DATA AND INFORMATION MANAGEMENT: PILLARS OF AI STRATEGY EXECUTION

Dr. Priya Sarathy & Dr. Colin Coleman

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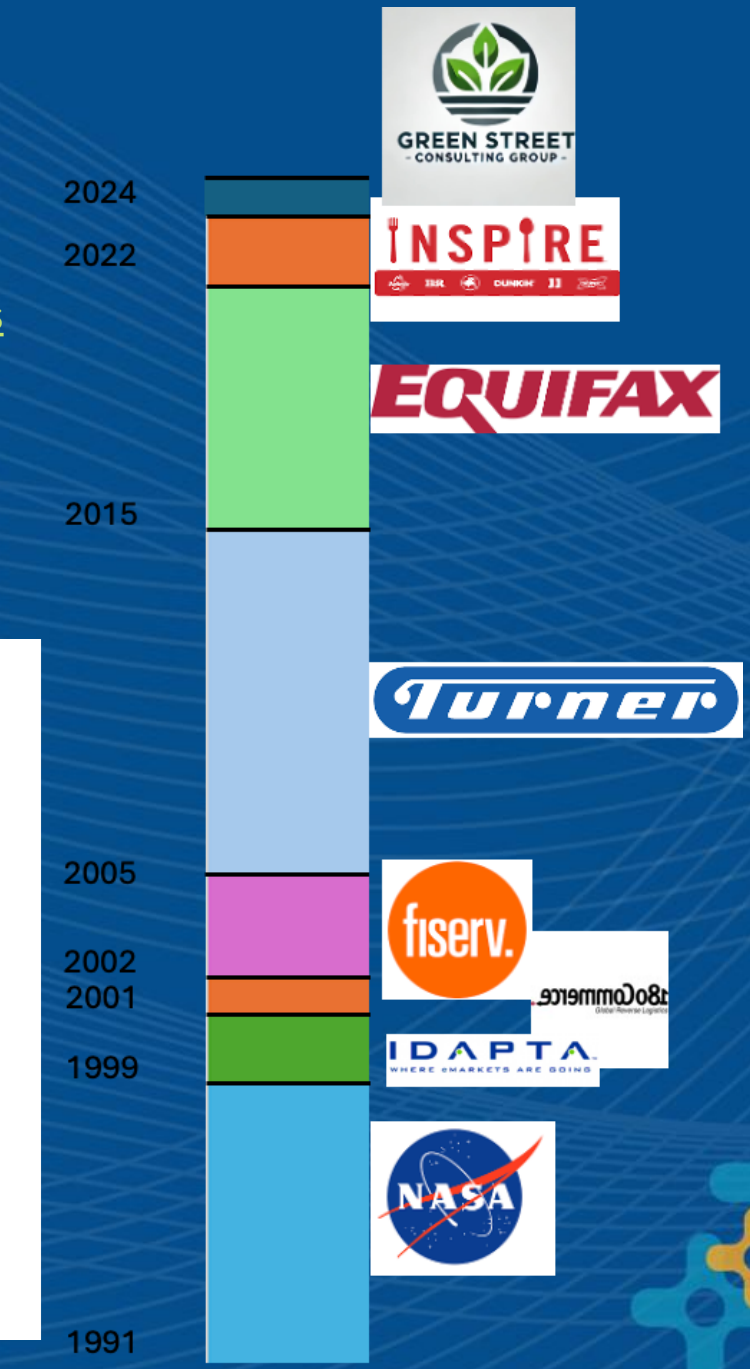

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WORKSHOP OBJECTIVES

ROLE OF DATA AND INFORMATION IN AI STRATEGY

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AGENDA

INTRODUCTION

ALIGNING DATA TO BUSINESS GOALS

UNDERSTANDING AI DATA SUPPLY CHAINS

ENABLING SUCCESS THROUGH STRATEGIC DATA & INFORMATION MANAGEMENT

Aligning Data to Business Outcomes

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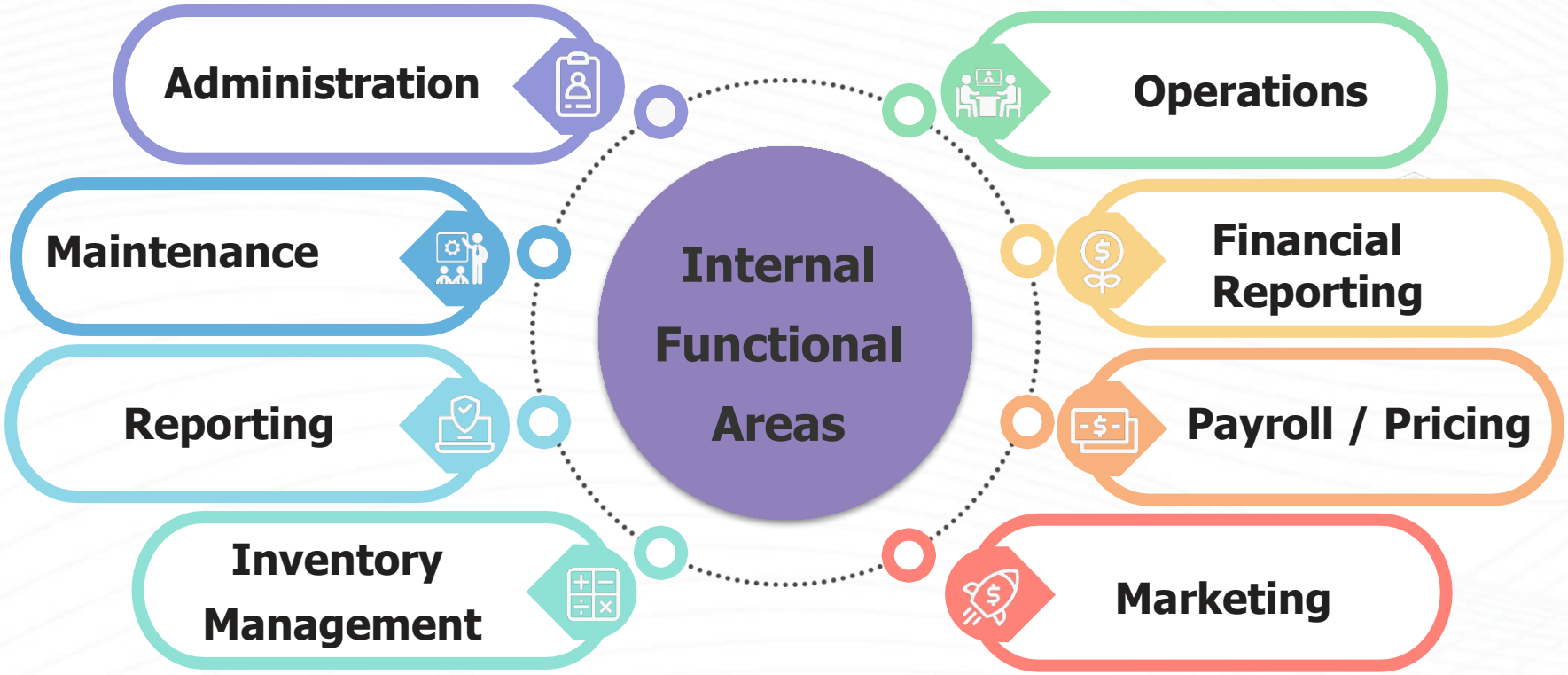
BUSINESS GOALS AND AI OPPORTUNITIES



