

Digital processes for improving the evaluation and monitoring of risk

Link'n Learn 2024 – 29 May 2024

# Getting Started

## Here with you today

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## Agenda

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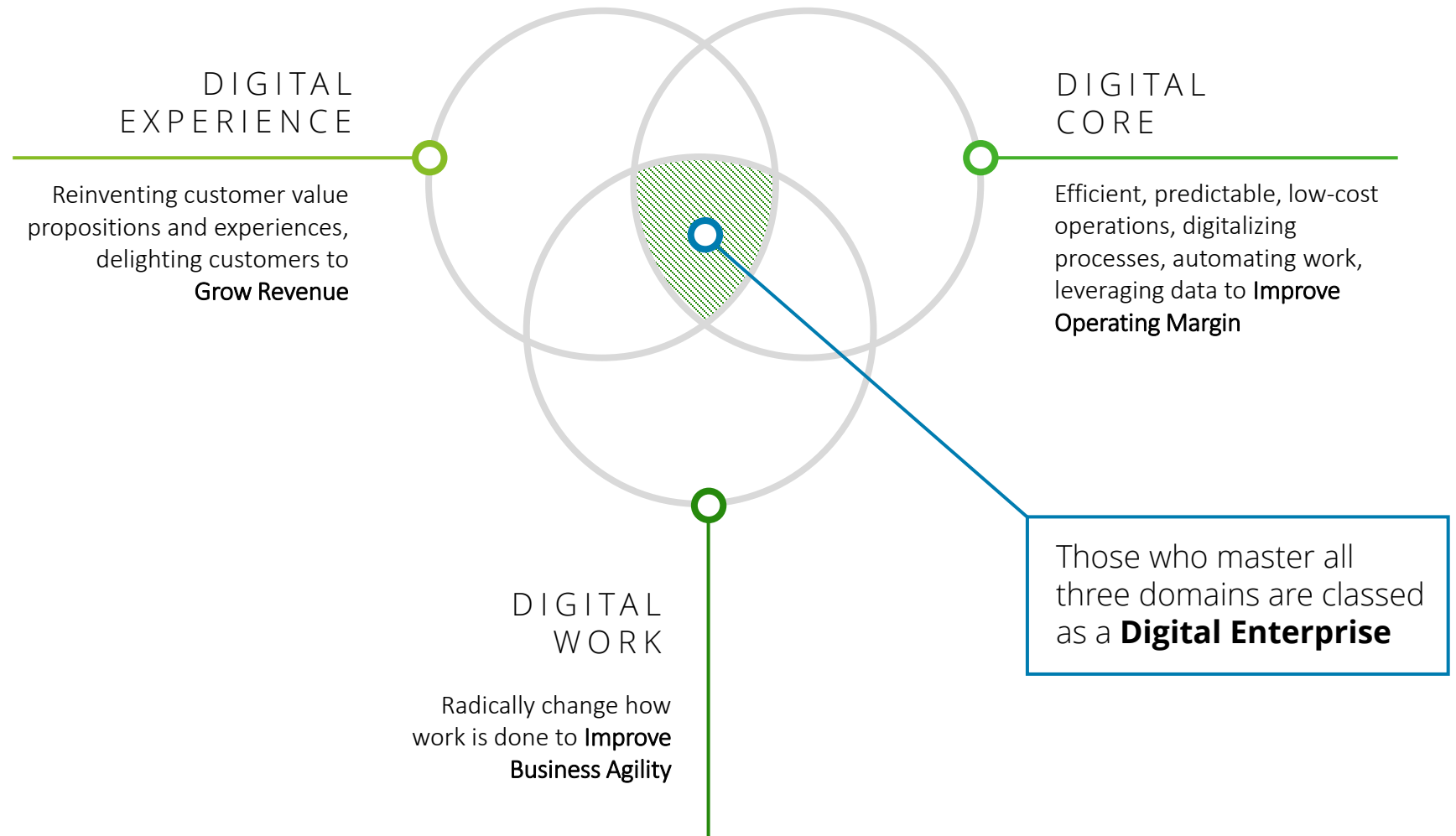
- ① Context
- ② Controls automation
- ③ Process mining

# Context

# Becoming a digital organization

To thrive in the digital age, to become **digital**, organizations need to master three digital domains: Customer, Core and Work.

With ever increasing complexities of the regulatory landscape and need to demonstrate continuous compliance for organizations, digital is **also becoming an imperative for risk management**. Indeed, digital can enable to decrease the costs of executing and monitoring business process controls whilst increasing their effectiveness.



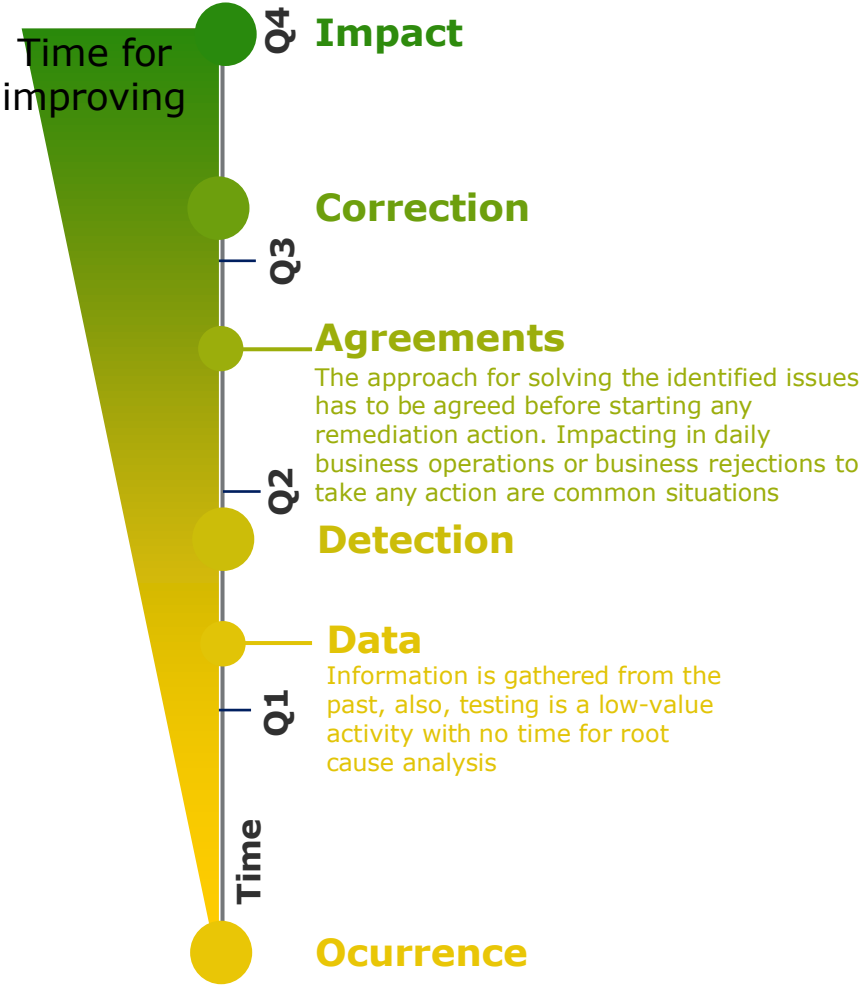
# Context

## Manual control execution

"Control Continuous Monitoring is not a new trend for evolving the control model, Companies are implementing this approach for more than 10 years ago.

