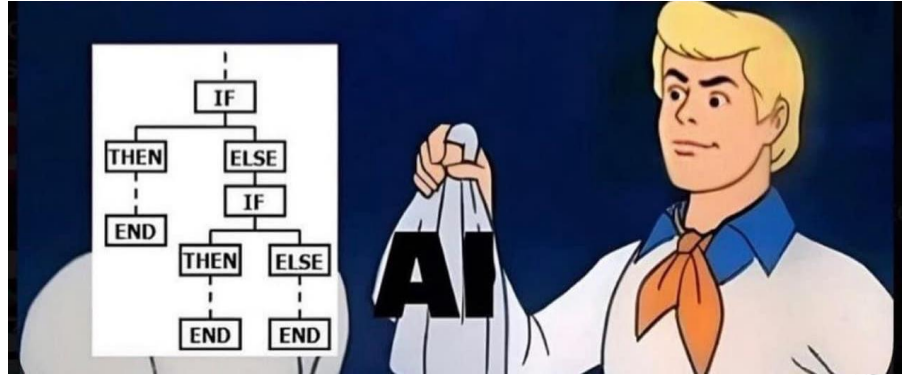


Mastering LLM's in Project & Programme Management



Oliver Kallenborn
Regional Data Analytics & Assurance Director



What is AI?

For the context of this presentation:

- Machine Learning Models
- Natural Language Processing - LLMs

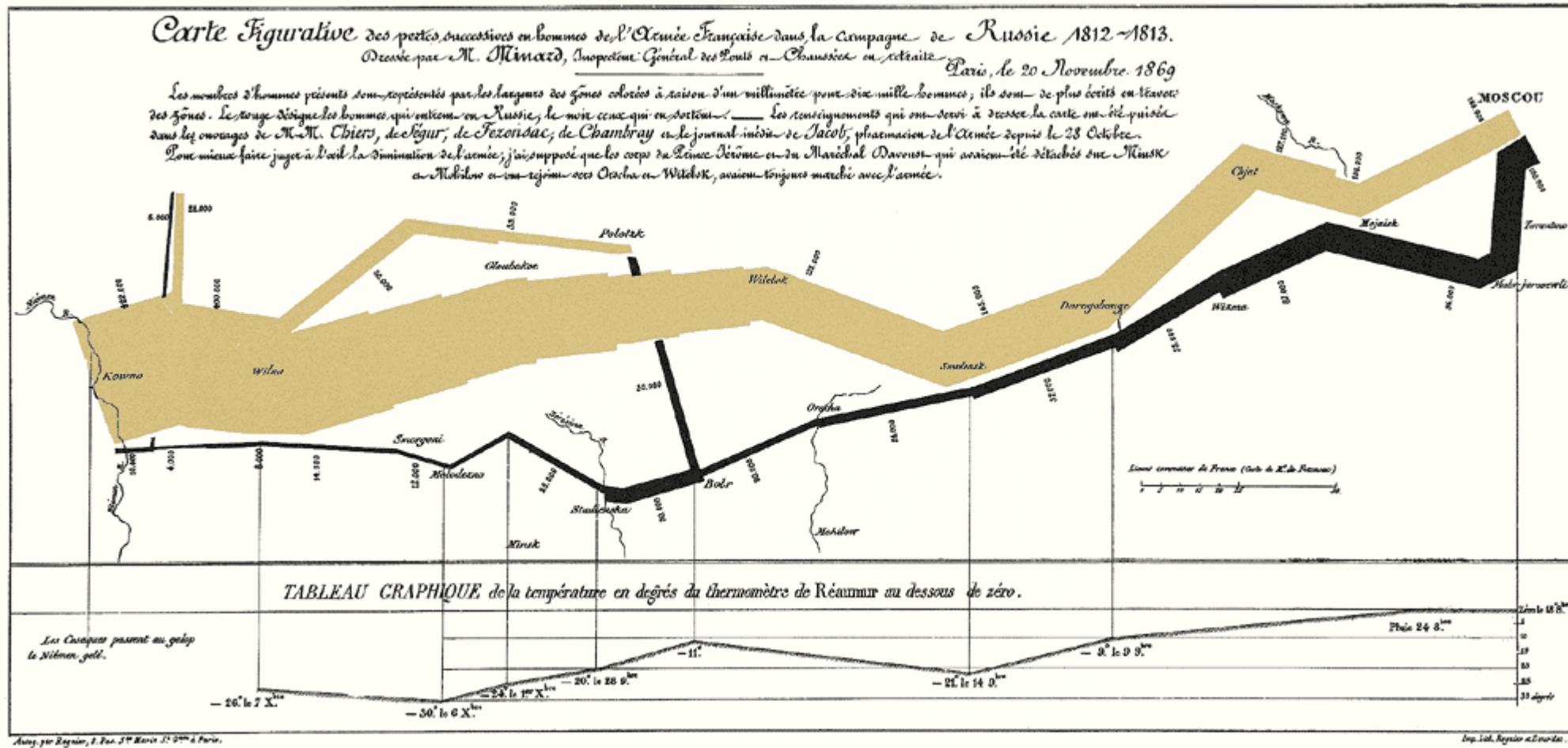
Chat GPT Example Response

Give me the table of contents for a risk procedure based on the ISO standard

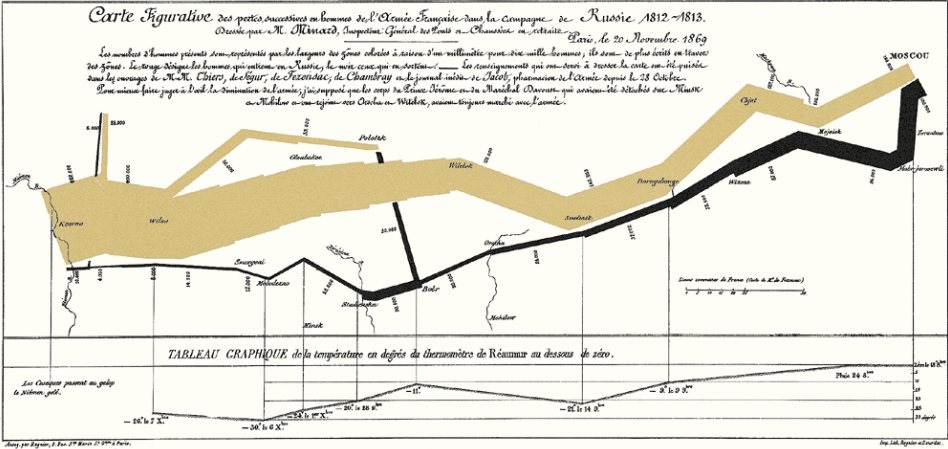
Chat GPT Example Response

1. Introduction
 1. Purpose of the Risk Management Procedure
 2. Scope of Application
 3. Definitions and Key Terms
2. Risk Management Framework
 1. Principles of Risk Management
 2. Framework Integration
 3. Organizational Context and Stakeholders
 4. Framework Implementation
 5. Continual Improvement of the Framework
3. Risk Management Process
 1. Risk Assessment
 1. Risk Identification
 2. Risk Analysis
 3. Risk Evaluation
 2. Risk Treatment
 3. Monitoring and Review
 4. Communication and Consultation
4. Roles and Responsibilities
 1. Risk Management Roles
 2. Responsibilities within the Organization
 3. External Stakeholders
5. Risk Assessment Techniques
 1. Qualitative Risk Analysis
 2. Quantitative Risk Analysis
 3. Combined Approaches
6. Risk Treatment
 1. Selection of Risk Treatment Options
 2. Planning and Implementing Risk Treatment
 3. Monitoring and Review of Risk Treatment
7. Monitoring and Review
 1. Ongoing Monitoring and Review
 2. Specific Reviews
8. Communication and Consultation
 1. Internal Communication
 2. External Communication
 3. Consultation Processes
9. Documentation and Record Keeping
 1. Risk Management Plan
 2. Risk Register
 3. Risk Management Reports

Iconic Visualisation



Dalle Example:



Give me a set of mock up dashboards based on Napoleans March the theme should consider that it is for the Project Controls Expo 2024 in Dubai

