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The connectedness in selecting socio-technical theory to underpin information systems studies

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Abstract

In the last decade, there has been increase in the use of socio-technical theories to underpin information systems studies. However, the selection of the theories has been a cumbersome process for many researchers, particularly early career researchers, which include postgraduate students. As a result of the complexity, some postgraduate students select the theories that they are comfortable with, as opposed to suitability for their studies. This makes some of their studies more complex, and sometimes delays the completion. Also, the challenges with selection influences some postgraduate students to avoid the application of socio-technical theories even though it would have added rigour and quality to their studies. The problem with selection of theories is critical in that, when applied, they shapes, influence and defines the results of the studies. Thus, this study was undertaken, primarily to propose a guide, which can assist in the selection of socio-technical theories in information systems studies.

The qualitative research methods was employed, within which existing literature was gathered as data. The interpretive approach was applied in the analysis of the data. Based on the findings from the analysis, a guide was developed. The guide is intended to assist those who are interested in selecting socio-technical theories in their studies. The guide consist of three main components: focuses of socio-technical theories, objectives of the study, and the relationship amongst the components.

Key phrases

activity theory (AT), actor network theory (ANT), contingency theory, data analysis, information systems (IS), information systems studies, qualitative methods, structuration theory (ST)

1. INTRODUCTION

Socio-technical theories are forms of new stream that offers fresh insights into the ways information systems and technologies (IS/IT) mediate at almost all situations of modern organisations (Ghaffarian 2011:1450), which can be used to underpin studies. However, there is no one theory that fits best in many of the studies. In recent years, socio-technical theories, such as actor network theory (ANT), activity theory (AT), diffusion of innovation (DoI) and structuration theory (ST) have been employed in various information systems (IS) studies.

Researchers, including aspiring researchers and postgraduate students employ socio-technical theories in their studies to guide data analysis, and interpretation of their findings. This depends on the focus of the theories, such as ANT, which offers a more solid conceptual and methodological approach that can be applied to empirical work (Müller 2015:28). The theory of DoI is one of the most referenced theories in IS research that are related to technology innovation and diffusion (Sampaio, Varajao, Pires & De Moura Oliveira 2013:51). The realisation of the duality of structure from the perspective of structuration theory provides a deeper understanding of existing rules and practices, which enables critical and deep thinking about the possible intended and unintended consequences of actions (Ma 2010:12).

Increasingly, some of the socio-technical theories have been applied as lenses in many IS studies in recent years (Lim, Saldanha, Malladi & Melville 2013:5). In context of the theories' popularity, Wedawatta, Ingririge and Amaratunga (2011:17) argued that the entire process of a research study begin with theoretical underpinnings, which spans to data collection and analysis, and extends to development of solutions towards solving problems for the

phenomena that was being investigated. However, selecting the theories to underpin IS studies has never been easy (Sawyer & Jarrahi 2014:5). In order to select a theory or theories to underpin a study, the researcher or student should have a good understanding of the focus of the theories, and their applicability (Lim *et al.* 2013:6).

Thus, many researchers, particularly aspiring researchers in IS field are often challenged with the selection of the socio-technical theories in their research (Iyamu & Sekgweleo 2013:3). We try not to trivialise others or subsequent steps, such as applicability and complementarity of the theories. The use of theories to underpin IS studies is more than the selection. For example, on the one hand, some early career researchers do have a good knowledge about some of the theories, but they are sometimes challenged with applicability (Mele, Pels & Polese 2010:127). On the other hand, some post graduate students are challenged with where to, or how to combine the theories in its application in their studies Howcroft & Trauth 2005:6). Also, the selection become even more challenging when it comes to justifications, and providing rationale for the choice of theories (Osanloo & Grant 2016:11).

Some of the theories that have been more commonly used in IS studies include ANT, AT, DoI and ST (Hasan & Kazlauskas 2014:10; Lei 2016:1; Müller 2015:27). Although the use of these theories contributes fresh perspective to the IS studies (Iyamu & Roode 2012:3), they are interestingly not pure IS/IT based, but borrowed from the fields of sociology and psychology (Reis, Collins & Berscheid 2000:844). Lim *et al.* (2013:6) suggest that socio-technical theories are used to provide guidance in the processes of analysis, explanation and prediction of phenomena, and for providing design and guidelines. It therefore helps both researchers and students to find answers to their research questions, thereby reaching solutions to the phenomena that was being studied.