The main reason for introducing a CCM approach in a Company's Control Model is for reducing the gap between the event occurrence and the implementation of remediation actions"

### Manual Testing Control Execution



### Main Issues

- Issues are not going to be solved by themselves. Problems are usually bigger as the time goes by.*
- Focus on addressing the incident instead solving the cause. Substantive tests and actions are the usual approach adding extra work to both business and second line*
- High effort in analyzing and justifying past events*
- Lack of visibility*
- Manual analysis of data can derive in errors or lack of precision.*

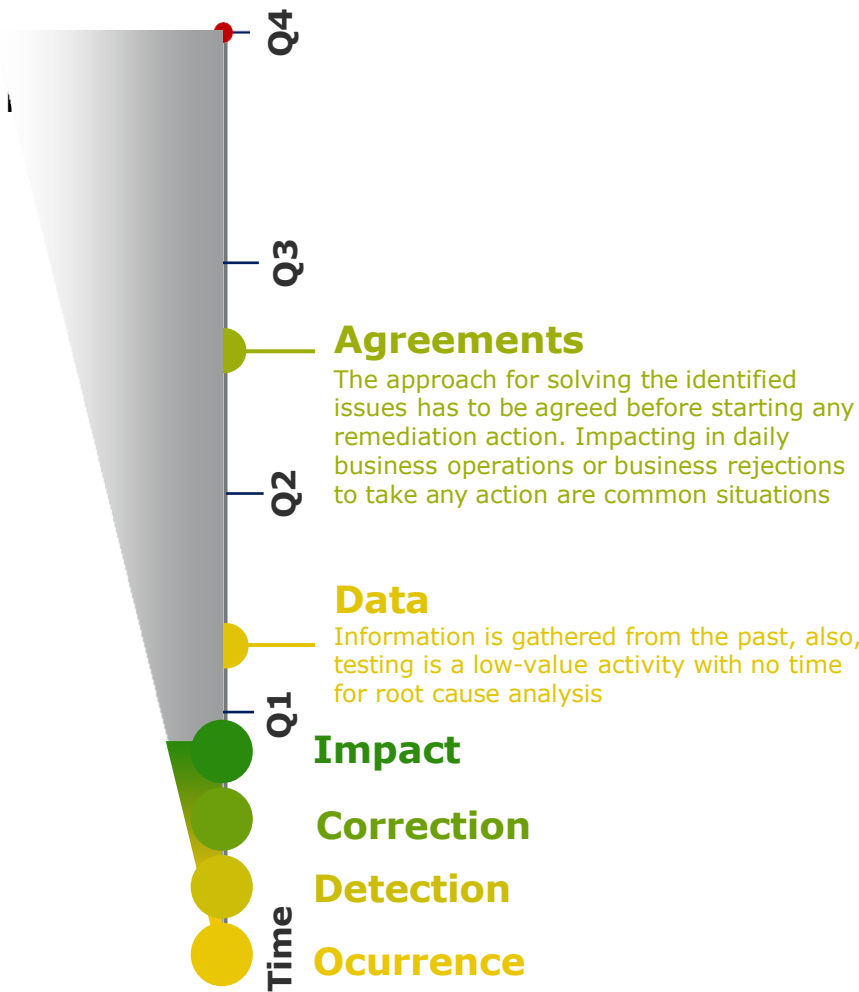
# Context

## Continuous Control Monitoring Benefits

"Control Continuous Monitoring is not a new trend for evolving the control model, Companies are implementing this approach for more than 10 years ago.

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### Continuous Control Monitoring Execution



### Main Benefits

- Detection and prevention of errors and exceptions can take place at the start of the process*
- Launch automated workflows on a periodic basis alerting risk owners of the fact that access risk violation has occurred and the actions they envisage to take to mitigate those risks.*
- With CCM, incident identification could happen upon occurrence.*
- Risk quantification, that is, what is the financial amount exposure underpinning the materialized access risk.*
- Full populations of data can be analyzed in near real-time*

# Controls automation

# Controls automation

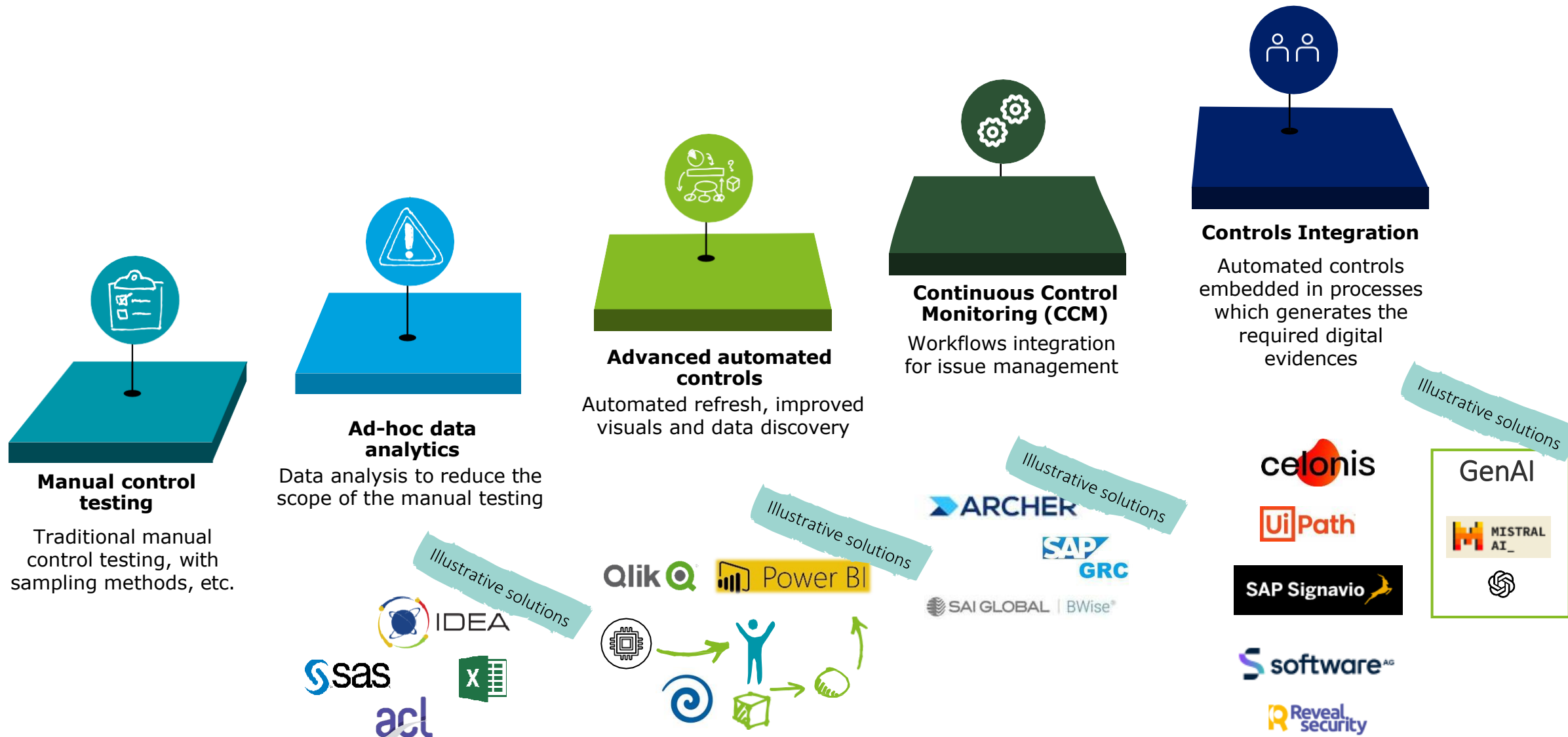
## Tools & Techniques

There are several areas for improving the control model. The techniques and tools commented below are not exclusive and could be combined for addressing any kind of situation.

