Description of the Challenge

The challenge set by Ormazabal, aimed specifically at the Primary Distribution Division, is entitled: ***"How could Ormazabal transform its current inventory management to move from a static, manual model towards a dynamic, predictive and automated system?"***

This challenge addresses the needs described below:

- How could the obsolescence of inventoried assets be minimised and the resilience of the supply chain increased?
- How could inventory tied-up capital be reduced, thereby also reducing storage and financial costs?
- What is the actual safety stock required to meet manufacturing needs for the coming weeks?

Context

Ormazabal is a global company specialising in customised, high-tech electrical solutions, with over 55 years of experience. Our solutions are designed to facilitate the digitalisation of the electricity grid to integrate greater renewable energy generation, enable more sustainable mobility and guarantee supply to buildings and infrastructure with critical energy needs.

In this case, the Smart Stock Challenge will focus specifically on one of the businesses within the Primary Distribution Division. Within this division, there are four production units: epoxy insulation component manufacturing, silicone connectors, automation using high-vacuum technologies and substation manufacturing. Given the volume of business and level of complexity, it is proposed to carry out the pilot in the epoxy insulation component manufacturing unit.

Stock management currently relies on traditional processes and rules which, while ensuring production continuity, have limitations when it comes to adapting to an increasingly dynamic and uncertain environment. Fluctuating demand, lead times, reliance on critical suppliers and the need to maintain high service levels require operating with high inventory levels, resulting in significant tied-up capital and risks associated with obsolescence and a lack of accurate visibility of stock levels.

Furthermore, decision making in relation to procurement and stock planning is often reactive, relying on historical data and the experience of teams, with limited capacity to anticipate deviations, stockouts or excess stock. This hinders the early identification of risks and the adoption of preventive measures that simultaneously optimise costs and service levels.

Despite the efforts made in recent years to establish working methodologies, significant changes in demand, coupled with supplier delivery issues, generate a volume of data that the team cannot manage effectively. This situation frequently leads to miscalculations that can have a serious impact on the business.

Amid market volatility, pressure on margins and the need for more resilient supply chains, Ormazabal considers it a priority to move towards a smarter, predictive and data-driven inventory management model. A model that improves stock visibility, anticipates risks, supports decision making and dynamically balances inventory levels with actual business needs, while integrating with existing systems and processes.

This challenge therefore forms part of Ormazabal's strategy to drive applied innovation and the digitalisation of its operations, exploring solutions that deliver real value, are scalable and contribute to more efficient, flexible stock management aligned with the company's strategic objectives.

Additional information:

This challenge is approached with an exploratory and collaborative mindset, aimed at identifying solutions that deliver tangible value to Ormazabal's inventory management.

Standard procurement is carried out using the reorder point method, supported by the BAAN ERP system, and based on safety stock, the supplier's theoretical lead time and the defined purchase batch. When stock reaches the set threshold, the system generates a purchase order suggestion, calculating the release date based on actual manufacturing requirements and the recorded lead time. This method is effective in environments with stable demand, but its reliability depends largely on the correct manual updating of parameters and on theoretical lead times matching actual ones, which makes it vulnerable to variations in consumption or supply deviations.

As an alternative, the logistics team uses Excel spreadsheets to plan procurement in more volatile scenarios. These incorporate forecasts of future consumption, compare them with available stock and lead times and manually decide when and how much to order. Although this approach offers greater flexibility and the ability to anticipate needs, it has significant drawbacks: a high probability of human error, infrequent updates, a lack of traceability and a lack of automation, making it an unreliable method that is difficult to scale in the long term.

Lastly, there is a third approach based on direct monitoring and ad hoc decisions, supported by daily tracking of consumption and inbound deliveries, as well as the logistics technician's experience. This method is mainly applied to fast-moving SKUs, materials with uncertain lead times or urgent requirements, allowing for a rapid response to incidents. However, its heavy reliance on individual knowledge, the lack of standardised criteria and the difficulty in anticipating trends limit its effectiveness. Collectively, these methods are operational, but they do not provide the predictive control or dynamic integration demanded by today's industrial environment.