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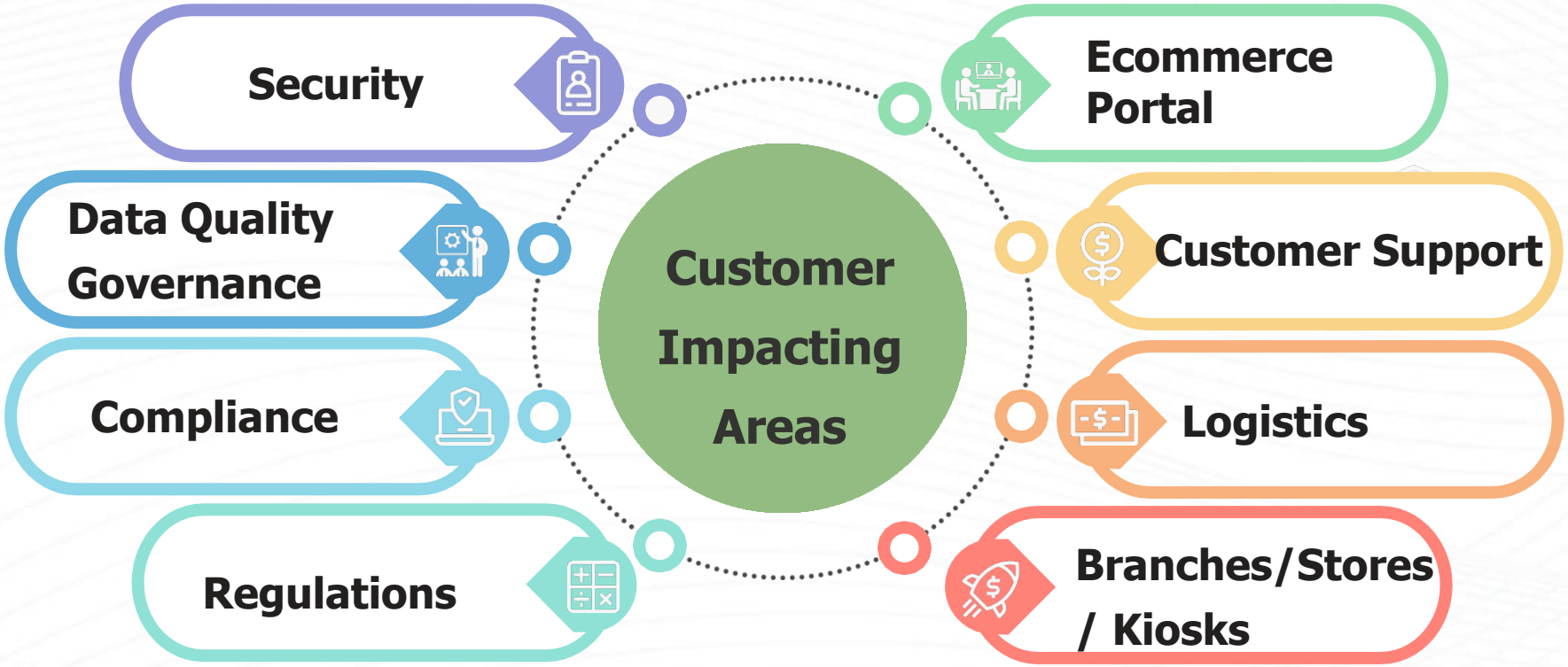
INTERNAL-BACKOFFICE

BUSINESS GOALS AND AI OPPORTUNITIES



CUSTOMER IMPACTING

NOT ALL DATA IS CREATED EQUAL!!

END USE CASE DRIVES THE DATA OR INFORMATION NEEDS

Polling EXERCISE 1

HOW MANY DATA SOURCES DO YOU TYPICALLY USE IN YOUR DOMAIN OR BUSINESS LINE? 1-2, 3-10, 10+, not sure

Most of us deal with multiple data sources daily. But do we really understand their strategic impact?

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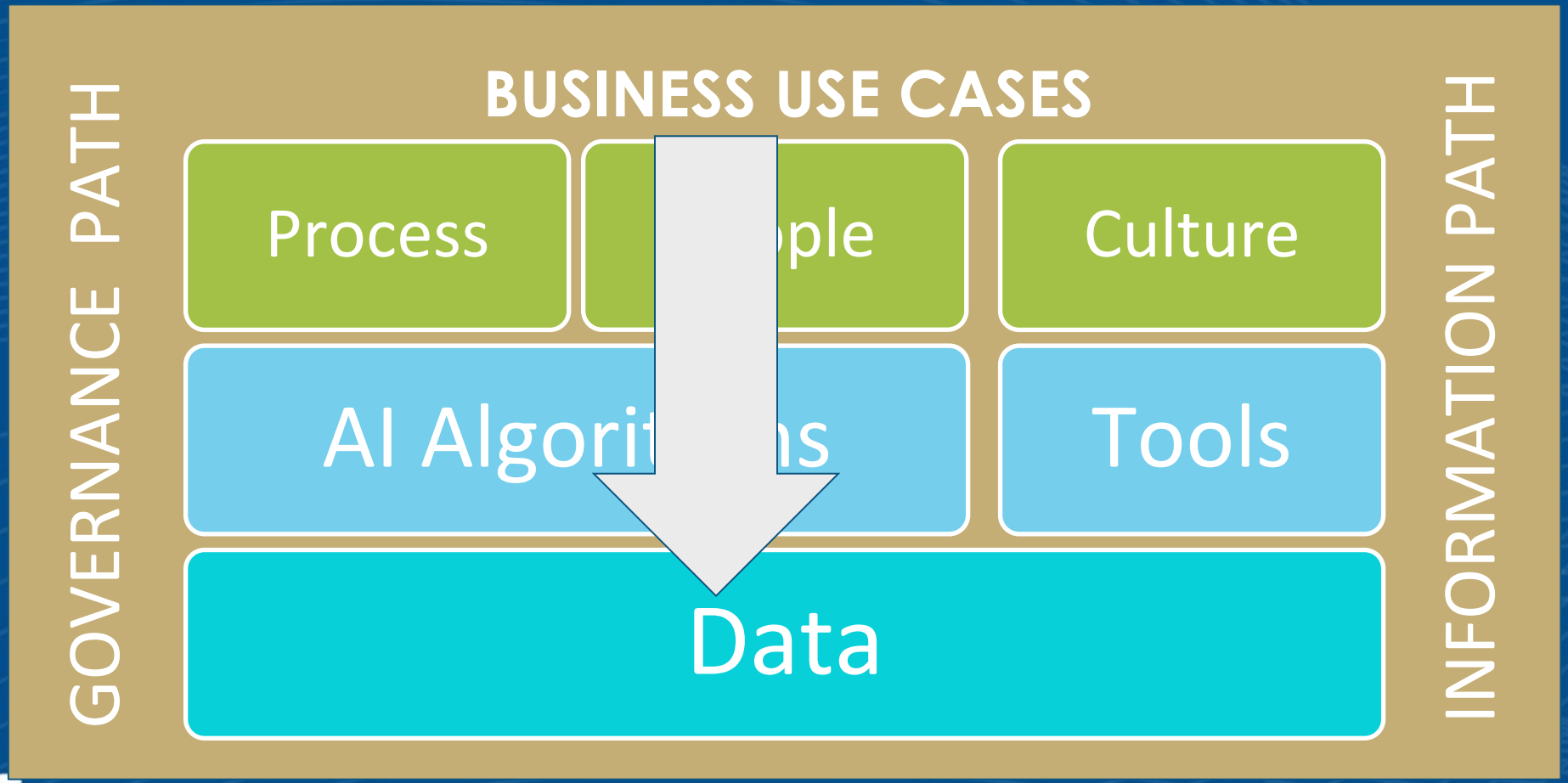
USE CASES DRIVE DATA SUPPLY CHAINS



STRATEGIC RELEVANCE OF THE DATA SUPPLY CHAIN

"FARM TO TABLE “

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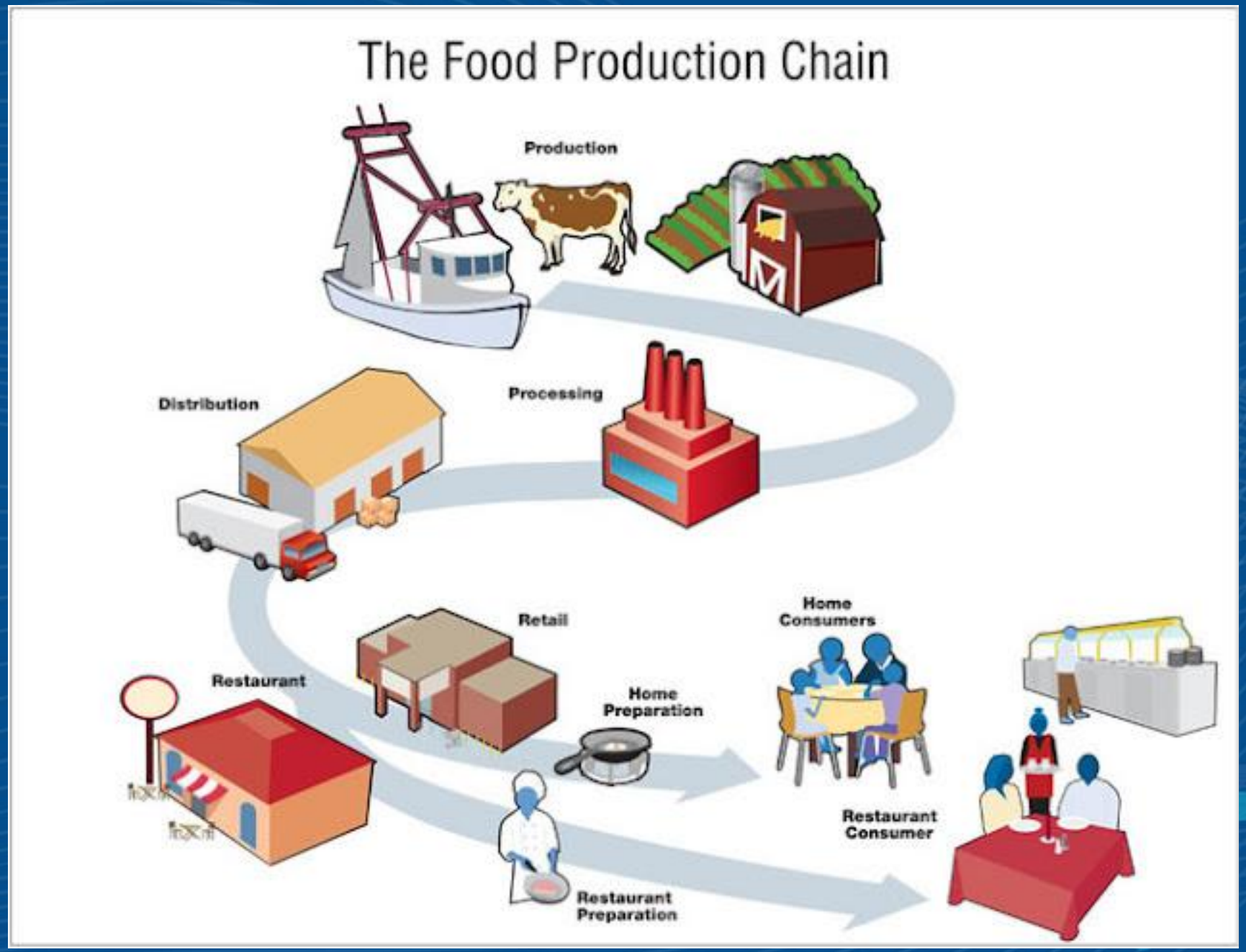
DATA SUPPLY CHAINS