DNISTHEY

CHENBCE

REHOT GAANNNT

LAROT DBANCOE

GVOUT DANCRINT

PASIT DOCTRRE



DONIGHLNG

QUANONAVSEY ABMT HICULANNNY

APOLPRETHLAT RHFWRRE

KYJNDKWHIARI DBUKOM

DONEAPSTADLI-NOMIERR

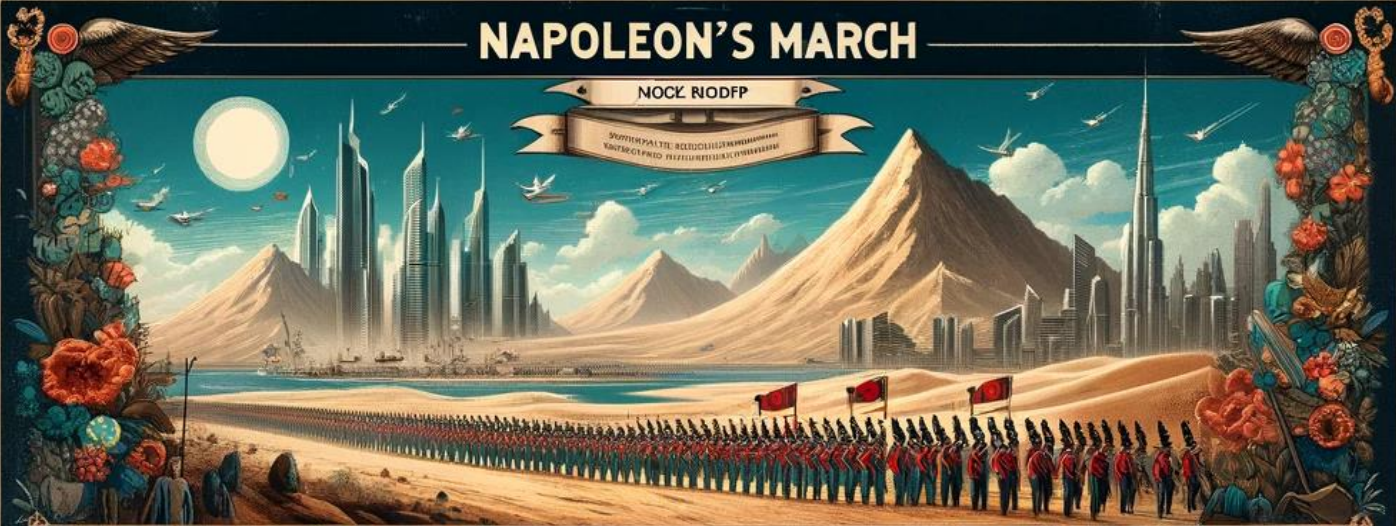
BHORCAADTARRT-BORUCE



NAPOLEON'S MARCH

NOCK RIODFP

SMYTHYVATYE BCELODHEIA ANHOMHNNY
YANTSECTHKO PHTHCHHONKHA PHTHREBANI



POREHHRANKHANG



PRINERTSIF THAMMEN



POSACOTIF MRAAGENT



ERDIJDT



RIEEQUAT

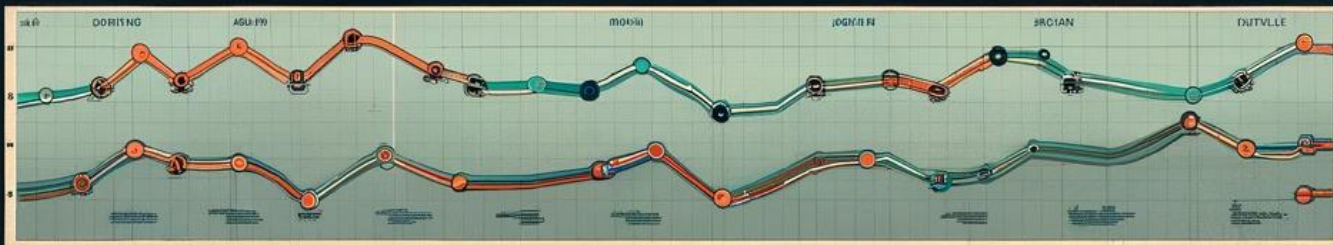


DABEECAADVCUIN

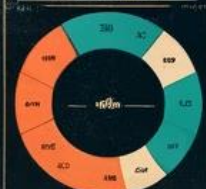


GLACN TLLNIES

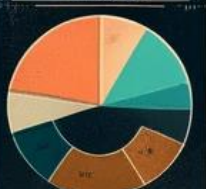
ENIGIST HANHTY



PROJECT



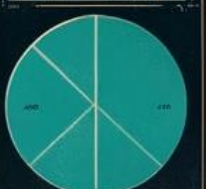
K RICK



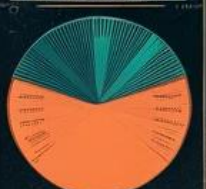
R5OJURCES



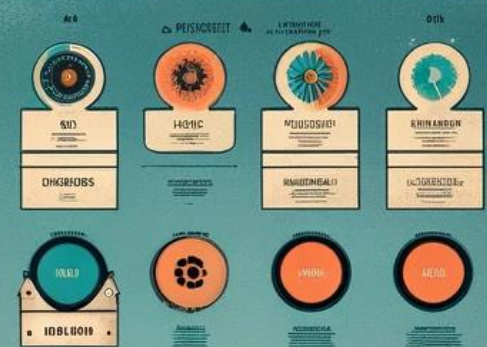
RESOURCE



BGBUBANCE

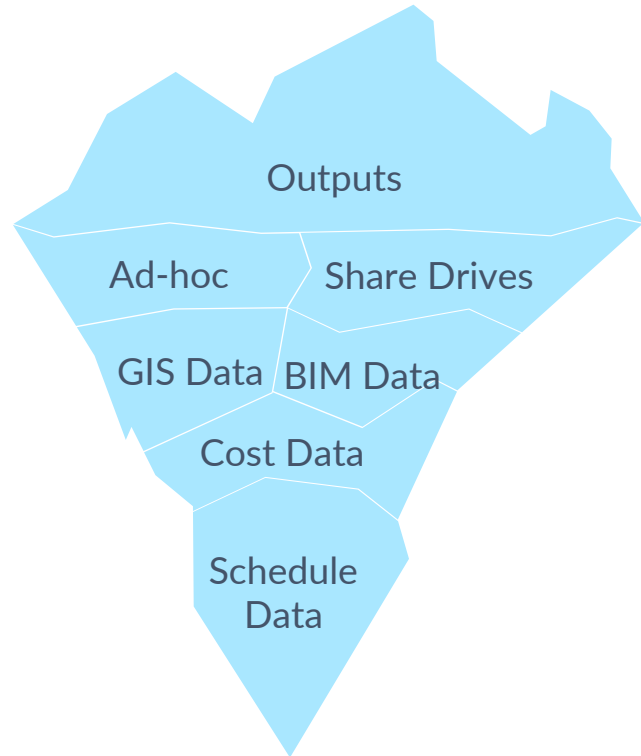


PERFORMMENT

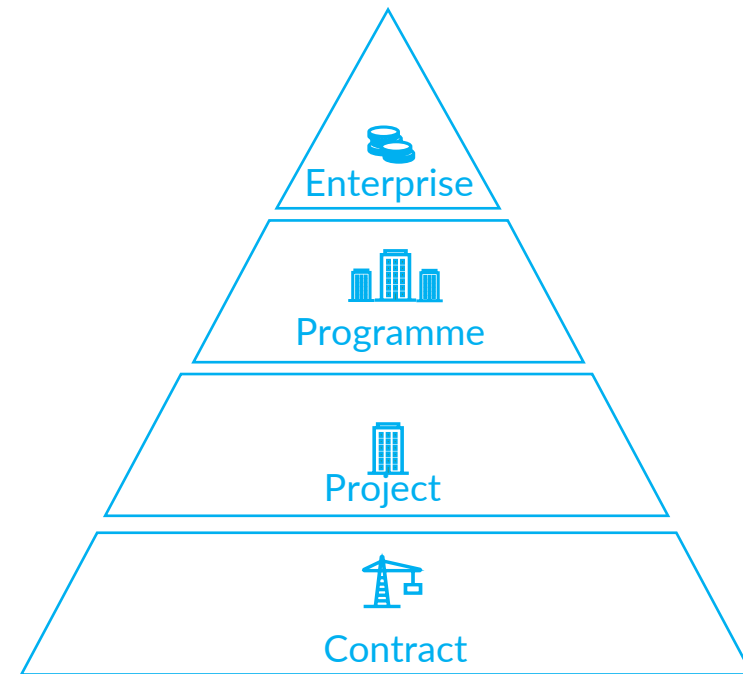


Typical Data Challenges

Different types of Data

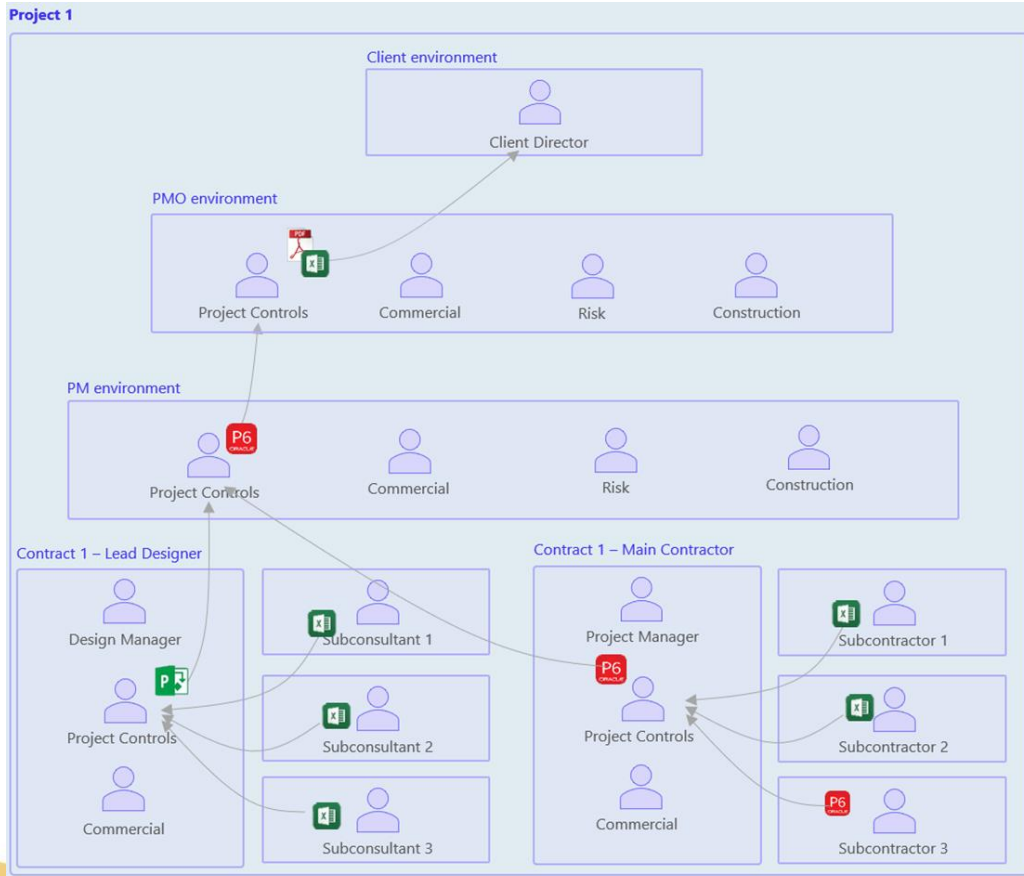


Different levels of Data



No single source of truth

Complexity within Complexity



Importance of a data strategy

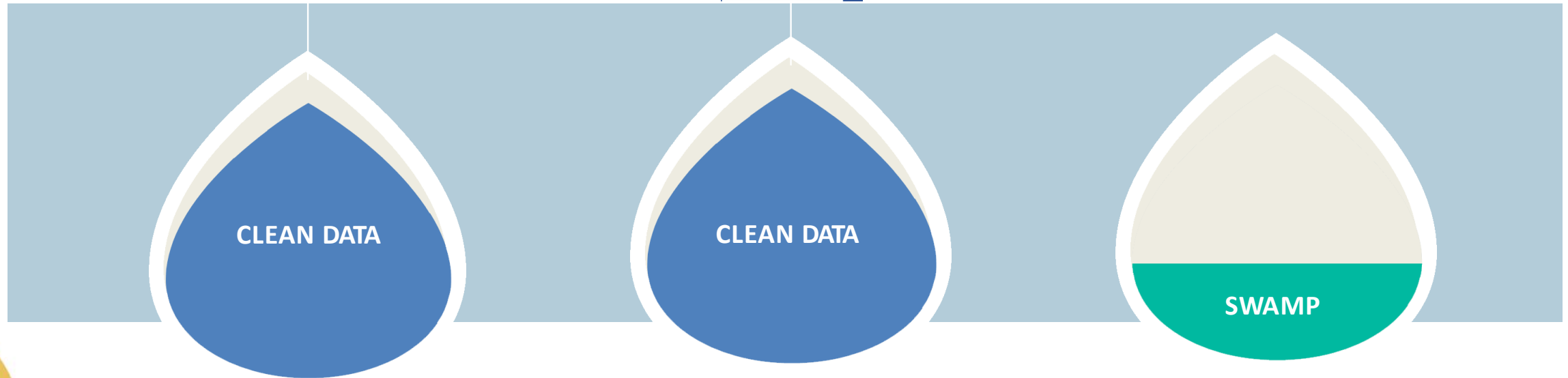
IDEAL
SCENARIO



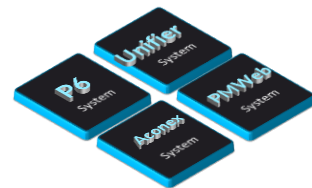
MANUAL DATA
COLLECTION



UNUSABLE