The selection of theories to underpin IS studies is primarily influenced by the objectives of the study. To underpin a study means that the phenomena being studied is guided, influenced and shaped by a theory or theories, through data analysis and interpretation of the findings (Howcroft & Trauth 2005:4). This makes theories very significant in the studies where they are applied. As such, the selection of theories to underpin studies is as crucial as the phenomena being studied.

Thus, the objective of this study was to develop a guide, which can be used to assist selection of socio-technical theories in IS studies. The interprevist approach was employed in achieving this objective. The remainder of this article is structured into four main sections

as follows: a review of literature on IS studies and socio-technical theories is presented in the first section. This is followed by a discussion about the research approach that was applied in the study. The third section presents analysis of the data, which includes the guide that was developed from the findings. The conclusion of this article is drawn in the fourth section.

2. INFORMATION SYSTEMS STUDIES AND THEORIES

Often than not, information systems (IS) studies focuses on the development, implementation, institutionalization, support and management of information systems and technologies (IS/IT) within contexts and perspectives (Helbing, Brockmann, Chadefaux, Donnay, Blanke, Woolley-Meza & Perc 2015:735). Each and every study in IS field have basic fundamental attributes that identifies it, which include technology, systems, process and people (Gregor 2006:612). Each information system consist of a combination of artefacts such as hardware, software and telecommunications networks that people build and use to collect, create, and distribute useful data, typically in organisational settings (Valacich & Schneider 2010:22). Organisations make use of IS in order to function efficiently and effectively. However, it is not only used by organisations but also by communities to conveniently fulfil their social and economic needs, such as shopping, financial management, government investory and online banking.

Every research has objective(s), otherwise, there is no focus or forward looking achievement. The objectives are the steps taken to answer the research questions. Farrugia, Petrisor, Farrokhyar and Bhandari (2010:279) posit that objectives are the measuring outcome of research. Objectives are specific statements that define measurable outcomes. Collins (2017:35) suggests that research must be clearly defined and refined. The research objectives are the specification of the final reason for carrying out research in the first place (O'Leary 2017:41). They help to develop a specific list of achievements that are required of the phenomenon being studied. Only thereafter a theory can be selected to underpin the study.

Based on the objectives, it is vital to consider the most appropriate theory to underpin a study. Thus, Maschi (2016:48) suggests that the theoretical framework can be thought of as a map or travel plan of the research. This serves as the structure and support for the foundation upon which the research, the problem statement, the objectives, the significance as well as the research questions are based (Grant & Osanloo 2014:13). The theory that underpins a research is used as lens to zoom into the data collected. Also, it enables the

researcher to focus, particularly in addressing the problems statement, research objectives and questions as well as the significance of the research. As a result, the findings are discussed in terms of how they relate to the theory that underpins the research.

Another significant aspect of reality that must be taken into cognisance is the relationships that exist between the components that are involved in IS studies (Helbing *et al.* 2015:736), which include people, technology and process. Interaction does not happen in vacuum, therefore relationship between the components is required for it to take place in IS studies. For example, there is interaction between software and hardware otherwise, the computer-based system will not be able to execute its objectives (Dwivedi, Wastell, Laumer, Henriksen, Myers, Bunker & Srivastava 2015:145).

Through research, Grover and Lyytinen (2015:2) explain the implication and essentiality of interaction in IS/IT. The centre-point of relationships lead to sustainability where the behaviour of a single autonomous element is identified to be different from its behaviour when the element interacts with other elements.

3. RESEARCH APPROACH

The desktop research methodology was followed in this study. The method entails collection of peer reviewed literature. Due to the fast evolving nature of IS research, only recent publications, from 2010 to 2017 were collected as the source of data. As shown in Table 1, the focus of the data gathering was primarily on socio-technical theories.

The data collection was guided by the research objectives, which was to develop a guide that can assist in the selection of socio-technical theories to underpin IS studies. As shown in Table 1, related literature of less than six years was gathered and used in the study.

