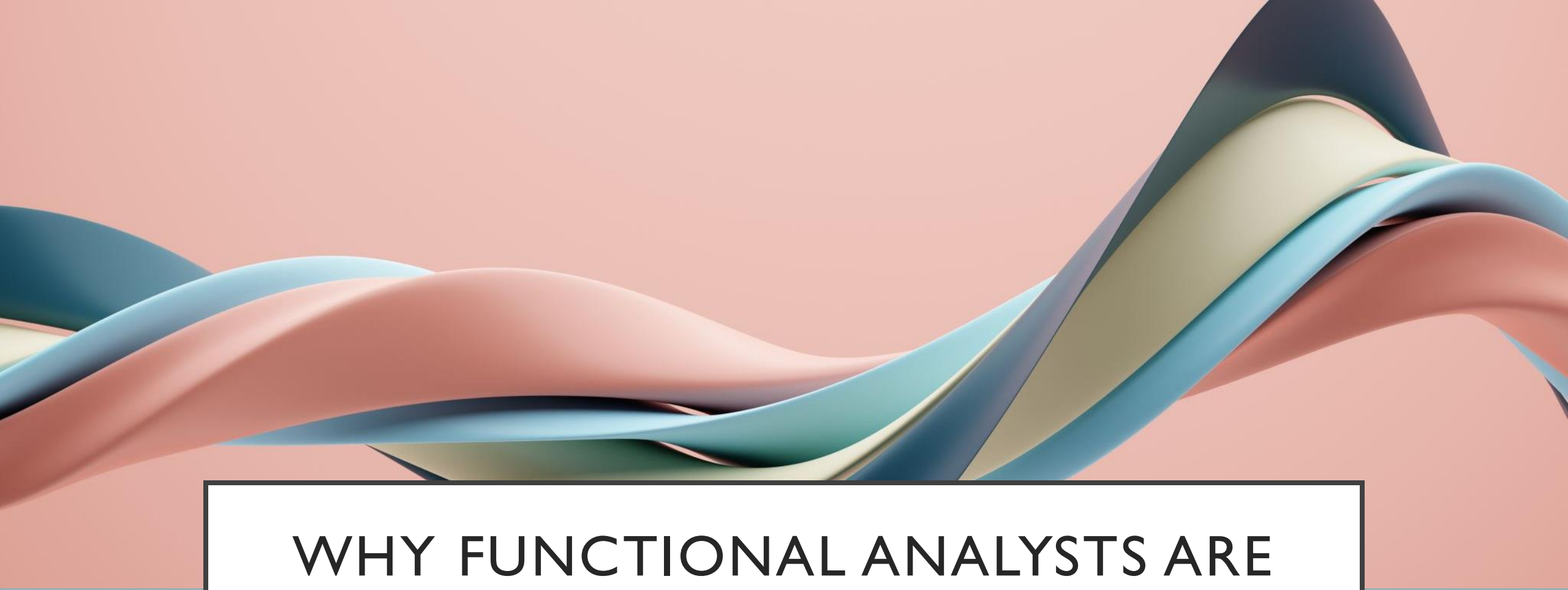


WHY FUNCTIONAL ANALYSTS ARE THE SECRET SAUCE TO AI SOLUTIONS

ATX BADD: Awaken Imagination

INTRODUCTION

Gabriella Lio

- Director – AI Lead for Emerging Technology Practice at CGI
- 6+ years of experience working across various industries and clients
- Advise clients in the AI Space
- Hands on Data Scientist
- Masters in Business Analytics