DATA



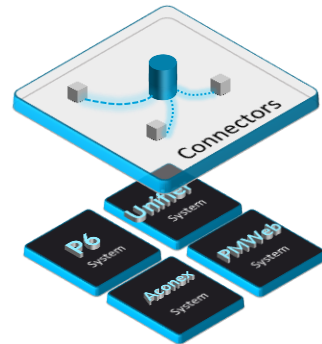
Digital Approach – The Digital Cake



Technology: System agnostic, various options.



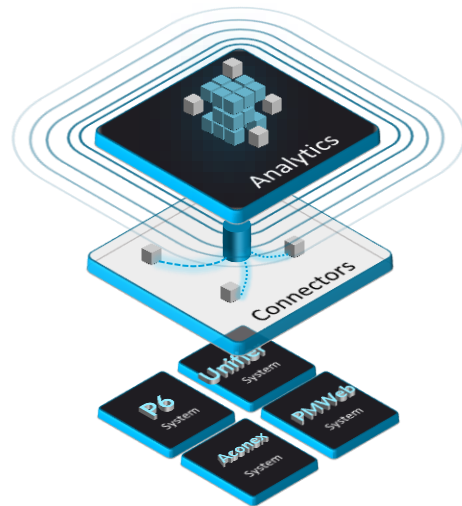
Digital Approach – The Digital Cake



Connector Layer: Prebuilt connectors

Technology: System agnostic, various options.

Digital Approach – The Digital Cake

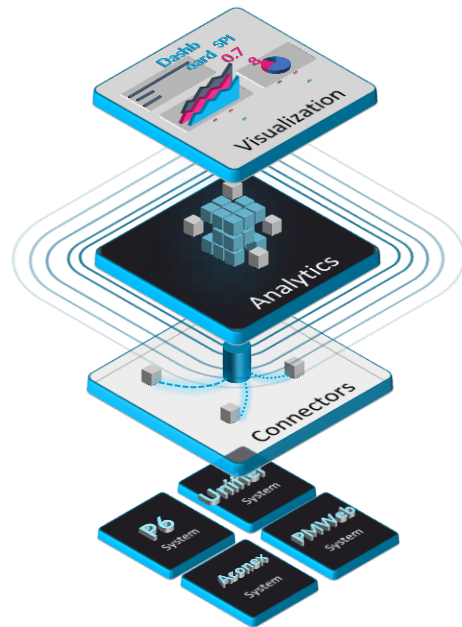


Data Layer: All data is stored and centralized with their context.
Single Source of Truth

Connector Layer: Prebuilt connectors

Technology: System agnostic, various options.

Digital Approach – The Digital Cake



Consumption layer: Prebuilt outputs ready to consume

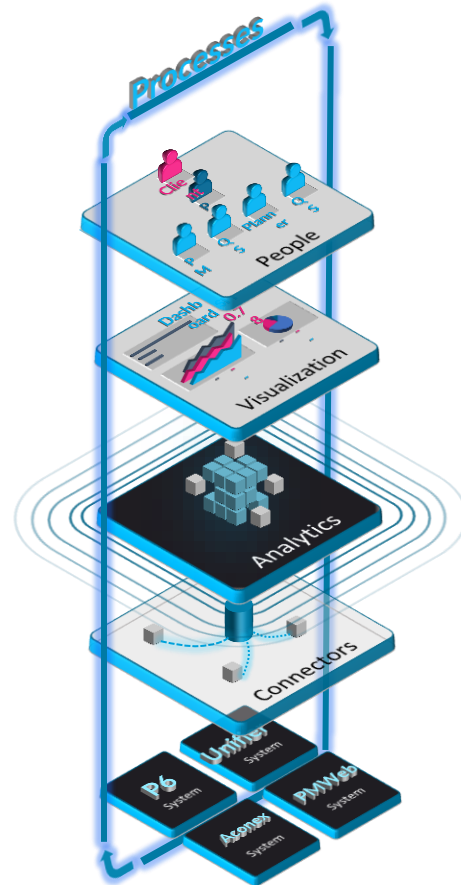
Data Layer: All data is stored and centralized with their context.
Single Source of Truth

Connector Layer: Prebuilt connectors

Technology: System agnostic, various options.



Digital Approach – The Digital Cake



People & Process: People & Process are the heart of our analytics

Consumption layer: Prebuilt outputs ready to consume

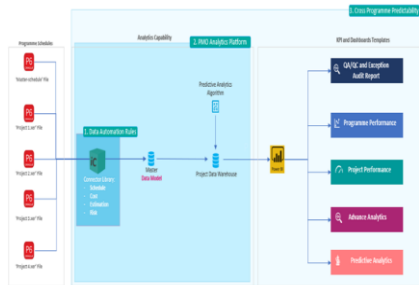
Data Layer: All data is stored and centralized with their context.
Single Source of Truth

Connector Layer: Prebuilt connectors

Technology: System agnostic, various options.