Improvement Area	Technique	Benefit	Tools
Control Assessment Automation	Data & Config monitoring from transactional Systems	<ul style="list-style-type: none"> <li>Reduce effort</li> <li>Reduce detection time</li> <li>Increase precision</li> </ul>	<ul style="list-style-type: none"> <li>ETL Middleware for data integration and transformation</li> <li>GRC System for control management</li> </ul>
Data Analysis Improvement	Machine learning helps in adapting to changing patterns of fraud	<ul style="list-style-type: none"> <li>Drilling into and quantifying company issues at the activity and user level</li> <li>Provide insights and early watch alerts</li> </ul>	<ul style="list-style-type: none"> <li>Data Analytics Tools</li> </ul>
Automation of remediation actions	Use of RPA/Gen AI for remediation or generation of evidences	<ul style="list-style-type: none"> <li>Reduce efforts</li> <li>Homogeneous ad-hoc remediation actions</li> </ul>	<ul style="list-style-type: none"> <li>Data Analytics</li> <li>RPAs</li> <li>GenAI / Machine learning</li> </ul>
Control transformation	The use of Digital tools and techniques, such as process mining to understand and then transform existing processes & controls	<ul style="list-style-type: none"> <li>Revealing an end-to-end view of processes</li> <li>Providing benchmarks for internal leading practices</li> <li>Improve control rationalization</li> </ul>	<ul style="list-style-type: none"> <li>Process Mining Tools</li> <li>AI based/machine learning technologies</li> </ul>
Improve Risk Quantification	Use data from past events in order to quantify Risk asesments	<ul style="list-style-type: none"> <li>Improve Risk Assessment</li> <li>Improve root cause analysis in order to stablish mitigating actions</li> </ul>	<ul style="list-style-type: none"> <li>Data Analytics</li> <li>Process Mining Tools</li> <li>GRC System</li> </ul>