RAW DATA

INFORMATION

END USER CONSUMPTION



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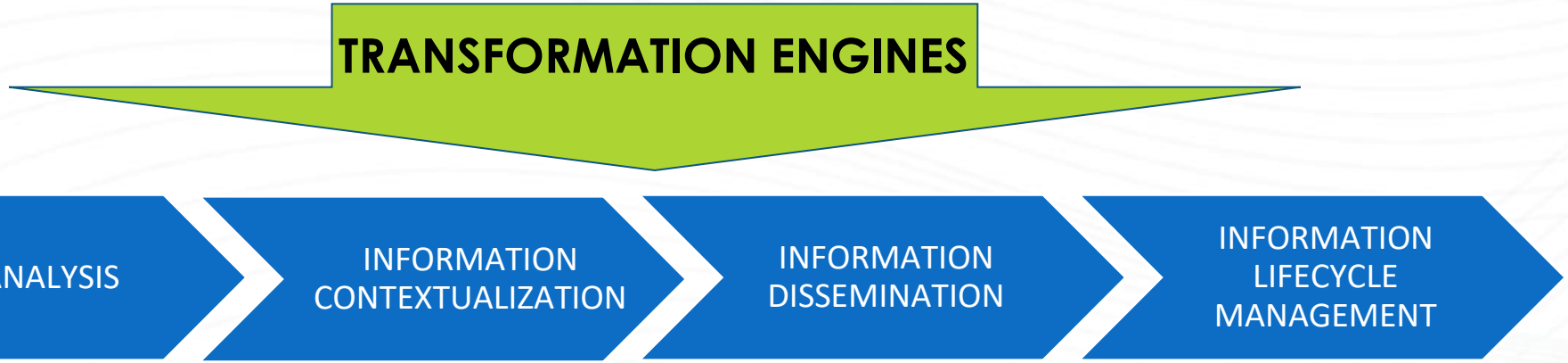
DATA IS TRANSFORMED TO INFORMATION BY DIFFERENT PROCESSES

Raw data undergoes processing to prepare it for transformation by different tools



Information is created through transformation enabled by AI, Business intelligence, reporting, decision rules, and GPT processes

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Activity 1: Define Your Data Supply Chain

Map your organization's data supply chain:

- Identify **raw data sources** (e.g., sensors, databases, user inputs).
- Outline **processing steps** that are applied to your data to support your use case.
- Highlight **storage systems** or warehouses where data is stored
- What **insights or actions** does the data support.

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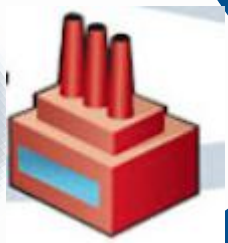
Production

Where is your data produced?



Processing

Where is your data stored and how is it processed?

Distribution Channels

How is your data being distributed? information?

Data/ Information Quality

How is your data/ information quality monitored?

Who are your end user? what information are they consuming?

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DATA IS VALUABLE TO AI IF…

- Raw quality is maintained and organized
- Reliably cleaned and stored
- Actionable Information is created accurately
- Data and Information access and use matches the business case

SUCCEEDING WITH AI STARTS WITH DATA AND THEN SELECTING RIGHT AI TOOLS

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AI IS NOT AN EASY BUTTON FOR EVERYTHING

NOT Just technology, software or hardware

NOT Out of the box Interoperability

NOT Plug n' Play module

NOT Work unsupervised without humans in the loop

NOT Data Ready

NOT Delivers Instant ROI at start

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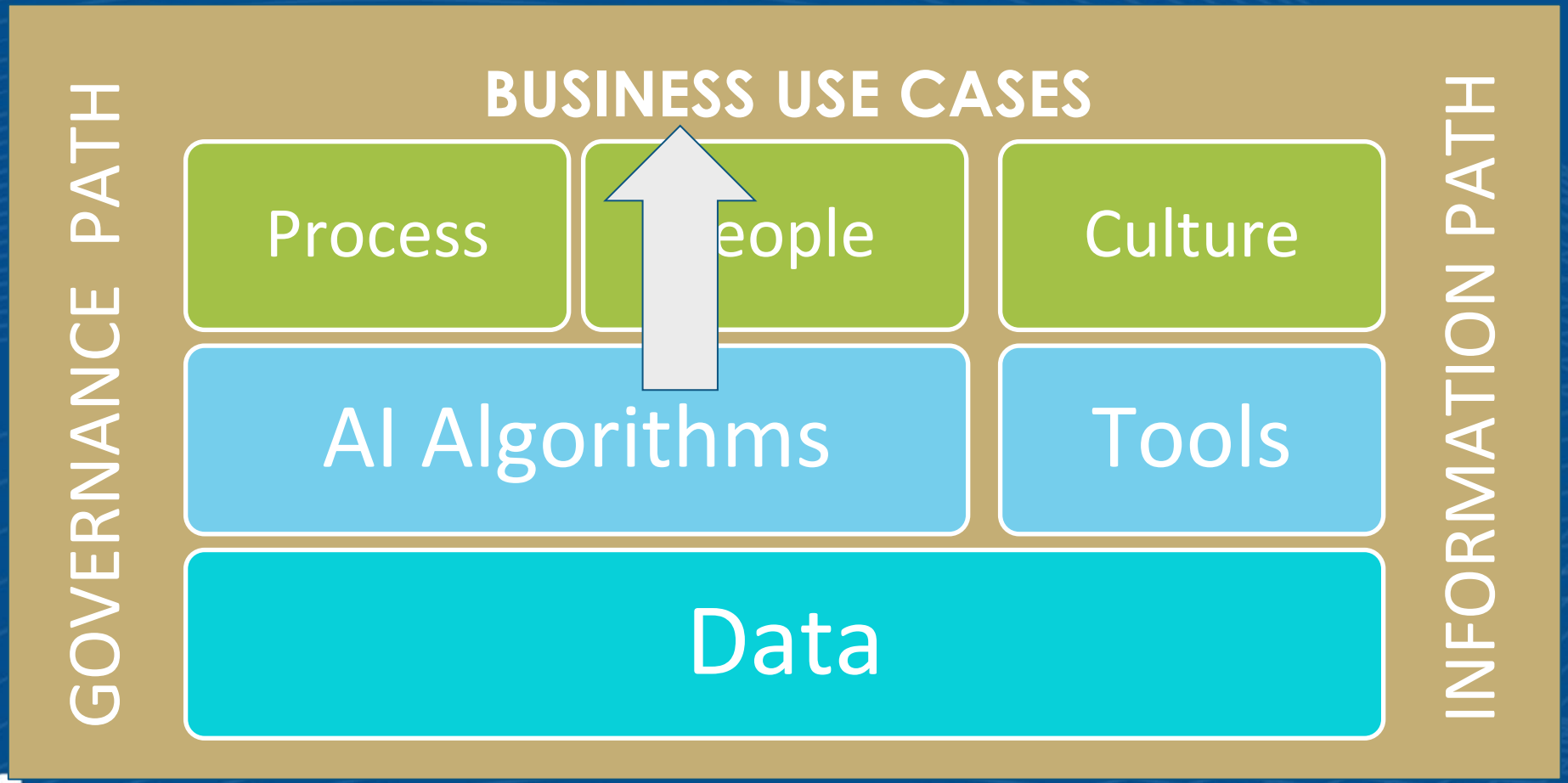
ALIGN AI TO THE BUSINESS USE CASE



WHY DO WE NEED TO DO THIS?