The Data Life Cycle

Automated Data Extraction



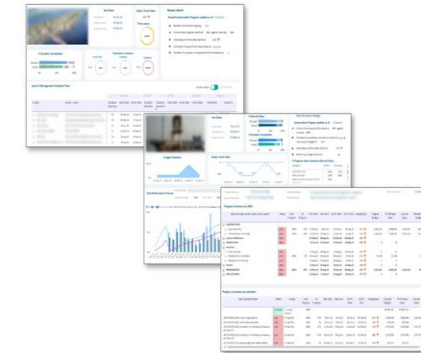
Automated QA/ QC



Aggregation of Data



Validation through visualisation

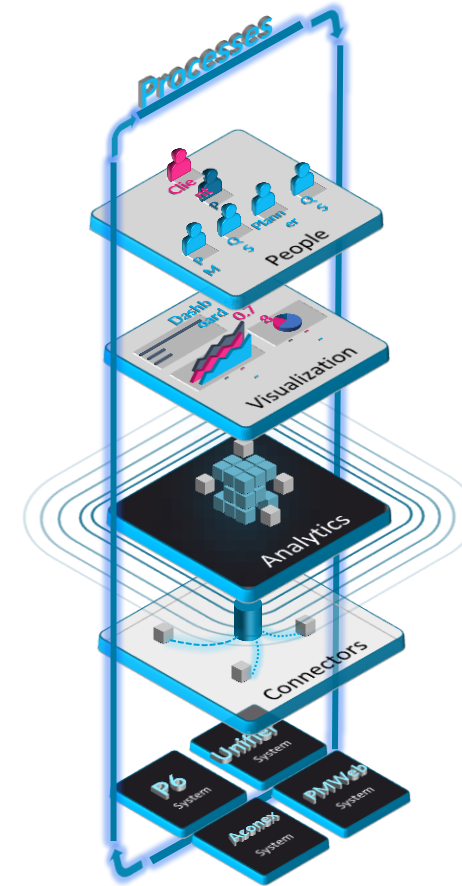


AI Applications Layer

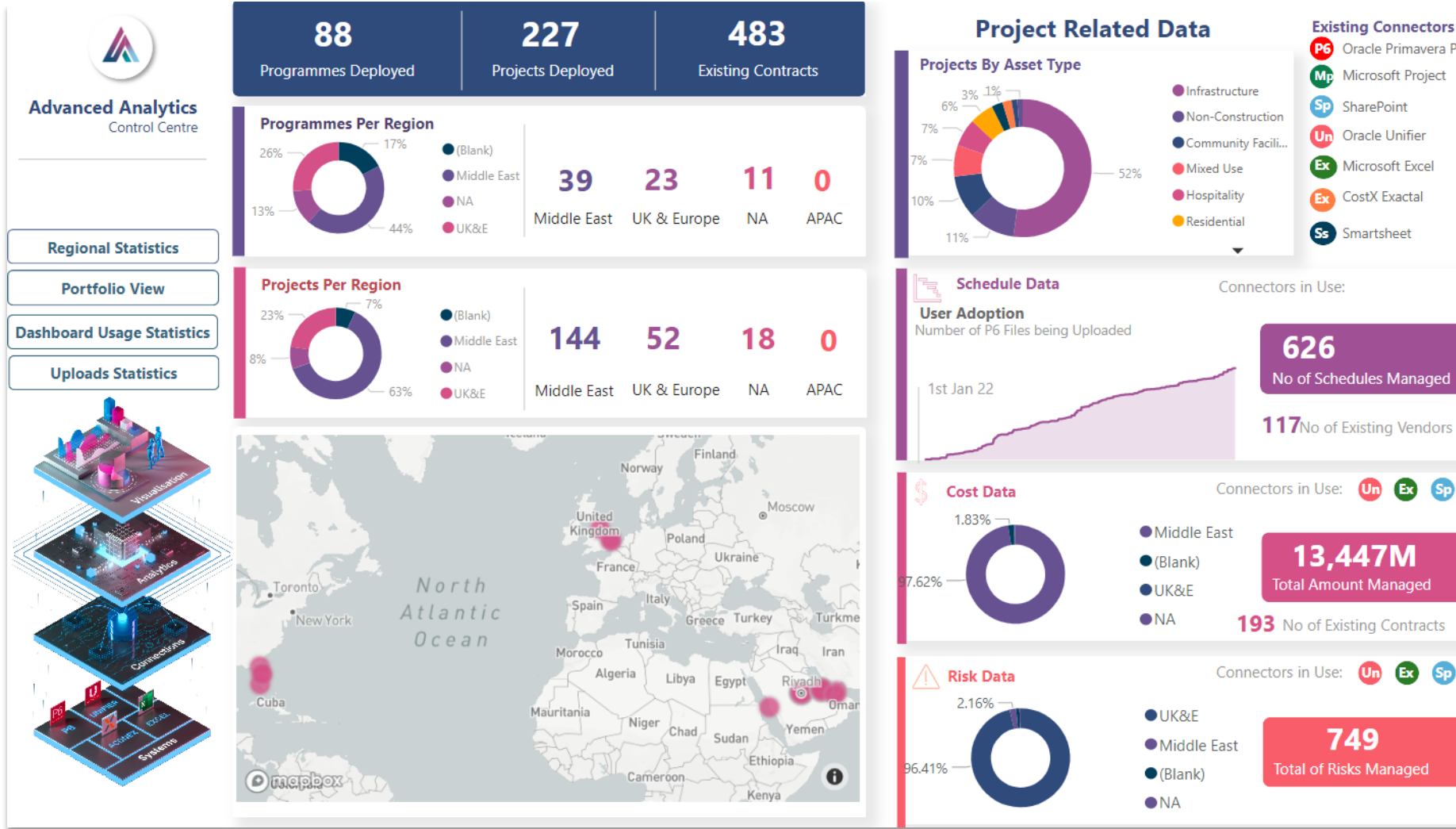


LLM Integration

1. Define Digital Approach & Strategy
2. Develop Data Model
3. Drive Adoption

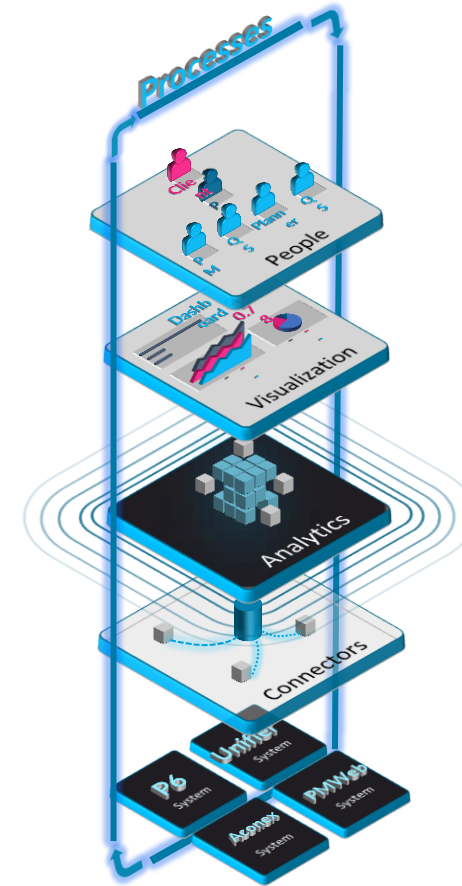


Driving Adoption

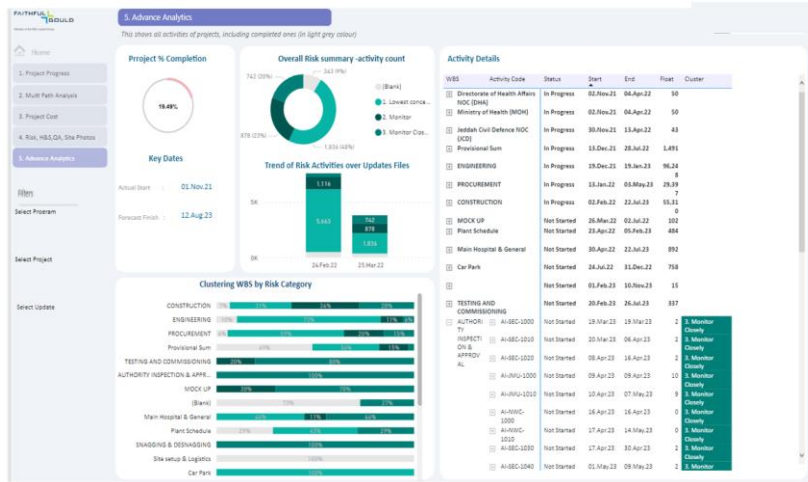


LLM Integration

1. Define Digital Approach & Strategy ✓
2. Develop Data Model ✓
3. Drive Adoption ✓
4. Apply Machine Learning Models



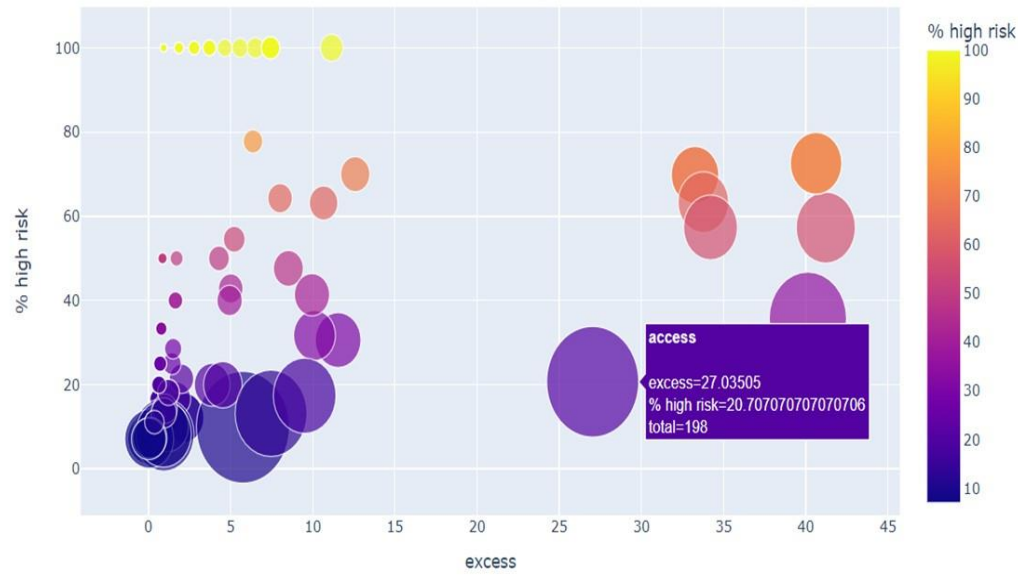
Schedule Based Machine Learning Risk Models



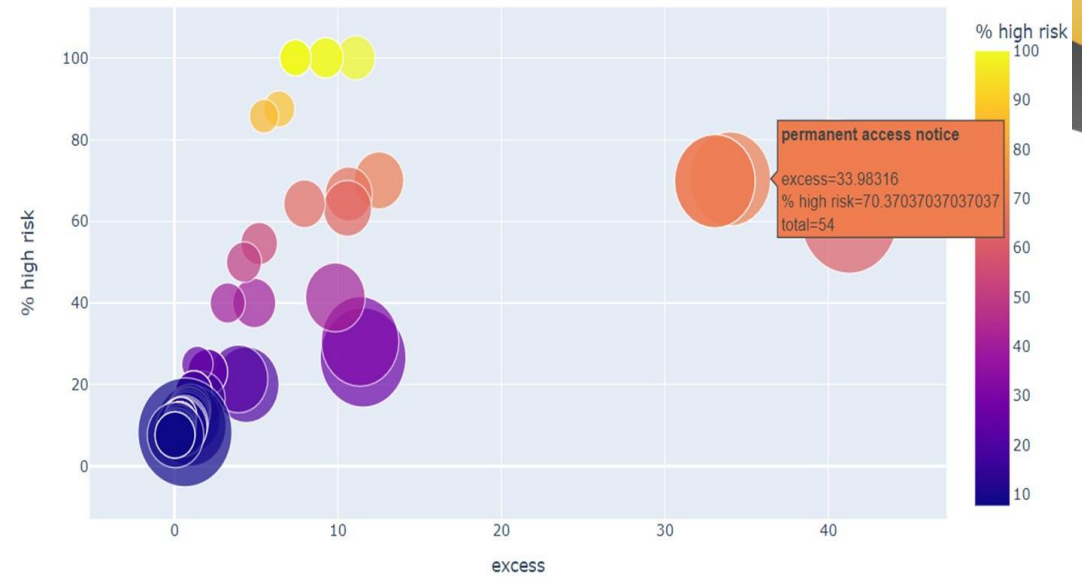
SCHEDULE RISK SCORE = **TOTAL FLOAT** + **DURATION** + **# SUCCESSORS** + **# PREDECESSORS** + **OTHER**

- CLUSTER A**
 - Do nothing
 - Large total float
 - Low number of successors and predecessors
 - Short duration and high float ratio
- CLUSTER B**
 - Do nothing / monitor
 - Healthy float
 - Relatively low impact with low number of connected activities
 - Main risk is predecessors
- CLUSTER C**
 - Monitor
 - Short tasks with reasonable float
 - But could be vulnerable to predecessors
- CLUSTER D**
 - Carefully monitor / consider action
 - Moderately connected
 - Relatively small float
- CLUSTER E**
 - Consider action / take action
 - High impact with many connections
 - Unsafe float duration ratio
- CLUSTER F**
 - Take action
 - Negative float
 - Risk already realised

Natural Language Processing



Single Words (Unigrams)



Multiple Words (N-Grams)

Risk Register											Trigger Date	Flag	
Risk ID	RiskType	Risk Title	Description	Category	Sub-Category	Impact Score	Prob. Score	Current Score	Impact Score	Prob. Score	Expected Score		