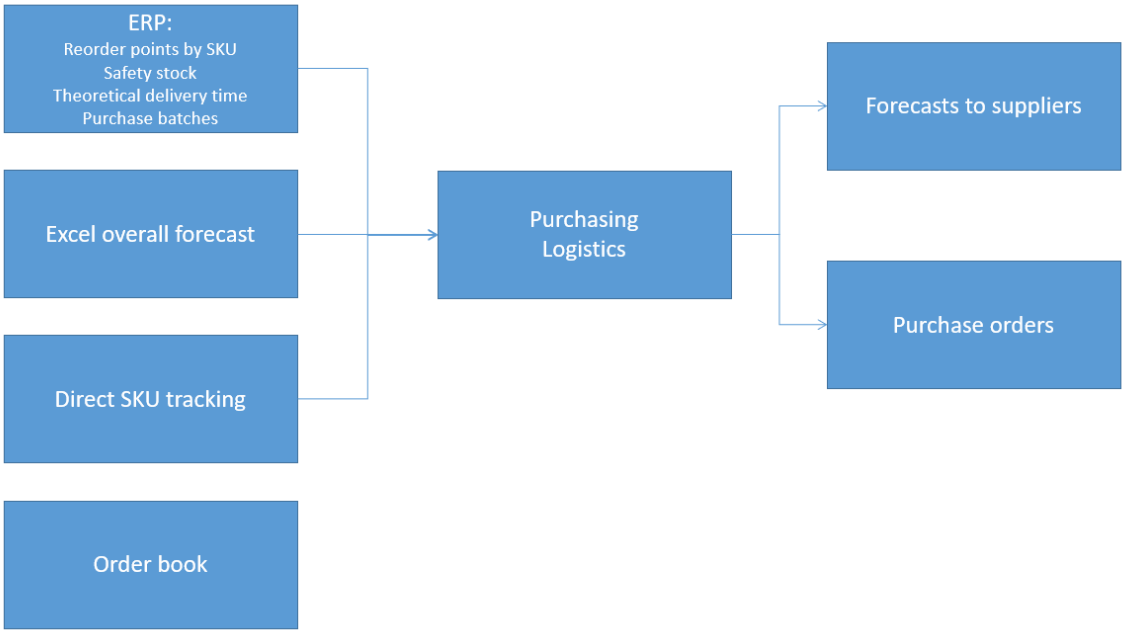
The starting point is non-automated inventory management, based on parameters that are reviewed on a regular basis. A consumption forecast is available, based on which material receipt estimates are made and the procurement plan is drawn up. However, other relevant inputs are not utilised, such as supplier delivery reliability or potential sudden changes in demand. This limitation can lead to high stock levels, high inventory turnover rates and obsolescence, negatively affecting the logistics and production chain.

Other inputs that are currently not utilised adequately include the order book data held by Ormazabal, which incorporates components manufactured in the Primary Distribution Division. In other words, there is data that could provide valuable information to the supply chain, but which is analysed in a very basic manner, limited to studying peaks and troughs in consumption based on the team's experience.

To illustrate the identified issue more accurately, a practical example is provided below. For a specific SKU, an overall forecast is available, from which a forecast is shared with suppliers and orders are placed based on the defined safety stock and a monthly review of stock levels. If, during

this period, supplier reliability fluctuates or consumption changes suddenly, this can lead to excess stock or stockouts, with a corresponding impact on manufacturing. There is typically a tendency to maintain excess stock to avoid supply issues, without giving sufficient consideration to the impact on financial and storage costs. However, stockouts also occur, which have a significant impact on industrial activity.

The current process is very labour-intensive and does not provide detailed or real-time information:



For all these reasons, it is necessary to implement an automated solution that enables dynamic, automated and predictive inventory management.

Stakeholders

The main stakeholders involved in this challenge, and which therefore represent all of the interested parties to be taken into account when presenting the solution, are:

- Ormazabal Startup Switch: a cross-functional division of Ormazabal that manages the open innovation programme designed to collaborate with technology startups and validate their solutions within the company's real-world environments.
- The Primary Distribution Division, made up of four production units: Silicone Connectors, Automation Using High-Vacuum Technologies, Substation Manufacturing and Epoxy Insulation Component Manufacturing. This latter unit manufactures and manages solid insulation for the rest of Ormazabal's manufacturing units and is where the proof of concept is proposed; if approved, it could then be scaled up to the rest of the division.

Needs

The solution must be an easy-to-use tool for administrative or logistics staff, capable of continuously monitoring stock, consumption, forecasts and lead times, as well as predicting material requirements. It must generate recommendations on when and how much to order, allow for configurable management strategies and, for low-impact SKUs, enable the automation of simple orders. In terms of technical requirements, it must allow for integration with corporate systems and be updated at least daily.

