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Aminu Mamman & Ken Kamoche
Institute for Development Policy and Management
University of Manchester

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Harold Hankins Building, Precinct Centre,
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Tel: +44-161 275 2798 Fax: +44-161 275 0808
Email: idpm@manchester.ac.uk Web: http://www.manchester.ac.uk/idpm

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Aminu Mamman*
University of Manchester
Institute for Development Policy and Management
Manchester M13 9GH
United Kingdom
Aminu.mamman@manchester.ac.uk

and

Ken Kamoche
City University of Hong Kong
Dept of Management
Tat Chee Ave
Kowloon, Hong Kong
Tel 852 27844904
mgnkk@cityu.edu.hk

* Corresponding author

Abstract

In the last decade there has been growing interest in the research on and theorization of the topic of Management Innovation. However, much of the effort has focused largely on the adoption and diffusion of management innovation rather than what happens after management innovations have been adopted. This is despite the acknowledgement by scholars that most management innovations are appropriated when adopted by organizations. We believe that the lack of conceptual bases on which to research the topic is the reason why researchers have neglected the topic. The neglect of this phenomenon has hindered the theoretical advancement of the field. Therefore the main goal of the paper is to stimulate development of theory and research on modification of management innovation. This is achieved by: (a) summarizing theoretical perspectives that shed some light on the topic; (b) providing working definition for modification of management; and (b) raising a series of research questions to guide future research.

Key Words: Management Innovation; Organizational Innovation; Management ideas; Modification of Management Innovation

MANAGEMENT INNOVATIONS AND THEIR MODIFICATIONS

The notion of management innovation(s) (MI) as an important determinant of organizational survival and growth has received considerable attention from management scholars (see Abrahamson, 1991; 1996; 1997; Abrahamson & Fairchild, 1999; Abrahamson & Rosenkopf, 1993; Alvarez, 1997; Damanpour, 1991; Gill and Whittle, 1992; Huczynski, 1993a; 1993b; Micklethwait and Wooldridge, 1996; Noria and Berkely, 1994; Rogers, 1983; 1995; Storey & Salaman, 2005). However, this attention has not been extended to the modification of MI (Mamman, 2002). For example, the seminal work on organizational innovation by Rogers (1983; 1995) dedicated only a few pages on modification of innovation. In fact, while there are theories on the adoption and diffusion of MI (*see* Abrahamson, 1991; Arias & Guillen, 1997; Birkinshaw, Hamel & Mol, 2005; Bolton, 1993; Colins, 2000; Gibson & Tesone, 2001; Lozeau, Langley, & Denis, 2002; McCabe, 2002; Mazza, 1997; Mazza & Alvarez, 2000; Newell, Robertson and Swan, 1997), the same cannot be said, with confidence, about their modification. Yet evidence indicates that modification of innovations by organizations is very common (Calsyn, Tornatzky & Dittmar, 1977; Leonard-Barton, 1992; Levin, 2004; Rogers, 1995; Westphal & Zajac, 1994; Westphal, Gulati & Shortell, 1997; Zbaracki, 1998). Although both efficiency and non-efficiency reasons trigger modifications, there are arguments for and against modification of MI. For example, Hill and Wilkinson (1995: 10) argued that

> "Companies seem to pick up bits and pieces of TQM and then report that they are operating TQM when in reality most schemes appear an ill-matched mixture of quality circles, employee involvement, quality tools and long established quality assurance systems".

Commenting on the 75% failure rate of TQM (*see* Choi and Behling, 1997; Eskildson, 1994; Mathews and Katel, 1992), proponents of TQM blame some organizations for radically altering the idea to the point that they can no longer claim to be operating within the TQM paradigm. However, Wood and Caldas (2002:20) pointed out that firms imposing MI without modification are taking a huge risk. Rogers (1995: 177) also seems to concur with this view by stating that 'Flexibility in the process of adopting an

innovation may reduce mistakes and encourage customization of the innovation to fit it more appropriately to local situations or changing circumstances'.

Leonard-Barton (1993) used laboratory analogy to describe the necessity of modification of technical innovation. In advancing the concept of mutual adaptation, Leonard-Barton (1993:1126) argued that:

> "Laboratory tests do not adequately simulate user workplaces. Chemical processes react unpredictably when brought from Petri dish quantities up to full production volume; large integrated software programs may "crash" when all the modules are finally interconnected. Thus, even if developers successfully meet their original technical objectives, new technology often requires fine-tuning in the operating environment. Users are no more prescient than developers about changes in their workplace that will allow them to best exploit a new technology. A factory statistical control system that seems to be merely an incremental alteration may in fact require entirely new operator skills".

