Unravelling Design Controversies in a Transnational Healthcare Information System: An Actor-Network Analysis

Rennie Naidoo, Department of Informatics, University of Pretoria, Pretoria, South Africa

ABSTRACT

Healthcare insurance firms are experimenting with integrating self-managed healthcare elements into their product and service design and making these available through transnational healthcare information systems (THISs). The purpose of this article is to analyze this technology using a socio-technical theoretical lens. Drawing from a longitudinal case study, this paper unravels some of the design controversies presented by a self-managed nutrition technology, designed by a South African healthcare insurance firm for the local and UK market. Using key concepts (inscription, translation, enrollment, delegation, and displacement) from actor-network theory, this paper reveals why, in this context, the traditional face-to-face dietetic practice could not be completely entrusted to a THIS. The results demonstrate that firms are sometimes better off resorting to traditional channels for complex and high contact healthcare interventions. Practitioners need to be aware of potentially ‘tricky’ socio-technical entanglements when designing a novel THIS and future researchers must account for the increasing complexity involved in operating these technologies in different national healthcare contexts. Guidelines are offered for firms contemplating off-shoring self-managed healthcare technology developments.

Keywords: Actor-Network Theory, Delegation, Displacement, Enrollment, Inscription, Self-Managed Healthcare, Translation, Transnational Healthcare Information Systems (THIS)

INTRODUCTION

Healthcare worldwide can be characterised as facing enormous challenges and in some circles, it can even be viewed as undergoing a crisis. Policymakers attribute a substantial part of this crisis to individual behaviours related to risks such as food intake, alcohol consumption, smoking and sexual behaviour. According to the World Health Report (2000b, 2002), chronic non-communicable diseases linked to factors such as obesity, a sedentary lifestyle...
and smoking cause 20% of society’s disease burden. Popkin (2006) found overweight and obesity rates in excess of 20% for women and men, in high-income countries and several lower-income countries.

Not surprisingly, the trends in healthcare expenditure are showing an alarming rise from 3% of world GDP in 1948 to 7.9% in 1997 (World Health Report, 2002). As a result, ensuring that all individuals have access to effective healthcare is becoming a daunting challenge. Many countries have therefore turned their attention to private healthcare funding mechanisms as a means of managing their nation’s rising healthcare costs (World Health Report, 2000a). Consequently a growing number of commercial healthcare insurance products are being sold by insurance firms.

But some experts claim that prohibitive costs are also making these products too expensive and therefore inaccessible to most people (Gandjour & Lauterbach, 2005; Porter & Teisberg, 2006). To curb costs, some of these firms are focusing on wellness rather than on illness and the resultant design of their products and services on the basis that ‘prevention is better than cure’. In attempting to manage at least a part of the growing costs, firms are actively experimenting with preventative healthcare technologies – also called self-managed HIS. As pointed out earlier, obesity in particular is a growing problem and firms are hoping that their customers will use these technologies to reduce or maintain their weight (Larkin, 2001; Tate, Wing & Winett, 2001).

Customers are being encouraged to use recent advances in preventative technologies and content related to health and lifestyle aspects combined with reward schemes, to improve and enhance their health and ultimately reduce the cost of healthcare (Cannon & Tanner, 2005). As opposed to building these technologies from scratch, some firms are establishing formal interdependencies with ‘high-tech’ healthcare partners from developing economies. They are hoping to take advantage of their partner’s lower cost of actuarial, healthcare sciences and information systems (IS) manpower (Patibandla & Peterson, 2002; Sambharya, Kumaraswamy, & Banerjee, 2005). Consequently, firms are seeking strategic alliances in the form of offshore relationships in order to maximise the opportunities presented by offshore preventative healthcare technologies (Sambharya et al., 2005; Boudreau, Loch, Robey, & Straub, 1998).

The central control of these technology developments by an offshore strategic partner has a particular appeal for firms looking to improve their cost structure and competitiveness (Meadows, 2006; Akmanligil & Palvia, 2004; Rugman & Verbeke, 2003). King and Sethi (1999) refer to IS whose activities cross national boundaries as transnational information systems. Proponents believe that the use of these ISs as a potential source of patient support can make a significant contribution to a reduction in the delivery costs of healthcare (Laing, Hogg, & Winklemann, 2004). Yet, although they may paint a picture of empowerment, healthcare users have generally lagged in devotedly adopting and using these self-help technological resources to manage their healthcare (Netmesh, 2006; Lang & Collen, 2005).

Researchers use system blame bias to account for the protracted use of the technology by potential users. Following an essentialist approach, the adoption or rejection of a healthcare technology is seen to be due to the characteristics of the innovation, the nature of the communication channels, historical factors, and the social factors that shape the technology (Rogers, 1995; Adam et al., 2003; Remus and Wiener, 2009). However, this type of research risks ignoring the role of important human and nonhuman mediators involved in stabilising or destabilising the diffusion of technology, and therefore at best provides only a partial account of what goes on in a particular context (Latour, 2009; Swyngedouw, 2004; Newton, 2002). One stream of research into healthcare technologies argues that it is better to view the use of these technologies as being shaped and constrained by complex forces in a socio-technical network (Muhammad, Zwicker, & Wickramasinghe, 2013).

Thus, the general research question explored in this study is: What insights can a socio-
Identification and Response Prediction of Switching Dynamic Systems Using Interval Analysis
www.igi-global.com/chapter/identification-response-prediction-switching-dynamic/39333?camid=4v1a