# The Challenge

The company is engaged in the production of aircraft parts. The parts are manufactured from the stage of mechanical processing through galvanic processes to assembly. The company has 6 measuring machines. CMM measuring machines with Reinshaw controllers are connected to computers. The company has an impact on the planning of production and the timeliness of shipment.

The challenge is to refine existing processes and implement new ones to meet customer needs. A system is needed to assign finished and semi-finished products to the appropriate measuring machines. This is currently assigned manually. This would streamline the work of quality controllers by using the measuring machines more evenly. It would also shorten the time needed for the measurement.

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## Main Requirements

* Production flow monitoring,
* Optimization of production planning and scheduling,
* Improved machine utilization,
* Reduced machine downtime.

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## Other Requirements

N/A

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## Key Performance Indicators

N/A

**Industry Sector:**
Aviation industry

**Challenge classification:**

Monitoring and optimization of processes in real time;

Intelligent planning and scheduling of processes.

**Time for Project Completion:**

6 months

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## Other informations

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

No.

Number of machines to be connected:

6

# 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).*