In line with the comments above, several scholars have advocated modification of MI (see Botti, 1997; Klein, 1989; Wood & Caldas, 2002; Young, 1992; Zipkin, 1991). Ouchi (1981) is one of the earlier researchers who advocated modification of MI when he came up with *Theory Z* or *Type Z* Organization. Ouchi advocated modification (*hybridization*) of Japanese management system to suit the American context. Using the concept of decoupling or loose coupling, some researchers have taken a symbolic perspective on modification (see Westphal & Zajac, 1994; Westphal, et al., 1997; Zajac & Fiss, 2001; Zajac & Westphal, 1995; Zbaracki, 1998). These researchers' main focus is not on tinkering with the innovation, but on the degree to which MI is adopted and implemented (Levin, 2004; Zajac & Westphal, 1995; Zbaracki, 1998). The issue of decoupling (or loose coupling) is another dimension of modification which we consider important in furthering our understanding of the topic. It provides us with the means of integrating organizational practice with theoretical developments. In spite of the growing importance of the topic and acknowledgement that MI undergo frequent modification, theoretical development has not caught up with the reality of this organizational practice.

Objectives of the Paper

The goal of this paper is to stimulate development of theory and research on modification of MI. We pursue this goal in the following ways: Firstly, we present a generic term to describe the concept of modification of MI. We believe this is important because, as pointed out earlier, MI are manipulated before and/or after they have been implemented by organizations. For example, some of the manipulations are deliberate while others are not. Some are undertaken formally but others informally. Also, some modifications are carried out by users and others by managers. It is therefore important to recognize and incorporate these issues in the research and theoretical development of the field. Secondly, we review theoretical perspectives that help to explain modification of MI. The perspective will be multi-dimensional in order to accommodate the complexity of adoption and implementation of MI. The theoretical perspectives adopted in the paper will acknowledge the role of organizations/managers, groups and individuals in the modifications of MI. Thirdly, we raise some research questions that will hopefully lead to further development of research and theorization in the field by identifying important gaps in the literature.

What is Management Innovation?

This section starts by reviewing the definitions of organizational innovation before stating the definition of MI to be used in this paper. Using the works of several authors, Damanpour (1991: 556) defined organizational innovation as the "adoption of an internally generated or purchased devices, system, policy, program, process, product or service that is new to the adopting organization". A similar definition was offered much earlier by Dewar and Dutton (1986). The authors (Dewar and Dutton, 1986: 1422) defined innovation as "an idea, practice, or material artifact perceived to be new by the relevant unit of adoption". Other scholars who subscribe to this definition include Zaltman, Duncan and Holbek, (1973) and Rogers (1983, 1995). Central to the definition of organizational innovation is the assumption of rationality or objectivity. In other words, innovation is often viewed from positive perspectives (Abrahamson, 1991; 1996; Damanpour, 1991; Downs and Mohr, 1976). For example, Domanpour (1991: 556) pointed out that:

> "The adoption of innovation is generally intended to contribute to the performance of effectiveness of the adopting organization. Innovation is a means of changing an organization, whether as a response to changes in its internal or external environment or as a preemptive action taken to influence an environment".

This perspective has been referred to as *efficiency perspective* of innovation and strongly criticized (Abrahamson, 1991; Colins, 2000; Gill & Whittle, 1992; Huczynski, 1993a; McCabe, 2002; Watson, 1994). The efficiency school of organizational innovation continues to dominate the literature in the field. It does not adequately accommodate the political processes and personal interests in organizational innovation.

Scholars have distinguished MI from organizational innovation. While the later covers every aspect of innovation in organization, the former is concerned with the specific domain of management (Birkinshaw, et al. 2005; Damanpour & Evan, 1984). In this paper we use the definition offered by Birkinshaw, et al. (2005) which states that *management innovation* must satisfy the following set of criteria: (a) involve some implementation; (b) be new to the organization adopting it; (c) be new management practice, process or structure; (c) be intended to achieve organizational goals. This definition, and by association our definition, excludes process innovation which "refers to the development of new ways of managing primary value-adding activities (i.e. those involved in resource transformation) of the firm with a view to making them more efficient or effective. Management innovation, in contrast is focused on supporting activities that surround the resource transformation process, and which add value to it" (Birkinshaw et al. 2005: 15). However, we concur with these authors' view that innovation in supporting activities and transformation activities can overlap. A good example is Total Quality Management. Therefore, in this paper TQM is seen as an example of MI.