85% of the AI projects fail because business goals were not identified properly!

-Gartner Report

IT IS NOT ABOUT HAVING AI TOOLS BUT USING AI THAT IS RELEVANT TO YOUR GOALS

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POLLING QUESTION 2:

WHICH OF THE FOLLOWING AI BASED TOOLS DO YOU USE AT WORK?

1. YOUR PHONE
2. GOOGLE SEARCH
3. VOICE TEXTING
4. GRAMMARLY
5. POWERPOINT DESIGNER
6. MICROSOFT CO-PILOT
7. CHATGPT,BARD, CLAUDE, LLAMA ETC.
8. ALL THE ABOVE

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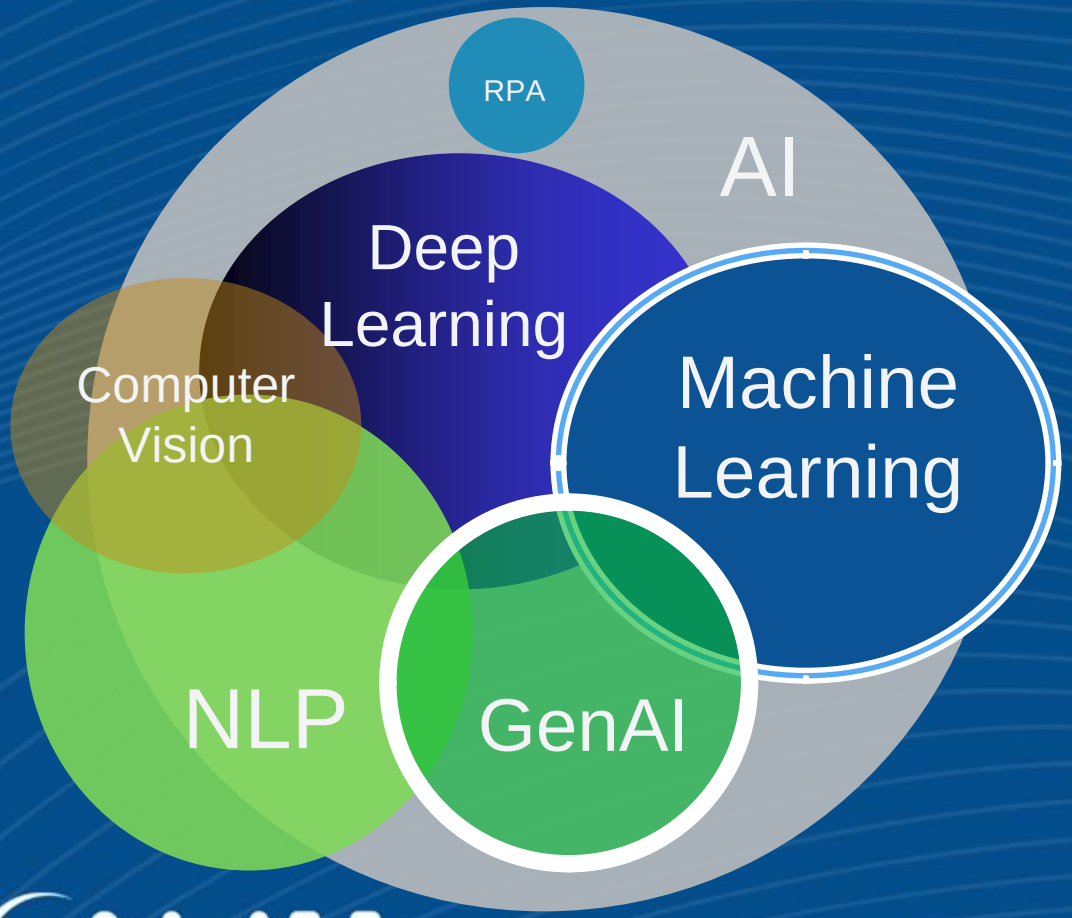
AI APPROACHES FOCUS ON SOLVING BUSINESS CHALLENGES USING DATA



Statistics: Summarization, prediction

Robotic Process Automation (RPA): Rules and Decision Systems, Optimization processes

Machine Learning: Iterative learning and optimization

Deep Learning: Iterative complex pattern discovery

Computer Vision: Digitalization of data to images

Natural Language Program (NLP): Language interpretation/ generation

GenAI: Generative process transformers

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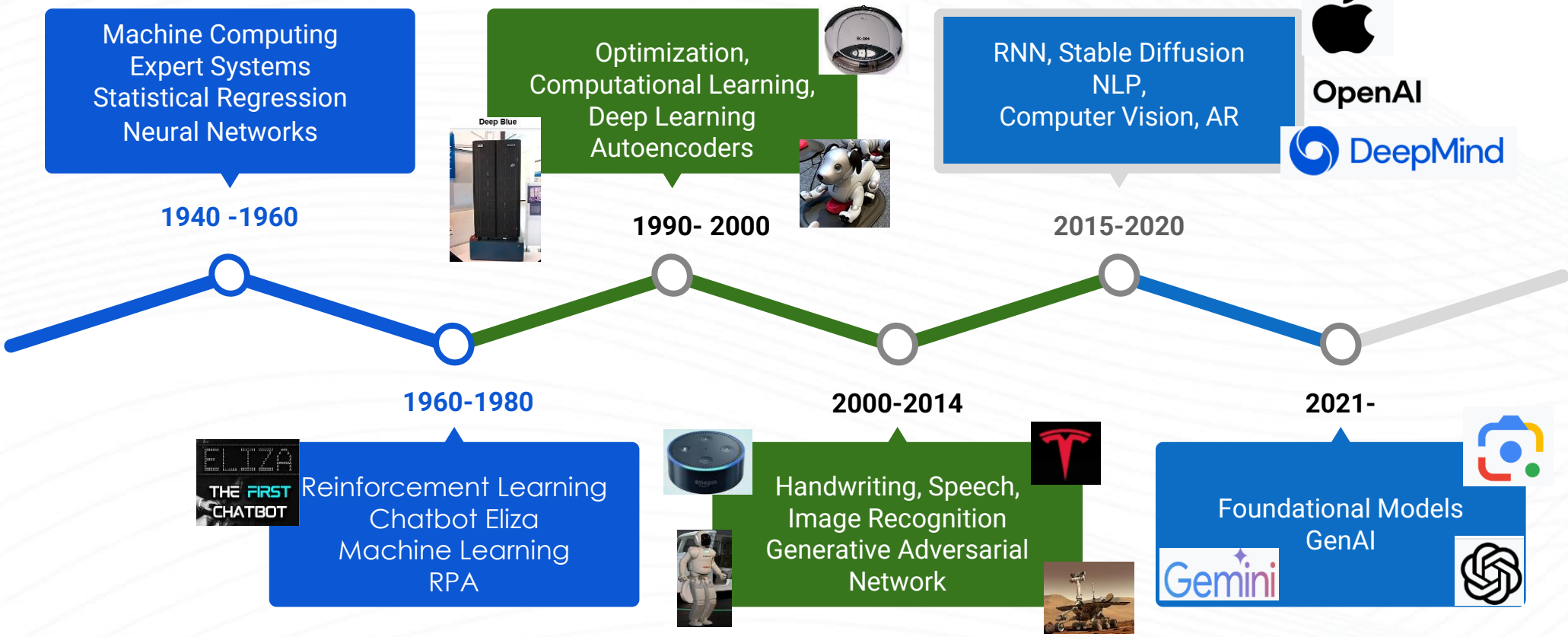
SUCCESS WITH AI: SOLVING BUSINESS CHALLENGES



Regression, Forecasting → Optimization, Machine Learning → Text Mining, Sentiment Analysis → Multimodal Communication