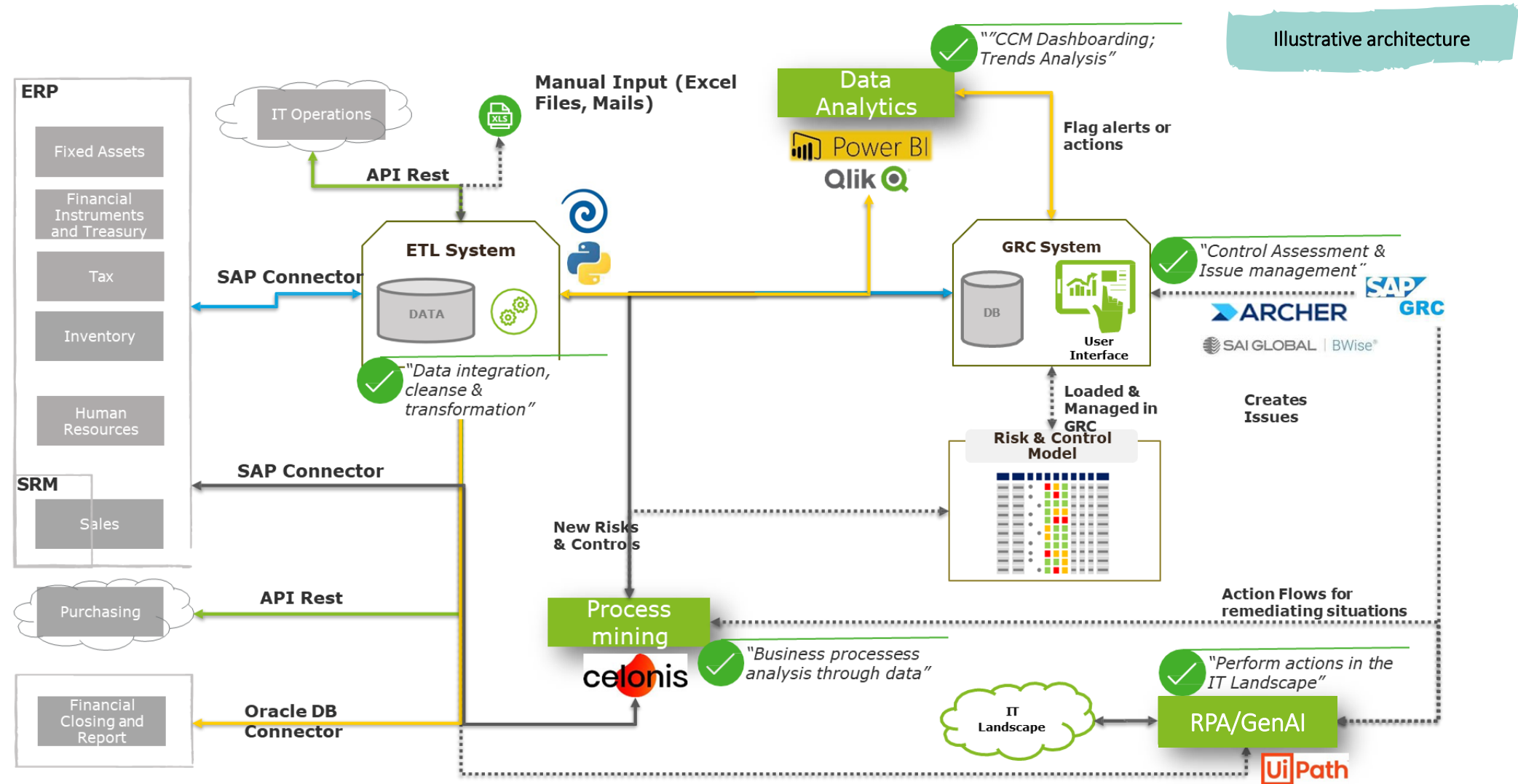


Controls automation  
Maturity level



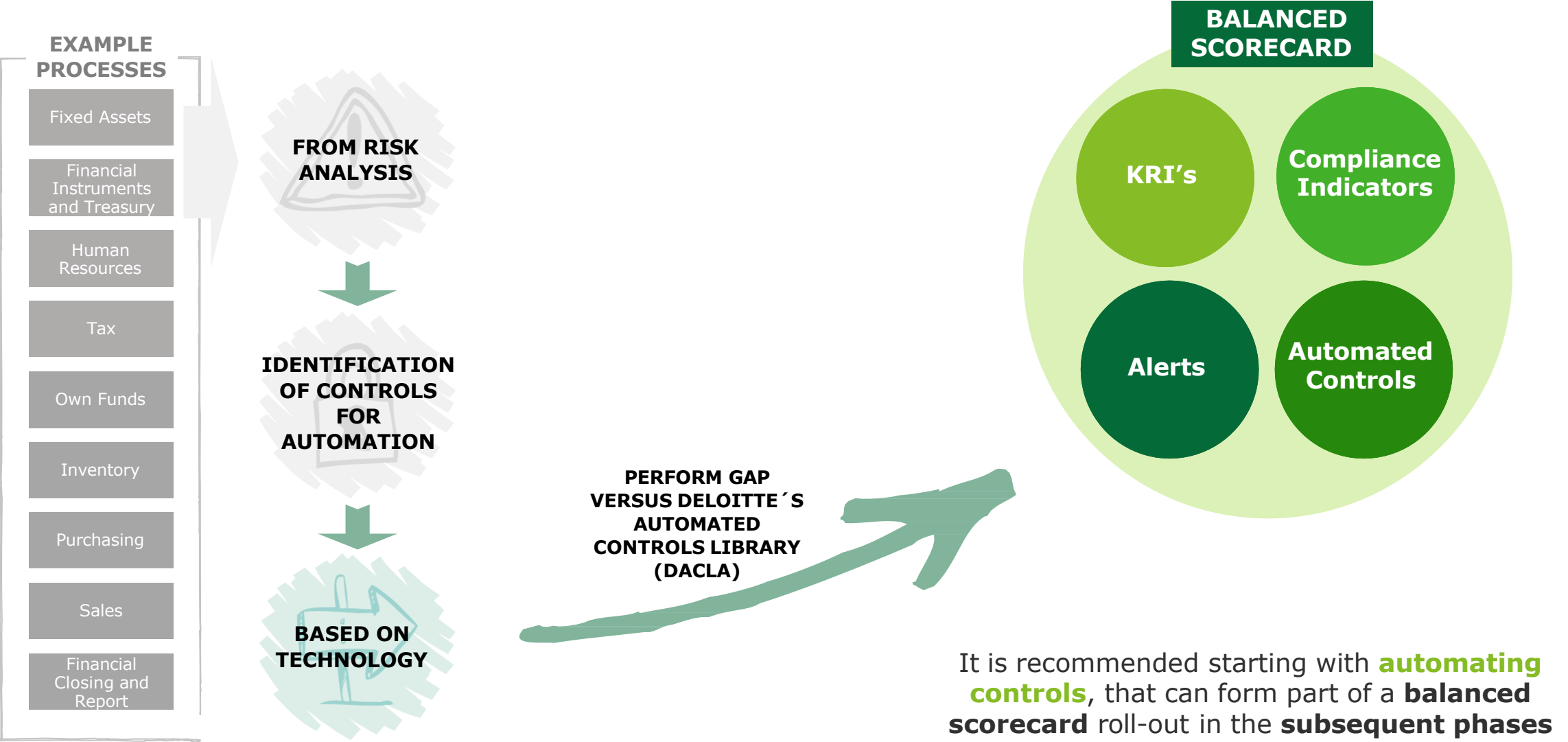
# Controls automation

## Continuous Control Monitoring IT Landscape example



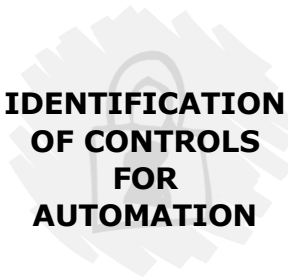
# Controls automation

## Automated Control Identification



# Controls automation

## Automated Control Identification



### Obvious controls

Data is already identified and available. Maybe the control is not key for the model but saves time and is used as a starting point for setting up the foundations of CCM approach.

Usually, these controls are focused on reading data from a single source system by monitoring configuration or even generating evidence of a control.

### Value-Add controls

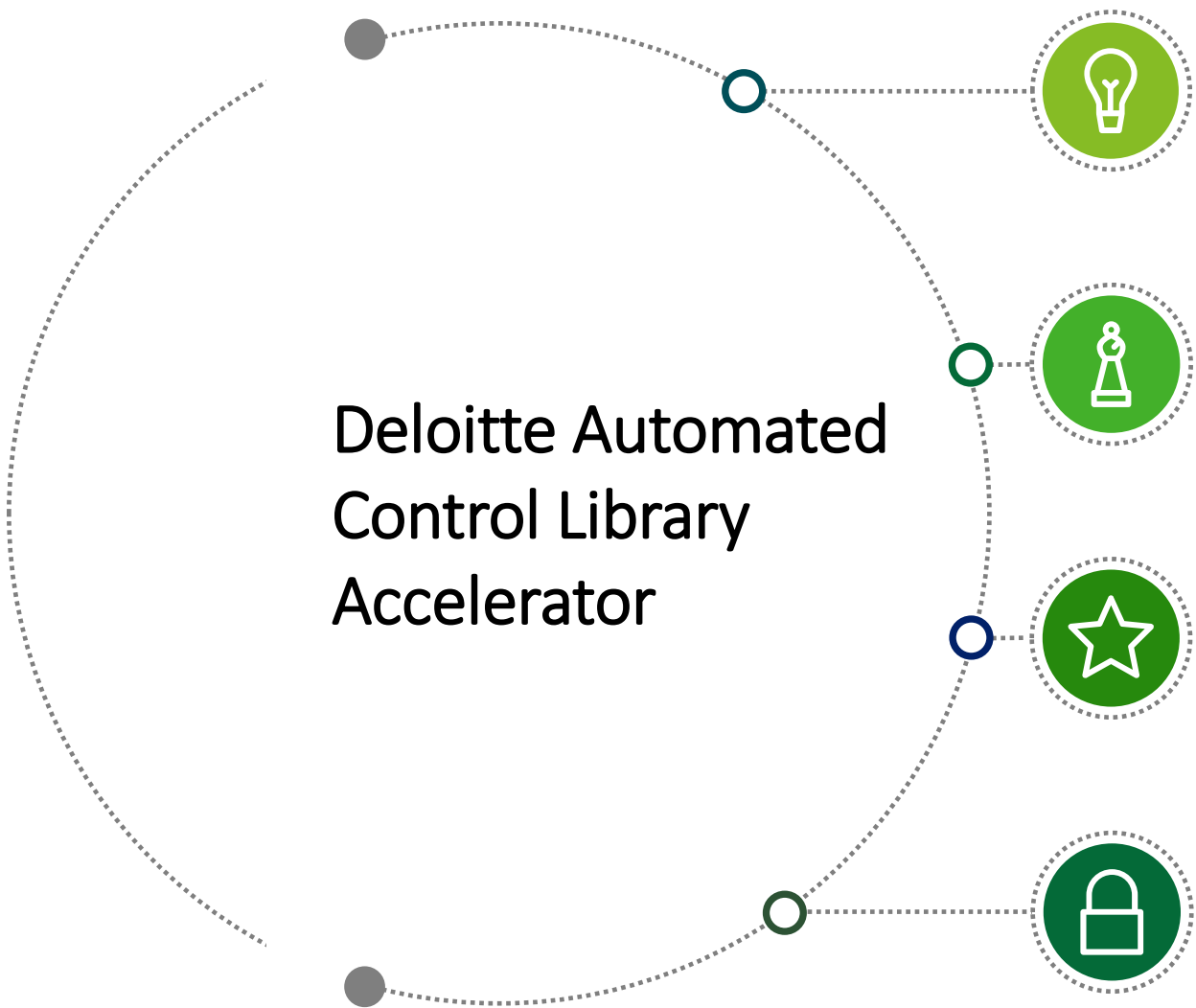
- Digitize controls or activities that are usually, time consuming and cause a great impact on business activities such as:
- Reduction of costs regarding control execution or potential regulatory sanctions
  - Transformation of the activities done by the assessors (review and apply expert judge instead of prepare evidences)
  - Deeper insights and trend analysis
  - Improved business experience

### Transformational controls

- By combining different tools & techniques, digitalization can reach a new level. The objective would be replacing former controls by new ways for monitoring the business activities, replacing testing periods and evidences by real time checks and predictive alerts that can be managed before the event happens. Efforts are usually higher in terms of building up the solution and in educational changes. Nevertheless, the return on investment has the potential to be significant, as:
- Reduce historical errors, financial losses, and/or provide significant visibility across organization
  - Digitization may take some time as either data is difficult to access or requires significant manipulation

Effort

Value



**Time**  
Reduced time and cost to implement the Automated Controls

**Best practices**  
Precompiled library of best practice automated controls capitalizing on the learnings and experience of Deloitte’s prior successful client deployments (continuously enriched)

**Increasing maturity**  
Further extend the coverage of automated controls thereby increasing the maturity of the overall controls landscape

Deloitte can help you unlock this potential by rationalizing your risk and controls framework, embedding automated controls into the day-to-day processes supported by Systems and providing effective and efficient governance over your manual and automated controls in the manner described in our Deloitte accelerator framework approach.