Modification of Management Innovation

What then is modification of MI? Scholars and researchers have long acknowledged the notion of modification of innovation. However, the phenomenon has been referred to using many terms. For example, Rogers (1995) used three terms to refer to the same

phenomenon, i.e. *reinvention*, *selective adoption* and *modification*. However, the most consistent term used by Rogers was *Re-invention*. Rogers (1995: 174) defined reinvention as "the degree to which an innovation is changed or modified by a user in the process of its adoption and implementation". Rogers rightly argued that although the majority of innovations are modified, researchers are reluctant to investigate the phenomenon. We believe the lack of conceptual basis on which to research the topic could be the reason why researchers have neglected the issue. The neglect of this phenomenon has hindered the theoretical advancement of the field. This point has been echoed by Wolfe (1994: 409) when he argued that the central criticisms of organizational innovation literature have been the "invariant perspectives of innovation". Innovations are widely viewed as monolith in their conception, adoption and application.

Apart from Rogers (1995), some scholars used different terms to refer to modification of innovation. For example, the terms used are: *reorientation* and *variation* (Normann, 1971), *adaptation* (Bear and Ajami, 1996; Klein, 1989; Leonard-Barton, 1988; 1993; Wood and Caldas, 2002; Young, 1992; Zipkin, 1991), *alteration* (Meyer & Goes, 1988; Pelz & Munson, 1982) *levels of transfer of innovation* (Lillrank, 1995; Westney, 1987), *degree of transfer of innovation* (Dolowitz and Marsh, 1996; 2000) *alteration* and *optimization* (Damanpour and Evans, 1984), *reconfiguration* (Henderson and Clark, 1990) and *hybridization* (Botti, 1997). Normann (1971) describes *variation* in innovation from the point of view of product innovation. *Variation* according to Normann (1971: 205) is where an innovation is refined and modified while the sets of dimensions remain basically similar. *Reorientation* on the other hand is described by Normann (1971: 205) as a modification that changes the system rather than keeping the basic dimensions of the innovation intact. Both Rogers' and Normann's conceptualization acknowledged the importance of attributes of innovation. The notion of attributes is important because no proper conceptualization and theorization of modification process can be complete without acknowledging the possibility that the type and degree of changes made to an innovation will be influenced by its characteristics. Yet, the issue of MI characteristics has attracted limited attention in the literature.

Critics and analysts have categorised modification of innovation in an attempt to make sense of the phenomenon. The degree of modification of innovation has been categorised either as *evaluative* (e.g. ideal, acceptable and unacceptable) or *descriptive* such as: expansive; adding components; modifications other than adding components; technical changes; (Harvey, 1970; Larsen & Argawalla – Rogers, 1977; Lewis & Seibold, 1993; Rice & Rogers, 1980; Roitman, Gottschalk, Mayer, & Blakely, 1983). Prior researchers have attempted to categorise types or forms of modification of the innovation. For example, the degree of form of use of innovation have been identified in the following ways: (a) completion of implementation of innovation as planned, (b) proportion of users of the innovation to non-users, (c) components of innovation used, (d) perceptions of how routine the innovation had become (Buller & McEvoy, 1991; Hall & Louks, 1977; Meyer & Goes, 1988; Scheirer, 1983; Tornatzy & Klein, 1982). While these categorisations of innovation modification can shed light on the field, they do not relate to MI. Therefore, more research and theorisation is needed to explore how each MI is modified and the degree to which it is modified. We also need to know how the characteristics of MI might influence the type and degree of modification.

It should be pointed out that the various terms highlighted above are sometimes applied differently by researchers in order to emphasize specific issue. For example, the term *adaptation* is widely used to refer to changes made to organizational setting in order to accommodate an innovation (Bear and Ajami, 1996; Wood and Caldas, 2002). However, the same term is used to refer to the changes made to the innovation itself so that it can fit the organizational settings (Mamman, 1998).

In this paper we use the term *modification* broadly to refer to the deviation from the intended use of MI. Thus, the modification can either be in the form of *addition*, *omission*, *substitution* or *hybridization*, or in the degree of implementation and use (e.g. *decoupling* - where the innovation is installed and used [or not used] symbolically parallel to the existing practices).

