Rethinking Theoretical Assumptions of the Discourses of the Institutional Repository Innovation Discipline

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Abstract

In this paper we evaluate the theoretical assumptions of the discourses of the institutional repository (IR) innovation discipline. We argue that current theoretical assumptions of the discipline are limiting. We then propose that a new theoretical assumption that sees IR stakeholders as rational social actors is likely to aid the emergence of new insights in the IR discipline. To achieve our aim, we adopted insights in the institutional theory, social shaping of technology theory and stakeholders theory. We used insights in these three theories to propose a new theoretical assumption for the IR innovation discipline. The proposed theoretical assumption is vital because it explicates the importance of identifying IR stakeholders and how their everyday life realities lead to the construction of institutions which inform their concepts of IR and assumptions about how it should be innovated. We conclude that the theoretical assumption that evolved in this study is helpful to the IR community in two ways. First it provides the community with new constructs and concepts that are useful for empirical studies on IR innovation. Second, it facilitates the development of a model that explains how to overcome practical IR innovation barriers. From a wider perspective, our study supports socio-technical oriented approaches to investigating and implementing IR innovation.

Keywords: Institutional Repository, Institutional Repository Innovation, Social Shaping of Technology, Institutional Repository Stakeholders.

Introduction

The open access initiative has become widely accepted in scholarly circles despite the initial opposing views that were raised against it (Crawford, 2003). Its popularity in the West has filtered into other parts of the world. For instance, it has been highlighted in the literature that African universities have derived visibility and openness from the initiative (Nwagwu, 2013). These benefits made African universities to have stronger resolve to develop programs that support institutional repository (IR) innovation (Utulu & Akadri, 2014). Research carried out by Wyk and Mostert (2011) revealed how African universities and academics are relying on open access initiatives, including IR, to improve their visibility and to enhance access to the research materials they produce. Reports emanating from other parts of the globe such as Asia (e.g. Lee-Hwa,*et al.*, 2013), Europe (e.g. Tonta, 2008), and Americas (e.g. Shearer, 2013) also show that IR has been beneficial to universities in these regions. It follows that the tendency to believe that IR is a reliable way to create global access to scholarly knowledge has continued to gain ground globally (Pinfield, 2015). Our concern in this paper however, is the gap in the knowledge available to the IR community with regards to IR innovation. We say this because almost two decades after the initiative was introduced, it is yet to fully achieve the objectives that were set for it by its inventors (Crow, 2002; Ezema, 2013; Harnad, 2001). This is more so when one compares the number of universities that are listed in global IR directories such as the opendoar and roar with the number of those that were not listed. Given the benefits universities derive from IR, one will expect that there will be an increase in the numbers of studies done to produce theories that can be used to interrogate the reasons behind the small number of universities that have fully implemented IR. In place of this desirable state is a dearth of studies aimed at developing new IR innovation theoretical frameworks in the discipline. Existing knowledge on IR innovation still leaves vital questions unanswered going by the continuous repetition of some sets of IR barriers in successive studies. Barriers such as lack of reward (Seonghee & Boryung, 2008; Allard, *et al.*, 2005), acceptance (Lynch, 2003), awareness (Jobes, *et al.*, 2006; Utulu & Bolarinwa, 2008) and the threat of continuous adherence to old ways of scholarly knowledge sharing by academics (Kim, 2007) have been repeated discussed as major IR barriers in the literature. At the moment in-debt analysis of how socio-cultural contexts of universities promote IR barriers is scarce.

We are of the opinion that if institutional theory, social shaping of technology (SST) theory and stakeholders theory are concatenated that there will emerge a theoretical notion that is capable of providing

insights that will help reveal the social and contextual factors that come to bear in IR innovation (Ballejos & Montagna, 2008; Donaldson & Preston's, 1995; Williams & Edge, 1996; Zilber, 2002). Insights in these theories have the potential to help the IR community to develop socio-technical frameworks that are similar to those that have been developed and used by other disciplines (e.g. IS, human-computer interaction, etc.) (Ciborra and Lanzara, 1994; Howcroft and Light, 2010; Khoo & Hall, 2013; Olikowski & Baroudi, 1991). The theory proposed in this study will not only facilitate the reconstruction of IR stakeholders to rational social actors who intentionally and socially enact the institutions embedded in the socio-cultural contexts where IR innovation takes place, it will also help to elicit how important it is for IR innovators to identify all possible (Lamb & Kling, 2003; Schultz & Luckmann, 1989). Identifying and reconstructing IR stakeholders as rational social actors have strong potential to impact on the kind of IR innovation knowledge that can be generated theoretically and practically. For example, the following studies (Howcroft and Light, 2010) where IS stakeholders were constructed as rational social actors, reveal how institutions influence how events surrounding IS innovation were shaped and interpreted in different IS innovation contexts. These kinds of insights have not been developed in the IR discipline and therefore indicate important gaps in existing IR innovation literature. As far as we are able to confirm there has not been any study on how contexts where IR innovation is done are socially constituted and constructed (Howcroft & Light, 2010; Schutz & Luckmann, 1987; Tolbert & Zucker, 1996). Studies by Manness *et al.,* (2008) and Palmer *et al.,* (2008) that tried to do this did not provide adequate explanations on the social processes that lead to social construction of IR innovation realities. This scenario has resulted in situations in which IR studies lack in-debt explanation of how institutions inherent in IR contexts result into conflicts among IR stakeholders during IR innovation (Khoo & Hall, 2013; Khoo, 2005). It also affects the extent to which the IR community understands how institutionalized scholarly knowledge sharing values evolve and their effects on IR innovation. This study attemtps to provide an explanatory theory by concatenating insights in stakeholders theory, institutional theory and SST theory.

