Business Case - AAS-Server

Outline

Introduction

In this business case document, we present the basics and arguments for the introduction of an AAS server in our organization. Among other things, the use and risks, as well as a profitability calculation, estimated costs and a rough project plan in the form of a GANTT diagram are presented and explained. The projectteam consists of Taktar, Armin; Lorke, Lara; Sancho Pernas, Rafael; Ümmühan, Ay; Zieher, Kyle and Bauer, David.

Objectives

Our goals with this project are clearly defined: To optimize the Asset Administration Shell (AAS) as a digital representation of our physical assets. It enables easier and intuitive self-management, condition monitoring and data analysis.

Use

The ASS (Asset Administration Shell) enables the user to collect digital information about assets such as machines, devices or physical objects. Be it information such as digital images or product information. The ASS is a standard in Industry 4.0 and therefore it is very important to maintain the same standard in order to compete with other competitors in the same industry. The use of an AAS web client is therefore essential

Risks

Unexpected absence of workers such as illness or pregnancy.

Probability: high

Impact: slight extension of the project duration depending on whether absences remain within reasonable limits

Increase in costs

Probability: medium

Impact: Extra budget

Technical failure

Probability: low

Impact: Extension of the term depends on the extent of the outage

Data security

Probability: low to medium

Impact: Legal trouble and/or issues related with stolen data, possible attacks on the software

Integration of AAS into existing systems may lead to unforeseen risks.

Probability: low

Impact: In the worst case, major changes have to be made to the program, which increases costs and runtime enormously

The risks that could present themselves for this project are the following:

To minimize the risk of providing a low quality product, extensive testing will be conducted. These tests will be designed and managed by our professional testers. An overly complex codebase will be prevented by utilizing a Git repository, this repository will be managed by our developers who have extensive knowledge with the repository. Miscommunication between stakeholders and the project team is possible, but our project manager will make sure to resolve all communication issues. The scalability of the product is an important factor, due to the product being intended for later use by other software developing teams.

Profitability calculation / estimated costs

These Calculations are a general Estimation for the costs in a Month. These costs may vary over longer periods of Time and changes in exterior Factures , such as Economical or Infrastructural Changes.

Estimated labor costs

* AAS-Client Customization & general improvements (over Project Time): 100€/m
* Implementation and Integration: 50€/m

Estimated technical costs due to server and electricity costs:

* Electricity Costs: 655€/month
* Ongoing Maintenance and Support: 80 €/m

Other costs:

* Staff Time for Transition (8 hours at an estimated cost of 0.50€ per Person): 400€
* Software Licensing: 50€

Total Estimated Cost: 935 - 1335 € /month

Profit Calculation

Taking the estimated costs for working on this project into account, we will require funds of at least 9000€-11000€. These values are calculated with delays and risks considered. We expect this project will take an estimated time of 7-8 Months.

Due to this project being an internal project mostly for the sake of our own company, there will be a long-time cost reduction. This cost reduction will be noticeable after about 3-4 Months after completion of the project. We have done some calculations of the cost-reducing effects. The expenses of our company will be reduced, because there will be less work and fewer devices being needed for the proper management of our assets.

Labor Cost Reduction: Currently after Compleation

* Smaller Maintenance Cost : 300€/m 150€

Estimated technical cost reduction:

* Less running Servers: 8000€/m 4500€/m
* Less technical Support needed: 1500€/m 750€/m
* Electricity: 13500€/m 9000€/m

Other Costs:

* Software Licenses: 200€/m 130€/m
* Additional Software Courses: 700€/m 400€/m

Total Cost Reduction: 24.200€/m 14.930€/m

Return on Investment (ROI): The expected ROI is estimated at 38,30579% over the first two years, taking into account increased revenue and reduced operational costs.

The profit made with this project will be about 35 000€ in the following three years.

Rough Projectplan / GANTT-Diagram

The GANTT-Diagramm can be found as a separate File in the Github Documentation Folder.