THE AGE OF AI IS HERE

From automation to creation

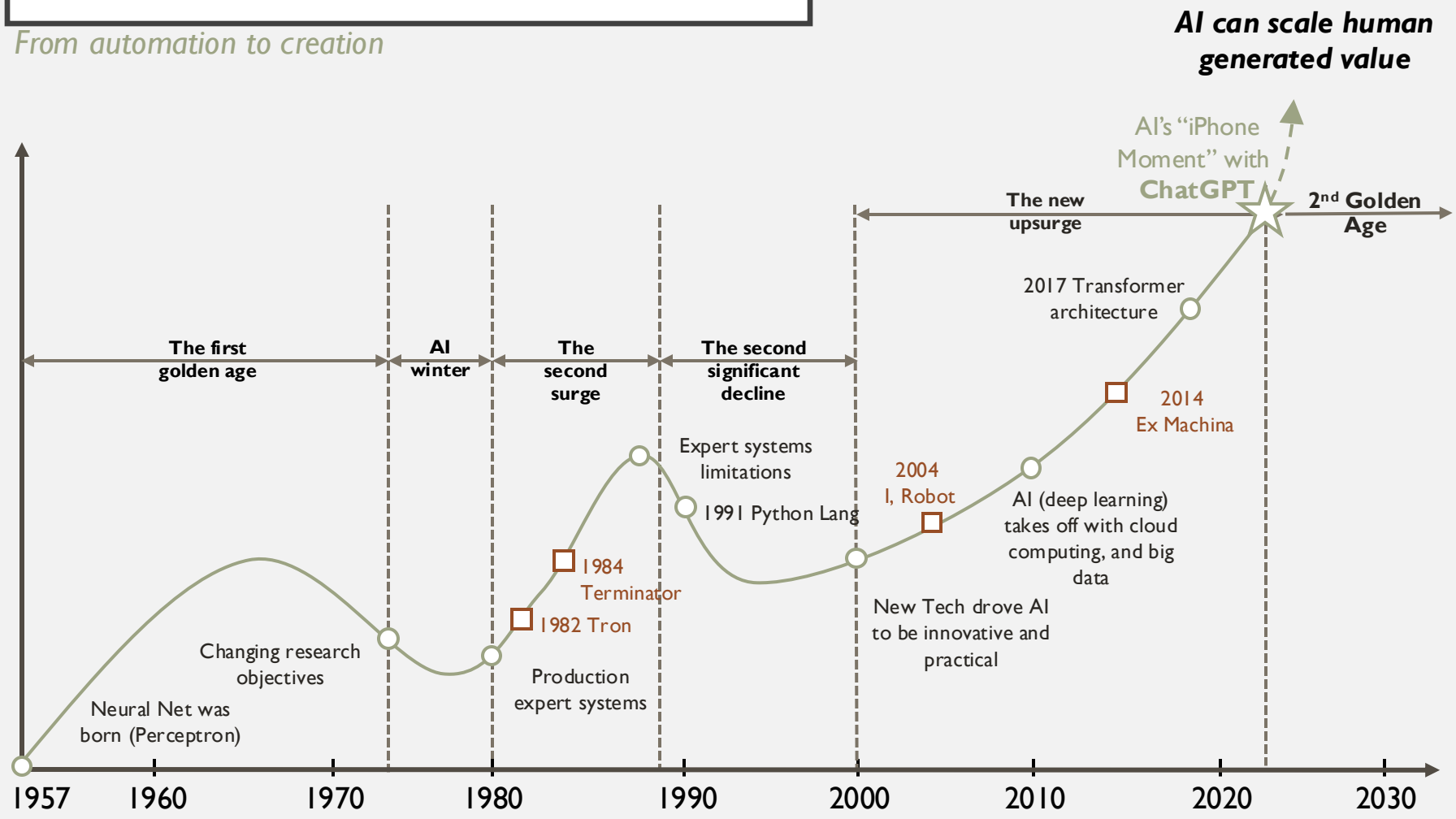


Figure adapted from the "Reflection of the development history of AI," published in the article "Artificial Intelligence in Product Lifecycle Management" by Wang et al. in 2021