Background Thoughts and Literature Review

2.1 *Thoughts and Theories of the Institutional Repository Discipline*

Institutional repository has been defined in several ways by the scholars that pioneered its scholarship. According to Lynch (2003, p. 3) IR is "…a set of services that a university offers to members of its community for the management and dissemination of digital materials created by the institution and its community members." Crow (2002) argues that IR may contain an array of materials that are products of intellectual work of an institution. More recent definitions by Ma, *et al*. and Royster present IR as "an effective way to preserve the knowledge assets of a scientific institution" (Ma *et al.*, 2009, p.1) and "means to republish scholarly contents previously published elsewhere-usually in journals, festschriften, or collections of articles (Royster, 2008, p. 27)." Materials expected to be included in IR collections may include preprints, post prints, conference papers, working papers, research data and theses and dissertations (Shearer, 2013). It follows that IR proponents' primary aim was to use it to achieve a radical change in the global scholarly knowledge sharing landscape (Hanard, 2001). However, despite what seem to be uniform way of defining IR, the concepts of IR among those participating in its innovation has continued to shift (Maness, *et al.,* 2008). Despite the potential implication of the shift in IR concepts among participants, it rarely forms part of the investigation done in the IR field. This is despite the probable impact of the diverse IR concepts held by IR stakeholders on its acceptance and the ease with which it can be aligned with overall scholarly knowledge management goals of universities (Maness, *et al.,* 2008; Palmer, *et al.,* 2008; Khoo, 2005).

However, because IR proponents' primary intention was to promote the initiative across the length and breadth of universities, IR marketing and content development has dominated the field's research landscape. The literature that emanated on these subjects addressed how IR can be marketed in ways that can ensure its acceptance among members of university communities (Genoni, 2004; Gibbons, 2005). This set of studies also looked at how to ensure speedy collection of IR resources (Crow, 2002; Ferreira, *et al.,* 2008). Some of the literature that dealt with IR marketing and content development also addressed IR quality issues and how IR initiatives could be sold to communities in universities (Foster & Gibbons, 2005; Utulu & Akadri, 2014; Westell, 2005). There are also research carried out to sell the idea of content development from the point of view of online visibility of authors among their peers (Antelman, 2004; Norris, *et al.,* 2008). Some other studies dealt with the extent to which IR awareness among academics and librarians can be used to argue its success and content development strategies (Cutten, *et al.,* 2010; Utulu & Bolarinwa, 2008).

Studies on IR awareness and content development are however, mostly interwoven because proponents of this genre assume that IR awareness should facilitate IR content development and use (Genoni, 2004; Utulu & Bolarinwa, 2008). The concerns that these studies raise is that their authors seem to view IR contexts and users from the cybernetic views of Herbert Simon. They see individuals and organizations as atomic and well-organized entities respectively (Simon, 1955). This is in contrast with views in the SST (Lamb and Kling, 2003; Williams & Edge, 1996). The SST theory provides a more elaborate background for understanding organizations as institutions and chaotic, and social actors as rational, selfish and unstable (Howcroft & Light, 2010; Schutz and Luckmann, 1989).

Another aspect of IR that is frequently addressed in the literature is the relationship between IR and research productivity. Here, authors try to highlight how IR can ameliorate challenges which academic face when involved in research activities. This concern is believed to be more pressing when it concerns access to a large body of literature, particularly in information poor environments, such as Africa (Houghton, *et al*., 2009; Lynch, 2003; Nwagwu, 2013). Some authors have also carried out research to detail how academics use IR to support their research activities and the challenges they face while trying to adopt IR as sources of their research information (Utulu & Akadri, 2014; Davis & Connolly, 2007). Somple, *et al.* (2004) and Utulu & Akadri (2014) therefore present models that explicate how to ensure that IR preserve the quality of scholarly knowledge that are disseminated through it. However, studies that detailed barriers of IR innovation include those carried out by Armbruster & Romary (2009) and Ferreira, *et al.* (2008). Studies on IR barriers underscore a) identification and deposit of contents; b) access and use of IR resources; and c) preservation of content and sustainability of IR services; d) slow adoption; and e) low deposit rates as barrier factors of IR innovation. These studies however, fall short of deep social analysis that involves analyzing the role of the diversity of IR stakeholders in IR innovation. They also did not account for how institutions and ideas that drive IR innovation are social shaped. These limitations characterize the extent to which studies carried out on IR success factors fall short necessary social analysis. Shearer (2013) and Westell (2005) stand out among IR research that tried to provide insights into factors that could be adopted as parameters for measuring IR success. There is no doubt that Westell's and Shearer's attempts at providing IR success parameters have had considerable impact on the IR field, however, there are limitations in the success factors that they proposed. A basic limitation in Westell's attempt is the limited IR stakeholders (faculty, research staff and students) that she identified in her study. This was informed by the IR definition proposed by Johnson (2002) which she adopted for her study. The number of stakeholders identified by Westell laid the foundation for the eight IR success factors (mandate, integration with planning, funding model, relationship with digitization centres, interoperability, measurement, promotion, and preservation strategy) she proposed. Despite the fact that these success factors provide useful insights on IR success, the fact that she sees the success factors as events and not processes, cast a shadow on the validity of the success factors in practical conditions. In other words, given Venkatesh's , *et al.,* (2013), the success factors lack design validity, that is, transferability of theoretical ideas to practical innovation situation.

Westell's argument that a successful IR requires a moderate mandate that is clearly defined further raises the need for a critical look at the IR success factors she proposed. Westell argues that a "repository that is 'all thing to all people' lacks focus and priorities… (p. 213)." While this notion may sound right because it seems to justify contextualization of IR innovation, it does not fully put into consideration the rational nature of IR stakeholders and institutionalized contexts where research universities operate. Obviously, IR stakeholders go beyond faculty, research staff and students to include university administration, funding agencies, librarians, academic disciplines, commercial publishers, conference and workshop organizers, and other entities that are directly and indirectly involved in the contemporary scholarly publishing cycle (Utulu & Akadri, 2014). The fact that preprints deposited in IR are more often than not published or later published in conference proceedings or journals can be used as practical situation to validate this claim. This situation indicates that authors, their universities, commercial publishers and conference organizers are engaged in social interactions. The fact that Shearer (2013) listed preprints, journal articles, conference proceedings, and theses and dissertations as primary IR resources also corroborates the claims made so far. The possibility of publishing one scholarly work in multiple outlets therefore requires comprehensive and all-encompassing mandates, policies and procedures in order to avert breach of common interest and litigation which may arise as a result of the differences in cost and benefit calculations by multiple stakeholders (Abrizah, *et al.*, 2010; Utulu & Akadri, 2014). It follows that the more IR mandates, policies and procedures are based on mutual inclusion of all stakeholders, the more they are likely to be able to

provide fertile grounds for IR innovation.

