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Analysis and Design of Product Lifecycle Management System in Lallemand Bio-Ingredients

Master's thesis summary

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Master of Science

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TALLINNA TEHNIKAÜLIKOOL
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PLM süsteemi analüüs ja kavandamine ettevõttes Lallemand Bio-Ingredients

Magistritöö lühikokkuvõte

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Goal

The goal of the master's thesis is to create a vision of the Product Lifecycle Management (PLM) system for Lallemand Bio-Ingredients (LBI). A PLM system is a solution for managing whole product life cycle from the ideation until the product is discontinued. The new system must be suitable for food industry, meet the requirement of the company and be aligned with the company's strategy.

In the thesis, the author has analysed three main business processes related to the product life cycle and how they could be improved with a PLM system. To ensure the PLM system will help the company to achieve its goals, an overview of LBI's five-year strategy is given and main problems of the current processes are mapped. In order to understand which capabilities are needed for the PLM system, business capabilities are mapped and categorized.

Business analysis includes stakeholder analysis, description of current and future business processes and business rules together with Business Information Model (BIM). An overview of alternative solutions available in the market is given. The overview includes a comparison of four available solutions based on the company's requirements to the PLM system.

In system analysis chapter functional and non-functional requirements are identified. Functional requirements are identified and described based on use case diagram, where the most important use cases related to the business processes and PLM system are included. To give a system architectural view, a component diagram is created.

The final chapter will summarize the thesis and a suggestion is given, which solution will be the best for the company to improve several business processes via implementation of PLM system.

Used Methodology

To achieve the goal of the thesis, following methodology is used:

- Workshops were carried out for collecting information from different stakeholders.
- The ArchiMate modelling standard was used for mapping and modelling LBI's strategy and how the implementation of PLM system could support the company to achieve its goals. ArchiMate was also used for mapping business capabilities.
- Mendelow's matrix was used for the identification and prioritization of stakeholders.
- Business Process Model and Notation (BPMN) was used to visualize the workflows of the current and future business processes.
- Business glossary, business rules and BIM were created to visualize the movement of business data inside the PLM system.
- Use case diagram was created to visualize the tasks the users need to do in the application according to the future business processes.
- Functional requirements were described and prioritized by using MoSCoW method.
- For the categorization of non-functional requirements FURPS+ method was used.
- To visualize the architecture of the PLM system a component diagram was created by using ArchiMate modelling standard.

Conclusion

A PLM system is designed to manage whole product life cycle, which makes it a useful tool for improving several business processes. The thesis gives an overview how a PLM system can support three LBI business processes that are important for achieving company's strategic objectives. Based on the conducted business analyses, the author described the most important requirements for the PLM system. Described requirements together with mapped business capabilities lead to an understanding that it is not reasonable for the company to develop a PLM system by itself. The thesis includes a comparison of alternative solutions, that are already available on the market.

In conclusion, based on the performed analysis, the author suggested to implement a solution provided by an external company, who is specialized in software development.