To achieve this, we hope to roll out a six-month pilot proof of concept to measure alignment with actual demand, the reduction in days of stock rotation and obsolete inventory, acceptance by the logistics team and cost reduction.

Objectives

As a guideline, the following table includes the functional needs required, classified as a requirement or weighted according to their level of importance, with three being the lowest level and nine the highest:

Variable	Functional need	Weighting
1. Characteristics of the solution	1.1. Input variables: ERP information: reorder points, safety stock, theoretical lead times, purchase batches. Actual consumption Customer forecasts SKU criticality	Requirement
	1.2. Output variables: Optimal safety stock Order suggestions and their rationale Stock status by product family and location Identification of critical stock Data visualisation for decision making: relationship between available stock, demand and expected consumption, indicators that allow rapid identification of the main sources of risk or inefficiency. Supplier reliability: analysis of theoretical versus actual deliveries	Requirement
	1.3. Automation: ability to instruct the ERP to initiate orders	9

	1.4. Accuracy: the solution's learning capability to determine the optimal timing for placing orders with suppliers	9
	1.5. Scalability: pilot test in the epoxy unit but scalable to other business units	9
	1.6. Ownership of input and output data will be held by Ormazabal	Requirement
	1.7. The ability to perform calculations: at least daily and in response to significant changes in input variables.	Requirement
2. Usability of the solution	2.1 The solution must be easy to use so that it can be operated by administrative or logistics staff.	9
	2.2. Interface: must be simple and easy to understand	6
	2.3. Ability to export data to Excel	3
	2.4. Clear display of stock levels by SKU and simple alert systems	6
	2.5. Ability to customise KPIs	6
3. Compatibility	3.1. The solution must be compatible with: BAAN and SAP ERP systems	Requirement
	3.2. It must be able to operate from Ormazabal's data platform: the data will be stored within Ormazabal's platform and the solution must be able to access it to read and process the data.	9
	3.3. The solution must allow connection with external agents that can execute future actions based on the output data.	6
4. Solution maintenance	4.1. A user manual must be included with the solution.	9
	4.2. Technical support must be provided while the tool is in use.	9
5. Cost	5.1. The expected annual savings must be estimated, and the cost of the solution must not exceed the value of the savings generated.	Requirement
	5.2. It will be looked upon favourably if a portion of the solution's cost (30-50%) is variable and linked to the savings achieved.	6
	5.3. The operational cost of the solution must be specified, including a breakdown by licences, maintenance and scaling. It will be looked upon favourably if this cost is competitive.	6

	5.4. A package of five licences included within the cost will be looked upon favourably.	3
6. Solution maturity level	6.1. Previously conducted proof-of-concept studies for other types of manufacturing activities will be viewed favourably.	6
	6.2. Prior proof-of-concept tests carried out for industrial activities similar to those of Ormazabal will be viewed favourably.	9
7. Pilot test: aspects to be met in the validation process	7.1. Mapping of the current process must be carried out.	Requirement
	7.2. Validation of the solution by the working team, taking into account factors such as simplicity and operability.	Requirement
	7.3. The solution must enable the display of the following data: consumption, forecasts, stock levels and lead times.	Requirement
	7.4. Achieve a reduction in inventory levels of at least 5% during the trial period	Requirement

Scope of the pilot and scalability of implementation

Before using the tool, a mapping of the procurement process and an analysis of data quality must be carried out to ensure that the tool's approach is correct and has the appropriate foundation to provide meaningful insights.

Through the pilot test carried out between the winning company and the epoxy insulation component manufacturing unit, the solution's viability will be validated in a realistic environment with the tool being rolled out to support procurement management.

The epoxy insulation component manufacturing unit has a purchasing volume of around €12 million per year. This unit may be defined as producing standard, recurring products, with the number of SKUs being fewer than 500 units. The logistics team currently consists of four people, where stock monitoring is carried out continuously, with the aim of neither overstocking nor running short, which could lead to stockouts.

Should the first proof of concept be successful, it would be scaled up to the rest of the production units within the Primary Distribution Division, with a number of SKUs of around 5,000 units.

A tool that automates and adds a layer of intelligence to procurement processes in an industrial environment has strong potential for expansion, both within the other divisions of Ormazabal and in companies outside the group.