# Control Automation

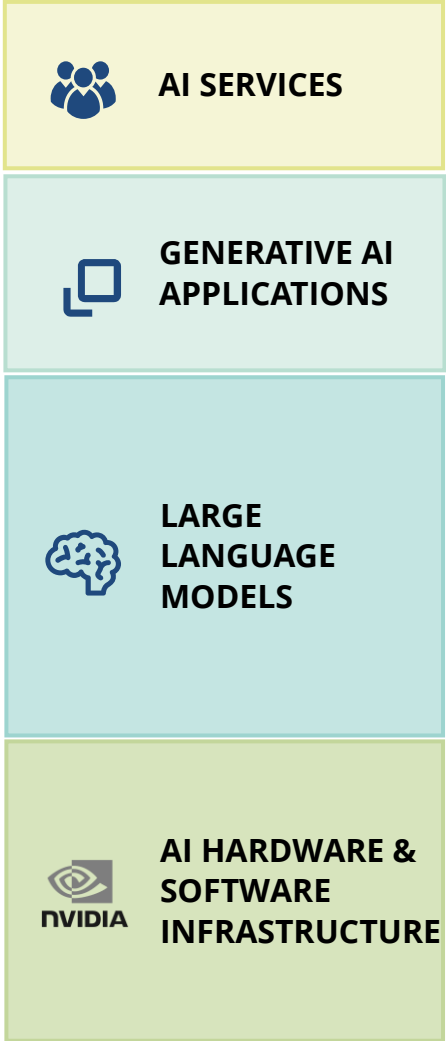
## Going one step further with Machine Learning and Generative AI

- **Predictive Analysis:**  
GenAI uses sophisticated pattern recognition to identify financial trends and predict potential risks, helping companies mitigate potential threats.
- **Real-Time Risk Detection:**  
Gen AI models can be implemented to monitor real-time transactions and flag any abnormal patterns that might indicate fraudulent activities.
- **Automating Compliance Processes:**  
GenAI can automate risk and compliance reporting, resulting in increased efficiency and accuracy.
- **Improving Decision-making Processes:**  
By analyzing complex data sets, GenAI can provide valuable insights that assist executives in making well-informed, risk-aware decisions.
- **Increased Adaptivity:**  
GenAI can be trained to learn and adapt to constantly changing risk environments, thereby retaining its efficiency in identifying and mitigating risks.
- **Process Automation:** GenAI can be used to automatically perform corrective actions

Examples where real-time monitoring of transactions can be applied:

**Anti-Money Laundering (AML):** GenAI can streamline AML operations by recognizing suspicious patterns, such as frequent large transfers or sudden account behavior change. The AI algorithm can learn in real-time from immense datasets predicting and flagging potential criminal activities.

**Retail Banking and Online Payments:** GenAI, abnormal behaviors in online banking, such as sudden unusual spending or uncommon login locations, can be quickly identified. The AI system continuously learns and updates its knowledge base, being adaptive to new emerging fraudulent techniques. This real-time responsiveness drastically reduces possible impacts of fraudulent activities.



Offered primarily through 3 channels:

- 1 **Hyperscalers Cloud Infrastructure**  
Google Cloud, AWS, Microsoft Azure
- 2 **Specialized GPU Cloud Vendors**  
CoreWeave
- 3 **In-House Data Center**

# Business Risks of Generative AI





## AS PRIMARY RISKS EMERGE ...

### RISK OF...

- 1 AMPLIFICATION OF BIASES**  
Inherent biases in the underlying data can be amplified when Foundation Models are trained on them
- 2 SAFE USAGE**  
Governance must consider both where and how Foundation Models are used (e.g., autonomous action for machinery in a factory floor)
- 3 RESPONSIBLE APPLICATIONS**  
Use cases will be contemplated with heightening levels of autonomy (e.g., enhanced cyber threat detection monitoring)
- 4 SOVEREIGNTY**  
AI Models trained on certain data sets will be subject to sovereignty / residency regulations (e.g., run models only on data centers within a certain jurisdiction)
- 5 LACK OF CERTIFICATIONS**  
Foundation Models trained for domain specific insights may also be regulated as human experts are today (e.g., Bar exam for legal professions)



## ... COMMON GUARDRAILS MUST BE IMPLEMENTED

 <b>Secure Environments</b> Train LLMs in secure environments; reduce the probability of leakage of information	 <b>Restricted Usage</b> Restrict initial usages of GAI to increase the accuracy of the inferences then scale with comfort
 <b>Enterprise Data Sets</b> Train LLMs with data sets that are governed within an Enterprise and not the internet at large	 <b>Audit Trail</b> Trace the data, map the lineage and have an audit trail of what type of data was used in LLM
 <b>Trust but verify</b> Humans in the loop to validate and verify the generated output and “certify” its accuracy	 <b>LLMOps is a reality</b> Form team(s) focused on operating, managing and governing the Models to prevent drift and bias
 <b>Trustworthy AI</b> Integrating <u>Trustworthy AIM</u> principles in Generative AI applications sustains the trust of customers and employees alike	

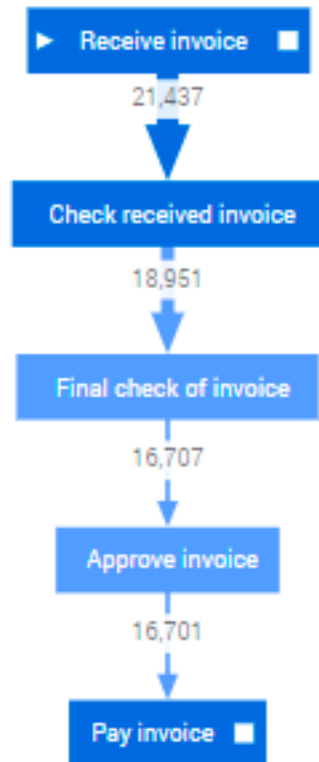
# Process mining



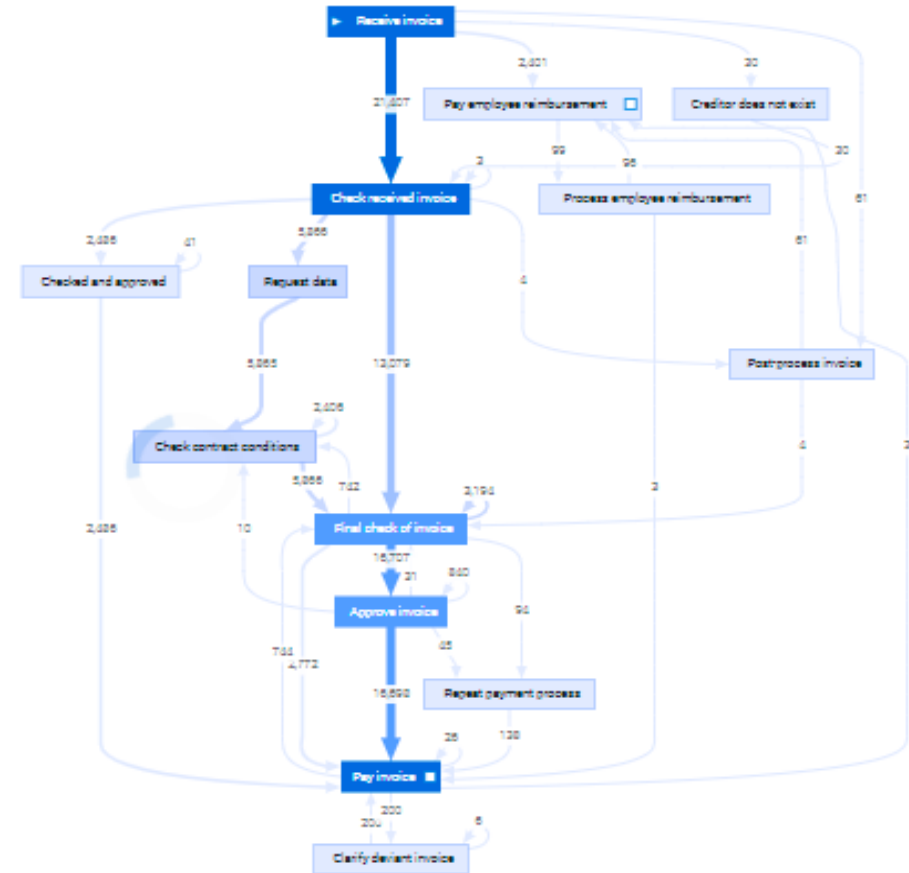
# Process mining

Most processes are more complex than our expectation.