0088	Risk	Potential VOs	Contractor has undertaken additional work at risk on verbal instructions without following the project change management process.	Project Management	Scope	5	3	22	5	3	22	Oct-2021	Red
0076	Risk	Client approval of Landscape scope (BOO) variation	Client has approved the budget for the work. The breakdown for the Contractor cost has not been verified. Contractor is continuing with the landscape work. Any delay in client approval may impact contractor invoicing and payments.	Engineering	Design Approvals	3	3	13	2	2	9	Oct-2021	NA
0075	Risk	Lighting fixture installation delay	Lighting fixture installation may delay due to delay in procurement of lighting fixtures.	Procurement	Procurement	3	3	13	2	2	9	Oct-2021	NA
0017	Risk	Contractor may not adhere to HSE requirements.	Contractor may not adhere to HSE requirements.	Health & Safety	H&S Management	2	3	6	2	2	6	Oct-2021	NA
0078	Risk	Delay in STC backfilling (outstanding work not Hoarding scope)	STC backfilling for outstanding work may delay. Structural fill has started. Hoarding footing pre-casted. No delay impact on hoarding.	Construction	Construction	2	3	6	2	2	6	Oct-2021	NA
0019	Risk	Pending Inspection Requests (IRs)	Pending IRs for snagging & outstanding works.	Commercial	Financial	2	3	6	2	2	6	Oct-2021	NA
0008	Risk	Airbase access permit delays	Delay in receiving access permits for the Air Base area	Stakeholders	Authorities	0	0	0	0	0	0		NA
0016	Concern	Artificial grass work may delay	Artificial grass work may delay. Part of graphic design was released and therefore this is no longer a concern and therefore closed.	Construction	Temporary works	0	0	0	0	0	0		NA
0089	Risk	Contractor paid for works with active NCRs	Contractor was issued NCRs for some work for which payment has already been made. Delays	Construction	QA / QC	0	0	0	0	0	0		NA