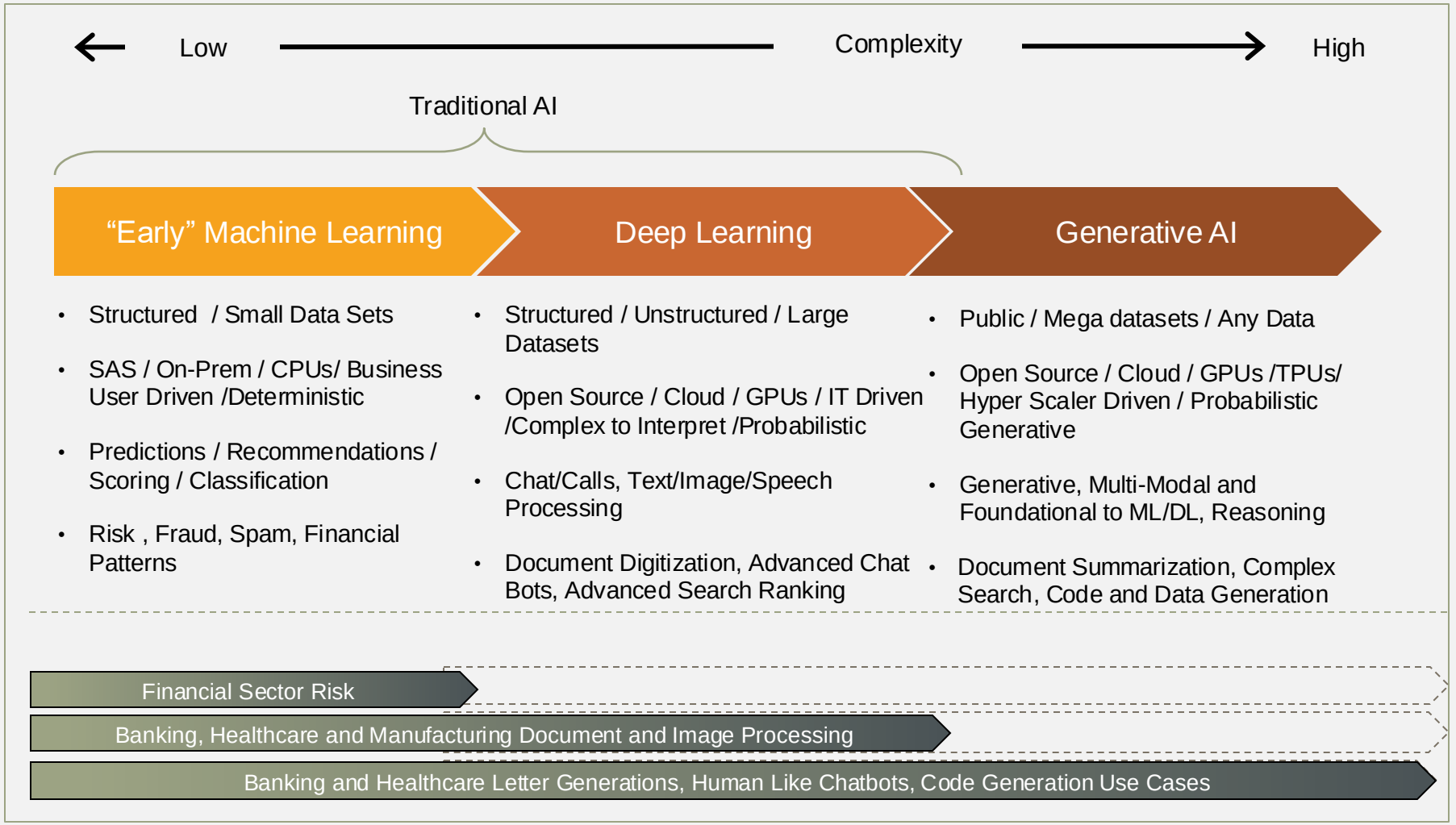
"Google's DeepMind AI Predicts 3D Structure of Nearly Every Protein Known to Science" CNET

"AI to stop water pollution before it happens" BBC

"How ChatGPT is changing the job hiring process, from the HR department to coders" CNBC

"Surgeons successfully restore touch and movement in quadriplegic man using AI brain implants" Euronews

AI TECHNOLOGY CONTINUUM



THEN (ALMOST 2 YEARS AGO), AND NOW… GENERATIVE AI IS CHANGING THE NARRATIVE

Dec 2022

Before

Era of Foundational AI

- Narrower Enterprise impacts
- Automation/RPA for processes
- Conversations with Chief Data Officers and AI Enablement Teams
- Months to value
- Higher skilled labor needs (Data Scientists and AI researchers)
- Higher Start Up Costs (Data Preparations, Model Training)
- Specialized Models

After

Age of Generative AI

- Full Enterprise impacts across all operations
- Scaling Human operations and automation
- Conversations with C-Suite and leadership teams
- From days to months to value
- Development & engineering skills needed (software developers, integration)
- Lower Costs of entry with every vendor planning for or releasing GenAI based functionality
- Multi-modality – Generate all digital data types