From the expected process...

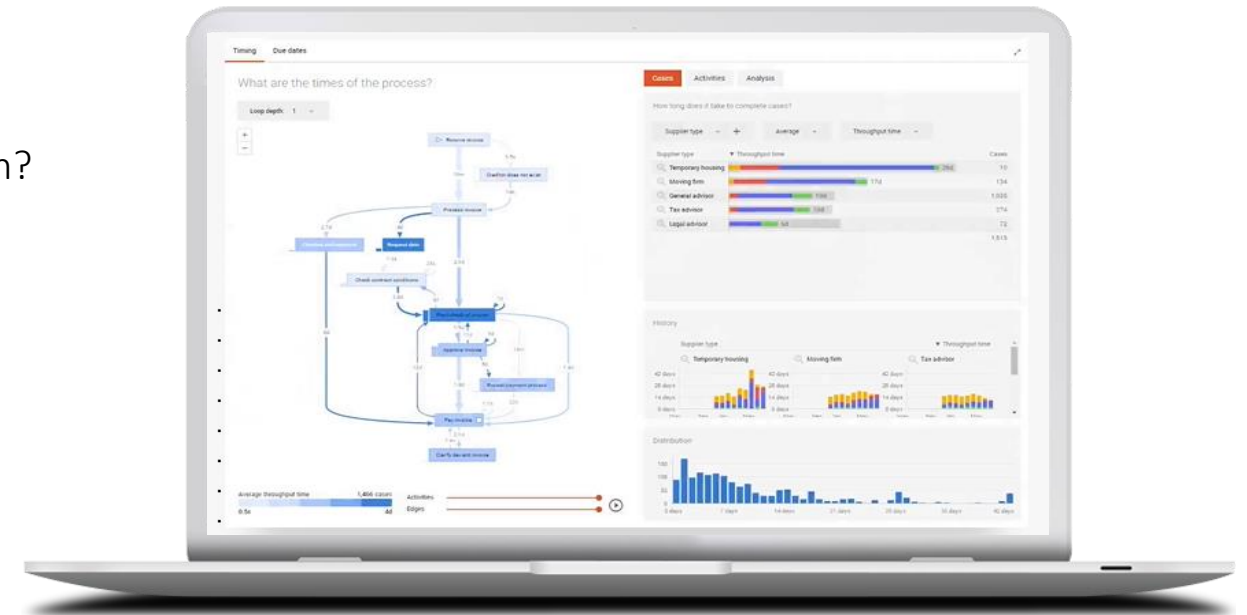
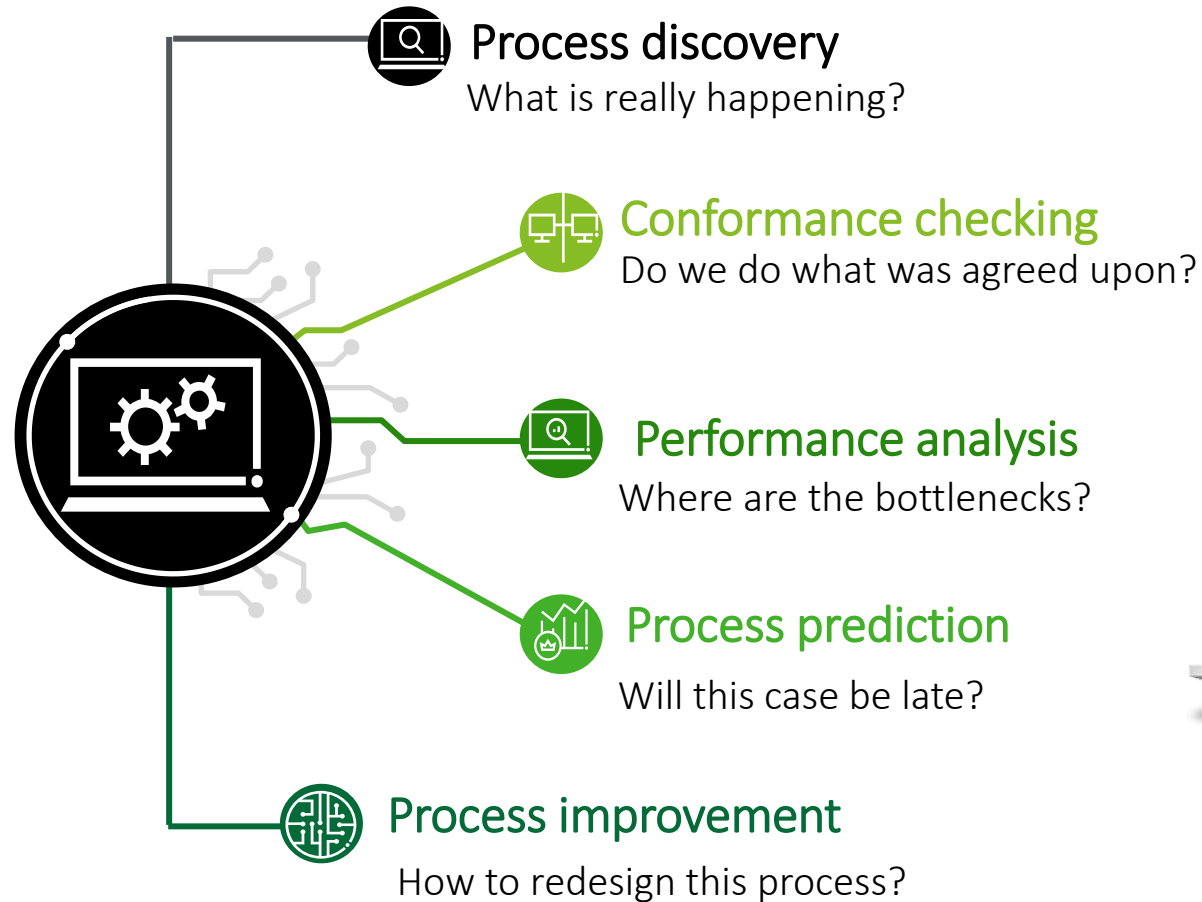