Modification of Management Innovation (MI): Some theoretical explanations

Most of the theories on management and organizational innovation until recently have made only cursory remarks on modification. Recently, a number of researchers have made some significant contribution to the subject (see Edelman, 1990; Scott, 1995; Spillane, 2004; Scott, 1995; Thompson, 2005; Van de Ven, Polley, Garud & Venkataraman, 1999; Van de Ven, & Polley, 1992; Westphal & Zajac, 1994; 2001; Zajac & Westphal, 1995; Zbaracki, 1998).

However, in spite of these important insights, theoretical explanation to why and how organizations and users modify MI is still in its infancy. In the following sections we attempt to assemble the relevant theoretical perspectives that implicitly or explicitly explain the modification of MI in organizations. Owing to the limited research on MI (until recently), it should be pointed out that much of the literature reviewed in this paper is derived from organizational innovation. For the purpose of this paper, we categorise the perspectives into: (a) *Rational-choice/Efficiency perspective* (b) *Symbolic Action perspective* (c) *Social Construction (d) Users perspective (e) Learning perspective.* Although some of the theoretical perspectives may overlap, our categorisation is influenced by the efficacy of each theoretical perspective to address specific aspect of the topic of modification.

Rational-choice/Efficiency Perspective

The efficiency perspectives of organizational innovation assume that organizations adopt innovations primarily for efficiency gains. In other words, the reason why organizations adopt new ideas is to fill the performance gap (Abrahamson, 1991; Tolbert & Zucker, 1983). This perspective also assumes that organizations are free and independent to adopt ideas without "peer pressure". This school does not make explicit reference to modification of innovation, however, given that organizations would be under no external pressure to adopt and implement innovation they have the freedom to reject or to modify the innovation to meet the objectives of filling the performance gap. In fact several researchers using the rational/efficiency perspective have advocated modification of innovation to ensure filling the performance gap (Klein, 1989; Leonard-Barton, 1993;

Mamman, 2002; Ouchi, 1981; Rogers, 1995; Woods & Caldas, 2002). Similarly, based on efficiency theory, several researchers have reported that organizations adapt innovations to fit their organizational context and objectives (Thompson, 2005; Van de Ven, Polley, Garud & Venkataraman, 2005; Van de Ven, & Polley, 1992).

However, as Sturdy (2004) points out, the issue of adoption of MI cannot be "based on a systematic assessment of solutions to organizational problems but impulse, persuasion, power, cultural resonance and legitimation, or is subsumed within them" (Sturdy, 2004: 169). Hence the need to take into account of the role of social actors and stakeholders within and outside the organization. It is important to note that efficiency perspective and other perspectives discussed below are not necessarily mutually exclusive. In fact Sturdy (2004) advocates the development of emotional sociology of management which acknowledges the role of emotions in rational decision-making (bounded or otherwise). According Sturdy (2004: 170):

> "such approaches would help break down a core and limiting theoretical barrier in research on the adoption of ideas and give greater empirical recognition to the rational (i.e. also emotional) practices adopted by managers in doing so".

For example, Study (2004) views the use of certain quantitative techniques in management not simply ideal or bounded, but as necessarily emotional. He points out: "In short, rationality is necessarily political, emotional, cultural, institutional and rhetorical, but not reducible to any of them" (p. 170). He rightly argues, in our view, that even the institutional and socio-cultural perspectives of adoption of innovation overlap with the rational/efficiency perspectives. Therefore, as we proceed to review the other perspectives, we share Sturdy's view that the concept of rationality will echo in social actors' interpretation of and actions towards MI. Thus, the cognitive and systematic evaluative nature of rational/efficiency perspectives helps to shed light on how MI may be analysed and modified by adopters (e.g. managers) and users (e.g. workers).

Symbolic Action/Institutional Perspective

This school of thought placed a high premium on the organization's wider environment in influencing the adoption of new ideas (DiMaggio & Powell, 1983; Tolbert & Zucker, 1983; Zucker, 1983). Abrahamson (1996) argues that organizations will be forced into adopting technically inefficient ideas or rejecting efficient ideas by powerful organizations outside the group in which the organization belongs. For example, Wood and Caldas (2002: 23) reported that "several administrations in Brazil, coming from diverse political and ideological backgrounds, have supported, with laws, policies and fiscal incentives, the tendency to adopt foreign management models and practices". The authors argued that in the pursuit of development and national interest, nation states encourage and sometimes coerce managers into adopting foreign managerial practices. Given that organizations are sometimes under pressure to adopt MI unwillingly, recent research has focused on what happens to MI when adopted under such circumstances (see Eldelman, 1990; Westphal & Zajac, 1994; Westphal et al, 1997; Zajac & Fiss, 2001). This has generated a wealth of information on how organizations and their members manipulate and sometimes politicize the adoption and implementation of MI.

