# The Challenge

The challenge is to buy a tool cabinet and sign a deposit agreement. Thanks to this solution, the company can save a lot of time, money, and the work of the purchasing department. The cabinet system would signal the number of tools available in the warehouse, and the company that holds the deposit could monitor the current stocks and successively replenish them. The purchase of a tool cabinet also reduces the consumption of tools because each employee could be accounted for the amount he/she took from the warehouse.

You need to integrate the company’s system and that of the tool supplier in order to optimize the purchasing processes and reduce the risk resulting from the sudden lack of a needed tool. Thanks to the deposit agreement, the buyer and the distributor could negotiate a price list, which would significantly shorten the purchase time by bypassing the bidding process. The introduction of the tool cabinet system leads to increased supervision over the management of tools and gives clear information which tools are the most rotating in the company.

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## Main Requirements

* Creating a system of alerts and notifications,
* Supply chain optimization based on efficiency,
* Optimize the number of operators based on performance.

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## Other Requirements

N/A

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## Key Performance Indicators

N/A

**Industry Sector:**  
Armaments industry

**Challenge classification:**

Monitoring and optimization of processes in real time; Intelligent planning and scheduling of processes; Horizontal integration in Industry 4.0: from supplier to consumer, comprehensive integration of IT systems; Warehouse management based on real-time tracking of product locations, transport conditions, packaging integrity; Improving the transparency and reliability of the supply chain.

**Time for Project Completion:**

6 months

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## Other informations

Use manufacturing execution systems (MES) or enterprise resource planning (ERP) systems?

Yes.

Type and operation of the MES or ERP system used?

Comarch ERP XL 2012 is a database-based system. Each authorized employee supports his system category, thanks to which one can track every stage of production, logistics, and production planning.

Machines are equipped with PLC/PAC or CNC controllers and can provide data?

The company has 50 numerically controlled (CNC) machines equipped with PLC/PAC or CNC controllers and can provide data.

# Research Phase

*Taking into account the challenge description, its requirements and its information, elaborate at least 5 questions that can lead your research for a solution.*

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## Research questions:

*Given the questions and the main requirements of the challenge previously listed:*

* *identify possible technologies using the Planet4 Taxonomy Explorer;*
* *identify and analyze the sources (papers, articles, etc.) of those technologies that best suit the challenge;*

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## Technologies identified in the taxonomy:

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## Sources of those technologies that best suit the challenge:

*In light of the discoveries made:*

* *report the answers for the questions above;*
* *compare 2-3 of the more common solutions identified in the sources (how would they change the approach to the solution? What are the possible benefits/issues in such a use of these technologies?);*
* *draw initial conclusions on which path you want to take in proposing a solution.*

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## Answers:

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## Comparison:

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## Conclusions:

# Proposed Solution

*Making use of the technologies identified after the analysis of the sources, describe a possible solution to the challenge. Also, do not forget the constraints (time, number of devices to produce/connect, etc.): the solution must be applicable to the real context of the company that commissioned the challenge.*

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## Solution Summary

*Brief description of the solution (1-2 paragraph + 1 image)*

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## Solution Description

*Describe the solution and its details*

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## Implementation Plan

*Describe the solution implementation plan considering among other things: gantt chart with milestones, high-level cost analysis, possible difficulties (at least 3 major issues or difficulties) and additional opportunities (at least 2 extra benefits).*