According to Iyamu, Nehemia-Maletzky and Shaanika (2016:170), this is to have a spread of historical perspectives, in terms of how other authors perceive this concept. There were four areas of primary focus in the data gathering, which include definition, scope, objectives and focus. The data collected from the literature as specified in the table was analysed, using the interpretive approach. The underlying assumption is that 'interpretive flexibility' of IS helps to understand how different social groups associate various meanings to a phenomena, and to construct vary assessments within the IS environment (Dwivedi, Henriksen & Wastell 2013:46).

TABLE 1: Data collection

Area	Information systems studies	Socio-technical theory
Definition	i. Information systems are a combination of technological resources and non-technical artefacts that supports specific needs of business (Iyamu & Sekgweleo 2013:2-4). ii. Organisational settings and its relationship with IS/IT artefacts (Valacich & Schneider 2010:4-6).	i. Map or travel plan of the research (Maschi 2016:59). ii. It serves as the structure and support for the basis of the research (Grant & Osanloo 2014:12-15).
Objectives	i. Focuses on interactions among agents and components of IS/IT (Mele *et al.* 2010:126-128). ii. Objectives are the measuring outcome of research (Farrugia *et al.* 2010:278-280). iii. IS helps organisations to gain competitive advantage, improves productivity and performance, and enables new ways of managing, organising and developing new businesses (Altameem, Aldrees & Alsaeed 2014:15). iv. Force for productivity improvement of activities that supports an organisation (Watson, Boudreau & Chen 2010:24).	i. Selecting a theoretical framework is critical as it helps to underpin the objectives of the study (Green 2014:35). ii. The theory should help to guide the researcher in achieving the aim of the phenomena being investigated (Nilsen 2015:2).
Focus	i. IS is used to shape the competitive strategy of organisations (Chen, Mocker & Preston 2010:241). ii. IS plays a vital role in solving problems and supporting decision making in various aspects of organisations (Dwyer 2011:3). iii. IS helps to deliver information, technologies and communications services in the organisations (Chen *et al.* 2010:233-235).	i. Lim *et al.* (2013:6-8) theories are used to provide guidance on analysis. ii. Nilsen (2015:1-4) states that a theory provides a clear explanation of how and why certain relationships lead to specific events.

Source: Various literature sources as indicated in the table

Interpretivists assert that reality, as well as our knowledge thereof, are social products and therefore incapable of being understood independent of the social actors (including the researchers) that construct and make sense of that reality (MacRae 2017:287).

Social reality is therefore shaped by the perceptions of the participants, as well as the values and aims of the researcher. In the context of this study, an understanding refers to the researcher's subjective view as influenced by his or her experience of the subject that is being studied.

According to De Gialdino (2009:2), it is important to understand motives, meanings, reasons and other subjective experiences, which are time and context bound for an interpretivist research. This approach was employed to gain a better understanding of how a researcher or group of researchers can select socio-technical theory for IS studies. The authors' tacit and explicit knowledge that was acquired over many years of practice, as well as academic rigour was the primary reason for following this approach.

4. SELECTING A SOCIO-TECHNICAL THEORY FOR IS STUDIES

Increasingly, socio-technical theories are employed to underpin IS studies (Barnard 2010:25; Islam & Hu 2012:5159; Lei 2016:2; Müller 2015:27). However, selecting a theory is not as easy as sometime claimed (Lim *et al.* 2013:10). Knowledge or Know-how about a particular theory is not enough, or should not be used as the deterministic factor for selecting it (Grover & Lyytinen 2015:12). The choice of a suitable theory or theories should be based on problem and goal of the phenomena that is being studied. According to Green (2014:34), theoretical framework guides the study in terms of scope and focus, towards the aim and objectives.

Thus, a good understanding of different or few theories assist the researcher in selecting a suitable theory to underpin his or her study. This is a step towards achieving the aim and objectives of the investigation. Nilsen (2015:2) states that a theory provides a clear explanation of how and why specific relationships lead to particular events. In Table 2, the most popular theories in IS studies are listed. It is necessary to mention that some of these theories, such as actor network theory and structuration theory originates from the field of sociology (Iyamu & Roode 2012:3).

The information contained in Table 2 is a set of empirical data that was analytical extracted from Google scholar database, using set criteria that include IS field and year of publication. The search was carried out on ten different socio-technical theories that have been used in

IS studies in the last decade. This includes actor network theory (ANT), activity theory (AT), cognitive behavioural theory (CBT), contingency theory (CT), diffusion of innovation (DoI), grounded theory (GT), narrative theory (NT), organisational theory (OT, structuration theory (ST) and the theory of technology acceptance model (TAM).