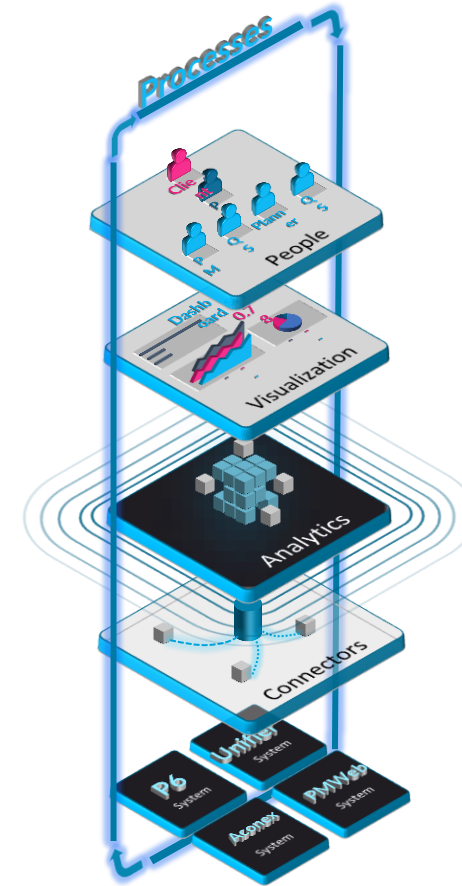


End Date Predictive Models



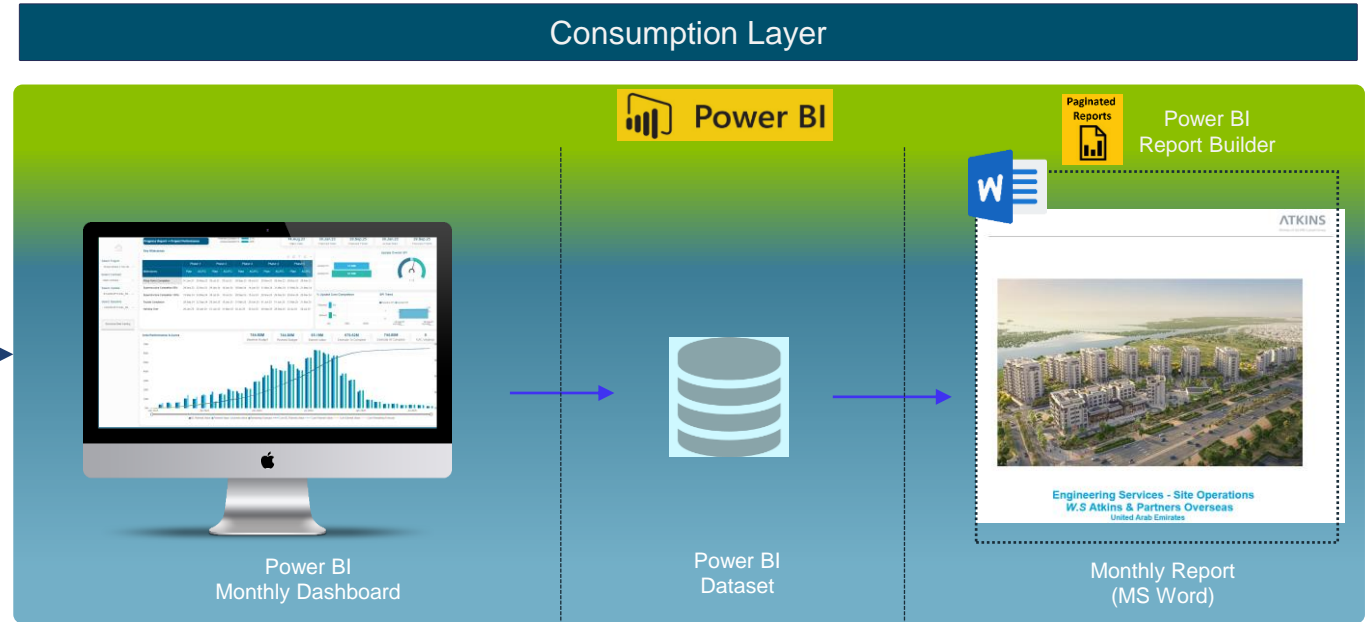
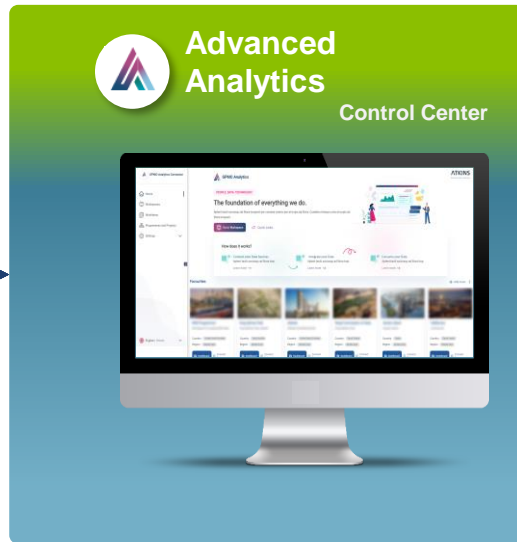
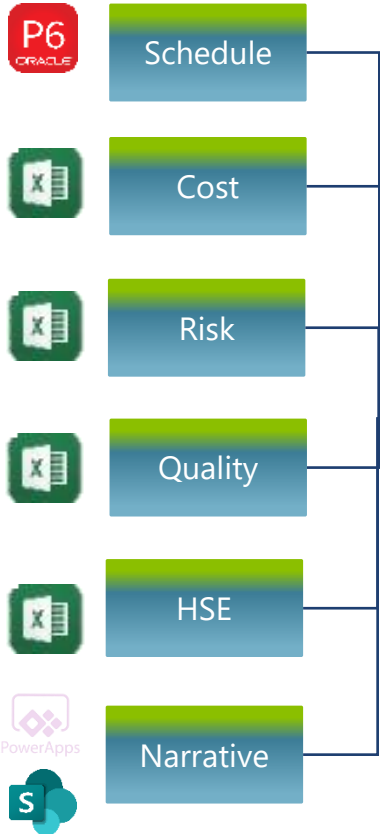
LLM Integration

1. Define Digital Approach & Strategy ✓
2. Develop Data Model ✓
3. Drive Adoption ✓
4. Apply Machine Learning Models ✓
5. Automate Reporting
6. Integrate Large Language Models



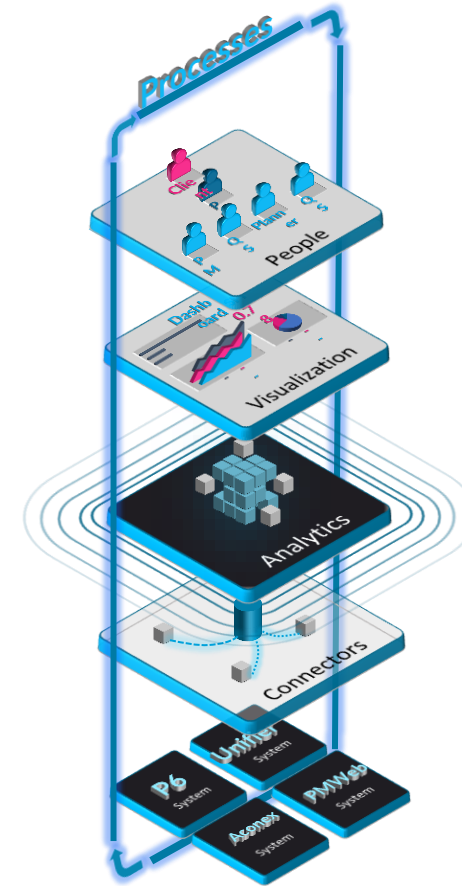
Automated Reporting

INPUTS

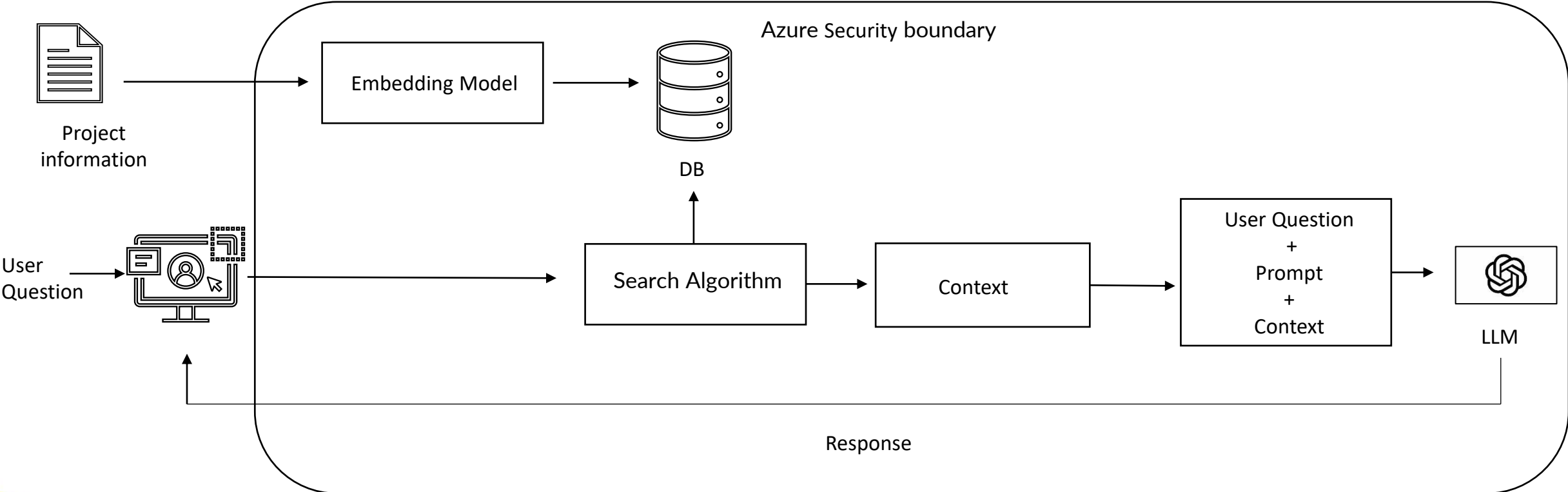


LLM Integration

1. Define Digital approach & Strategy ✓
2. Develop Data Model ✓
3. Drive Adoption ✓
4. Apply Machine Learning Models ✓
5. Automate Reporting ✓
6. Integrate Large Language Models Ready

