

Chapter 3

Technology Institutionalisation through Technological, Organisational, and Environmental Isomorphism

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ABSTRACT

Implementation and assimilation of information systems need to be culturally, organisationally, and technologically composed such that their use becomes routinized and institutionalised, and embedded with the business's work processes and routines. This chapter argues that use of technology is shaped through mutual interactions of various organisations' internal as well as external sub-institutions, such as organisational culture, suppliers, competitors, technology characteristics, customers, government rules, and industry norms. This study demonstrates that institutionalisation of technology occurs through conformance with environmental, organisational, and technological institutional mechanisms, whereby organisations seek legitimacy, efficiency, performance, and success within their operating environment.

INTRODUCTION

Institutional theory has been applied to contemporary business context by various researchers (Powel & DiMaggio 1991; Scott 2001; Davis & Marquis 2005; Delmestri 2007; Mignerat & Rivard 2009), though institutionalisation of technology has generally been overlooked in literature. Technology in general and information technology (IT)

in particular is key enabler of modern businesses that helps them shape and reshape in response to internal and external competitive pressures. Business organisations have traditionally focused on implementation of technology rather than its institutionalisation. As a result, organisations are more concerned about the physical implementation of technology rather than the interactions and the cause and effect relationships that define,

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maintain, and evolve the use of technology in the organisation. These relationships fashion the process of institutionalisation and help technology as well as other institutions within the organisation to grow and mature in sync with each other. Tolbert and Zucker (1999) characterized technology institutionalisation process by three stages, i.e., habituation (the production of shared social meanings), objectification (facts become independent as a reality experienced in common with others), and sedimentation (objectified facts become part of routine behavior). There are three sources that help in the process of institutionalisation i.e., the wider institutional environment, other organisations, and internal organisational structure (Zucker 1987). The organisation thrives on the mutual interactions of these forces and establishes its legitimacy (Grewal & Dharwadkar 2002; Zsidisin *et al.* 2005; Greenwood *et al.* 2008). Institutionalisation is, thus, the outcome of the self-reinforcing feedback dynamics of heightened legitimacy and deeper taken-for-grantedness (Colyvas & Powell 2006), where legitimacy suggests that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions (Powell & DiMaggio 1991; Scott 2001). Organisations, thus, need to ascertain how use of their information systems is shaped with the social, organisational, cultural, and technical contexts of the organisation.

Technological and social contexts of information systems implantation cannot be treated as separate phenomena; rather their definition must become embedded within the social arrangements (Scott 2001; Zilber 2002). In other words, society and social relations are not just about diffusion of material structures, but also about the culture and symbolic. Here, institutional logics represent frames of reference that condition actors' choice for sense making, the vocabulary they use to motivate action, and their sense of self and identity (Friedland & Alford 1991). Through technology implementation, the interactions between technical, organisational, social, cultural, and competi-

tive aspects become institutionalised within the organisation which helps in successful widespread usage of this technology. Implementation of information systems, therefore, needs to be culturally, organisationally, and technologically composed such that its use becomes routinized and institutionalised, and embedded with the business's work processes and routines.

This is a concept paper that presents how social, technical, and organisational contexts drive information systems assimilation, use, and institutionalisation platform. The next section provides a thorough review of theoretical underpinnings of technology implementation, assimilation, use, and institutionalisation. Building in this foundation, the paper argues that environmental institutional mechanisms alone is inadequate for technology institutionalisation. The paper then develops the case for organisational and technological institutional mechanisms to complement environmental institutional mechanisms/ pressures to fashion the reutilization and institutionalisation of technology.

THEORETICAL GROUNDING

Institutional Theory

Institutional theory has been applied to various dimensions of technology management paradigm (See for example, DiMaggio & Powell 1983; Davis & Marquis 2005; Delmestri 2007; Greenwood *et al.* 2008; Scott 2008; Mignerat & Rivard 2009; Weerakkody *et al.* 2009; Currie 2011). Activities involved in development and use of information systems are subject to the mutual interaction of social, cultural, organisational, technical, and other institutional factors. These factors could be from external sources such as competitors, suppliers, customers, and regulatory agencies as well as from forms, practices, and logics embedded within the organisational structure. Organisations respond to these forces by conforming to technology mandates, or by modifying their business practices

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