On the other hand, however, Shearer (2013) identified nine IR deployment success factors. The success factors revolve round content deposition and use which have been considered age-long barrier of IR innovation (Fox, *et al.*, 2009; Davis & Connolly, 2007). Shearer's nine success factors are somehow more elaborate than Westell's (2005) success factors. Despite this, Shearer noted that "there may be other characteristics that also affect the growth [success] of IRs, such as organizational culture… (p. 257)." Obviously, the IR discipline has not been benevolent enough to carry out studies that detail the effects of organizational culture on IR innovation. Perspectives available in the IS literature where implications of culture on IS were explained (Sahay & Mukherjee, 2015; Coborra & Lanzara, 1994; Bailey & Ngwenyama, 2013) are still not taken seriously in the IR field. This has impacted the level of interest shown by IR scholars on necessary institutional factors in universities and their impact on IR innovation. A new IR innovation perspective is likely to evolve if IR scholars find out how institutions are enacted by IR stakeholders and how these institutions interplay with how they rationally and socially shape IR innovation (Sahay & Mukherjee, 2015; Schutz and Luckmann, 1989). Hopefully, knowledge derivable from the theory we are proposing will ameliorate the problems that consistently plague IR innovation. It is hoped that the theory will specify the implications of having multiple stakeholders to create institutions and contexts where IR innovation takes place. It is also likely to facilitate emergent transition from traditional digital library models to IR based digital library model in manners that ensure adequate understanding of stakeholders' needs and the implications of the transition.

2.2 IR Research's Theoretical Assumptions and Social Shaping of Technology Theory

As shown so far, several themes have been addressed in the IR literature. Although these themes point to the fact that both social and technical factors influence IR innovation, the ways they have been treated is driven by functionalist and individualistic approaches that are rooted in positivism. Given this, IR has continuously been presented as a determinate technology. The social processes which culminate to its invention and innovation have therefore been taken to be determinate; something that exists independent of rational human thinking and action. These notions follow the technology determinism theory, where it is believed that technology determines how humans think and work. Thoughts propagated by scholars who introduced IR to the global scholarly community were influenced by claims in the technology determinism philosophy (e.g. Crow, 2002; Harnad, 2001). The SST theory which holds that technology is not determinate, but that it is socially constructed and constituted has been ignored by IR scholars (Williams & Edge, 1996; Armcost, 1985). The SST theory provides the tenets for viewing technology innovation as a phenomenon that is influenced by human thinking and action. Accordingly, human thinking and action are believed to be rooted in culture, politics, economy and on gender issues (Effah & Abbeyquaye 2013; Howcroft, *et al.*, 2004). It is believed that this results because of the rational nature of man (Fuenfschilling & Truffer, 2014; Zilber, 2002). The SST theory provides avenue to assess historic factors that come to bear in the processes that lead to the innovation of technology. It therefore presents technology innovation which had to do with technology invention and the ways technology is put to use, as a process and not an event (Howcroft & Light, 2010). In the IR literature, particularly the pioneering literature produced in the early 2000s, readers' attention was drawn to how economic considerations resulted into the invention of IR (Harnad, 2001; SPARC, 2001). There were also studies that reported the two primary variations in the ways people conceptualized IR. The first variation indicates that some commentators conceptualized IR as a replacement for existing scholarly knowledge publishing championed by commercial publishers. The second variation looks at IR as complementary, something to complement, existing closed access scholarly knowledge publishing model of commercial publishers (Antleman, 2004; Harnad, 2001; Kim, 2007). Despite the identification of socio-economic factors that propel the invention of IR and the consequent variations in the ways it is conceptualized, majority of IR studies do not pay attention to how IR innovation has transformed over the years due to socio-cultural, economic and political factors (e.g. Pinfield, 2015; Shearer, 2013; Kim, 2010). This limitation in IR literature is compounded by the fact that IR scholars only see IR innovation as a phenomenon that concerns only librarians and academics (Westell, 2006). In other words, IR scholars have failed to understand that since IR innovation takes place in university communities where there are diverse community members that the diverse community members might have different ways they construct and shape IR innovation realities. Apart from this, IR scholars have failed to factor into their assessment the rich history of scholarly publishing that has been constructed and shaped by commercial publishers, universities and other stakeholders.