For the purpose of this study, we selected only the theories that have been applied over 50,000 times in peer reviewed articles, in IS journals, conference proceedings and books.

As shown in Table 2, only seven of these theories, AT, ANT, CBT, CT, DoI, ST and TAM fulfils the criteria of frequency of use in IS studies. The search exercise was carried in October of 2016.

TABLE 2: List of underpinning theories

Socio-technical theory	Frequency of use in IS Studies
Activity theory	3,380,000
Cognitive behavioural theory	2,070,000
Diffusion of innovation	1,920,000
Actor network theory	602,000
Structuration theory	107,000
Contingency theory	70,800
Technology acceptance model	60,000

Source: Socio-technical theory in IS studies

Also, the theories have been applied in all aspects of IS/IT studies over the years (Gregor 2006:612; Sampaio, Varajao, Pires & De Moura Oliveira 2013:47). Table 3 presents a brief description of the focus and coverage of each of the seven theories, which are tabulated in Table 2 above.

TABLE 3: Socio-technical theories

Theory	Description
Activity theory	Primarily, AT focuses on a structural property of events through which outcomes are reached. The main tenets of the theory include subject (human actors), object (things to be produced), tools (vehicle for producing things, such as technology) and community (social system) (Karanasios, Allen & Finnegan 2015:310). In AT, human actors which forms part of the social system makes use of tools to create things and events. The social systems are formed and exists through and within rules that were created by the actors. In African adage, a tree cannot make a forest. No one actor can produce a thing by itself alone, hence there is division of labour among actors, within each social systems (Barnard 2010:28). Thus, the human actors have power to make a difference within social systems. As result, AT is often used as a lens to underpin studies, to examine and better understand human activities within an environment (Hasan & Kazlauskas 2014:9-10).
Actor network theory	ANT focuses on actors and networks and the interaction that happen between them. Actors are human and non-human. In ANT, both human and non-human actors are treated equally because they are argued to offer equal contributions to the establishment and operations of a network (Chen, Zhang, Zheng & Cui 2009:2). Networks can be part of other networks, which make actors and networks heterogeneous. This leads to why ANT emphasis on how and why networks are formed (Boerboom & Ferretti 2014:85). In ANT, anything can be actor as long as it has the ability to make a difference to the network, which is influenced by power. According to Watson *et al.* (2010:24), power is not about an actor possessing it, but rather being able to use it to enrol, enlist and convince other actors to follow him or her in a course that he/she defines.
Cognitive behavioural theory	The CBT is based on the idea of how human think, feel and act or interact with one another (Lampard & Sharbanee 2015:7). CBT is specific that human thoughts determine their feelings and behaviours. It aims at helping people to become aware of when they make negative interpretations and of behavioural patterns, which reinforce distorted thinking (Tokera & Avci 2015:1159). Evans and Stanovich (2013:230) argue that how people think about something, including themselves and other people, determines and influences how they feel about things and situations.

Theory	Description
Contingency theory	The CT is a theory that claims that there is no specific best way to organise a corporation, to lead a company, or to make decisions (Volberda, Van Der Weerdt, Verwaal, Stienstra & Verdu 2012:1042). Instead, some contingency factors, either internal or external, can influence an organisation's performance (Ganescu 2012:999). Islam and Hu (2012:5190) argued that organisational effectiveness is dependent on a fit between certain factors, which include types of available technologies, environmental volatility, size of an organisation, features of an organisational structure and its information systems. Hence, it was argued that performance is a process, that interacts with the relationship between environment and strategy, and that in turn, encourages organisational structure (Lei 2016:2).
Diffusion of innovation	DoI seeks to explain how, why and at what rate innovation (new ideas or technology) is diffused within a social system (organisation of people) (Jakki, Sanjit & Stanley 2010:14). The theory focus is particularly to take on new idea or technology to the people. However, no individual or group of people can be forced to accept or reject the new idea or technology. Based on communication, interaction and interpretation, the innovation is either accepted or rejected by agents (Sáenz-Royo, Gracia-Lázaro & Moreno 2015:3). Whether the outcome is to accept or reject, the decision has to be implemented.
Structuration theory	ST focuses on agency and structure and their duality within a social system. Agent (or agency) consists of technical (such as technology) and non-technical (such as human) entities. Structure is rules and resource in structuration (Iyamu & Roode 2012:4) The theory draws emphasis on how events and social systems are produced and reproduced over a period of time and space (Ma 2010:44). In structuration, social system exist because there are structures, and structure exist within social systems. Human agency and social structure are not two separate concepts or constructs but are two ways of considering social action and is termed as duality of structure (Lamsal 2012:113). Structure is the recurrent patterned arrangements which influence or limit the choices and opportunities available. Whilst agency is the capacity of individuals to act independently and to make their own free choices.
Technology	TAM is considered an IS/IT theory that models how users come to accept and use a