... to the actual process



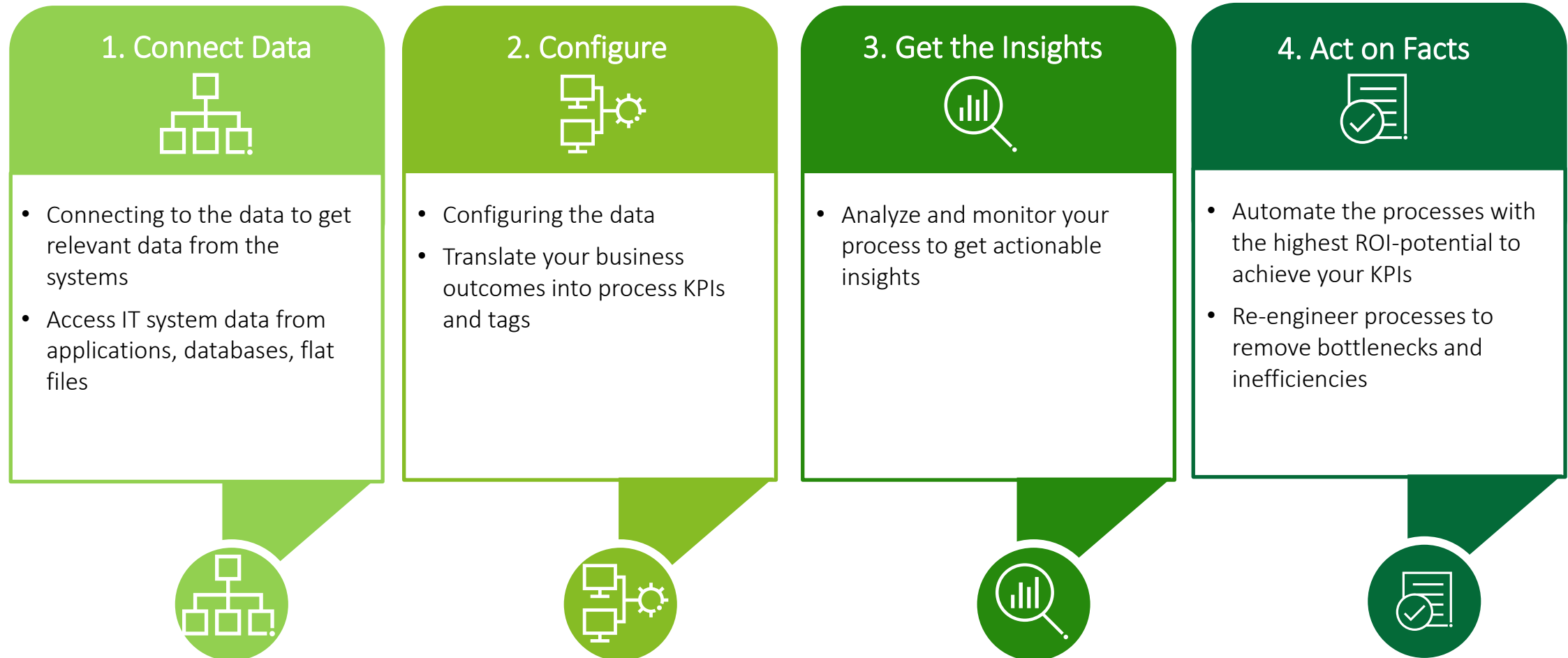
# Process mining

What can process mining be used for?



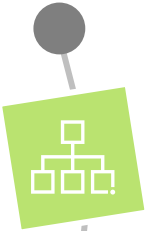
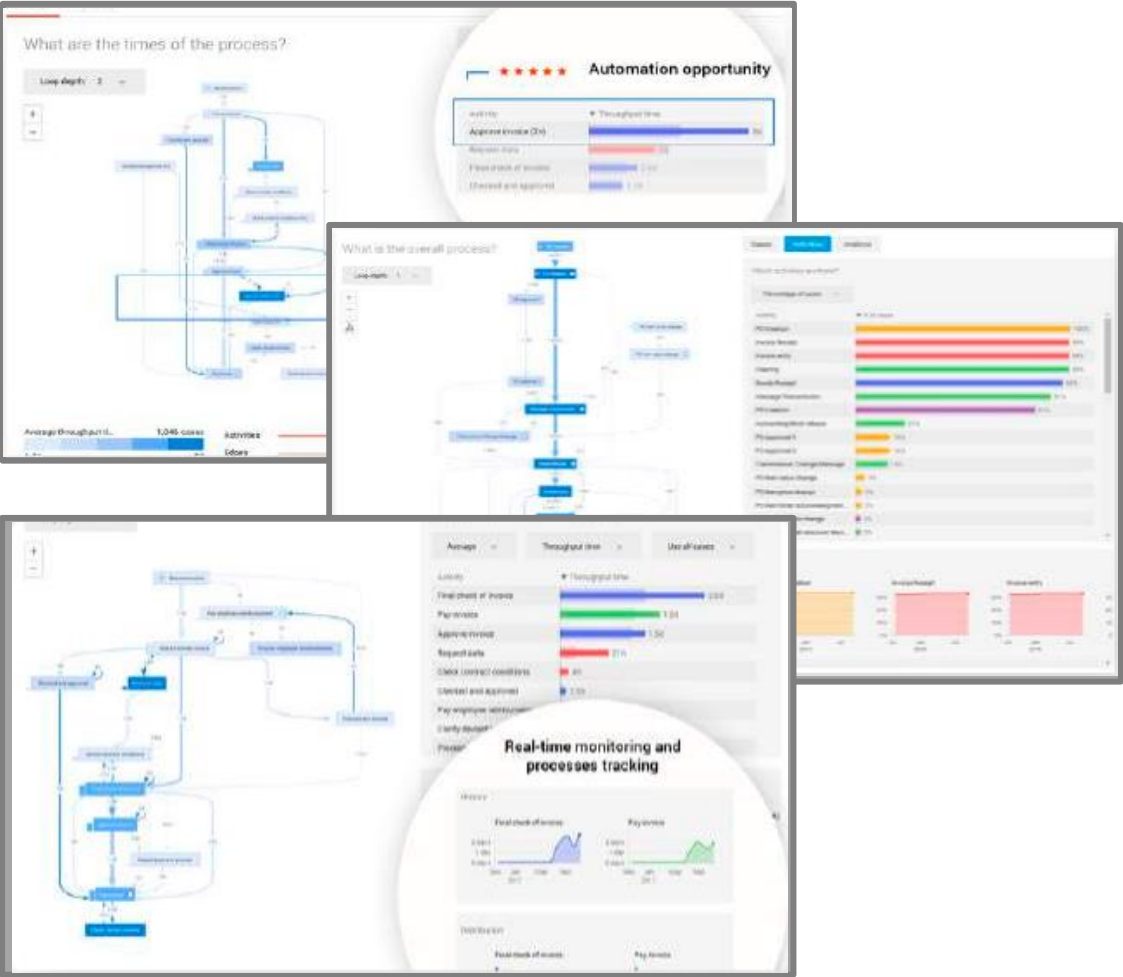
# Process mining

## How does it work in practice?



# Process mining

Understanding your process from end to end will help



## Increase Efficiency

Having a clearer view of the process will enable more precise process reengineering to increase efficiency



## Reduce Risk

Identify areas with greatest risk to business processes and take the appropriate actions to mitigate the risks



## Maximize ROI for automation

Ensuring that RPA is implemented in the areas with the maximum utilization in a process for a maximized ROI



## Accelerate RPA program

Discover and validate automation opportunities faster in your processes.



## Focus efforts on business outcomes

Having an end-to-end view of the process will assist process owners to have a better focus on the outcomes of each operation and ultimately the business outcomes of the process

# Process mining

## Use cases and approach

PROCESS DISCOVERY & KPIs

- Identify critical cycle times
- Missing approvals
- Segregation of Duties
- Activities outside normal working hours

INTELLIGENT ROOT CAUSE ANALYSIS

- Maverick buying
- Identify fraud
- Process conformity
- Duplicate payments



### DISCOVER

Find out how your process is executed in reality.



### IMPROVE

Identify and eliminate weak spots and violations. Use proactive insights to prioritize actions leading to process improvement.



### CONTINUE

Find your “Smooth path” and ensure continuous process efficiency, compliance, and quality.