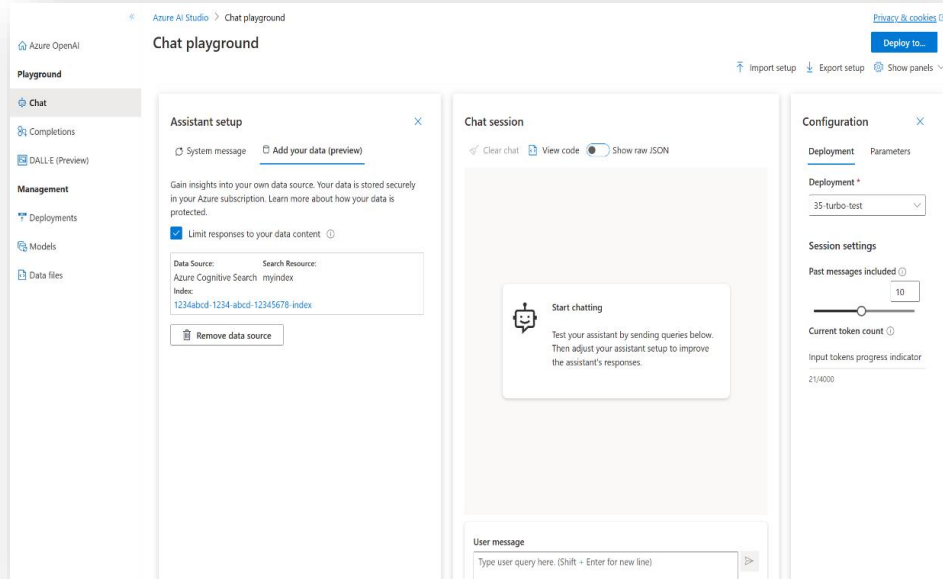


Option 1: Azure Open AI Architecture

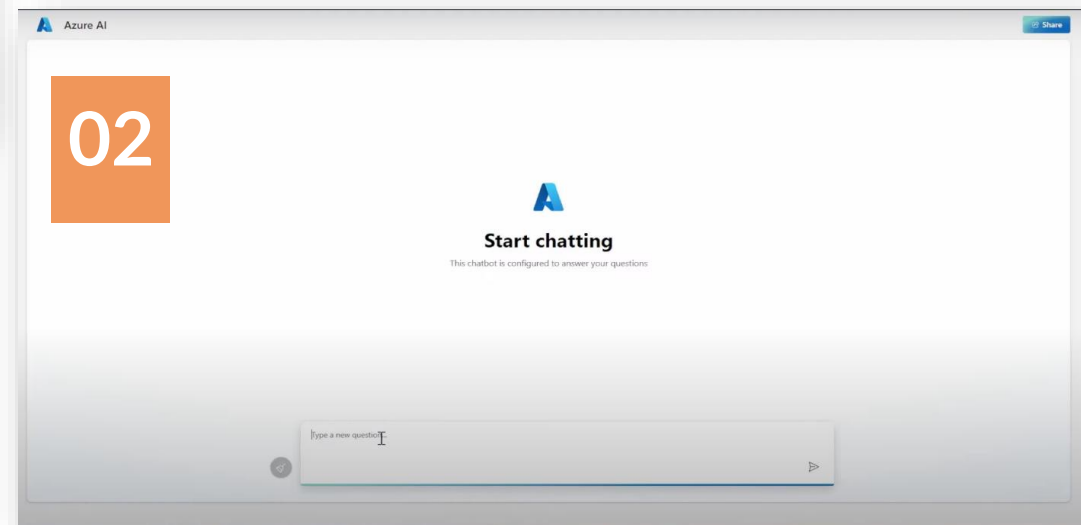


Deployment

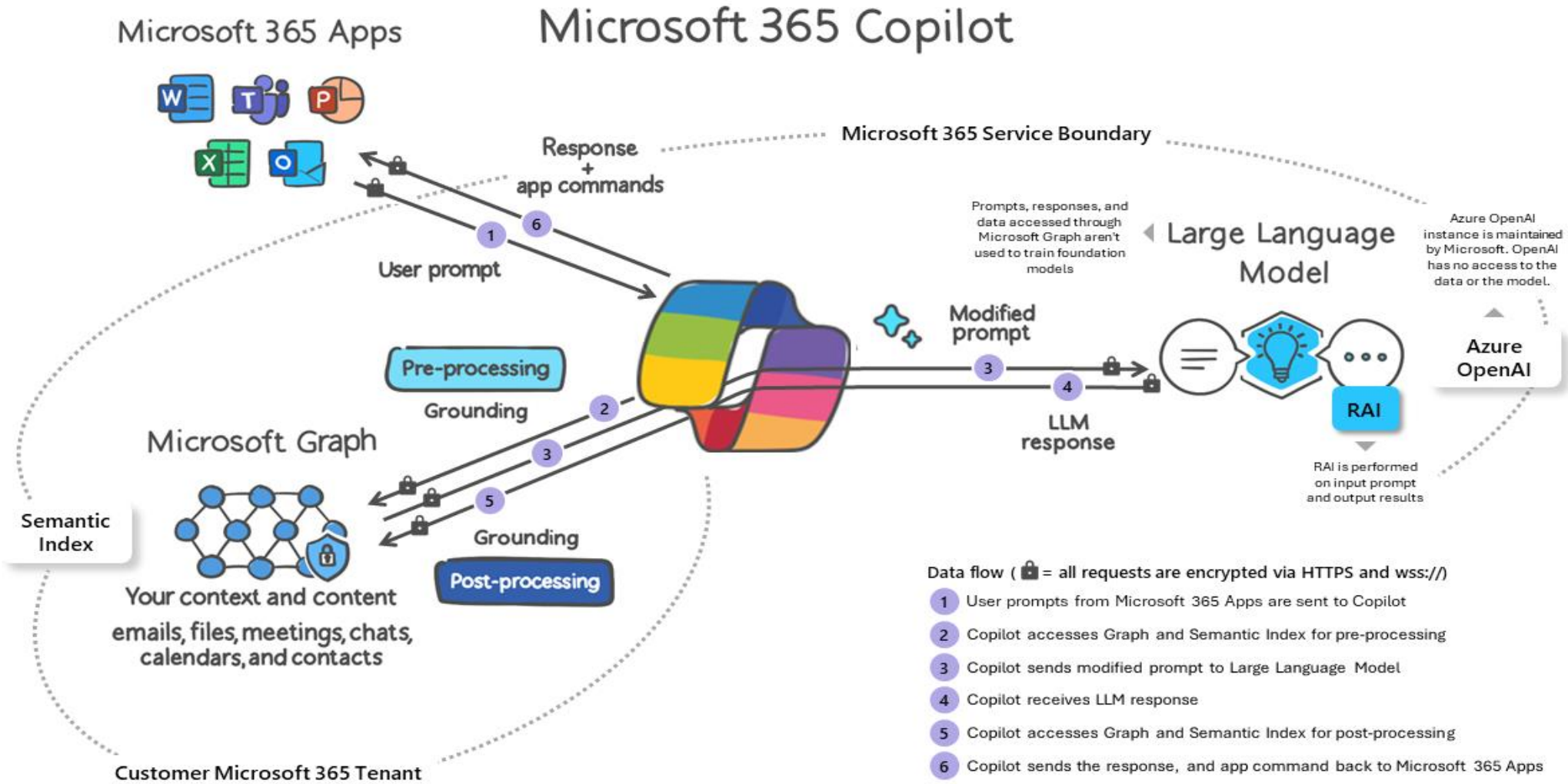
01



02



Option 2: Copilot



Deployment

Web channel

The screenshot shows the Microsoft 365 Copilot web interface. At the top, there's a search bar and a user profile icon. Below that, the Copilot logo and "Microsoft 365 Chat" are displayed. A section titled "Try these prompts" offers several suggestions: "Catch up on meetings", "Polish my writing", "Rewrite something", "Get up to speed", "What's hot in my inbox?", and "Catch up on comms". A text input field at the bottom contains the prompt: "OK, what can I help you with? Try one of the examples or enter your own prompt. Make your prompt more specific by adding a reference from".

MS Team Channel

The screenshot shows an MS Teams channel interface. The channel name is "gsf" and the status is "Your status is set to do not disturb. You'll only get notifications for urgent messages and from your priority contacts." The channel is titled "Copilot-GSF Chat About". The left sidebar shows navigation options: Activity, Chat (with 5 notifications), Teams, Viva Engage, Calendar, Calls, and OneDrive. The main chat area shows a recent message from Copilot-GSF: "Copilot: The steps for administering a contract in the post-award phase are as follows: 1. The consultant Project Manager/Construction Manager obtains a copy of the contract they are responsible for managing...".