90% OF AI PROJECTS FAIL

- Big difference between POC vs. Production
- Transforming a model into a fully functioning component of a production system is complex
- The leadership often has a view of what AI can and should achieve that is not grounded in reality
- Lack of understanding between business leaders and the people on the ground = projects do not have the resources & time needed to accomplish their goals
- An AI initiative that doesn't contribute to the bottom line is hard to justify

Link

OBJECTIVES

1. Understand the end-to-end lifecycle for AI development & deployment

2. Learn about strategies to implement to ensure success

ACCELERATING THE USE CASE TO VALUE OPERATING MODEL

Opportunity Ideation

Use Cases Identification

AI LaunchPad Assessment

Engineer & Operate

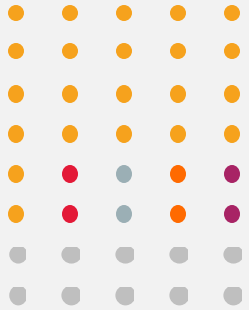
Business Agility

Divergent Ideation

Exploration of possibilities sourced from business and technical partners. Encouraging creativity, the focus should be on quantity over quality, and all judgment should be postponed

Convergent Idea Refinement

Identify and initial prioritization GenAI use cases, deferring those ideas that need more information or are better suited for other technology



BUSINESS & TECHNOLOGY IMPACT ASSESSMENT & FEASIBILITY

Governance	Security	Privacy
Regulations	AI Readiness & OCM	Ease of Use / HCD
Data & Information Readiness	Technical Assessment	Integration

ROI

Enterprise Generative AI

Private | Internal | Secure

Governance	Departmental Guidance	Regulatory Guidance
Impact Assessment	Access Guide(s)	AI Policy Course

GenAI API's → App 1, App 2, App n

LLM's
OpenAI, Llama3, Bedrock → Embeddings, Fine Tuning

Deferred	Machine Learning	Intelligent Automation	Application Enhancements	Process Improvements

LAUNCHPAD ASSESSMENT: ACCELERATING AI VALUE

Start: Identified Opportunities Use Case Definition: List of time saving, quality improving or efficiency improvement ideas

ASSESSMENT & FEASIBILITY

Governance
Adherence to standards & guidelines for governance such as Usage, Ethical, Privacy, Explainability Policies

Security
Assess data security, access rights and implications on use case

Privacy
Privacy considerations such as PII, Protection Health Information,
Financial Information

Regulations
Assess compliance obligations and outline initial approach to meet requirements

AI Readiness & OCM
Identify areas of change impact to enable organizational change management support for adoption

Ease of Use / HCD
Ensure the implemented AI solutions are human centered and have intuitive interfaces and transparency for users

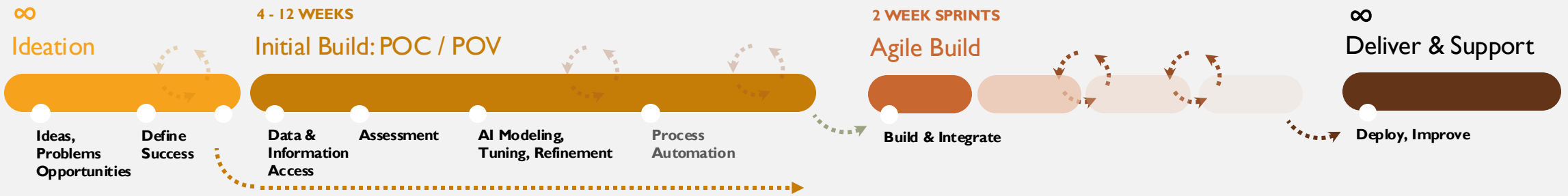
Data & Information Readiness
Assesses data and provide recommendations to prepare it for the use case

Technical Assessment
Determine AI technical approach or if alternatives like heuristics, process changes or RPA are more appropriate

Integration
Outline integration approaches with existing business processes and applications

Return on Investment
ROI calculations, determine implementation costs and total cost of ownership based on usage / consumption models.