Theory	Description
acceptance model	technology. The theory consists of two main beliefs, which are perceived usefulness (PU) and perceived ease of use (PEOU) that determine attitudes towards adopting new technologies (Erasmus, Rothmann & Van Eeden 2015:2). The adopter's attitude towards new technology could be either positive or negative in an attempt or pursuance to adopt the technology. In TAM, perceived ease of use and perceived usefulness are deterministic factors for individuals or group decision to acceptance IS/IT artefacts (Lee, Kozar & Larsen 2003; Surendran 2012:754). According to Erasmus *et al.* (2015:6), the rationale is that the influence of external variables on technology acceptance behaviour is mediated through user beliefs and attitudes, in which beliefs represent a degree of instrumentality tied to action and attitudes are purely affective.

Source: Commonly used theory in information systems studies

Based on the broad coverage and focuses of the socio-technical theories as shown in Table 3, it can realistically be challenging to select a theory to underpin an IS study. Also, this is because many of IS studies focuses on development, implementation, management and use of IS/IT, which involves process, interaction, relationship and environment.

As shown in Figure 1, there are three fundamental components that are required to guide the selection of a theory or theories to underpin IS studies: (i) the phenomena being studied itself (IS study); (ii) objectives of the study; and (iii) focus of a socio-technical theory.

These components influences and determines the selection of a theory or theories for IS studies. This is mainly because the components are tightly connected, related and sometimes depend on each other, primarily to avoid gap in achieving the aim of the study.

The connection or point of contact in a relationship can take many forms (Jones & Warren 2015:14). Without a relationship between, and among the components, it is highly possible to have disconnect, which creates gap in the process. According to Reis *et al.* (2000:846), relationships are about being and the experience of connecting between subjects and objects over a period of time. Relationship therefore constitutes, and is enforced by connectivity, communication and collaboration.

