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Process Improvement in IT Service Management: A Strategy for Continuous Integration

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1. Introduction

1.1 Motivation and research goal

IT organizations are in the midst of new technologies, methods and supplier models, driven by ever faster business requirements.

In the business world, especially in the IT context, there is an eminent trend towards digitization. Surrounded by a volatile, uncertain, complex and ambiguous environment, the question arises whether classical IT service management is fit for the challenges of the future.

Technical innovations such as cloud-based applications and complete cloud environments have already become an integral part of IT service management.

IT service management environments are becoming increasingly complex and now the question arises how to control such an environment with traditional methods.

Methods like DevOps successfully demonstrate how to embed software development and IT operations culturally into an organization. Also topics like agile originate from the software development sphere and are now an integral part of the daily work, as agile methods are more customer centric approaches.

“The combination of ITIL with other ITSM frameworks and agile methods leads to a dynamic and flexible IT service organization” (Vincze, G. et al., 2018)

The quote from Vincze et al. (2018) leads to the assumption that any agile method could be used to combine ITSM frameworks for a dynamic and flexible IT service management organization.

This master thesis will deal with the integration of ITSM and Continuous Integration known from extreme programming to investigate a previously unknown connection.

The research goal is the theoretical integration of two unrelated methods, in other words: two worlds – the traditional ITSM world and the vivid and fast digital world.

1.3 Research methods and thesis structure

The second chapter clarifies and evaluates the basic principles of this scientific paper. Furthermore, a first literature review will give insights to the latest state of scientific knowledge supplemented by insights from a multinational corporation.

The related work section in chapter 3 shows the current state of research of related topics to define the research gap and the scientific importance of this topic. Also, the final research question will be defined. In the first subchapter the AIOps approach, introduced by Gartner in 2014 and described by Andenmatten (2019), will be discussed to illustrate how ITSM is being integrated with artificial intelligence to support IT operations. The second subchapter will focus on an agile method to develop a strategy with the SWOT³ method, developed by Thode and Wistuba in 2012.

The fourth chapter describes the qualitative research method which embodies the leading principle of this thesis.

This thesis follows a deductive research model and focuses in the first instance on the literature review from chapter 2, where all relevant topics and models for this research topic are being explained based on the current scientific state.

Since the development of a strategy is the central aim of this paper, the qualitative research method will be applied in the scope of content analysis based on interviews with selected employees from E.ON Digital Technology (EDT) and afterwards a SWOT³ analysis will support to define a strategy for Continuous Integration in the IT Service Management world.

Chapter 5 will first provide an overview of all interview responses and cross-reference them. Furthermore, parallels will be drawn between the ITSM experts from Wave 1 and the Digital Expert from Wave 2. Subsequently, the results will be brought into a larger environmental context using a SWOT³ matrix, which is a tool of agile strategy development, to determine the way in which strategy development between ITSM and Continuous Integration is carried out. The defined strategy will then be critically discussed.

The last part of the thesis consists of limitations, recommendations and outlook and conclusion.

8. Conclusion

The results of this master thesis illustrate the relevance of integration topics in the context of IT methods and best practices.

The interest and willingness to integrate modern methods and techniques into the ITSM framework is there. Beyond the scope of this research work, the interviewees had many ideas and, in some cases, certain use cases for transfer topics from ITSM frameworks to modern methods. However, it became clear very early on that not only literature and research separate classical infrastructure technology from the modern, digital world. These differences and separations are lived culturally, and both worlds are perceived as two independent silos. Although the interviews made it clear that there are now agile projects and measures that connect the traditional ITSM world with the digital world, the cultural differences make cooperation more difficult because there is no common understanding.

The management of data and knowledge has become essential. This is significant in two respects, because data management forms the basis for all data-based automations. Consequently, automation can only be as good as the quality of the underlying data. Knowledge management is understood as a connector between people, because an updated knowledge management forms the basis of understanding between the two worlds.

One of the most important determinants identified in the course of qualitative content analysis is tooling. This refers to the toolset that is generally available and the seamless integration of tools.

The research question "To what extent is it possible to utilize the principles and methods from Continuous Integration to derive a strategy for the IT Service Management of a multinational company with the aim to improve IT processes?" can thus be answered to the extent that both topics have many parallels and ITSM would benefit from adopting the characteristics of Continuous Integration. The strategies that have been identified for this are on the one hand the concentration on customer experience technologies to generate short-term quick wins and to achieve added value. On the other hand, the determinants robotics and automation were identified as success factors for quick wins. The relationship between the affected internal strengths and weaknesses of both strategies is moderate. A further, more medium-term goal is the strategy orientation towards data analytics, data management and artificial intelligence,

which was included in the research framework because of its relevance for qualitative content analysis.

All in all, from a theoretical point of view, it can be confirmed that Continuous Integration would support and improve ITSM processes. The next step is the definition of specific use cases and the testing in a small pilot project to get a better technical overview of the strengths and weaknesses of Continuous Integration.