IR Research's Theoretical Assumptions and Stakeholders Theory

Stakeholders theory was propounded by different scholars (Ballejos and Montagna, 2008; Donaldson & Preston's, 1995). The theory addresses the diverse categories of rational organizational actors that influence the 'hows' and 'whys' organizations reach their goal. It is one of the body of theories focused on assessing how organizations are oriented towards addressing the status and influence those connected to them have on the achievement of corporate goals. Proponents of the stakeholders theory have different conceptions of what the theory is about. One notion that is common to all of them however, is that organizations are connected to stakeholders that have important stakes that determine how they influence corporate goal achievement. Stakeholders theory proponents therefore proposed that identified stakeholders must be put into proper consideration when deciding on how to meet corporate goals (Frooman, 1999; Jones, 1995; Mitchell, *et al.,* 1997). In the stakeholders theory, Donaldson & Preston (1995) for instance, identified two corporate orientations namely, conventional input-output orientation and stakeholders orientation. They argued that the two corporate orientations determine how organizations calculate the ways those connected to organizations influence the achievement of organizational goals. Their argument is that organizational actors are viewed either as input-output participants with no influential stake or as stakeholder-participant that have stakes that could influence the achievement of organizational goal (Pan, 2005). As a result, the stakeholders theory has been adopted in the IS innovation discipline. The theory has been used to assess why systems designers should predict the actors whose needs must be met when deciding on appropriateness and adequacy of IS functions. It has also been used to determine how certain organizational actors are seen to have strong influence on successful IS innovation (Deleon, 2003). The implication of stakeholder theory on IS innovation is that it proposes that every stakeholder connected to an IS, either directly or indirectly, is important (Damian, 2007; Sharp, *et al.,* 1999). IR stakeholders who are directly connected to IR may include authors, funding agency, researchers, students, faculty, librarians, IR implementation/sustenance teams, and university administrators. These stakeholders are directly involved with the deposition of IR contents, technical and administrative backups, provision of running funds, usage of the content and the provision of policies, rules and regulations that directly affect the innovation of IR. They may also be directly affected by any litigation that may arise as a result of legal issues resulting from IR use. Consequently, stakeholders who may be indirectly involved with IR may include commercial publishing firms, conference and workshop organizers, and the larger community of an academic field whose ideologies may be promoted and/or subverted by notions published in IR. The theory provides analytical framework that ensures adequate and appropriate stakeholder elicitation (Ballejos & Montagna, 2008). It also shows that proper identification and definition of IR stakeholders is very paramount (Ballejos & Montagna, 2008; Utulu & Akadri, 2014).

Stakeholders theory also promotes the importance of seeing IR stakeholders as rational social actors. This is because most stakeholder groups have diverse experience, histories and frames-professional and technological (Fuenfschilling & Truffer, 2014; Khoo & Hall, 2013). These make them to interpret their daily interactions with IR phenomena differently and in most times, rationally and selfishly (Davis & Connolly, 2007; Gibson, 2004). Their social experiences and frames trigger intersubjective meanings that reinforce and transform IR values and norms in ways that lead to 'chaotic' social experiences (Howcroft & Light, 2010). In most cases, chaotic social experiences manifest in 'cold war' forms. This means that social actors consistently face challenging situations that trigger social crises that undermine the achievement of their desired goals without being able to comment publicly on them. This notion of chaotic social experiences has not been reflected in the current IR studies. This is to say that varying IR concepts held by IR stakeholders, the social factors that leads to the evolution of these varying IR concepts, and the conflicting intentions that drive their participation in sustainable IR innovation constitute chaotic social experiences that influence IR innovation. When combined with SST theory, the emergent theory facilitates the opportunity to ask questions that have to do with understanding the relationships among *1) all IR stakeholders, 2) eliciting the variance in their IR concept, 3) explaining how the variance in their IR concept evolve, and 4) explaining factors that propel their intention to participate in IR innovation*.

IR Research's Theory and Institutional Theory

One of the aims of this study is to prove that librarians, academics and other IR stakeholders are ration social actors who operate in social contexts that are defined by the institutions they jointly create (Powell and DiMaggio, 1991). By this we mean to say that different stakeholders participate in the social construction and shaping of the contexts (universities) where IR innovation takes place. It has been argued that historical, economic, social and cultural, and political factors influence how social actors socially

construct and constitute social environments (Howcroft, 2004; Williams & Edge, 1996; Schutz & Luckmann, 1989). Social contexts are defined by social institutions that are invented, socially constructed and shaped by those that operate within them (Tolbert and Zucker, 1996; Schutz & Luckmann, 1967; Berger & Luckmann, 1966). This notion gives us the avenue to assume that IR innovation involves the institutionalization and de-institutionalization of institutions that defines the contexts where IR innovation takes place. Institutional theory is divided into what scholars term classical institutional theory and neo-institutional theory. The classical institutional theory holds that institutions, otherwise known as culture, beliefs, rules, norms and values, created within a given context, is determined, to a large extent, by the dos and don'ts set by those that constitutes the occupants of a social context (Powell and DiMaggio, 1991; Tolbert & Zucker, 1996;). The neo-institutional theory is more recent version of the institutional theory. It holds that forces external to societies and organizations combine with those within them to determine their culture, beliefs, rules, norms and values (Powell and DiMaggio, 1991). What evolved into the neo-institutional theory emanated from Alfred Schutz's phenomenology of everyday life theory. It was Berger & Luckmann (1966) that used Alfred Schutz's thoughts to build the foundation for neo-institutional theory. Like the phenomenology of everyday life theory, neo-institutional theorists argue that the culture, beliefs, rules, norms, and values entrenched in an organization are determined by four social actors-consociates, contemporaries, predecessors and successors (Schutz & Luckmann, 1989; Zhao, 2004). The four social actors influence, based on time and space, the evolution of culture, beliefs, rules, norms and values within a social setup. For instance, consociates are social actors that share the same time and physical space with one another. Contemporaries are those social actors that share the same time but not the same physical space with one another. Predecessors and successors are those social actors that do not share the same time and physical space with existing social actors. While predecessors exist in the past, successors are expected to exist in the future (Schutz & Luckmann, 1989; Zhao, 2004). Very important to the formation of institutions that impact IR innovation are contemporaries, that is, those IR stakeholders that do not share the same physical space with those within universities. Good examples can be commercial publishers, conference organizers and scholarly knowledge users among many others. Consociates also have very deep influence on IR innovation. This is particularly so as it concerns the diversity in the notions that exist among academics within a given department and/or faculty of a university as exemplified in IR acceptance, perception and adoption studies (Davis & Connolly, 2007; Maness, *et al.*, 2008; Palmer, *et al.*, 2008). A major gap in the IR literature is the explanation of how IR stakeholders participate in the creation of the institutions that influence acceptance, perception and adoption of IR.