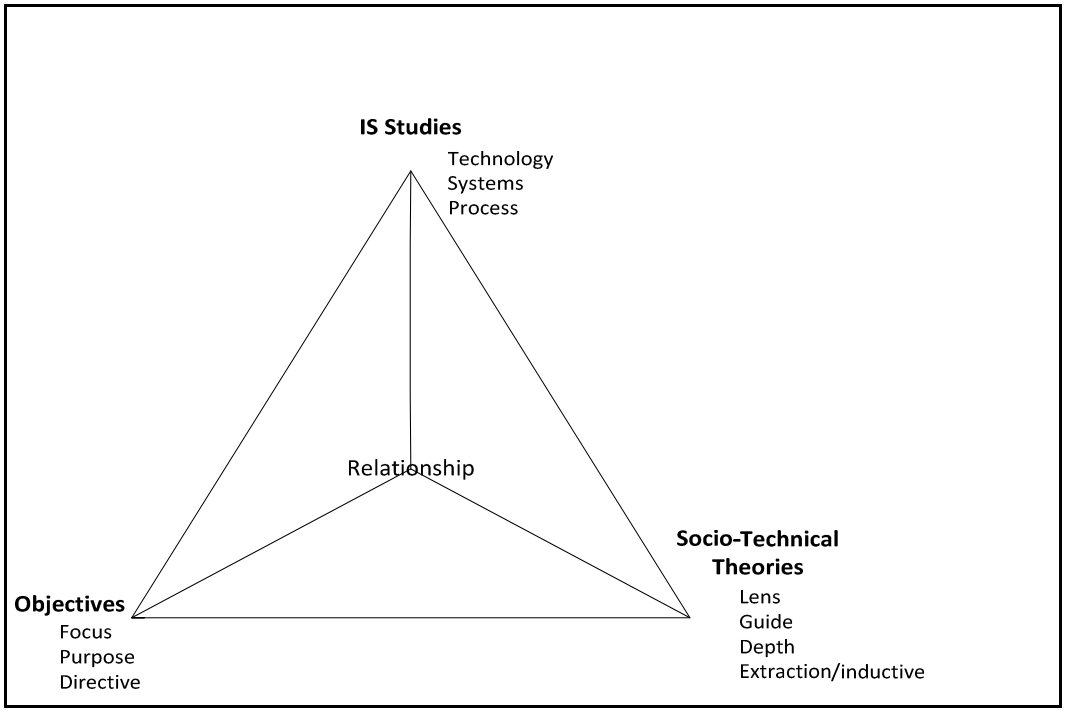

FIGURE 1: Selection components

Source: Developed by the authors

i. Information systems studies

Each and every study in information systems has basic fundamental factors that identifies them. Primarily, information systems involves three factors, which include technologies, people and processes as shown in Figure 1. The success or failure of IS/IT in an environment depends on how its associated components or factors are brought together in their selection, development and implementation. Therefore, IS/IT cease to exist in an organisation if any or combination of the factors is missing or misaligned. Hence, most IS studies are primarily concerned with investigating and understanding the roles of people, technology and process, and what, why and how they impacts IS/IT in an organisation.

a. **Technology -** Technology is concerned with an understanding of how knowledge is applied with tasks that involves people and machines (software and hardware) by individuals and organisations, in order to fulfil sustainable goals. Those who are involved in the development, implementation and use of technology require, in most cases, specific skills and knowledge through which they deliver products and services to the business and clients. Also, the personnel needs to follow various

techniques, methods as well as processes, in their use of technology for service and product delivery. Many organisations make use of technology, to create new products and remain competitive. For example, telecommunication organisations employ high end technology to create new phones and other electronic devices to stay competitive. This competitive edge is gained through the use of advanced technology by specific skilled workforce.

b. **Systems –** Technologies are required to build systems. A system is a set of things connected together to form a complete functioning product or service, such as information systems. In order to have a functional information system, it needs to be developed and implemented. It is a complementary network of hardware and software that people and organisations use to collect, filter, and process the creation and distribution of data. It enables organisations to function efficiently and effectively towards achieving its objectives. As a result, they remain competitive and attractive to both current and new customers.

c. **Process -** There are various processes that needs to be adhered to, in order to carry out the tasks and stages of development, implementation, support and management that are involved in the use of IS/IT for service delivery. Also, each of these stages entails defined processes that must be followed in executing various tasks. Some of the processes include the tools (such as software, hardware and network) or methodologies that must be employed, how the tools or methodologies must be applied, and when they must be applied. This implies that there is inseparable connection and relationship between tools or methodologies and their application in the use of IS/IT for service delivery, which gets empirically revealed in IS studies. The connection and relationship are enacted through interaction, such as human-to-human, human-to-technology, or technology-to-technology. Through such an understanding of connectivity, relationship and interaction between actors, a socio-technical theory is selected to underpin the study.

Thus, the researcher should have a good understanding of how the three components connects or can connect and interrelate in the phenomena that they have undertaken to study. This includes the roles of the components in the problem that they are trying to solve through the research. This is the type of an understanding that helps to map the components with the different theories.

ii. Objectives

In every IS study, whether qualitative or quantitative, there are objectives. The objectives informs the rest of the methodological approaches that are employed in the study. This includes development of realistic and relevant research questions, selection of appropriate research design methods and analysis techniques. According to Farrugia *et al.* (2010:279), objectives guide the focus and achievement of the study. Thus, the objectives are specifics, explicit or predictive (hypothesis). It also helps to justify the execution of a research. As a result, research objectives must be clear, concise and declarative in statements, which provides direction in investigating the various variables or elements that it constitutes. Each of the variables or elements are further decomposed towards achieving the objectives of the phenomena being studied.