For example, researchers have found that sometimes organizations would adopt MI but decouple them from their routine operations (Westphal & Zajac, 1994; 2001; Zajac & Westphal, 1995). Levin (2004: 4) defines decoupling "as any situation where an organization claims to have adopted an innovation but has not implemented it fully". However, Levin (2004) acknowledged that most often some complex MI are usually decoupled because "it is nearly impossible to implement 100% of an innovation like TQM" (p.5). Thus, scholars view decoupling in terms of degree of implementation of MI.

The degree of decoupling can vary with time and with the context of the organization. Therefore, modification is viewed from a broader context rather than just tinkering with the innovation. In other words, modification can take place at rhetorical level as well as at operational level (Zbaracki, 1998). However, it has been found that decoupling is influenced by other factors such as power of the stakeholders as well as prior experience (Westphal and Zajac, 1994; 2001). We would go further to argue that decoupling would depend on the characteristics of the innovation. In other words, some innovations might

be too difficult to disentangle from daily routine than others. In fact Levin (2004) argues that decoupling will be more subtle and complex in the case of complex innovations. Thus the rational/efficiency and institutional perspectives focused largely on the organizational/formalised dimension of adoption and modification of MI. In the following sections we present perspectives that shed light on the relevance of users in the modification of MI.

Social Construction Perspective

Social construction/structuration theories are important theoretical perspectives that have been used to explain the interaction between MI and organizational members (Mir & Watson, 2000). According to social construction theory, organizational members operate under collective systems generated by socially produced structures through recursively situated practices (Giddens, 1984; Jarzabkowski 2004). According to Jarzabkowski (2004:531),

> "structures constrain and enable human action and are also created and recreated by actors who draw upon social structure in order to act. This reciprocity between agent and structure enables the persistence of social order, embedding it in social institutions that endure across time and space".

The above statement is based on Giddens' (1984) view that organizational practice is institutionalised in social structures and therefore will persist over time. At the same time, the social structures are integrated in the daily practices of that organization. Most significant to the understanding of the persistence of structure is the notion that "Structures persist through the tacit knowledge and practical consciousness of actors who choose familiar patterns because it provides them with ontological security" (Giddens, 1984:64). Therefore, because of the social construction of innovation in organizations, MI will be interpreted and constructed to suit the social structure. In other words, given that social structures constrain and shape people's actions in the organization, MI will be modified to ensure the stability and persistence of the structure. According to Clark (2000:67).

> "Recursiveness means the socially accomplished reproduction of sequences of activity and action because the actors involved possess a negotiated sense that one template from their repertoire will address a new situation".

In their study of organizational change in a Canadian law firm, Cooper et al. (1996: 624) used geological analogy to describe social construction of change. They argue that: "organizational change represents not so much a shift from one archetype to another, but a layering of one archetype on another".

To extend their analogy, they argue that:

> "what is exposed at the surface of the organization is the result of a complex and historical process of fault disruptions, erosions and strengths of archetype (p. 624).

The authors found that change takes place in organizations not necessary through the importation of new practices, but the importation of meanings. Thus, the practices will remain but their meanings will change through social construction. This raised the possibility of symbolic adoption of MI and appropriation of practice and meanings.

Jarzabkowski (2004) describe the durability of organizational routine as a "code of practice" or even "best practice" that have been sedimented as rules and resources that govern how people act. The idea that recursiveness can inhibit the adoption of innovation at individual and organizational levels has already been acknowledged (Cyert & March 1963; Newell et al. 1962; Cohen & Bacdayan, 1994; Weick, 1969). Scholars have indicated that individuals are influenced by formal operating procedures (Cyert & March, 1963) and stored cognitive recipes (Cohen & Bacdayan, 1994; Weick, 1969) which limit their freedom to deviate from normal routine behaviours. Cohen and Bacdayan (1994) argued that procedural memory predisposes employees to act without conscious thought. Similarly, Henderson and Clark (1990) argued that organizational routines comprise a social architecture making it difficult for organizations to absorb innovation. Orlikowski (2000) also argued that technological innovations are localised by adopters and users leading to contextual specificity of the use of the technology. Therefore, if organizations

adopt innovation due to institutional forces, loose-coupling or decoupling will take place due to the recursive strength of the existing practice at individual and organizational levels. In a nutshell, organizations might not adopt and implement MI in its entirety due to the resistance of the socially constructed structures. Instead, it will appropriate all or parts of the MI to reinforce the socially constructed structure. As Leonard-Barton (1992) pointed out, distinctive social structures can act as an organization's core rigidities. The rigidities predispose recurrent action patterns (Cohen et al. 1996). Jarzababkowski (2004) further argued that "theses concepts of organizational stability are implicitly underpinned by the social theory of *habitus*, that is, social structure assimilates information that is self-reinforcing and resistant to change" (p.533).

