Enterprise Architecture supporting interdisciplinary product development

During the last decades supporting Information Technology (IT) systems have grown in importance for successful product developments. This has first started in order to solve specific problems in an adequate way but has come to a state where these systems are a central part enabling the engineers to perform their work in an efficient manner. This evolution has changed requirements demanded from such systems over time.

In most companies which develop new products and are operating in the technology sector a comprehensive supporting IT system is in place since many years. Exemplary, the supporting IT system of a multinational company has been analyzed. The analysis showed that in the Current State the system does not seem to be able to face the challenges set by today's and especially future product developments. Thus recommendations have been provided how end of life components shall be exchanged and improvements in general shall be implemented. The recommendations have been elaborated by taking Enterprise Architecture Management methods into account.

Analysis

In order to perform a gap analysis first the Current State had to be identified. This was accomplished by identifying tools, processes and business objects used in the context of System Development. Out of this information models have been elaborated where suboptimal setups between business and IT got visible. Second, an optimized Target State was defined. Third, the gap analysis between Current State and Target State was performed what led to recommendations for Transition steps.

The reason for the identified suboptimal setups in the Current State can be divided in two categories. On one hand the process descriptions do not specify how employees need to work with the IT system in detail and are ambiguous to a certain extent. On the other hand there are gaps in the IT system where processes are not supported in an adequate way. Due to the fact that the Master Thesis did not aim at Business Process Reengineering, the Target State has been defined with the goal to improve process guidance provided by the IT systems and closing the gaps where IT systems did not provide sufficient support.

Improvements implementation

The Transition steps which have been elaborated from comparing Current State and Target State were grouped in two phases. There are Transition steps which can be realized almost immediately and others which require some in-depth preparation work or have dependencies which prevent an immediate start. The first phase transition steps are improvements to existing tools. These improvements comprise the installation of additional features or changes to the installation setup. The second phase transition steps are introductions of new tools or additional features which rely on the introduction of new tools. The rough estimate for realizing the transition steps shows that phase one steps will require a much smaller effort than phase two steps. This has been deemed helpful because the results of phase one steps could be analyzed before phase two steps are rolled out.

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Conclusion

The recommendations given have been verified and validated against industry relevant standards and the currently employed processes at the analyzed company. This verification and validation has shown that the recommendations will provide the desired effect and will thus lead to shorter development cycles and higher quality standards.

In conclusion it has been found that with Enterprise Architecture Management methods improvements for the business can be realized in a systematic way. However it is required that business processes and supporting IT are modelled in a holistic manner in order to take full advantage of the approach.