IT Project Portfolio Management Tools: Towards Taxonomy-based Archetypes

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Abstract

To achieve organizational goals and remain competitive, evaluating, selecting, and managing IT projects and proposals to build a value-driven portfolio is a critical activity. IT project portfolio management (ITPPM) tools assist these portfolio-related activities, support strategic decision-makers, and help complete more IT projects successfully. Despite existing research on this topic, knowledge about the characteristics and design elements of ITPPM tools is still limited. We develop a taxonomy based on scientific literature and 60 real-word ITPPM tools with four perspectives, 20 dimensions, and 51 characteristics. Subsequently, we perform a cluster analysis and identify five ITPPM tool archetypes. Our results and findings contribute to the knowledge base and integrate scientific and practical knowledge to build the basis for further research on ITPPM tools. Further, we structure the ITPPM tool market, guide practitioners in selecting an appropriate ITPPM tool and support the development of new solutions or develop existing ones further.

Keywords: IT project portfolio management tools, taxonomy, design elements, cluster analysis, archetypes.

1. Introduction

Due to the increasing investments in organizational information technology (IT) (Gartner, 2022) various IT projects arise and a decision on which to select is needed. The evaluation, selection, and planning of these IT projects are critical tasks of IT project portfolio management (ITPPM) and have already been extensively researched (e.g., Trigo & Varajão, 2020). Because of IT projects' rising complexity and importance, there are many commercial tools to support the ITPPM (Kock et al., 2020). However, many organizations only use software solutions for single project management, while those for project portfolio management (PPM) are rarely applied (Besner & Hobbs, 2012). Thereby, they lead to more successful project completions, efficient resource allocations, and less redundant projects. Those implemented in line with organizational needs and goals can support value-driven PPM (Ayyagari & Atoum, 2019). The tools aim to provide an overview of the IT portfolio, display portfolio data, and support decision-makers to prioritize and strategically align the portfolio to ensure value contribution. Thereby, available tools differ in their functionalities (Killen et al., 2020; Kock et al., 2020; Symons, 2009). To meet organizational needs, goals, and purposes, selecting a suitable tool is challenging, given the large number of existing tools. Further, these decisions are often made ad hoc and based on personal perceptions (Ahlemann, 2009; Gerogiannis et al., 2010).

Previous literature has already analyzed several PPM tools, ranked them based on their competitive positioning, analyzed their strengths and weaknesses (Stang et al., 2019; Visitacion & DeGennaro, 2009), identified commonly occurring issues (Ayyagari & Atoum, 2019), and discussed their requirements (Ahlemann, 2009). However, current literature does not provide a holistic and empirically validated analysis of ITPPM tools. Therefore, we classify real-world ITPPM tools and develop a taxonomy that can establish a comprehensive knowledge base of similarities and differences in the field of interest. The taxonomy can set the basis for further theory-building about, e.g., design theories to improve the understanding of ITPPM tools (Kundisch et al., 2021; Muntermann et al., 2015). Based on the taxonomy, we apply a cluster analysis to deduce archetypical patterns in the analyzed tools and evaluate the taxonomy's applicability (Kundisch et al., 2021). These clusters reduce the taxonomy's complexity as they group the objectives and exceed its descriptive character. Thus, our results and findings reduce the complexity of existing software solutions, allow a distinction, and can be beneficial to academics in this field. For practitioners, they provide a structured overview of underlying ITPPM tools, their (non-)functionalities, and can assist the decision process for a specific solution. For already operating organizations and start-ups, our results and findings present the current