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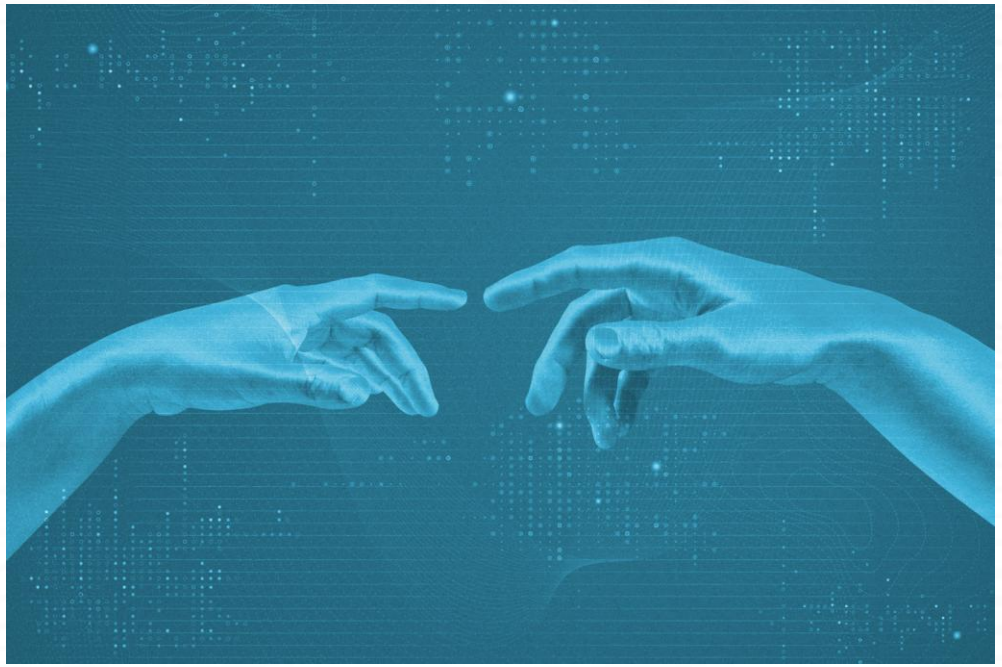
SUCCESSFUL AI ALIGNMENT WITH BUSINESS GOALS ARE MEASURED BY ---------

AI INITIATIVES SHOULD BE CONNECTED TO BUSINESS METRICS

- Growth in customers
- Increase average cart value per online visit
- Decrease in time and cost of production, transportation, energy utilized, ER services provided, plant and equipment failures
- Reduced costs of Security and Fraud operations
- Reduced regulatory penalties

ALIGNING DATA TO AI



USE CASES DRIVE THE REQUIREMENTS FOR DATA AND AI TECHNIQUES

	Targeted Social Media Marketing	Financial Estimate of Net Assets	Silicon Wafer Etching
AI Explainability	Medium: Profile details to support marketing	High: Lineage and auditability	Very High: Nano dimensions of precision
Actionable AI	High	High	High
AI for Compliance	Medium: Broad ethical rules	High: GA* guidelines	Very High: To requirements
Data Quality	Medium: Law of averages	High: Strategic outlooks	Very High: Speck of dust matters
Volume and Variety of Data	Medium: Demo, Transactional, market profiles	Very High: Everything about the enterprise	Medium: Variety of metrics on air quality, temperature, run time, layer coating, depth of etching.

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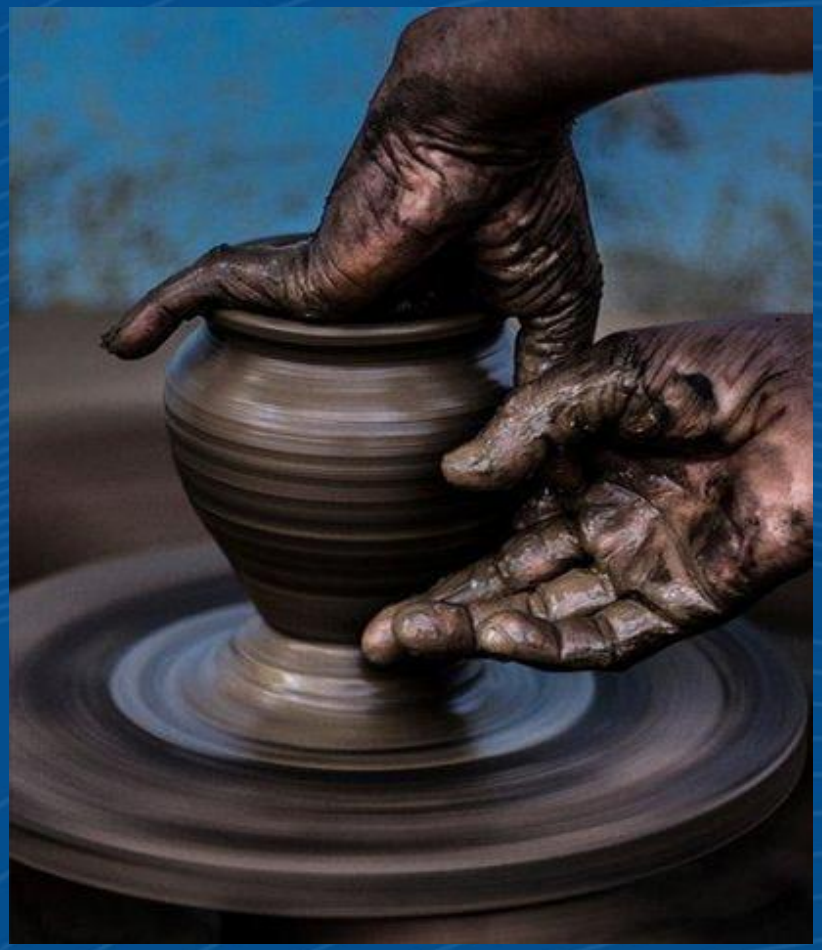
* GA General Accounting



QUALITY

VS.

DEGREE OF SLOP

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All data is not equal. Use cases determine the permissible “Degree of Slop” of data

QUALITY OF DATA AND INFORMATION CONSUMED

WHERE IS SLOP ACCEPTABLE ?

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FACTORS DELIVERING AI BUSINESS SUCCESS

- Data Trust
  - Data Quality, Accuracy, Reliability
- Data Access and Flow
- Data Storage and Transformation
- Data Governance

KEY TAKEAWAYS

Align AI use to business outcomes

Align AI success to data requirements

Understand core data requirements that will power AI use cases

First select a use case then select the AI design

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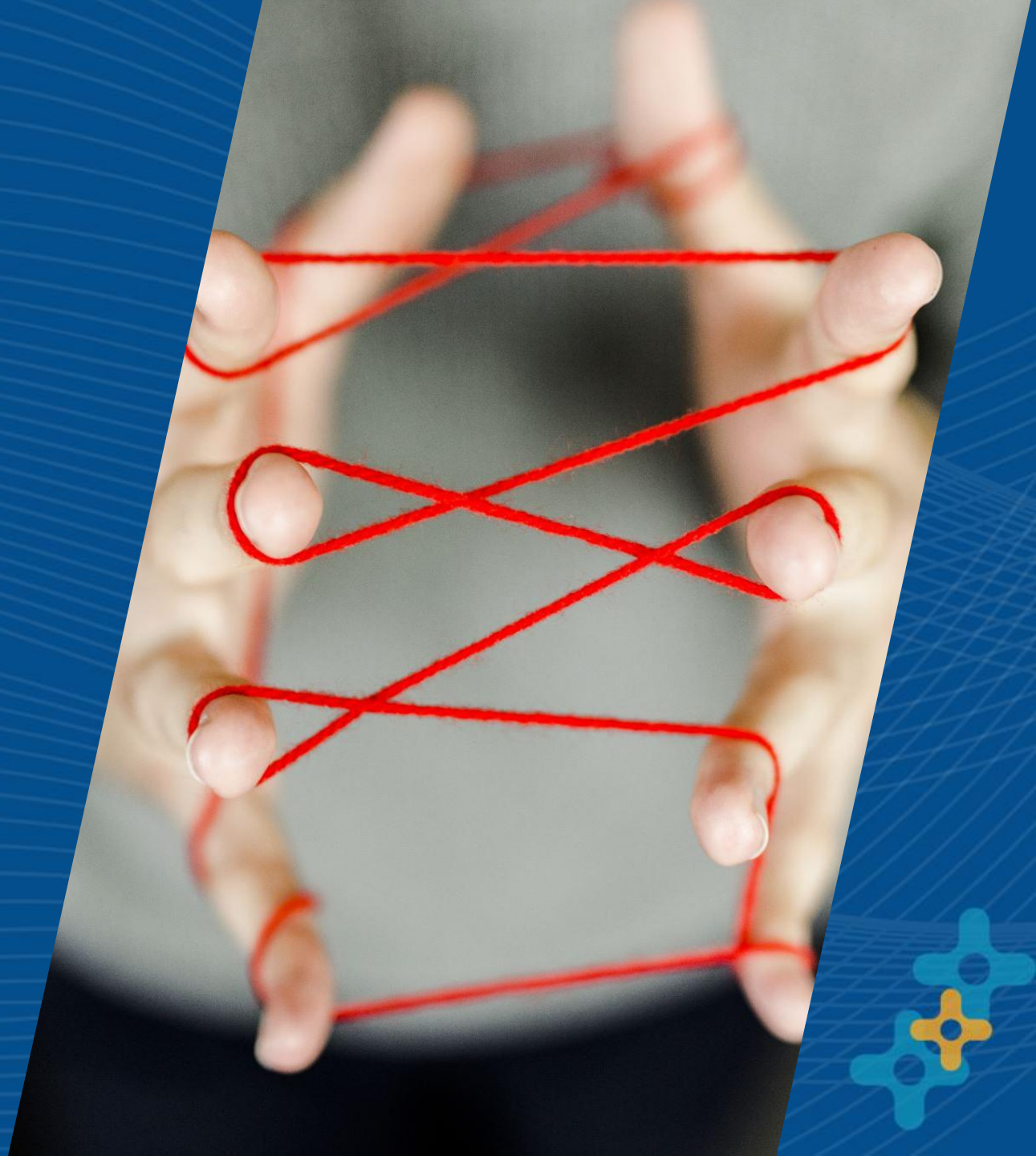
DATA AND INFORMATION MANAGEMENT