AI FACTORY FRAMEWORK



Identify Opportunities

Identify ideas, problems, challenges and key outcomes

- Engage Stakeholders
- Define current challenge or opportunity
- Define quantifiable success metrics
- Document known details & risks
- Prioritize opportunity

Assessment & Modeling

Team review, define possible solution approaches, experiment, build & test

- Access systems, data
- Conduct data and process assessments
- Identify constraints
- Data engineering / wrangling
- Model performance / progress checkpoints
- POC/POV iteration and refinement
- Time boxing
- Frugal experimentation (fail fast)

Build & Integrate

Team integrates ML models into application and/or existing processes

- Confirm integration strategy
- Develop APIs as needed
- Test new features
- Conduct regression tests
- Create analytical dashboards
- Define deployment strategy

Deploy

Monitor and assess ML model performance

- Deploy to production
- Address concept drift
- Monitor inference performance
- Identify model improvements
- Change management
- Training

Enabling Applications & Services

Data Lakes | Data Lakehouses | Data Warehouses | Data Virtualization
AI Platform (Azure ML Studio, AWS SageMaker, on-premise)

Team Roles

Domain SMEs
Scrum Master
Data Engineer(s)
AI Engineer(s)
Data Scientist(s)
Backend Developer(s)
RPA Developer(s)
AI Tester(s)
AI Architect

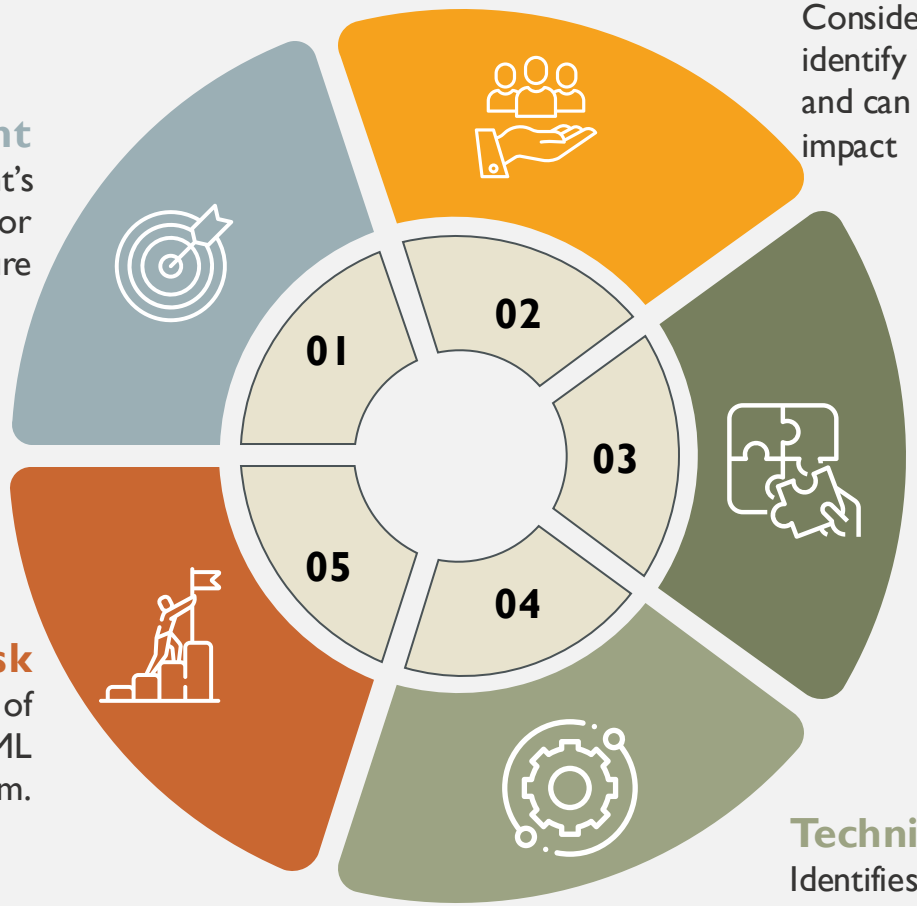
IDENTIFYING OPPORTUNITES

Define Current Challenges or Opportunities

Define Quantifiable Success Metrics

Evaluation Criteria

Using industry best practices and CGI's Machine Learning expertise the team identifies five key dimensions that helped identify optimal Machine Learning use case candidates.