Social construction and recursive theories imply that organizations and workplaces do not embrace innovation completely but rather appropriate them to reinforce social structure due to the sedimentation of pre-existing practices and structures. To this extent, MI will always be modified across organizations given that the genetic make-up of organizational procedures and social architecture is diverse. Drawing on the works of Argote (1999), Peters and Waterman (1982) and, Karim and Mitchell, (2000), Jarzabkowski (2004) argued that recursiveness is not necessarily a bad thing because "recursiveness equates with learned efficiencies, suggesting that 'practice makes perfect'. Since firms display similar choice-making behaviour, recursiveness may even be associated with best practice" (p.534).

Finally, it is worth pointing out that recursiveness theory acknowledges the possibility that the practice developed in an organization can conflict with the intent of the users. As Jarzabkowski (2004:544) pointed out:

> "The practices were developed with a particular purpose or intent. However, actors also are intent in their use of these practices and the intent of the actors may not comply with the objective purpose of particular practice. Thus, the properties of a practice are open to interpretation according to the use to which they are put. Where the intent implied in a practice complies largely with the intent of actors, habitual, routinized use may be expected, leading to recursiveness".

The above statement suggests that at individual rather than organizational or group level, people can construct their own meaning of innovation and proceed to modify it.

Users' Perspectives

One of the limitations in the current research and theorisation of the adoption and modification of management innovation is the inadequate attention paid to the role of individuals rather than groups (sociological perspective) and organizations (efficiency and institutional perspectives). This gap in the literature (until recently) arose as a result of more attention "paid to innovation antecedents than to the "black box" between inputs and outputs" (Lewis & Seibold, 1993:324). Other researchers have attributed the "black box" approach to the emphasis on a managerial role in the adoption and implementation process (Glaser, Abelson & Garrison, 1983; Nutt, 1986; Lewis & Seibold, 1993). This section reviews various perspectives of users' involvement in the modification of MI. At the risk of oversimplification, we categorise the perspectives into (a) *rational-user* (b) *cognitive-user,* and (c) *collective users*.

(a) Rational User: At individual level or user's level, some observers argue that utility maximization governs decision making in organizational settings (Spillane, 2004). In other words, choices are guided by personal interests on utility maximization (Moessinger, 2000). Therefore, when organizations adopt MI, the users (given the chance) will fail to implement them wholly or partly if the innovation conflicts with their interests of utility maximization (Spillane, 2004). Commenting on the adoption of government policies in the public institutions, Firestone (1989) pointed out that public officials pick and choose policies that are only consistent with their interests and agendas. Implicit to this perspective is the assumption that users of innovation can accurately understand and interpret the purpose and implication of the innovation vis-à-vis their own interests and agendas. This assumption has been questioned by many researchers who employ sociological perspectives to their interpretation of adoption and modification of MI (Jarzabkowski, 2004; Lewis & Seibold, 1993).

Using a psychodynamic perspective, Sturdy (2004) echoes Huzcynski's (1993) arguments and points to existential anxiety as a reason why some managers would adopt MI in an attempt to demonstrate that they are up-to-date with current thinking and practice in management. However, in an earlier publication, Sturdy (1997) argued that existential anxiety can be seen as a condition and consequences of individualising organizational and socio-economic structures. Therefore it is not something that can be marginalised or treated.

It should be pointed out however, that rational user's perspective does not suggest that personal interests and agendas will necessarily conflict with organizational interests. In fact, many users of MI may argue that their opposition to MI or their desire to alter it, is in the organizational interest. For example, trade union members may insist on the modification of MI to suit workers as well as to achieve organizational operational objectives.