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RELATING AI TO STRATEGIC PILLARS OF SUCCESS

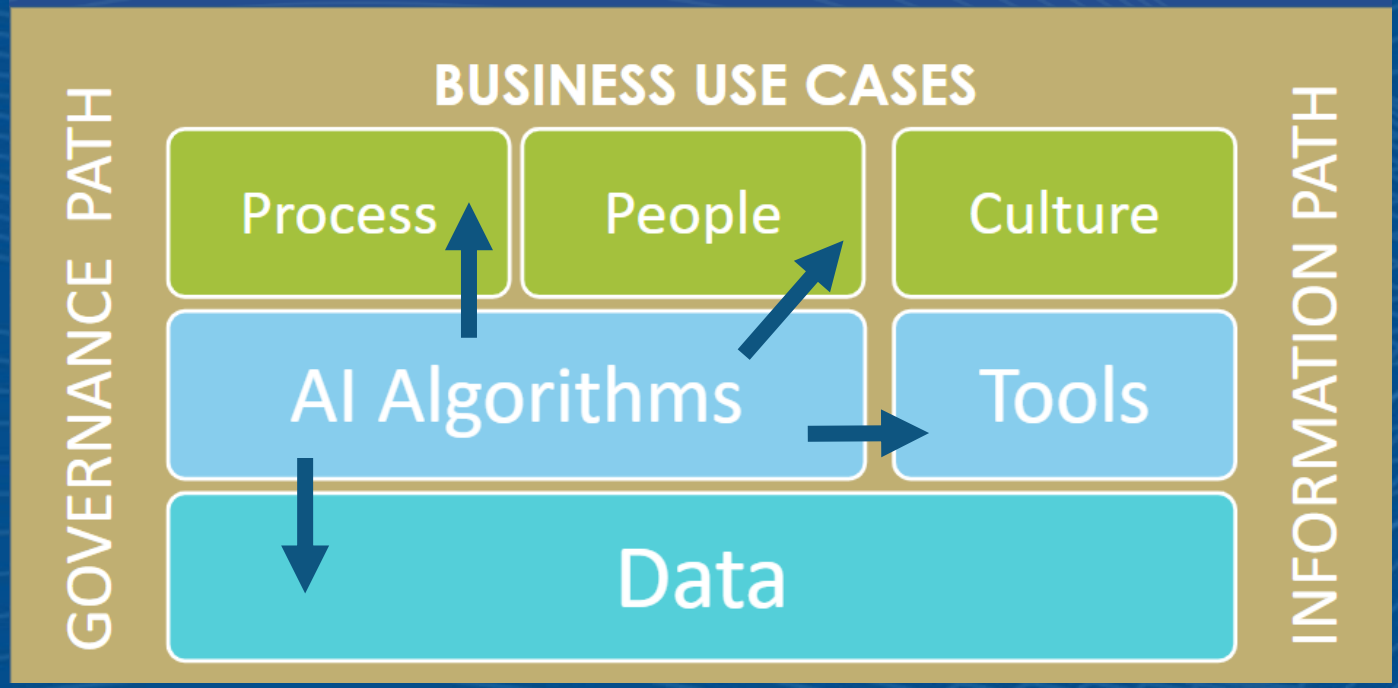
Data (AI)

Process (AI)

Technology (AI)

People (AI)

Organization (AI)



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DATA | AI APPROACH ADOPTED = QUALITY OF DATA RELEVANT TO THE BUSINESS CASE

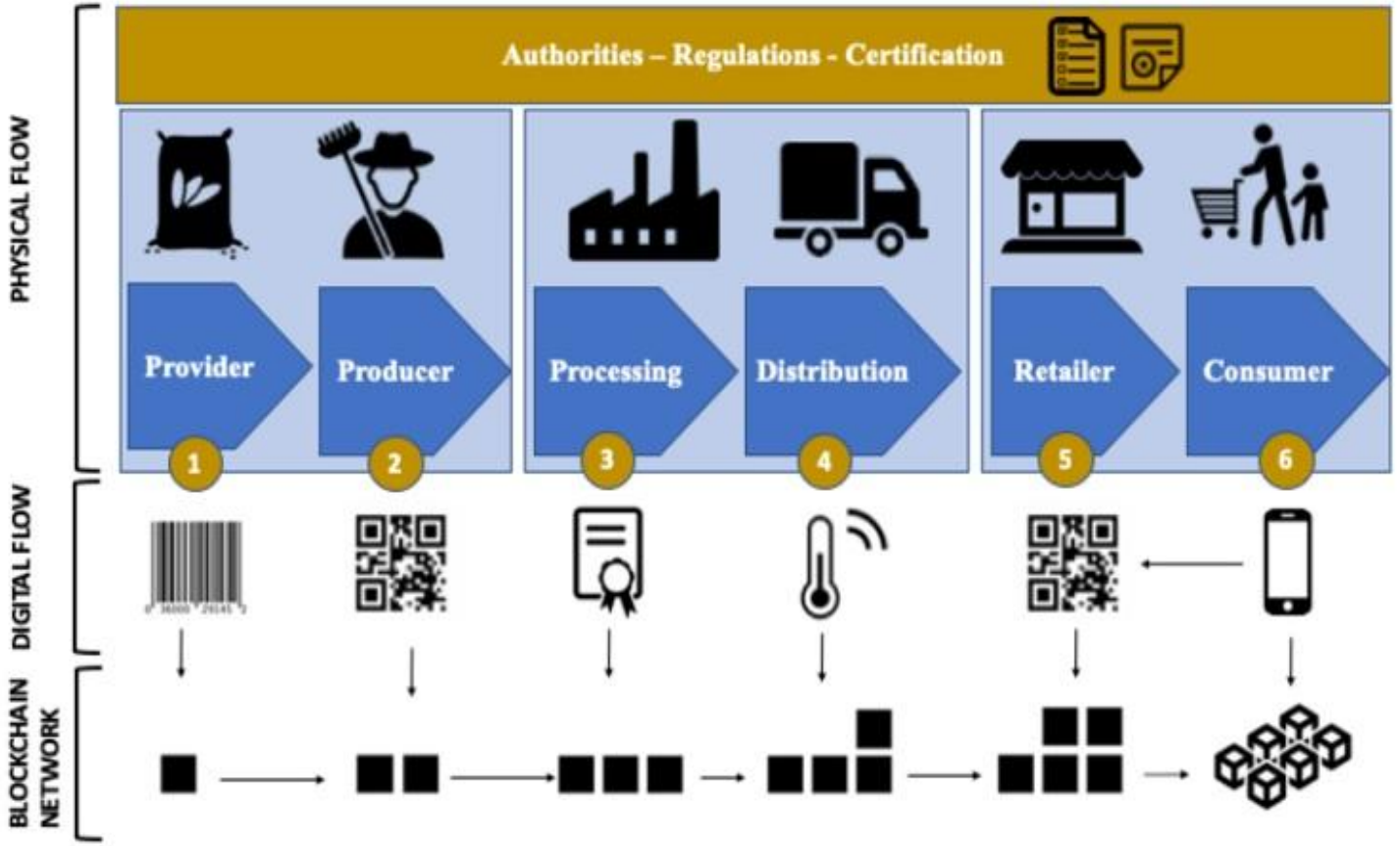
Machine Learning Predictive Applications

vs.