Howcroft & Light's (2010) study shows a practical example of how institutions influence the ways the failure and success of an IS implementation project was socially constructed by diverse stakeholders. This is irrespective of the fact that the stakeholders participate in the enactment, sustenance and modification of the institutions impacting their judgment. As far as we were able to confirm, there is no IR study that has been devoted to assessing how institutions that impact IR innovation are constructed and shaped. This is irrespective of the number of studies that have provided valuable claims on how institutions either enable or constrain IS innovation (Lamb & Kling, 2003). Consequently, viewing those involved either directly or indirectly in IR innovation as stakeholders and rational social actors has implications on the theory that that should be considered appropriate for IR studies. It requires theories that are explanatory and not those that are descriptive. It requires explanation about processes and not the description of events. This is the reason why this paper used the stakeholders theory, institutional theory and SST theory to come up with explanatory theory that has at its center technology, rational social actors, and institutions. The theory presents these three actors as socially constituted and constructed actants that influence one another in the processes of IR innovation.

Emergent Conceptual Framework

We provide below a conceptual model which represents an emergent way for explaining sustainable IR innovation. The concept emanated from the theoretical frameworks explained so far and the limitations inherent in the IR discipline. The importance of the conceptual model is that it has the capacity to help researchers and practitioners to come up with new IR innovation indicators. These new indicators can be used to carry out empirical investigations and to manage IR innovation processes from different dimensions. The indictors outlined horizontally consist of conceptualization, intentions and strategies. These set of indicators provide values to the indicators outlined vertically-participants, synthesizing point and institutional contexts. For example, if conceptualization is defined vis-à-vis participants it explains the ways IR innovation participants are conceptualized, that is, if they are seen as input-output participants or as

stakeholders. It also helps to explicate all the social actors that are included as IR stakeholders and the justification for their inclusion. This is also applicable to the indicator, institutional IR concept. This indicator explains what constitutes a university's IR concept. It also explains what constitutes appropriately synthesized IR concepts, that is, the IR concept that is held by participants and their university. IR concepts held by universities are those held by groups and/or individuals that have the official mandate to innovate IR for a given university. When this is synthesized with the IR concepts held by other participants it becomes institutional IR concept. Our assumption is that if the IR concepts held at organizational level and those held by individuals and group participants are surfaced and synthesized to become institutional, that it increases the chances of developing a unified and generally acceptable IR concept. The synthesizing point is therefore the point in which concepts, intentions and strategies held at varying levels among IR stakeholders are aligned in order to come up with more widely acceptable, that is, institutional IR concepts, intentions and strategies. Institutional IR concepts, intentions and strategies therefore become the reference points for the interpretation of IR innovation at different levels and among IR stakeholders. In this study we take IR concepts to mean a cognitive based representation of what IR is among stakeholders which has become institutional. Intentions means the purpose(s) for which stakeholder will want to participate in IR innovation. IR strategies means what stakeholders consider the most appropriate 'how' and 'what' it takes over a period of time to innovate IR. Consequently, the analytical frameworks surfaced in the emergent conceptual framework are conceptualization, IR intentions, IR strategies, IR participants, institutional context, and synthesizing point. In other words, basic IR innovation indicators include appropriate conceptualization of stakeholders, adequate engineering and re-engineering of social contexts and synthesizing point.

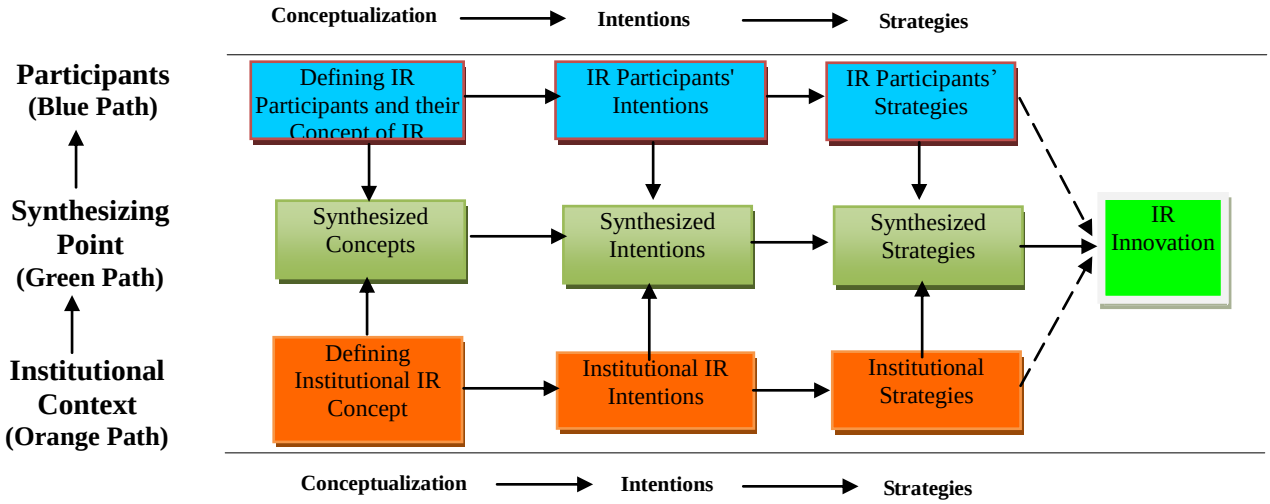

Figure 1: Dynamics of IR Innovation

The emergent conceptual model provides three options for implementing IR namely, blue path, orange path and green path. Our idea is that the identification and definition of IR stakeholders' status and their IR intentions and strategies can only be accurate if the prevalent corporate orientation is stakeholder orientation (Ballejos and Montagna, 2008; Donaldson & Preston, 1995). This allows IR innovators to take as important every social actor that may be connected to their innovation strategies and therefore promotes the elicitation of all possible IR stakeholders and their needs and influences on IR innovation. Foundational studies on IR success carried out by Westell (2005); Bosc & Harnad (2005); Foster & Gibson (2005) and Crow (2002) fall short of the kind of explanations for IR innovation provided in our model. This is also the same with recent studies (Burns, *et al.*, 2013; Chowdhury, 2013; Pinfield, 2015). From the example shown in Table 1, the following IR participants-authors, researchers, librarians, academic disciplines, conference organizers and commercial publishers are likely to have diverse IR needs as shown in the Table below. It is likely that their influence on IR innovation will be positive if these needs are met.