LLM Integration

1. Define Digital approach & Strategy ✓
2. Develop Data Model ✓
3. Collect Data through WoW ✓
4. Apply Machine Learning Models ✓
5. Automate Reporting ✓
6. Integrate Large Language Models ✓



Key Use Cases

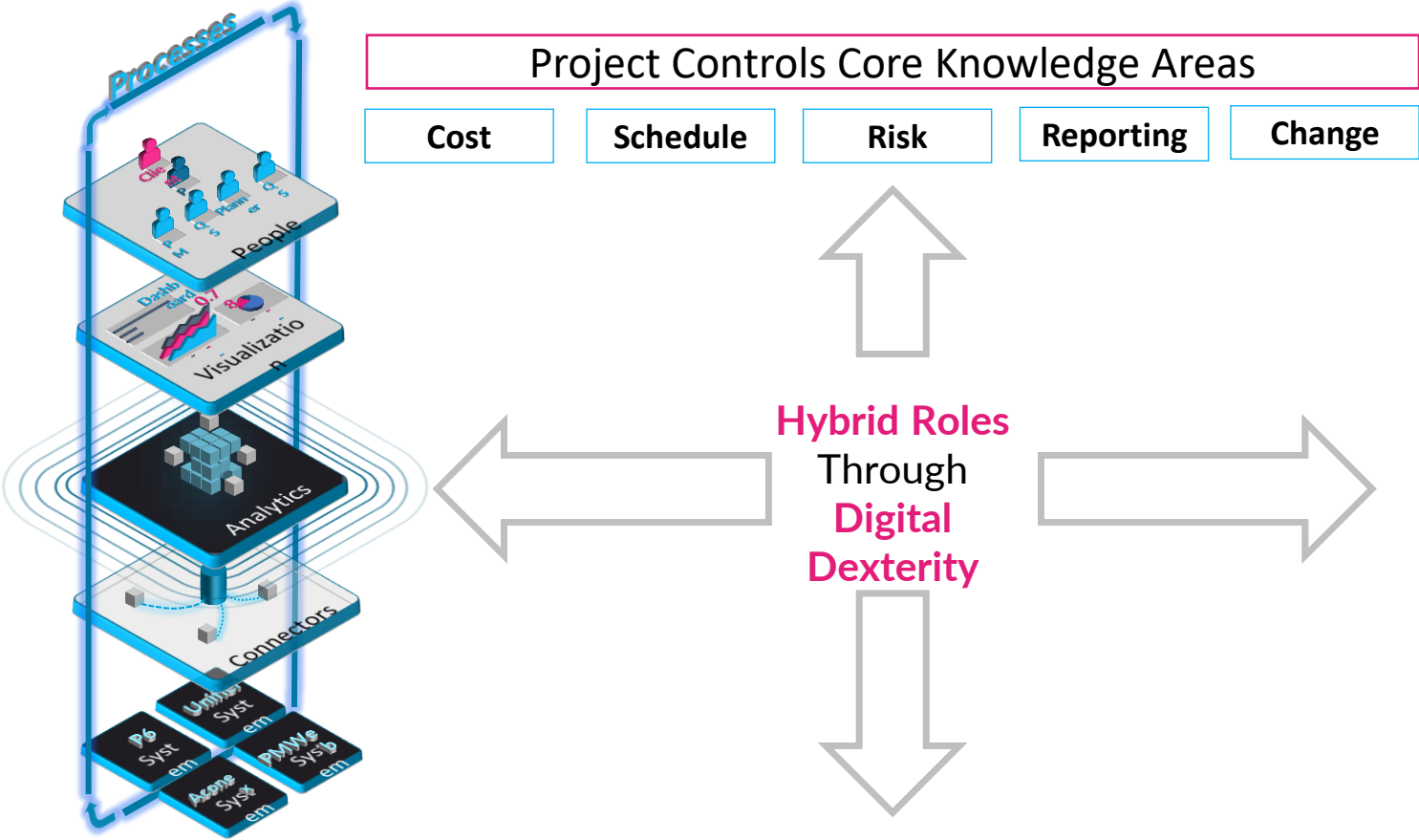
AREA	HIGH LEVEL DESCRIPTION	BENEFITS
Content Generation	<p>Generating efficiencies in every day tasks, such as summarization of documentation, creating documentation, extraction of key information etc.</p> <p>Examples:</p> <ul style="list-style-type: none">- Project reporting- Contract Reviews & Analysis	<p>Reduce time to deliver basic content which is often repetitive in nature</p> <p>Improved responses, spending less time hunting down content.</p>
Chatbots	<p>Knowledge Management & Decision Support</p> <p>A chatbot that can query into unstructured documents like Management Plans, Reports, Contracts and provide answers to user prompts</p>	<p>Reduce time to hunt down content and enable decision making</p>
Software development Scripting	<p>Developing applications (support with coding) Natural language -> program code</p>	<p>Increase speed to market</p>

Challenges of Pioneering



Cultural Shift

➤ As new ways of working and models are developed, the capability requirement of staff changes



Benefits

People

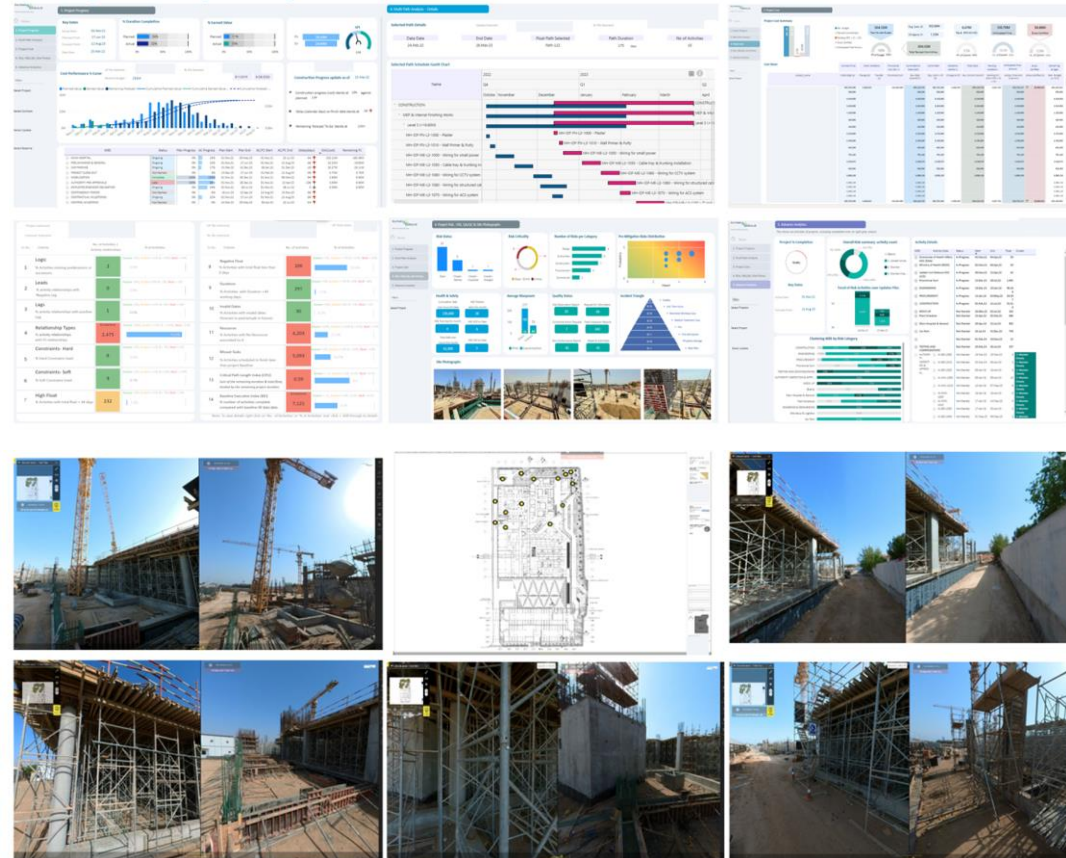
- › Increased digital capability in staff
- › Staff Retention

Data & Technology

- › Undisputable progress information
- › Quick deployment; information is on your fingertips (24 hrs)

Foundation for The Future

- › Creates further opportunities to implement more advanced technologies



Dalle, provide a visual that summarizes everything that was discussed in this presentation...

Mastering ILIM's in project

Omamect 2 in Project Controls Expo' - Dubai

What do AI?

- *Срединдиртөөс Цэглэр гэрэлтүүлэгний системийг сонгох үүрэг гүйцэтгэхэд зориулсан систем.*
- *Мэдээлэл ба гэрэлтүүлэгний системийг ашиглах үүрэг гүйцэтгэхэд зориулсан систем.*

3. Typical app

- *Конкретны работаны дотоондоо ажилтай үйлчилгээний системийг ашиглах үүрэг гүйцэтгэхэд зориулсан систем.*

4. Automated Data transparency

- *Автоматизированный процесс обработки информации.*

1 Benefits

- *Использование технологий в проектах позволяет повысить эффективность и снизить затраты.*



1. Typical Data

- *Определённые типы данных и их обработка.*
- *Внедрение новых технологий в проект.*

2. OPAI Approach

- *Комплексный подход к управлению проектом.*

6. Challenge of Pigeratil Cake

- *Проблемы при внедрении технологий.*

1. Cultural Shift

- *Изменение культуры организации.*





THANK YOU