# Process Mining versus Process Modelling

Process mining and modelling are two key techniques that are core to process transformation and complement each other depending on the situation

## PROCESS MINING (ALL TYPES)

*Process mining is a family of techniques relating the fields of data science and process management to support the analysis of operational processes based on event logs. The goal of process mining is to turn event data into insights and actions.*

### WHEN THIS TECHNIQUE IS MOST EFFECTIVE

- Available data / time stamps along the process
- Clear object to track through the process
- 'Decent' data quality
- Some understanding of desired process
- Forensics – process not known or need for 100% accuracy and task level detail

### PROS

- No need to rely on individual perceptions of process (less burden on people, more accuracy)
- Quantifies value of process breakdowns
- Can be used for varied platforms and systems
- Allows ongoing process review – early warnings on trends

## PROCESS MODELING

*Process modeling is a set of methodologies enabling the development of process models based on a combination of human input and available data*

### WHEN THIS TECHNIQUE IS MOST EFFECTIVE

- Limited data available
- Organizational-wide documentation need
- Bridge automated and non-automated (business, people and tech)
- Need for clear definition of all process and technology steps and interactions at Level 3/4
- Need for clear definition of all process and technology steps and interactions
- Traditional customer journey mapping

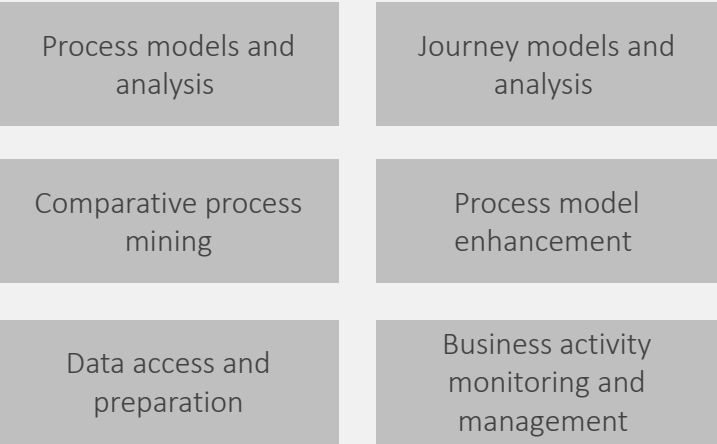
### PROS

- Uses meta-data & full detail of all activities along a chain
- Rapid triage of source of pain points
- Allows linking of processes across an organization
- Supports training, compliance, centralized documentation, audit trails, and other needs

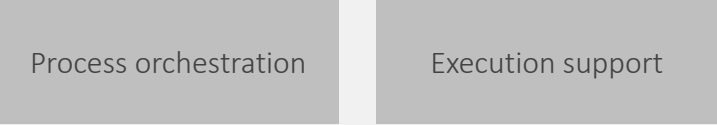
# Process Mining requires technology, methodology and skills to be effective

## TECHNOLOGY

### Core capabilities

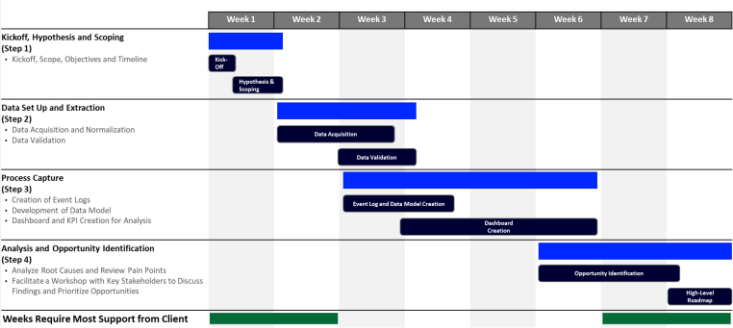


### Optional capabilities



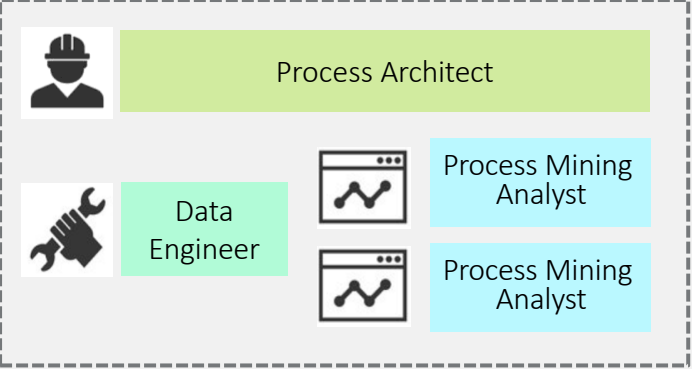
## METHODOLOGY

Phases	Process Selection	Source Data Set-Up	Process Mining	Value Area Identification	Value Realization Prioritization & Development
Key Activities	<ul style="list-style-type: none"><li>Prioritize functional opportunities &amp; strategic initiatives</li><li>Identify process for mining, aligned with strategic priorities as well as inputs from process workshops</li><li>Confirm process scope and KPIs</li></ul>	<ul style="list-style-type: none"><li>Create data request</li><li>Identify source systems</li><li>Set up data extraction from source systems</li><li>Validate process data</li><li>Import relevant data into environment using Process Mining connectors</li><li>Validate and deploy data model</li></ul>	<ul style="list-style-type: none"><li>Profile and transform data</li><li>Interpret, refine and customize Process Mining analysis</li><li>Create dashboards / visualizations and identify opportunities</li><li>Conduct Business Validation Workshop</li></ul>	<ul style="list-style-type: none"><li>Identify value and quantify opportunities</li><li>Conduct a Value Realization Workshop</li><li>Finalize opportunities</li></ul>	<ul style="list-style-type: none"><li>Conduct workshop to create Roadmap for Realization</li><li>Develop Implementation Timeline and Resource Plan</li><li>Build a sustainability vision</li></ul>
Deliverables	<ul style="list-style-type: none"><li>Draft Project Plan</li><li>Process Assessment Methodology</li><li>Requirements definition list</li></ul>	<ul style="list-style-type: none"><li>Initial process connection</li><li>Continuous data connection set-up</li><li>First analyses developed</li></ul>	<ul style="list-style-type: none"><li>Finalized analyses and dashboards</li></ul>	<ul style="list-style-type: none"><li>List of Prioritized Opportunities</li></ul>	<ul style="list-style-type: none"><li>Future State Roadmap &amp; Timeline (high-level)</li></ul>
Client	<ul style="list-style-type: none"><li>Process Owner / Business Sponsor to review strategic priorities and confirm candidate for mining</li></ul>	<ul style="list-style-type: none"><li>Data Owner and System Owners to approve data extraction</li></ul>	<ul style="list-style-type: none"><li>Process Owner / Business Sponsor to review findings</li></ul>	<ul style="list-style-type: none"><li>Process Owner / Business Sponsor to review recommendations and prioritize opportunity realization areas</li></ul>	<ul style="list-style-type: none"><li>Business Sponsor to sign off</li></ul>

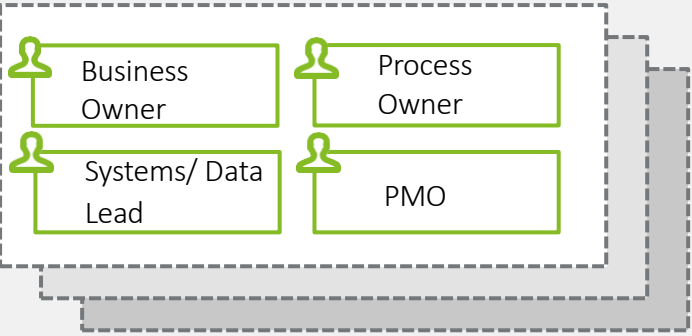


## SKILLS

### Business process mining pod



### Functional stakeholders



# Next Link'n Learn webinar:

*Date: 05/06/2024*

**Topic: Sustainability |  
Evolution in the Non Financial  
Disclosure: state of play and the  
assurance approach**







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