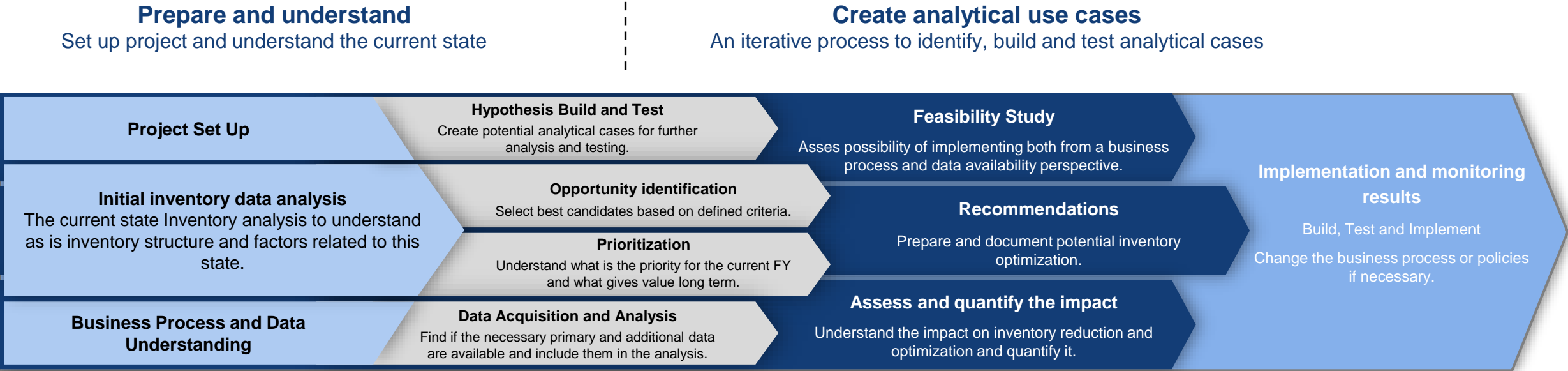# Inventory Optimization

Dec 2022

Inventory Optimization – Proposed methodology and approach.

Lingaro propose two phases for standard Inventory Optimization project.

We understand that some of the business goals related to inventory reduction should be closed quickly. This determined effort the Inventory Optimization Project needs to put into solutions and actions can be implemented, and bring value in a reasonable future. That is why Lingaro wants to follow a **flexible and agile approach** to maximize the value coming from data analysis and speed up implementation.

Prepare and understand
Set up project and understand the current state

Create analytical use cases
An iterative process to identify, build and test analytical cases

Project Set Up

Hypothesis Build and Test
Create potential analytical cases for further analysis and testing.

Feasibility Study
Asses possibility of implementing both from a business process and data availability perspective.

Initial inventory data analysis
The current state Inventory analysis to understand as is inventory structure and factors related to this state.

Opportunity identification
Select best candidates based on defined criteria.

Recommendations
Prepare and document potential inventory optimization.

Implementation and monitoring results

Build, Test and Implement
Change the business process or policies if necessary.

Prioritization
Understand what is the priority for the current FY and what gives value long term.

Business Process and Data Understanding

Data Acquisition and Analysis
Find if the necessary primary and additional data are available and include them in the analysis.

Assess and quantify the impact
Understand the impact on inventory reduction and optimization and quantify it.

The discovery phase is critical for project success and the value Lingaro can bring to a company business. The Lingaro project team will learn about business processes and available data during this phase. Investing time to make the project team familiar with processes and data is important to produce valuable inside as soon as possible.

To maximize valuable data outcomes, we propose an agile, iterative process to analyze, build and test as many analytical in the short period of time. This phase will be organized as a series of 1-2 weeks sprints where we can process all the inventory improvement ideas, then analyze, prioritize and implement them if we see value and possibility from the process, data and technical perspective.

# Inventory Optimization – Prepare and Understand.

The discovery project phase is critical for project success, and the value Lingaro can bring to a company business. During this phase, Lingaro team will learn about business processes and available data.