Solves A Need and $$ Impact
Considers key customer needs and expectations to identify if use case solves a compelling customer need and can withstand future customer demands; Total $$ impact

AI Investments Already Made
Determines if use case aligns with key requirements of the AI applications already purchased and its likelihood to be approved

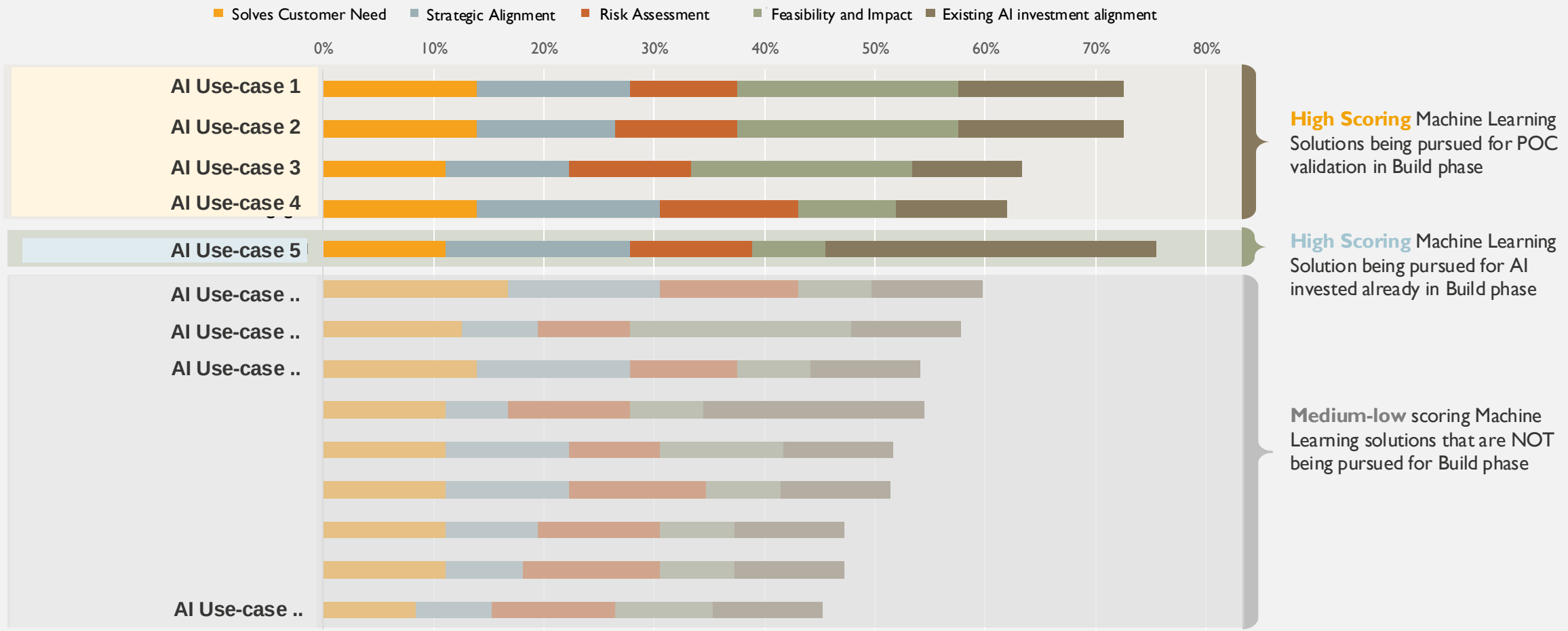
Technical Feasibility and $$ Impact
Identifies the feasibility of producing and deploying the ML model/algorithm given the existing data and environments

Risk
Analyzes the risk (societal & modeling) of deploying or not deploying the ML model/algorithm.

Strategic Alignment
Determines if use case aligns with Client's strategic goals, objectives and ambitions for the future

Results from Evaluation

Our team holds collaborative and iterative evaluation sessions with Client Technology Leads, Product Owners and Business Leadership. Evaluation results are then synthesized and further evaluated based on a technical lens to determine the optimal Machine Learning solutions to pursue in Build phase.



QUANTIFIABLE SUCCESS METRICS

Business & Functional Analysts must set clear, measurable objectives for the AI project, ensuring alignment with business goals.