(b) Cognitive User: The cognitive dimension of social construction perspective attempts to address the limitations of rational choice theory of diffusion and adoption of innovation (Spillane, 2004). The perspective sheds light on the role of individuals in the adoption and modification of innovation. Like the rational choice theory, this school see the role of users as pivotal in the adoption and implementation of MI. However, rather than assuming that users can accurately understand and interpret the innovation vis-à-vis their own interests and that of the organization, this school assumes that social actors are involved in sense-making and construction of their own understanding of the innovation (Spillane, 2004; Weick, 1995, Starbuck & Milliken, 1988). This offers further development of social construction theory, because social construction thesis appears to suggest that organizational members are always aware of and knowledgeable about the implications of imported ideas and practices. However, the cognitive dimension suggest that this is not always the case. As Spillane (2004: 6) points out:

> "Conventional accounts assume that local officials are choosing between following policymakers' directions or ignoring them; they assume that locals get the intended policy message. That assumption is problematic because in order to choose, local actors must figure out what the policy means. To decide whether to

> ignore, alter or adopt policymaker' recommendations, local officials must construct an understanding of the policy message. When conventional accounts consider local interpretations of policy, local actors are depicted, implicitly or explicitly, as wilfully interpreting policy to make it fit their own agendas- whereas in fact they may just misunderstand what policymakers are asking them to do".

Similarly, Zbaracki (1998) demonstrates how mangers use social construction of TQM to develop their own TQM program. However, the important feature in the cognitive school is the issue of understanding or misunderstanding innovation rather than its interpretation. The consequences of misunderstanding would lead to modification, albeit, unintentionally or unconsciously. In other words, users do not always set out to modify MI for the sake of it. Instead they undertake modification within the context of their assumed implications of the innovation for their general wellbeing in the workplace. However, the assumed implications might be misplaced.

(c) Collective Users: Perhaps the most significant theoretical contribution to the topic was made by Lewis & Seibold (1993). This is because the authors used an elaborate theoretical framework to shed some light on what could be taking place inside the "black box". Lewis & Seibold (1993) also advanced propositions that delineate the role of users in the modification of MI. They are particularly interested in "how micro-level appropriation processes impact on macro-level adoption [or vice versa]." (p.324). The researchers used socialization and social construction theories to explain intraorganizational adoption of innovation. Most, significantly, they adopted the concept of fidelity (i.e. match between design and intended use) and uniformity (similarity across users) to explain dimensions of form of innovation in use. Like Jarzabkowski (2004), Lewis and Seibold (1993) adopted Gidden's (1979, 1984) structuration theory to explain how innovation is appropriated by organizational members. Unlike Jarzabkowski (2004), Lewis and Seibold acknowledge some constraints users face while appropriating the innovation in the way they wish. However, they (Lewis and Seibold, 1993) suggest that users absorb the innovation to fit their social structure. In other words, whenever possible, innovations are adapted to fit the social context. However, Lewis & Seibold

(1993) alluded to the fact that social structures can be unstable. Therefore, the stability of the innovation as envisioned may be called into question by the users. As they explained:

> "users for example, may "buy into" the implementers' vision for a new program and commit themselves to participating in it as envisioned, and users across all areas of the organization may participate consistently. But structures may change, as when longevity in a new program occasions unequal distribution of status or expertise which, in turn, undermines the vision of equality driving the program and to which users are committed" (Lewis & Seibold, 1993: 327).

Unlike some structuration theorists, Lewis & Seibold (1993) acknowledge the role of individuals (within a group) in influencing the modification of MI. Furthermore, they identified two categories or characteristics of users that can influence the modification of innovation. These are: (1) formal characteristics, ie formal roles, positions and responsibilities of users, and (2) personal characteristics: user's motivation, agenda, commitment, perception of organizational goals, skills, expertise, strength and, character of relationships among users. Both personal and formal characteristics have been found to influence the adoption and modification of MI (Kossek, 1989; Lewis & Seibold, 1993; London & MacDuffe, 1987; Westphal & Zajac, 1994). The utility of Lewis & Seibold's categorisation of users is in its potential to explain how users at individual and/or at group level will tinker with the innovation to fit their circumstances (personal and formal). It also suggests that, personal characteristics can enable or hinder the type and degree of modification.

Using Poole & Desanctis (1990) arguments, Lewis & Seibold (1993) suggested that

> "users' perceptions of innovation include understandings of the goals of innovation programs, the origin of innovation ideas, perceptions of the nature of the innovation, evaluation of the benefits and disadvantages of innovations, and attribution for the reasons for innovating" (p.332).

