Chapter 3
How Internet of Things Is Transforming Project Management

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ABSTRACT

Organizations are experiencing a transformation as a consequence of digital technologies such as social, mobile, big data, cloud computing, and internet of things. The transformation presents challenges at several levels, and project management is not an exception. There are changes in the project environment, the power structures, capabilities, skills, and standard practices, just to name a few. Considering the eventual obsolescence of many project portfolio management practices, the aim of this chapter is to discuss the influence of internet of things in this discipline. The analysis departs from rethinking project management insights and describes the impact of smart and connected products considering many dimensions. Recommendations for each PPM stage are developed, followed by a brief discussion of future research directions.

INTRODUCTION

The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it. (Weiser, 1991)

Organizations are experiencing a transformation as a consequence of digital technologies such as social, mobile, big data, cloud computing, and Internet of Things (IoT). The impact of information technology is important even in sectors that are not information intensive such as the agricultural or mining. The digital transformation presents challenges at several levels, namely in leadership, management of markets, management of processes, in how to integrate technologies to transform the organization, and project management. Organizations that do not adapt to this new context will probably lose markets and will vanish. Weill and Woerner (2015) point out that organizations not only fail to take the opportunities given by the digitization but fail to adapt their business models to reflect the economic characteristics and underlying mechanisms of digitization.

Porter and Heppelmann (2014) indicate that Information Technology (IT) is becoming an integral part of the product itself. Embedded sensors, processor, software, and connectivity in products, coupled with a product cloud in which product data is stored and analyzed and some applications are run, are driven dramatic improvements in product functionality and performance.

The evolution to smart, connected products requires a traditional manufacturer to build what is essentially an internal software company (Porter & Heppelmann, 2015). Building software related characteristics is not usually part of the traditional product engineering process. Slama *et al.* (2015) indicate the IoT involves a clash between two worlds in which those in the machine camp and those in the Internet camp will be required to work together to create products that combine physical products with Internet-based application services. Regarding Project Management (PM), the IoT changes the project environment, the power structures, capabilities, skills and standard practices, just to name a few.

Considering the eventual obsolescence of many Project Portfolio Management practices, the aim of this chapter is to discuss the impact and influence of IoT in this discipline. The work is divided in five sections. First, a background on digital transformation helps to put in context the topic of the chapter and explain the influences affecting organizations. Second, the main focus of the chapter is introduced describing how IoT impacts PPM. Then, taking into account the challenges posed by IoT, a discussion for each PPM stage is developed. Future research directions are briefly described. Finally, a conclusion stressing the main challenges for current leaders closes the chapter.

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