Personalized Marketing	Healthcare Diagnosis	Customer Churn Prediction
• Objective: **Increase click-through rates** on marketing emails by **25%** over the **next three months**	• Objective: **Improve diagnostic accuracy** for a specific condition by **15%** within **a year**	• Objective: **Decrease customer churn** rate by **10%** within the **next quarter**

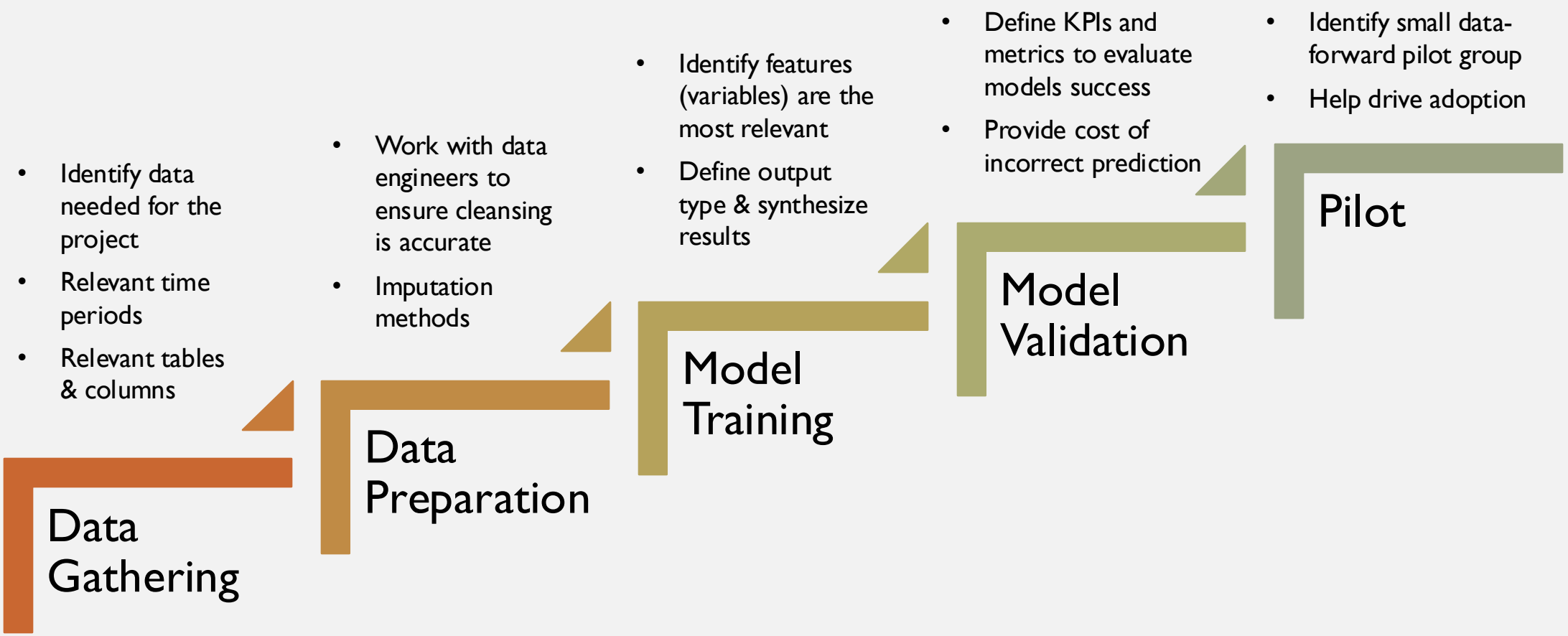
Measurable, Time Bound Goals, Achievable, & Focused on Improvement