Generative AI Applications

- **Data types**
- **Velocity of data**
- **Reaction time/ SLA**
- **Governance & Monitoring**
- **Responsible AI**

PROCESS| QUALITY OF INFORMATION GENERATED STARTS WITH RAW DATA QUALITY



USE CASE SPECIFIC METRICS MONITORING, LINEAGE, & GOVERNANCE

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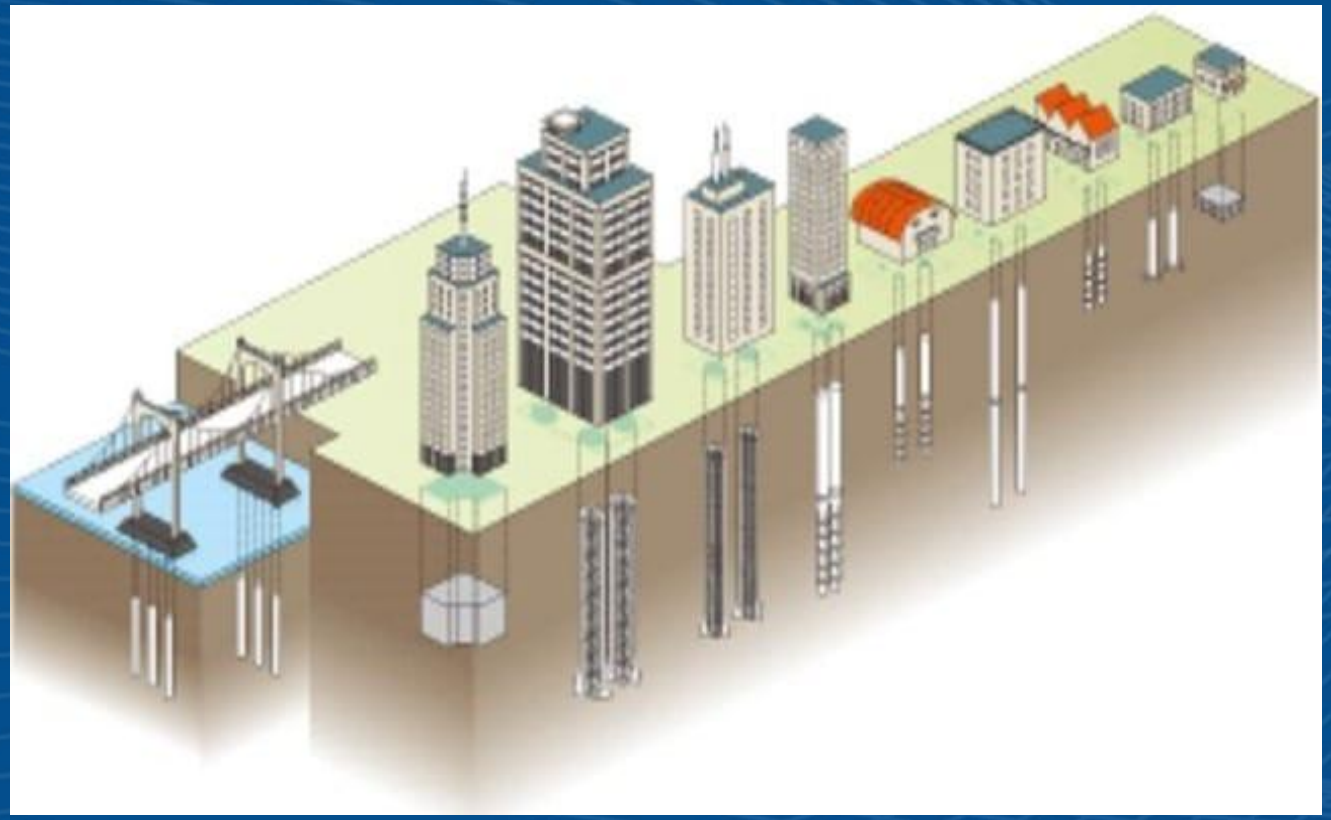
ORGANIZATION | PICK A GOVERNANCE & QUALITY MANAGEMENT FRAMEWORK

- DMBOK- Data Management Body of Knowledge for governance and quality
- CRISP-DM- Cross-industry standard for data mining to turn data into knowledge
- AI-CRISP - Cross-industry standards for AI-led solutioning
- NIST – Guidance on responsible AI for DIM
- FAIR Principles- Making data Findable, Accessible, Interoperable, and Reusable

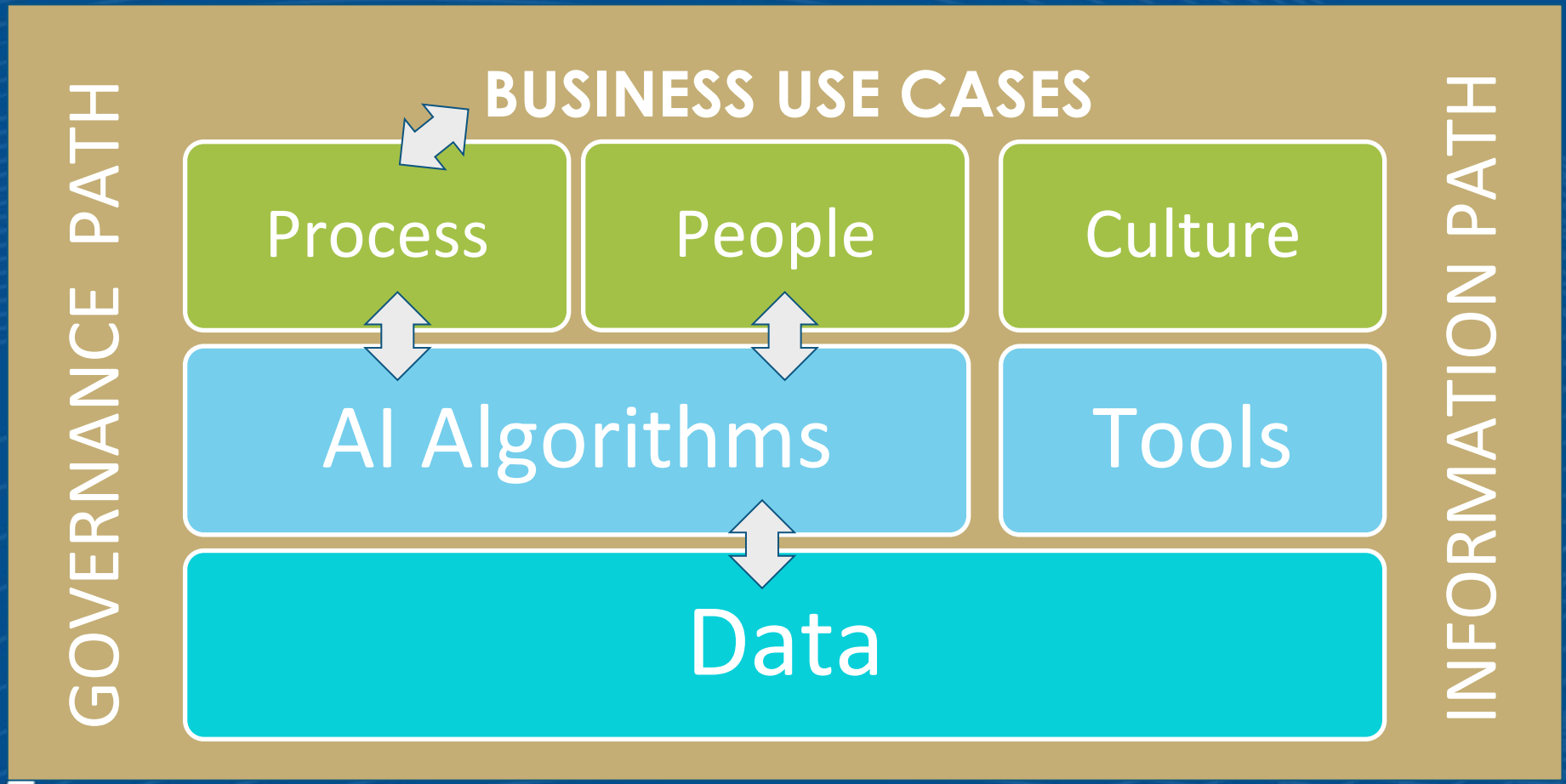
TECHNOLOGY | BUILD SUSTAINABLE AND FLEXIBLE DATA ECOSYSTEMS

Design and select enablers and processes that support use case relevant data -

- Integrability
- Access
- Security



KEEP THE FOCUS ON AI BUSINESS CASE



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Activity 2: Revisit Data Supply Chain

- Understanding the downstream impact of AI, what will you do differently against the upstream data-supply chain?
- Fill the column on the right.

SUMMARIZING TAKEAWAYS

KEY INSIGHTS

- Aligning to business outcomes
- 85% of AI projects fail because business goals weren't properly identified.
- Not all data is created equal; use cases drive data or information needs.
- Start with aligning data to business objectives
- The use cases determine the threshold "degree of slop" in data quality.