Table 1: Some IR Needs Indicators of Selected Stakeholders

IR Need Indicators	Stakeholders					
	Authors	*Researchers*	*Librarians*	*Academic Disciplines*	*Conference Organizers*	*Commercial Publishers*
Visibility	√	√	-	√	√	-
Reliable Communication Sourc	√	√	-	√	√	-
Dissemination of Accurate Theory	√	√	√	√	√	-
Popularity	√	√	-	-	√	-

Key: √ indicates the indicators that are relevant to selected stakeholders.

While we are aware that the example depicted in Table 1 is not exhaustive, the indicators each participating group will consider relevant to their needs are different and determined by their roles and needs (Maness, *et al.*, 2008; Khoo, 2005). This is what we tried to portray in Table 1. For a university, institutional IR needs are likely to be measured based on the extent to which IR can be used to support its larger goal of teaching, learning, education, research, creativity and innovation (Utulu & Akadri, 2014). Authors of papers submitted to IR need their papers to be accessible and visible to readers. They also need IR to serve as a reliable channel of communication with to communicate with other members of the scholarly community. However, librarians who advocate for IR resource deposits may not need any form of communication with members of the different communities where academics and those that use university libraries are affiliated. In other words, because librarians are not expected to carry out research in other disciplines, they are not expected to see IR as medium for communicating such research with scholars in the disciplines. Hence, roles and needs play pivotal role in determining IR stakeholders' needs. However, as expected in a paper of this nature, our conjecture of IR needs listed in Table 1 is not exhaustive. Facts in the literature show that accessibility, reliable communication between authors, reviewers and publishers, dissemination of accurate and quality research, visibility and popularity of authors are among the factors stakeholders in the scholarly publishing community consider as important (Utulu and Bolarinwa, 2008; Broody and Harnad, 2005). Each social context and condition will determine what constitute exhaustive IR needs. If we revisit Figure 1 where the dynamics of IR innovation were represented in a model, we will notice that the constructs outlined as blue path in the Model (Defining IR participants, IR participants' intentions and IR participant strategies) only concerns IR innovation variables that have to do with participants. Approaching IR research or practical implementation of IR through the blue path will lead to a situation in which the issues that are likely to be considered are those that have to do with participants. This will result in a situation in which institutional factors will be omitted in IR assessment and/or practical implementation efforts. Any research carried out on the tenets of the blue path as indicated in the Model will negate Genoni's (2004) submission that there is no common view of the concept of IR and how it is to be governed among participants and institutions. It is however, the blue path approach that is commonly used by IR practitioners and researchers; hence, it produces unwarranted gaps with regards to IR views that are held at the individuals, institutional and inter-institutional levels (Davis and Connolly, 2007; Johnson, 2002).

There are studies in the IS field that detail the difference among institutional knowledge, developers' knowledge and IS users' knowledge of an IS (Khoo & Hall, 2013; Khoo, 2005; Orlikowski and Gash, 1994; Ciborra and Lanzara, 1994). Conditions such as this may be responsible for the recommendation of mandatory participation in IR project as a way to achieve wide participation (Jantz and Wilson, 2008; Sale, 2005). The consequence of this is that IR innovation has not been institutionalized in universities where this kind of participation has become the norm. The risk is that IR innovation will not be able to stand the test of time (Davis & Connolly, 2007; Tolbert and Zucker, 1996; Powell and DiMaggio, 1991). Our conjecture is that IR innovation requires aligning stakeholders' IR concepts, intentions and strategies as shown in the green path. Aligning stakeholders' IR concepts, intentions and strategies allows IR innovation to

be approached from a wider perspective. Such wider perspective covers a variety of IR objectives derived through multilevel assessment of institutional IR needs and the needs of all IR participants. For instance, a student may assess IR innovation from the extent to which it is able to meet his/her objectives with relationship to education, training, research and learning, and how all these connect with the way he/she can meet his/her life objectives. If all stakeholders' objectives are analyzed based on the peculiarity of their perspectives, this will allow, for instance, a university to be able to connect IR success assessment to its long term mission which covers training, education, research, innovation and creativity (Utulu & Akadri, 2014). The conclusion of the matter raised in this paper is that IR research and practical IR innovation should be carried out by combining the orange path with the blue path to form the green path as indicated in the conceptual model.

Conclusion

The concern that led to this study is the need to develop an explanatory theory that can be used to assess IR innovation. To come up with a new theory, insights in three theories namely institutional theory, stakeholders theory and SST theory were concatenated. This resulted in the attention paid on the socio-cultural factors that influence IR innovation contexts and the numerous stakeholders that influence its innovation. The issue raised is that IR innovators must endeavor to identify all IR innovation stakeholders and provide avenues for negotiating collective IR innovation objectives that are acceptable to all of them. The role institutions play in endeavor to achieve collective IR innovation objectives was discussed. Primarily, the ways IR stakeholders are likely to socially shape IR innovation objectives was addressed because it was considered important to the drive to arrive at the kind of socio-technically driven IR innovation that will facilitate innovators drive to develop a uniform IR objective from the array of objectives that different stakeholders may have. We conclude that this will improve IR innovation outcomes because it pays attention on the identification of all stakeholders, the institutions that drive their thinking and views of IR innovation and the social processes through which they can reach uniform IR objectives.

2 References

Allard, S., Mack, T. R., & Feltner-Reichert, M. (2005). The librarian's role in institutional repositories: a content analysis of the literature. Reference Services Review, 33(3), pp.: 325-336.

Antleman, (2004). Do open-access articles have a greater research impact?. *College & research Libraries*, 65, 372-382.

Armbruster, C., & Romary, L. (2009). Comparing repository types: challenges and barriers for subject-based repositories, research repositories, national repository systems and institutional repositories in serving scholarly communication. Research Repositories, National Repository Systems and Institutional Repositories in Serving Scholarly Communication (November 23).

Ballejos, L. & Montagna, J. (2008). Method of stakeholder identification in interorganizational environments. *Requirements Engineering*, 13, pp.: 281-297.

