How Business Strategy and Technology Impact the Role and the Tasks of CIOs:
An Evolutionary Model

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ABSTRACT

The authors investigate the determinants of CIOs' organizational role and tasks. They first review previous studies, which they classify as either evolutionary or CIO role studies. They consider them to be characteristic to the usage of certain technologies or certain periods of times. The authors modify Leavitt's well-known organization diagnostic model to describe factors that shape the role and the tasks of CIOs over time, industries and technologies. They validate the model from interviews with 36 CIOs within six industries covering the time period from 1960s to present times. The authors also show that the model can be used to categorize prior research findings. They then use the model to describe how technology influences business strategy and how business strategy and technology impacts CIOs' role and tasks and vice versa. The authors discovered that the modified Leavitt model is a useful description of factors that both define CIOs' role and tasks at any particular time in any specific organization, and show how those tasks change.

KEYWORDS

Business Strategy, Chief Information Officer (CIO), CIO Research, CIOs' Organizational Role, CIOs' Tasks, Interviews, Leavitt's Model, Technology

1. INTRODUCTION

During the past five decades, the business criticality of information technology (IT) and its management has increased as organizational activities have become increasingly IT-dependent (e.g. Chattarjee, Richardson & Zmud, 2001). The chief information officer (CIO) of the organization is one of the key persons responsible for the deployment and management of IT. CIOs have had this responsibility

already for decades (e.g. Rockart, Ball & Bullen, 1982). ComputerWeekly.com magazine (2015a, 2015b) published in two articles in December 2015 the TOP 10 CIO interviews of 2015 and the TOP 10 Nordic CIO interviews of 2015. Those 20 interviews demonstrate the diversity of CIOs' work. For example, Rovio Entertainment's (Angry Birds) CIO Kalle Alppi (#1 among the TOP 10 and #2 among the Nordic TOP 10) believes that IT staff should be embedded in business. Respectively Kone's CIO Antti Koskelin (#9 among the Nordic TOP 10) joined Kone (lift manufacturer) with the immediate task of finishing off a major IT infrastructure project that had already started. Given the organization specific diversity of how CIOs describe their work, one may ask, are there factors that determine CIOs' organizational role and tasks?

It is logical to reason that the growth of IT usage will impact what CIOs do. Indeed, previous research has shown that the number and variety of issues that CIOs deal with have increased over the years as reported in (e.g. Brown, 1993; Fisher, 2003). Changes to the perceived focus of CIOs' role and tasks have also been reported (e.g. Hirsheim, Porra & Parks, 2003; Ross & Feeny, 2003). Consequently, recommendations for CIO competences, such as the CIO Council Clinger-Cohen list (CIO Council, 2013; Iwasaki, 2014), have been modified several times. Research on what CIOs do (e.g. Ahn, 1997; Croteau & Bergeron, 2001; Polansky, Inuganti & Wiggins, 2004; Carter, Grover & Bennett, 2011), what kind of professional and personal skills and competences they (should) have (e.g. Boyle & Burbridge, 1991; Todd, McKeen & Gallupe, 1995; Peppard, 2010) and whether the CIO should be one of the senior executives of his/her organization or not (e.g. Stephens, Ledbetter, Mitra & Ford, 1992; Gottschalk & Taylor, 2000; Hunter, 2010) impact these recommendations. Earlier studies have also investigated such issues as: are there differences between corporate and public sector CIOs (e,g, Cook & Sutherland, 2014) or between CIOs in developed and developing economies (e.g. Estevez & Janowski, 2013)? Researchers have cumulatively not only attached various attributes to CIOs and their competences but also to their tasks and organizational role. As a myriad of issues appear to impact the role and the tasks of CIOs, the motivation for this research arises from questions: *What factors define the role and tasks of CIOs and variations in them across organizations, industries, technologies and other issues that evolve over time*? And, *how business strategy and technology impact CIOs role and tasks?* We define role as the organizational status and influential possibilities of the status holder within an organization. When the CIO term emerged, the role was described as a strategic and business-oriented executive with good understanding of technology (Benbasat, Dexter & Mantha, 1980). For tasks we refer to work content, that is, what a CIO actually does in his/her profession over a period of time.

Changes in what CIOs do appear to be related to advancements in technologies and characterized by the ever-increasing deployment of IT. However, evolution in organizational and strategy thinking as well as (IT) governance and managerial practices also appear to impact CIOs. Several models to determine the role(s) and tasks of CIOs have been proposed. In general, they appear to either suggest alternative roles for a CIO or describe the changes and evolution of issues that CIOs need to consider. Previous studies have suggested that CIOs could have one (Brown, 1993), two (Broadbent & Kitzis, 2005), three (Stephens, Ledbetter, Mitra & Ford, 1992), four (e.g. Weill & Woerner, 2011), five (e.g. Guillemette & Pare, 2012) or six (Gottschalk, 2000) alternative roles (to choose from). We call these, "CIO role studies". Other studies have described evolutions and growth in IT deployment and the impact of this on what CIOs do (e.g. Applegate & Elam, 1992; Grover, Jeong, Kettinger & Lee, 1993; Ross & Feeny, 2001; Chun & Mooney, 2009; Chen, Preston & Xia, 2010; Longenecker, Feinstein & Clark, 2012). We call these, "evolutionary studies".

Against this background, we suggest that it is legitimate to ask if we have really been able to model how the role and tasks of CIOs are determined in general and within each organization in particular. In this article we focus in addition to this question on how business strategy and technology influence the role and tasks of CIOs and vice versa. Since the role and tasks of a CIO are organizational we decided to use a well-recognized organizational development and diagnostic model as our framework and selected Leavitt's framework for that purpose. In summary, our article aims to answer the following

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