An Investigation into using SAP-PS as a Multidimensional Project Control System (MPCS)

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ABSTRACT

This paper investigates the effectiveness of using a corporate enterprise resource planning (ERP) system as a multi-dimensional project control system (MPCS) to monitor and control the work performed on projects, meet the needs and expectations of the project managers and support the requirements of other key stakeholders. A qualitative approach i.e. case study interviews and literature review accompanied by a quantitative computer system validation test approach was deployed. The results from this study suggest that the corporate ERP system is effective at monitoring and controlling the project stakeholder success criteria within a fully integrated environment. The system does however need to be setup and configured for the purpose of MPCS. This study contributes to the field by providing empirical evidence that corporate ERP systems are likely one of the only systems truly capable of solving the age old problem of how to expand the traditional singular dimensional approaches commonly used in project control, thus multiple control dimensions are integrated with each other and other business systems to form a multi-dimensional project control system.

KEYWORDS

Enterprise Resource Planning (ERP), Multi-dimensional Project Control System (MPCS), Project Control, SAP Project Systems

INTRODUCTION

The area of project control remains lacking in development (Rozenes et al., 2004). That is, as contended by Rozenes et al. (2006), for project control to progress, the current traditional approaches and methodologies need to be redesigned. The problem with how project control is currently performed is that there remains a reliance on the legacy methodologies developed during the sixties in which little or no project control system integration occurs (Budd and Budd, 2010; Hazir, 2014). By the same token, Kim et al. (2008) and De Marco and Narbaev (2013) argued that practical applications of project control systems integration is generally lacking and projects continue to be controlled using disparate single dimensional systems.

Addressing such deficiency lies in expanding the traditional singular dimensional approaches (Rozenes et al., 2004). To this end, multiple control dimensions are integrated with each other and other business systems to form a Multidimensional Project Control System (MPCS). Yet, legacy project control systems are difficult to align with other enterprise systems (Songer et al., 2004; Franz, 2009).
Against this backdrop, Enterprise Resource Planning (ERP) has evolved through enterprise systems history, providing corporations with solutions for integrating disparate legacy business systems across intra-organisational boundaries (Bendoly et al., 2011). The use of fully ERP integrated project control systems appears to be a relatively new development in project management (Andera et al., 2012). Project management practitioners have started looking beyond using their ERP systems as a cost centre management tool and have progressed towards using it as an effective tool to drive project and business results (Andera et al., 2012).

However, establishing integrated project control environments needs change and acceptance within the organisation’s project management culture across all levels of the organisation before full benefit can be realised (Essex, 2005). That is, the success of fully integrated MPCS requires a change in project control processes, project practitioner educational programs, workforce training and deeper knowledge of not only the ERP integrated application, but also how the business operates; how projects are controlled and managed and how to fully utilise the systems to maximise benefit (Rozenes et al., 2006; Andera et al., 2012). Thus, integrated project management and control has become a very fertile area for project management knowledge research and development. Nonetheless, review of literature revealed a gap in the knowledge, being the investigation of practical applications of fully integrated multidimensional project control systems. This includes looking into potentials for integration of MPCS within the project management environment as well as how the MPCS methodology can be practically applied within an operating corporate and business environment to achieve full integration with the corporate ERP system.

In response to such gap of knowledge, this study delves into the theory and practicality of MPCS and how MPCS can be integrated into an operating business environment. This study intends to answer whether an ERP integrated project management system can truly offer a one-system solution that performs the role of a MPCS and displace the legacy single dimensional project control systems currently in common use while still meeting the needs and expectations of the project manager and other key stakeholders within the organisation. The ERP system chosen for this study is SAP-PS (Project Systems). The reason SAP-PS is selected for this study is that it has built-in project and portfolio management tools required for MPCS and it closely integrates with all other aspects of business management including Accounting, Materials Management, Sales, Production, Human Resources, and Plant Maintenance (Franz, 2009). It is contended that the principles derived in this study should also be applicable to other ERP systems with the same level of functionality and data integration as SAP-PS.

**LITERATURE REVIEW**

The Project Management Institute’s standard on project management (PMI 2013) defines project monitoring and controlling as the processes and activities performed within a project to track, review and coordinate the progress and performance of the project. This is performed by identifying areas within the project where project performance has deviated or changed from the baseline plan and then control these changes by recommending corrective or prevented actions to bring in danger project process back on track before they become a serious problem. Against this backdrop, current disparate singular dimensional project control systems have received much criticism within many different project management literature e.g. (Kim et al., 2008; De Marco and Narbaev, 2013). Cooke-Davies (2002) argued that traditional, singular-dimensional control systems are more concerned with monitoring project management success as opposed to measuring project success against the overall objectives. In the same vein, Lauras et al. (2010) argued that singular project controls systems do
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