Berger, P. and Luckmann, T. (1966). The social construction of reality. New York: Doubleday Anchor.

Broody, T. and Harnad, S. (2005). Keynote Lecture: providing open access to peer-reviewed articles to maximize and measure their research impact. Available at: www.oal.unizh.ch/symposium/docs/Harnad.ppt Accessed on 25 December, 2013

Burns, C. Lana, A. and Budd, J. (2013). Institutional repository: exploration of costs and benefits. *D-Lib Magazine*, 19(1/2).

Chan, L. Kirsop, B. and Arunachalam, S. (2005). Open access archiving: the fast track to building research capacity in developing countries. Science and Development Network, Available at: https://tspace.library.utoronto.ca/bitstream/1807/4415/1/Open_Access_Archiving.pdf Accessed on: August 11, 2013.

Ciborra, C. and Lanzara, G. (1994). Formative contexts and information technology: understanding the dynamics of innovation in organizations. Accounting, Management & Information Technology, 4(2), p.: 61-86.

Copeland, S. (2011). Electronic Theses and Dissertations. In Digitisation Perspectives, R. Rikowski (Ed.), (pp. 103-113). Rotterdam: Sense Publishers, 2011.

Crawford, B. (2003). Open access publishing: where is the value? Lancet, vol. 362, November 8, 1578-1580.

Crow, R. (2002). The case for institutional repositories: a SPARC position paper. Washington DC: The Scholarly Publishing and Academic Resources Coalition, Available at: www.arl.org/sparc/IR/ir.html Accessed on December 15, 2013.

Damian, D. (2007). Stakeholders in global requirements engineering: Lessons learned from practice. Software, IEEE, 24, 21-27.

Davis, P. & Connolly, M. (2007). Institutional repositories: evaluating the reasons for non-use of Cornell University's installation of DSpace. D-lib Magazine, 13.

Donaldson T. and Preston, L. (1995). The stakeholder theory of the corporation: Concepts, evidence, and implications. Academy of management Review, vol. 20, 65-91, 1995.

Effah, J. & Abbeyquaue, G. (2013). Social construction of open source application for student records: the case of Cape Coast University. International Conference on ICT for Africa 2013, February 20-23, Harare, Zimbabwe.

Ferreira, M., Rodrigues, E., Baptista, A. and Saraiva, R. (2008). Carrots and sticks: Some ideas on how to create a successful institutional repository. D-Lib Magazine, vol. 14, 2008.

Foster N. and Gibbons, S. (2005). Understanding faculty to improve content recruitment for institutional repositories, D-Lib Magazine, 11.

Fox, E., McMillan, G. & Srinivasan, V. (2009). Electronic Theses and Dissertations: Progress, Issues, and Prospects. Putting Knowledge to Work and Letting Information Play: The Center for Digital Discourse and Culture, p. 126.

Frooman, J. (1999) Stakeholder influence strategies. Academy of Management Review, 191-205.

Fuenfschilling, L. & Truffer, B. (2014). The structuration of socio-technical regimes-conceptual foundations from institutional theory. *Research Policy*, 43, 772-791.

Genoni, P. (2004). Content in institutional repositories: a collection management issue. Library Management, 25, 300-306, 2004.

Hanard, S. 2001. The self-archiving initiative. *Nature*, 410, pp 1024-1025.

Harnad S. and Broody, T. (2004). Comparing the impact of open access (OA) vs. non-OA articles in the same journals. D-lib Magazine, vol. 10(6).

Harnad, S. (2003). 'Eprints: electronic preprints and postprints.' Encyclopedia of Library and Information Science. New York: Marcel Decker.

Houghton, J. Rasmussen, B. Sheehan, P. Oppenheim, C. Morris, A. Creaser, C. Greenwood, H. Summers, M. and Gourlay, A. (2009). Economic implications of alternative scholarly publishing models: Exploring the costs and benefits. Being a report to the Joint Information Systems Committee. Available at: http://vuir.vu.edu.au/15222/1/EI-ASPM_Report.pdf Accessed on August 11, 2013.

Houghton, J., Henty, M. & Steel, C. (2003). OAI compliant institutional repositories and the role of library staff. Library Management, 25(4/5), pp.: 170-176.

Howcroft, D. & Light, B. (2010). The social shaping of packaged software. *Journal of the Association for Information Science*, 11(3), pp.: 122-148.

Howcroft, D., Mitev, N. & Wilson, M. (2004). What we may learn from social shaping of technology approach. In: Social Theory and Philosophy for Information Systems (J. Mingers, & L. Willcocks, Eds.), London: John & Wiley Publishers.

Johnson, R. (2002). Institutional repository: partnering with faculty to enhance scholarly communication, D-Lib Magazine, 8.

Jones, R. E., Andrew, T., & MacColl, J. (2006). The institutional repository. London: Elsevier.

Jones, T. (1995). Instrumental stakeholder theory: A synthesis of ethics and economics. Academy of management review, 20, 404-437.

Khoo, M. (2005). Tacit user and developer frames in user-led collection development: the case of the digital water education library. Paper delivered at Joint Committee on Digital Library Conference, June 7-11, Denver, Colorado.

Kim, J. (2010). Faculty self-archiving: motivation and barriers. *Journal of the American Society for Information Science and Technology*, 16(9), pp.: 1902-1922.

Kim, J. (2007). Motivating and impeding factors affecting faculty contribution to institutional repositories. Journal of Digital Information, 8(2).

Lamb, R. & Kling, R. (2003). Reconceptualizing users as social actors in information systems research. *MIS Quarterly*, 27(2), pp.: 197-235.

Lee-Hwa, T., Abrizah, A. and Noorhidawati, A. (2013). Availability and visibility of open access digital repositories in ASEAN countries. *Information Development*, 29(3), pp.: 274-285.

Lynch, C. (2003). Institutional repositories: essential infrastructure for scholarship in the digital age. portal: Libraries and the Academy, 3, 327-336.