Key Activity	Actions		Outcome	Client's Team Involvement
Project Set Up	• **PMO setup and project kick off**	• Agreement on the administrative part of the project, regular meetings, updates and communication. • Project teams and client's SME introduction.	• PMO and communication agreement • Project update sessions scheduled • Decision makers and project team introduction.	• All project team and decision makers should be present during the project kick-off and initial sessions.

Business Understanding	• **Project Objectives**
	
	• **Business Process**
	
	• **Data**
	
	• **Planning Systems**
		• During this step, Lingaro plan to conduct a series of meetings with different stakeholders, process owners and SMEs:
		  • **Workshop(s)** with decision makers to better understand the project's business objective.
		  • **Series of meetings with process owners** to map and understand the process for crucial activities impacting inventory
		  • **Series of meetings with SMEs** to dive deep into the current needs and gaps.
		• Process documentation review
		• Familiarize with technology and system use in current replenishment and inventory optimization process.
			• A deeper understanding of the project objective and drivers behind them.
			• Understanding internal processes, policies impacting inventory and replenishment decisions
			• Understand Inventory KPIs logics and formulation
			• Understand industry-specific and products specific
				• Smooth and quick knowledge handover to the Lingaro team can require several weekly meetings.
				• Process and data SMEs will be most involved.
				• Process documentation sharing and explanation to Lingaro project team

Initial inventory data analysis	• **Initialize analytical activates** • **Create first use cases**	• The current state inventory analysis from a different perspective (inventory function, type, category, life-cycle, quality status etc.) • Understand better the level of variability from a demand perspective as well as external and internal supply processes. • Understand the current products portfolio and its impact on inventory (including the PIPO process)	• Understand the current state of inventory • Identify the first analytical case for inventory improvement • Document and present initial findings	• Regular project update meetings with the cline's project team. • Workshop or dedicated session for a particular subject can be scheduled.

This is not a complete list of possibilities. Client's business process understanding is needed to address specific analytical actions.

Inventory Optimization – Create analytical use cases
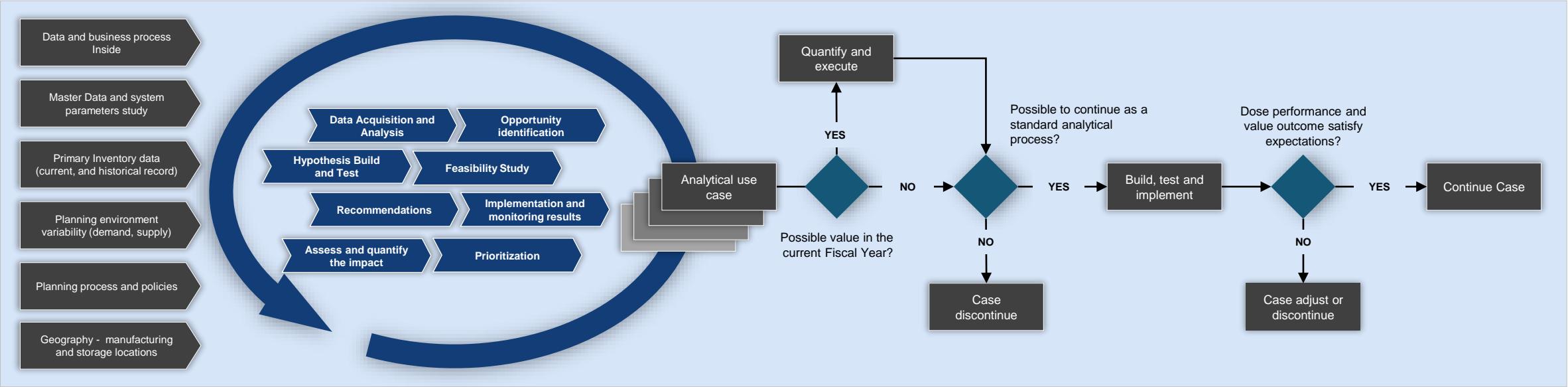
Data Acquisition and Analysis – we want to explore all available data Client has and can share during. Many different planning processes and activity influence directly and indirect inventory level, that's why it is critical to analyse not only the current inventory level and its historical records but also:

- supply and demand variability.
- inventory policies and planning parameters
- portfolio size of line, and structure and PIPO process
- geographical aspect, like manufacturing and storage locations

Also, it is critical to understand the high level of financial influence of current KPIs and the formulation behind them.