ENSURING AI SUCCESS

- **Data and information access and use should match the AI business case.**
- **Data is valuable to AI if:**
  - **Raw quality is maintained and organized.**
  - **It is reliably cleaned and stored.**
  - **Actionable information is created accurately.**

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ENSURING AI SUCCESS ALONG DATA SUPPLY CHAIN

- Data Supply Chain Management ensures access, usability, and value.
- Remember, AI is not an “Easy Button".
- Value is created from data and information when
  - AI tools and processes align with the use case
  - monitoring of “slop” is continuous along the data supply chain.

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THANK YOU!

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Appendix

References

The state of AI in 2022—and a half decade in review | McKinsey

The state of AI in early 2024 | McKinsey

DMBOK- DM book of knowledge

NIST- Risk Management Framework

CRISP-DM

FAIR

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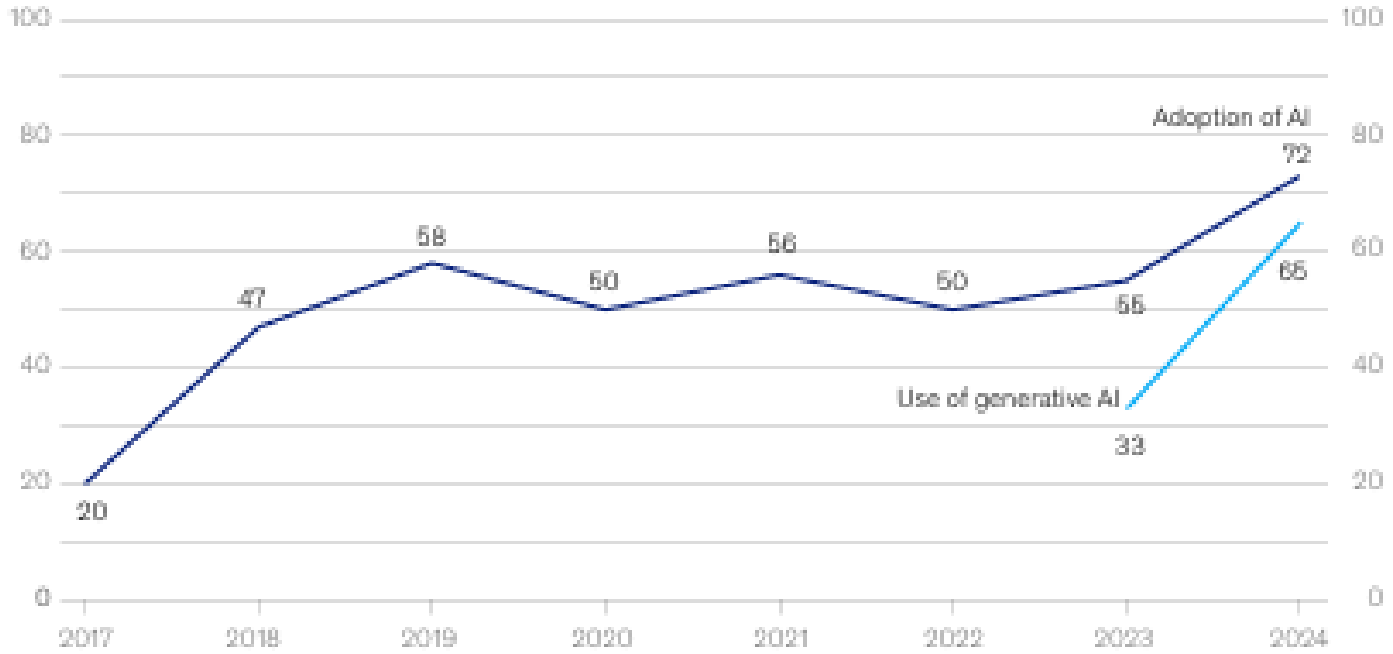
Exhibit 1

AI adoption worldwide has increased dramatically in the past year, after years of little meaningful change.

Organizations that have adopted AI in at least 1 business function,[1] % of respondents

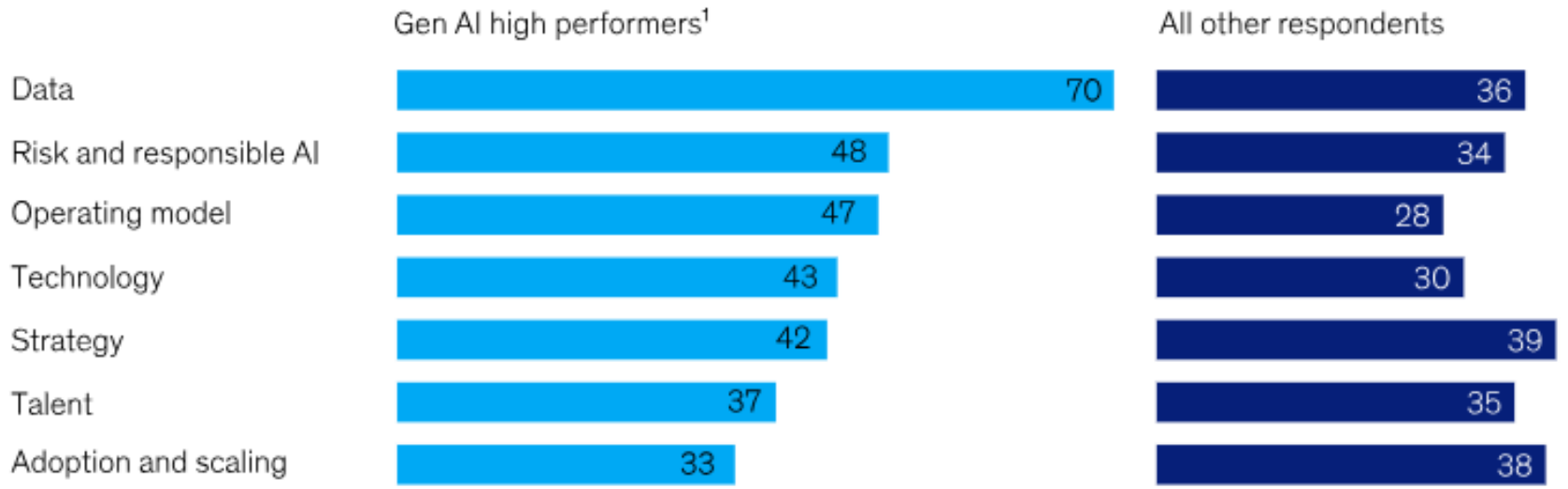


[1] In 2017, the definition for AI adoption was using AI in a core part of the organization's business or at scale. In 2018 and 2019, the definition was embedding at least 1 AI capability in business processes or products. Since 2020, the definition has been that the organization has adopted AI in at least 1 function.
Source: McKinsey Global Survey on AI, 1,363 participants at all levels of the organization, Feb 22–Mar 5, 2024

McKinsey & Company

Generative AI high performers report experiencing a range of challenges in capturing value from the technology.

Elements that have posed challenges in capturing value from generative AI (gen AI), % of respondents



Note: Figures do not sum to 100%, because respondents could choose multiple answer options.
[1]Respondents who said that at least 11% of their organizations' EBIT in 2023 was attributable to their use of generative AI. For respondents at AI high performers, n = 46; for all other respondents, n = 830. Respondents who said "don't know/not applicable" are not shown.
Source: McKinsey Global Survey on AI, 1,363 participants at all levels of the organization, Feb 22–Mar 5, 2024

McKinsey & Company

Nearly one-quarter of respondents say their organizations have experienced negative consequences from generative AI's inaccuracy.

Generative-AI-related risks that caused negative consequences for organizations,[1] % of respondents

[1]Question was asked only of respondents whose organizations have adopted generative AI in at least 1 function, n = 876. The 17 percent of respondents who said "don't know/not applicable" are not shown.

Source: McKinsey Global Survey on AI, 1,363 participants at all levels of the organization, Feb 22–Mar 5, 2024

McKinsey & Company

DATA SUPPLY CHAIN MANAGEMENT TO ENSURE ACCESS, USABILITY, AND VALUE

Key Points	Food Supply Chain	Data Supply Chain
Raw materials vs. Raw data	Farmers produce raw agricultural products like grains or vegetables.	Raw data is generated from sources such as sensors, user-generated input, IoT devices, logs, databases, APIs, etc.
Processing stages	Food processing facilities clean, filter, and transform raw ingredients into products.	Data is cleaned, filtered, and transformed into usable formats for analysis.
Storage and distribution	Warehouses store processed food, ensuring it is accessible for transportation.	Data storage systems (e.g., databases, data lakes) keep processed data readily available.
Tracking and traceability	Food tracking mechanisms ensure quality control and trace issues using identifiers.	Data tracking ensures quality, monitoring for errors, and enabling traceability.
Consumer access	Finished food products reach consumers via grocery stores , restaurants, farmers market, for consumption.	Processed data is delivered to end users (e.g., dashboards, reports) for decision-making.

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