Ma, J., Wang, Y., Zhu, W. and Tang, R. (2009). An attempt of data exchange between institutional repository and the information environment for the management of scientific research-ARP. Library Collections, Acquisitions, & Technical Services, 33, pp. 1-7.

Maness, J. Miaskiewicz, T. and Summer, T. (2008). Using personas to understand the needs and goals of institutional repository users. D-Lib Magazine, 14(9), pp.: 10.

Mitchell, R., Agle, B. and Wood, D. (1997). Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. Academy of Management Review, 22, 853-886.

Norris, M., Oppenheim C. and Rowland, F. (2008). Open Access Citation Rates and Developing Countries. In ELPUB, 335-342.

Orlikowski, W. & Gash, D. (1994). Technological frames: making sense of information technologies in organizations. ACM Transactions on Information Systems, 12(2), pp.: 174-207.

Palmer, C., Teffeau, L. and Newton, M. (2008). Strategies for institutional repository development: a case of three evolving initiatives. *Library Trends,* 57(2), pp.: 142-167.

Pan, G. (2005). Information systems projects abandonment: a stakeholder analysis. *International Journal of Information Management,* 25, pp.: 174-184.

Pinfield, S. (2015). Making open access work: the 'state of the art' in providing open access to scholarly literature. *Online Information Review*, 39(5), pp.: 604-636.

Pouloudi, A. (1999). Aspects of the Stakeholder Concept and their Implications for Information Systems Development. Proceedings of the 32nd Hawaii International Conference on System Sciences.

Powell, W. and DiMaggio, P. (1991). Introduction. In: The New Institutionalism in Organizational Analysis. W. Powell and P. DiMaggio (eds.), Chicago: University of Chicago Press.

Royster, P. (2008). Publishing original content in an institutional repository. Serial Review, 34(1), pp.: 27-30.

Sahay, S. & Mukherjee, A. (2015). Capacity strengthening in a development context: institutional challenges and approaches. Proceedings of the 13th International Conference on Social Implications of Computers in Developing Countries, Negombo, Sri Lanka, May.

Sale, A. (2005). The impact of mandatory policies on ETD acquisition. Available at: http://eprints.utas.edu.au/222/1/EDT_acquisition.pdf Accessed on August 10, 2014

Schutz, A. and Luckmann, T. (1989). The structures of lifeworld, Vol. 2. Trans. R. Zaner and D. Parent Jr. Evanston, IL: Northwestern University Press.

Seonghee, K., & Boryung, J. (2008). An analysis of faculty perceptions: Attitudes toward knowledge sharing and collaboration in an academic institution. Library & Information Science Research, 30(4), pp.: 282-290.

Sharp, H., Finkelstein, A. and Galal, G. (1999). Stakeholder identification in the requirements engineering process. In Database and Expert Systems Applications, 1999. Proceedings. Tenth International Workshop on (pp. 387-391). IEEE.

Shearer, K. 2013. "Institutional repositories: towards the identification of critical success factors." Proceedings of the Annual Conference of CAIS.

Simon, H. (1955). A behavioral model of rational choice. Quarterly Journal of Economics, 69, pp.: 99-118.

Sompel, H., Payette, S., Erickson, J., Lagoze C. and Warner, S. (2004). Rethinking scholarly communication. D-Lib Magazine, 10(9).

Suleman H. and Fox, E. (2002). Organizational context and information systems success: a contingency approach). Towards universal accessibility of ETDs: building the NDLTD union archive. In Fifth International Symposium on Electronic Theses and Dissertations (ETD2002), Provo, Utah, USA, Vol. 30.

Tolbert, P, and Zucker, L. (1996). The institutionalization of institutional theory. In: S. Clegg, C. Hardy and W. Nord (Eds.), Handbook of organizational studies (pp.: 175-190), London: Sage.

Tonta, Y. (2008). Open access and institutional repositories: the Turkish landscape. *Turkish Libraries in Transition: New Opportunities and Challenges,* pp.: 27-47.

Tsakonas, G.. and Papatheodorou, C. (2008). Exploring usefulness and usability in the evaluation of open access digital libraries. *Information Processing and Management*, 44(3), pp.: 1234-1250.

Utulu S. and Akadri, A. (2014). A case of Redeemer's University's Adoption of Institutional Repository Using the Principle of Electronic Information Management Systems. In: Cases on Electronic Records and Resource Management: Implications in Diverse Environments, Janice Krueger (Ed.), (in press), Hershey: IGI, 2014.

Utulu, S. & Bolarinwa, O. (2008). Open access initiative adoption by Nigerian academics, Library Review, 58, 660-669, 2008.

van Westrienen, G. and Lynch, C. (2005). Academic institutional repositories. D-lib Magazine, vol. 11, pp. 1082-9873. 2005.

Venkatesh, V., Brown, S & Bala, H. (2013). Bridging the qualitative-qualitative divide: guidelines for conducting mixed methods research in information systems. *MIS Quarterly,*

Westell, M. (2006). Institutional repositories: proposed indicators of success. Library Hi Tech, 24, pp. 211-226.

Wood, M. (2011). Discovery tools and local metadata requirements in academic libraries. SLIS Student Research Journal, vol. 1, Retrieved from: http://scholarworks.sjsu.edu/slissrj/vol1/iss1/3 On December 20, 2013.

Wyk, B. and Mostert, J. (2011). Toward enhanced access to Africa's research and local contents: a case study of the institutional depository project, University of Zululand, South Africa. African Journal of Library, Archives, and Information Science, 21, 133-144.

Zhao, S. (2004). Consociated contemporaries as an emergent realm of the lifeworld: extending Schutz's phenomenological analysis to cyberspace. *Human Studies*, 27, pp.: 91-105.

Zhao, S. (2006). The Internet and the transformation of the reality of everyday life: towards a new analytic stance in sociology. *Sociological Inquiry,* 76(4), pp.: 458-474.

Zilber, T. (2002). Institutionalization as an interplay between actions, meanings, and actors: the case of a rape crisis center in Israel. *Academy of Management Review,*45(1), pp.: 234-254.