There are many potential data and sources that can be explored, we will be able to create a complete list during the project's first phase.

Opportunity identification – selecting the best analytical cases should be aligned with Client's business goals and considering that inventory redaction should be achieved in reasonable future. However, this criterium shouldn't be the only one, and long-term inventory optimization and inventory management process improvement should also be an important decision-making factor.

All assessment criteria should be agreed on the beginning of the project.

Hypothesis Build and Test – all improvement hypotheses should be data-driven and tested according to real business scenarios.

Feasibility Study – selected analytical use case should be possible to implement not only from a business process perspective but also from data and technology. A feasibility study from a data and technology perspective is critical in case Client want to implement it as a standard reporting process or planning process. Also, all the inventory reduction and optimization ideas should be aligned with policies and regulations.

Assess and quantify impact – what will be the monetary impact and value specific inventory optimization action can bring this is a critical input to prioritization, recommendation and implementation steps. The quantive and qualitative (process) impact should be known to make the right decisions.

Prioritization – understanding priorities is critical during the project because of time and resource limitations. All the potential inventory optimization and reduction actions should be prioritized.

Recommendations – Lingaro project team will make a recommendation based on the data and our previous experience. However, Client's specific needs and priorities should be the primary driver of our recommendations. The recommendation will be provided in the form of documentation and a sheet depending on particular cases and needs.

Implementation and monitoring results – The project team can also support Client during the implementation step, especially when the dashboard should be built or redesigned. Also, the critical aspect is to track progress for implemented analytical cases to adjust or change initial assumptions if needed.

Inventory Optimization – Source of analytical Uses cases.

There are many areas to explore to find potential inventory reduction and optimization.

To deliver maximum value from the data and information coming from the business process, we want to explore it horizontally, looking for critical inventory impact areas (inventory replenishment process, variability, data flow) and vertically (input, process, outputs).

	Process Input		Business Process		Process Output		Area for analysis and predictive insights generation	
Planning process and policies	Replenishment Policies and planning parameters	Industry specific and regulations	Replenishment policies execution	Supply plan and demand plan	Replenishment plan for finish product	Supply plan for materials and components	Does the replenishment process execute according to policies and parameters?	Are replenishment policies and parameters set up correctly and reviewed regularly?
	Inventory KPI logic and formulation	Manufacturing and storage locations	Internal and externa goods and material movement	PIPO process	Inventory level by (function, type, life-cycle, etc.)	Excess generation and removal	Does the planner have clear information for postponement, de-expedite, quantity adjustment, and business dynamics?	
Variability	Forecast accuracy	Nature change and seasonality for demand	Forecasting methods and tools	Flexibility vs redundancy	Change in production plan	Change in supply plan	Is there a clear indication for planners to change replenishment parameters and take action as the product move through its lifecycle?	
	Supply Variability		Forecasting KPIs and supply service KPIs		Performance tracking		Do forecasting parameters frequently review and change to reduce demand variability. What is the methodology behind it?	
Data and information flow	Master Data	Transactional Data	Planning Parameters Update and review	Missing data review	SOP Update	Parameters change	Is demand loaded according to plan and visible on time?	What is the control and monitoring process for excess generation and removal?
	SOP Documents		Align parameters with business dynamics				Does the planner have precise information about the proactive planning parameters adjustment during product lifecycle and error detection?	

Input – all the data, information and physical input into the primary inventory planning process and processes connected with and impacts inventory decision

Process – activities with information and data are processed to create a replenishment plan for the finished product and its material and component. All short and long decisions impacted the stock level.

Output – all the data, information and physical outcome from the inventory replenishment process.

Business Cases – based on the data and information input and output, as well as the replenishment process, potential new areas for analytical exploration and business cases can be identified.

This is not a complete list of possibilities. Client's business process understanding is needed to address specific analytical actions.