

# Connecting Enterprise Architecture and Project Portfolio Management: A Review and a Model for IT Project Alignment

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## ABSTRACT

Enterprise architecture (EA) and project portfolio management (PPM) are key areas when it comes to connecting enterprise strategy and information technology (IT) projects. Both management disciplines enhance business capabilities, integrate skilled resources, and govern affiliated processes and functions. A skillful comprehension of the links between these managerial areas is essential for effective IT planning. This article elaborates on the common grounds and structural attachment of EA and PPM, showing the substantiated relations between them and demonstrating their cohesiveness. From strategic planning to solution delivery, a conceptual model for IT project alignment integrates these IT management disciplines over two levels. EA ascertains the technical goals and constraints, whereas PPM determines the organizational goals and constraints. The results from both sides are combined to jointly propose, select, prioritize, and schedule IT projects. Roadmapping is a suitable approach to bring EA and PPM together.

## KEYWORDS

Business–IT Alignment, Enterprise Architecture, IT Governance, IT Project Alignment, Project Portfolio Management, Roadmap

## INTRODUCTION

Information technology (IT) increases a company's competitive advantage by lowering costs and/or by differentiating from rivals (Porter, 1985, pp. 166–172). Enterprises must build and constantly enhance their IT capabilities to survive in the marketplace. Since the late 1970s, the planning of IT capabilities has been strategically significant; indeed, IT planning strives to merge project planning with strategic business planning (Robson, 1997, pp. 100–101). Yet, the mechanisms regarding how IT is strategically aligned to business are still unclear in practice and are subject to numerous theoretical discussions, particularly the alignment of IT and business dominate diverse academic considerations that take various notions, such as fit, linkage, integration, or bridge (Ullah & Lai, 2013). Business-IT alignment is defined in many ways and has been discussed for three decades (Chan & Reich, 2007). This alignment phenomenon is still of growing relevance, and researchers have proposed a great deal of tools, methods, and techniques (Aversano, Grasso, & Tortorella, 2012, p. 162). However, the roles and functions in the enterprise IT area are confusing and inconsistent because there is no authoritative

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source that defines the knowledge across the whole enterprise (IEEE & ACM, 2018). This article illuminates enterprise architecture (EA) and project portfolio management (PPM) functions and according managerial roles that perform and coordinate strategic IT planning activities.

Definitions and standards for EA have been inconsistent for more than 35 years (Halawi, 2018, p. 1). EA is viewed, on the one hand, as an IT topic, and on the other hand, it is seen as a business model and strategy subject, particularly in the management literature (Syynimaa, 2018). The Open Group Architecture Framework (TOGAF) presents EA as a generic methodology, but the descriptions of EA skills clearly stress IT competencies (The Open Group, 2018, pp. 470–471). In real life, EA almost always includes IT (Walrad et al., 2014, p. 43). EA creates links between business architectures and IT architectures and verifies their integrity (Helfert, Doucek, & Maryska, 2013, p. 73); it also identifies business processes, applications, data, and technology (Strano & Rehmani, 2007, p. 392) and is a means for organizational change (Sousa et al., 2011). Indeed, EA supports executives regarding optimal strategy, providing the direction on what is needed to achieve the business goals.

PPM is embedded in the organization's overall strategy to accomplish objectives and realize the strategies of an enterprise (PMI, 2013, pp. 5–7). These objectives concern all the primary and support activities of an enterprise's value chain, including IT "since every value activity creates and uses information" (Porter, 1985, p. 168). PPM takes a holistic view, covering all organizational changes, and every organizational change affects IT. Effective PPM increases the business value from investments (PMI, 2013, p. 10). A portfolio represents the total investments for strategic change initiatives (Axelos, 2014, p. 2). PPM allocates budgets assets, and human resources to projects based on strategic analyses and choices. Projects denote investments (Axelos, 2014, p. 3) in strategic change initiatives to build or extend capabilities and assets to gain a competitive advantage.

Both EA and PPM enable a structured realization of IT solutions that effectively meet business requirements (Office of Management and Budget, 2013, p. 149). Both IT management disciplines enhance business capabilities, integrate skilled resources, and govern affiliated processes and functions. A skillful comprehension of the links between these managerial areas is essential for effective IT planning. The relatedness of these IT planning capabilities is highly significant, because both disciplines bear responsibility of value generation from IT solutions. However, too little attention has been on the connectivity of EA and PPM in theory and practice.

The purpose of the current conceptual paper is to explore the coherence of EA and PPM and their functional alignment to the business and to IT projects. More elaboration is needed to comprehend the dependencies between both IT planning functions and to set the appropriate organizational structures. The present paper answers the following research question: How do EA and PPM connect and align in strategic and tactical ways? The current paper investigates in the coherence of EA and PPM and extends the views on their strategic and tactical alignment.

This paper starts with a literature review on connectivity of EA and PPM and their alignment to the business. The review includes the nascent notion of IT project alignment. Then, the strategic and tactical levels of EA and PPM are theoretically illuminated. For both disciplines strategy concerns alignment, whereas tactical management affects governance. Connections between EA and PPM are elaborated; the concept of IT project alignment integrates EA and PPM by aid of the roadmapping technique. Finally, the key statements are summarized, and future directions of research are proposed. The present work contributes to the literature by a concept and a model that connect EA and PPM; practitioners may apply this model as a foundation for governance in their IT organization.

## **LITERATURE REVIEW**

### **The Connectivity Between EA and PPM is Underestimated**

EA and PPM have rarely been seen in connection. The work from Luftman and Brier (1999) described the strategic IT alignment process; here, architecture is one of the 12 strategic alignment components,

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