Example of an objective is, to examine the factors that influences cyber security breaches in a telecommunication company. The factors are decomposed into technical (such as technology) and non-technical (such as human, rules and environment). No factor acts alone or in a vacuum, relationship exists explicitly, and no relationship happens without interaction. This is an understanding that helps a researcher to apply questioning prefixes, such as what, how, where and why, to conveniently interrogate the elements of the phenomena that is being studied.

iii. Socio-technical theory

As presented in Table 2, the focuses and coverages of socio-technical theories varies. Many of the socio-technical theories that are being applied in IS studies are borrowed from other fields, such as sociology or psychology. This includes theories, such as structuration theory and actor network theory, which are originally from the field of sociology. The theories are employed to underpin IS studies, meaning that they are particularly, to guide data analysis and interpretation of findings from the analysis. Hence, they are applied as lenses, to zoom into the data that was collected.

Theories enable researchers to have a different perspective through which they can examine a complicated problem that are often connected with social system. Also, the use of theories force many researchers to critically think in order to subjectively develop a solution for the problem under investigation. However, selecting and application of the theories is never straightforward, and does not have formal formula for doing so. Hence it is crucial to first gain some knowledge about the theories before considerations of how to apply them.

iv. Relationship

In the context of IS studies, relationship exist and it is enforced through factors, which include connectivity, communication and collaboration. Recursively, those factors exist because there is relationship, and through which the components of IS study, objectives and socio-technical theory are interconnected. Socio-technical research is premised on the interdependent and inextricably linked relationships among the features of any technological object or system and the social norms, rules of use and participation by a broad range of human stakeholders (Sawyer & Jarrahi 2014:7).

a. **Connectivity -** For a relationship to exist between actors (such as IS study, objectives and theory), there must be a duality of interest, which is enacted by connectedness. The basis of the duality lies in the relationship that the agency has with the structure. In the duality, the agency has much more influence on its lived environment than past structuralist theory had granted (Giddens 1979:67).This connectivity is the link and allied interest of the components. The interest and connection which people have manifests in the outcomes or results of the objectives of the phenomena under study. Also, the interest and connection exist based on how and what the actors communicate. According to Ghaffarian (2011:1499), the socio-technical approaches therefore can complement mainstream information systems research by capturing the contextual dynamics and actors rationality, attending to relevant actors, their interests, and the logic of their negotiations

b. **Communication -** Communication is a dual process of interaction that enacts a relationship between actors, through which connection is established. Through communication, intended meanings are conveyed between actors, of one entity or group to another through the use of mutual understanding. According to Pettersson (2000:64), there is “a pattern that is always present where meaning is conveyed and understood between people”. Systems are part of IS studies and this systems can be used to convey intended meanings. But in order to do that a theory must be used to guide or facilitate the processes, of associated meaning, an understanding and use of IS/IT.

c. **Collaboration -** This is to ensure collectiveness and avoidance of isolation. However, for this to happen there must be relationship which occurs through connectedness of actors within a social system. Through a 'connective' relationship an organisation can also make adjustments to its service offerings to exceed the

customers' expectations (McCabe 2010:54). This enables actions in the pursuit of objectives. For example, implementation of IS/IT artefacts involve collectiveness of people, process and technology, which can be guided by theoretical assumptions, from epistemological or ontological perspectives.

5. CONCLUSION

As revealed in this study, it is well documented that when embarking on IS research there are various key factors that needs to be taken into consideration. What has been missing is how to select a theory or theories to underpin IS studies. As proposed in this article, there are three main fundamental components that influence the selection of socio-technical theories in IS studies, which include the IS study, objectives and socio-technical theories. The relationships between these three factors make it possible for a researcher to achieve his or her goal, primarily because the combination of the components leave no stone unturned.

Thus, this article will be of significant use to academia, postgraduate students and their supervisors, mainly because selecting socio-technical theories to underpin IS studies has never been easy for aspiring researchers, in particular. The article highlights some the critical and fundamental areas that are often taken for granted in the quest for selecting socio-technical theories to underpin IS studies.

In addition, this contributes to the academic domain through its reveals and highlights of the fact that the objectives of a study can be broad to the extent that it might require more than a theory to underpin it. This is one of the areas that many postgraduate students are not clear about, whether more than one theory can be applied in a study. Another important contribution of this article is that it add to the existing literature in the body of IS knowledge.

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