— INDUSTRY

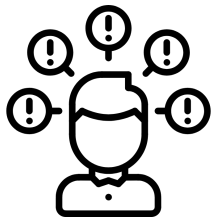
Note: All data is fabricated :)

AI Products as Services enable scalable impact that connects an AI capability to multiple pathways.

| Business Opportunity | Matched to AI Capability | Delivery | Outcome |

Problems identified and prioritized by the enterprise

Personalized products and advice
E.g., Recommender Engine

Leaner, faster operations
E.g., GenAI, Intelligent Automation

Ubiquitous experience
E.g., Virtual agents and chatbots

Data driven decision making
E.g., Dynamic Pricing

New value propositions
E.g., AI enabled development

Integrating with Platforms, Processes, Channels, Products

API

Human in the loop
Processes, Reporting

Team member tools

Hybrid
Process, Digital, tools

Fully Digital
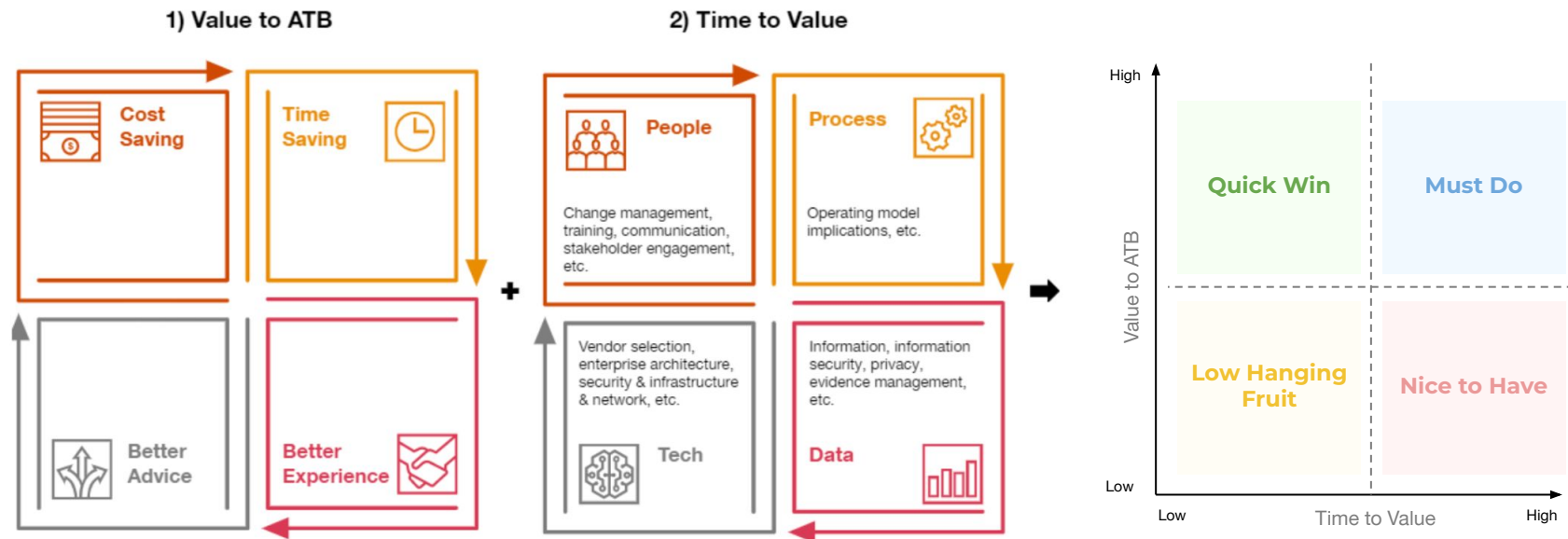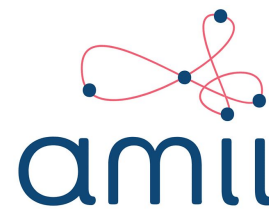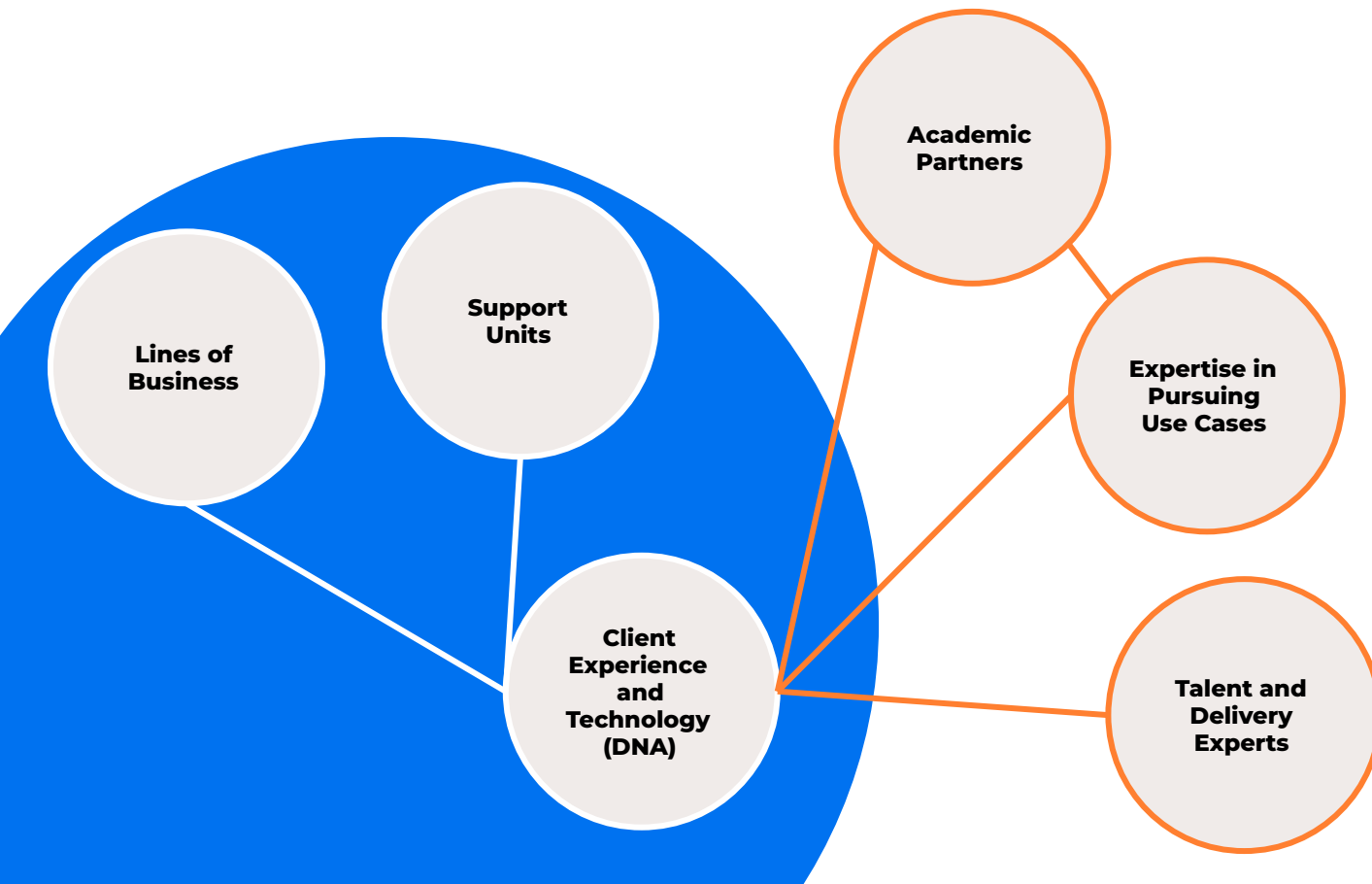Intelligent Automation

Virtual Assistant/ Chat

Digital Channels

Productivity

Client Satisfaction

Revenue

Early Results

Improved Efficiency

- >250K Documents processes using AI

- 1M Client requests processed with AI annually

Improved Experience

- >250K AI assisted Client conversations annually

- >100 ML Models enabled for personalized advice

- Enhanced Fraud & Security Capabilities

Safe & Secure

- Enterprise data platform with hardened security controls

- Enterprise Data Governance matured to industry parity

- Recognized leader in Responsible AI