ASSESSMENT & MODELING

Model Performance & Checkpoints

POC/POV Iteration & Refinement

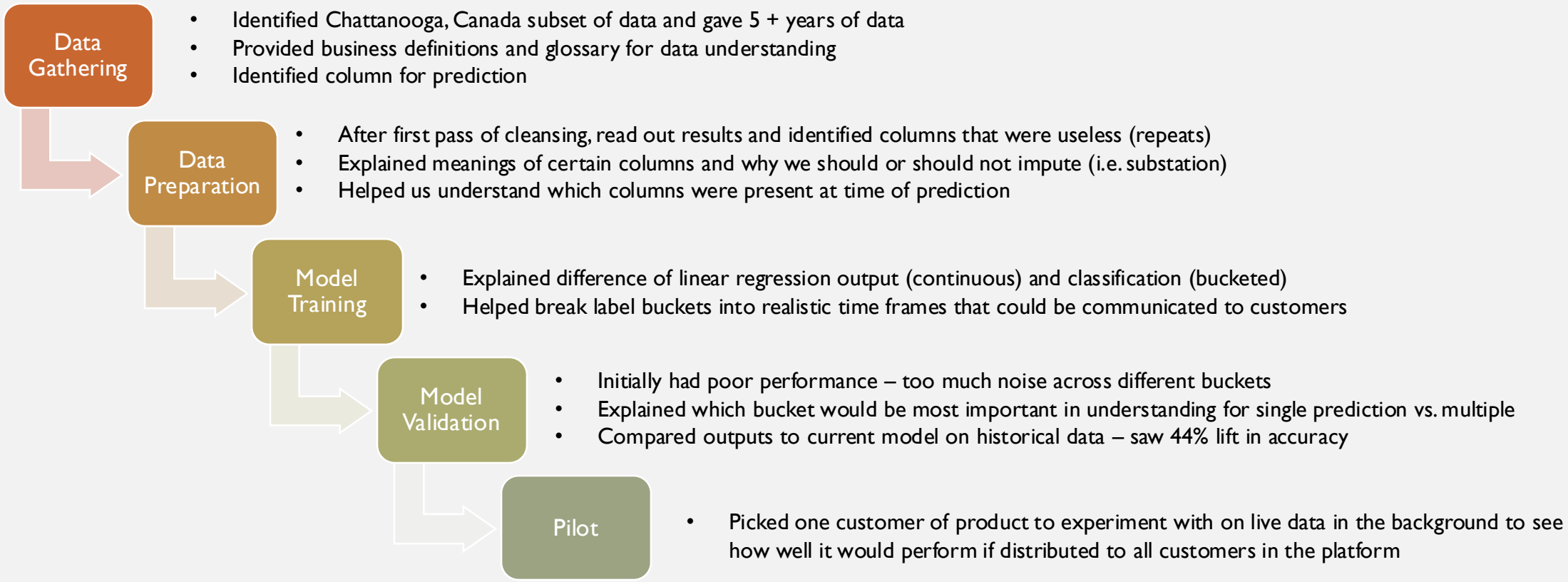
AI & ML MODELING PROCESS



CASE STUDY: PREDICTING ELECTRICAL OUTAGE TIMES

Objective: Increase accuracy of predicted electrical outage times compared to current model by **15% on historical data**

Main Business Stakeholder: Peter – Energy SME & Product Owner



DEPLOYMENT

Change Management

Training

BUSINESS & FUNCTIONAL RESPONSIBILITIES

CASE IN POINT: OIL & GAS CLIENT

Partnered with an Oil & Gas client for over 5+ years on their digital transformation journey to outfit their compressors with IOT devices and utilizing predictive maintenance models to help decrease downtime events, save costs, and increase revenue.

CHALLENGES

- IT driven use case identification
- No prioritization process
- Field Service Technicians & Service Managers (End Users) not involved in model development
- Inundated with model outputs = information overload = no adoption
- No metric tracking or KPIs

SOLUTIONS

- Created Analytics Team with Analytics Program Owner
- Idea submission & workshops with end users
- Use Case Champions per Use Case
- Change Management Practice – Communications, Videos, Guides, Training
- Monthly Value Read Out

AI GOVERNANCE ROLES

Oversees strategy and impact to organization (i.e., ethical AI); prioritizes use cases

Strategy & Responsibility

CIO, CTO, CSO, CDO, VP of Analytics, Director of Analytics

Defines business requirements and KPI metrics prior to model creation and provides SME expertise during model development

Model Consumers

- Business Owner(s)
- Product Owner(s)
- Application End Users
- Business Analysts
- Key Decision Makers

Creates data pipelines models, & infrastructure needed to deploy a model across an organization; ensures model adheres to existing environment protocols and is thoroughly tested

Building & Deploying ML Models

- Data Analyst
- MLOps Engineer
- ML Architect
- Data Scientist
- Infrastructure Engineer
- Software Developer
- Network Engineer
- Security Engineer
- Data Engineer
- Test Analyst

Ensure clean quality data is available for model training and deployment

Ensuring Data Quality

- Data Stewards
- Data Custodians
- Data Admin

IN SUMMARY

An AI or ML model can **ONLY DRIVE VALUE** if it has been **ADOPTED** and is **ACTIVELY** being used across the organization….which requires:

WHICH MEANS…**FUNCTIONAL ANALYSTS ARE THE SECRET SAUCE TO AI SOLUTIONS!**

THANK YOU!

Any questions?