Information Systems and Actor-Network Theory Analysis

Tiko Iyamu, Department of Business Computing, Polytechnic of Namibia, Windhoek, Namibia

Tefo Sekgweleo, Department of Informatics, Tshwane University of Technology, Pretoria, South Africa

ABSTRACT

Evidently, based on studies which have been conducted over the years, there exist lots more complexity than technical in the development and implementation of information systems in organisations. The complex issues are socio-technical in nature, which require a refresh examination, from social context, if different results are to be achieved. Some of the complexities which are encountered include operational issues, environmental trends, processes flow, communicative scheme, and actors’ relationship. The unpredictable nature of business and rapidly changing user requirements makes it even more difficult to develop and implement systems within budget and timeframe. Other challenges are within the social context, such as politics and culture affiliations. Through the lens of Actor-Network Theory (ANT) understanding of the social context of how information systems are developed and implemented is gained. Although ANT has been employed in many studies, it is of significant important to establishes and clarifies the factors, from the social perspective, which influences the development and implementation of information systems in organisations.

Keywords: Actor-Network Theory (ANT), Development, Implementation, Information Systems, Technology

INTRODUCTION

Information systems are considered vital, and some organisations wholly rely on it. Organisations make use of information systems to support their operations, administrations, processes and competitive advantage. The development and implementation of information systems is not as easy as we are meant to believe. Also, even though it is intended to address challenges, it could be by itself challenging to employ. Many studies including Siau and Tan (2005); Sircar et al (2001); and Tan and Tan (2010) have argued that the development and implementation of information systems is a challenging task to accomplish, in a various ways.

Technology by itself does not make up an information system. There are many networks, which include human interactions. The interplay by humans is critically important in the deployment of information systems. For example, Business Analysts (BA) is responsible for gathering business requirements and compiling the functional design specification (Avison & Fitzgerald, 2006). The same focused responsibility focused applies other role-players such as

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System Analysts, who are expected to design technical specifications (Satzinger et al., 2004). The Developers make use of technical design specification to develop information systems requested by organisations (Beynon-Davies et al., 2004); and Testers are responsible for conducting various types of testing including functional testing, end to end testing and black box testing.

Both human and non-human actors work together as a collective to deliver information system as requested by the organisation. Chen et al. (2010) argued that IS consists of technical components, human activities, and describe processes which are used to manage the organisation’s activities. Hence it is most appropriate to gain a good understanding of the processes and activities which are involved in the development and implementation of information systems in organisation. This is the ultimate contribution of the lens of Actor-Network Theory (ANT), a theory which focuses on human and non-human factors.

ANT is a theory that integrates both human and non-human actors to form or create a network Macome (2008). Wernick et al. (2008) stated that irrespective of whether the actor is human or non-human they are both weighed equally as they offer the same contribution to the formed network. The teams, which constitute a network, have different roles, responsibilities, understanding, and interpretation of the same system. ANT describes a heterogeneous network of technical and non-technical as equal interrelated actors that can form a network of actors (Wernick et al., 2008).

The main purpose of having a network is to allow actors from various areas to collaborate in order to solve a problem or create something, such as the development and implementation of information systems in organisations. Iyamu (2010) argued that a network is a formation of a group of actors who work together towards a common interest. According to Hanseth et al. (2004), networks are formed by both human and non-human actors. One employee within an organisation can participate in more than a project. In ANT, an actor can take part in many networks performing different tasks in each of the networks, also could be allowed to make decisions in the creation of the networks they chose to participate in Iyamu and Tatnall (2009).

INFORMATION SYSTEMS

Information systems can be defined as a combination of technological resources and non-technical artefacts that are adopted within the organisational requirements, aimed to deliver current and future states in support of specific needs of business (Bistricic, 2006; Satzinger et al., 2004). The main components of information systems include people, process and technology infrastructure.

Information systems discipline is regarded as a very important role in organisations. This is the belief and interpretation of its capability to enable and support organisations to conduct business and develop new opportunities, as well as remaining profitable and competitive (Bergeron & Raymond, 1992). As result, organisations often have a substantial investment in the implementation of information systems. Another aim that could be associated to information system includes to help operate the business effectively, achieve its goals, improve efficiency, provide value add service to customers, and provide both employee and customer satisfaction (Avison & Fitzgerald, 2006).

Due to continuous changes in the market and rapid evolution of technology artefacts, organisations need to continuously improve their ways of conducting business in order to keep both their current customers and attract new ones. Nalbant (2003) argued that in such a growing competitive environment and improvements in technological artefacts, it would not be possible for an organisation to survive without the use of information systems. Singh and Kotze (2003) posit that the aims of developing information systems are to support managers in decision making, improve daily business operations, and simplify human efforts in operationalisation of processes.
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