The perception of innovation will then determine users' degree of comfort with the innovation as well as their respect for it (Poole & DeSanctis, 1990). According to Lewis & Seibold (1993), users' degree of comfort and respect will determine their interaction with the innovation as well as which innovation structures are appropriated and the degree of fidelity and uniformity of appropriations. For the first time we now have a

theoretical explanation of the role of users in the modification of innovation as well as the reasons and dynamics of modification. Another contribution of this theoretical framework is the acknowledgement that users can be constrained by their own characteristics and organizational context. Conversely, they can also be enabled by their own characteristics and organizational context. Lewis and Seibold also suggest that users can adopt three types of coping tactics to deal with innovation. At least two of the three tactics would conceivably lead to some kind of modification (e.g. decoupling). The three types of coping tactics are: (a) acquisition of information to reduce uncertainty; (b) reducing the chance of a negative evaluation by seeking training on innovation, or fixing the old practice so that skills on the innovation are unnecessary, or attempt to delay performance evaluation regarding the innovation; (c) preserving the preinnovation norms by pressurising others to endorse or resist innovation, or boycott the use of the innovation altogether (Lewis & Seibold, 1993: 334).

In a nutshell, Lewis & Seibold's (1993) contribution has been significant in advancing our understanding of the role of users in the modification of innovation. It underscores the notion that users are not passive recipients of innovation. Related to the role of users is: (a) the degree to which they are involved in the adoption process and, (b) the role of other stakeholders and organizational context in influencing the types of modification. This issue was partially address by Lewis & Seibold (1993) and previous researchers. For example, they speculated that: "Fidelity concerns the degree to which the innovation-in-use matches the use intended by designers and sought by implementers. Uniformity concerns the degree to which the innovation-in-use varies across individuals and across groups" (Lewis & Seibold, 1993:335). They imagined four typologies of outcomes based on high and low degrees of fidelity and uniformity of use. They propose that "The form of an innovation-in-use for example, might result in high fidelity and low uniformity (i.e. a new innovation intended to be used in unique ways by each unit) or low fidelity and high uniformity (i.e. wherein the vision for the innovation is rejected uniformly by users, who all alter their use of it in similar ways) (p.335).

The authors elaborated on the concept of fidelity and uniformity by suggesting that the two concepts are dynamic constructs whose values at anytime may differ across time. This suggests that modification of MI can be an ongoing process given that social structure can change just as the values of fidelity and uniformity may change over time. Inherent in all the theories and discussion on modification of MI is the assumption of intent by the organization, coalition and/or or senior managers. This assumption ignores the probability that MI might be unintentionally modified by the users at group or at individual level. The learning perspective provides the opportunity to explore the unintentional dimension of modification of MI.

Learning Perspective

Learning-improvisation theories provide another angle from which to analyse modification of management innovation. Both social construction theories and symbolic action theories acknowledged the importance of learning in modification of innovation. For example, Westphal & Zajac (2001) found prior successful modification (decoupling) could lead to future modification. Similarly, social construction theorists argue that the social actors' relationship with the innovation is a dynamic process which changes over time (Giddens, 1984; Jarzabkowski, 2004; Van de Ven et al. 1999). Thus, at any point in time, social actors (agents) might learn and react to the innovation by modifying it or adapting to it to suit the circumstances (Jarzabkowski, 2004; Lewis & Seibold, 1993). Of relevance here is the notion of adaptive and generative learning (Senge, 1990) which requires the organization and its members to question their goals, norms and assumptions. Such action invariably leads to continuous change in the way the organization and its members operate. Indeed such a culture would lead to the tendency to modify working practices (Harrison, 2002), as typified in the Japanese practice of kaizen, (continuous improvement).

Another aspect of learning theory that is relevant to our understanding of modification of MI is the concept of accidental and incidental learning (Knowles, Holton, & Swanson, 1998). Both the cognitive and the behavioural models of learning acknowledge that internal as well as external experiences acquired unintentionally can generate reflection which culminates in a change in behaviour or knowledge (Argote 1999; Miner; Bassoff;

Moorman, 2001; Glynn; Lant, & Milliken, 1994). The potential contribution of these learning theories to the understanding of modification of MI lies in the notion of un-intended experience and learning from the innovation that can be appropriated into or discarded from social actors' work routines. Writing on the rhetoric and reality of TQM in organizations Zbaracki (1998: 605) pointed out that "individuals who encounter TQM must integrate their understanding of the technical dimension of TQM with everyday realities they encounter in ongoing organizational processes". This suggests that even if an organization decouples an innovation from daily routines, some components of the innovation may be intentionally or unintentionally appropriated into the routine.

We now turn to the contribution of organizational improvisation theory. Improvisation has been described as merging planning and action (e.g. Hatch, 1998: Kamoche and Cunha, 2003). When observed in music and the performing arts, improvisational acts are seen not as random or haphazard, but as having specific goals to create, re-interpret and entertain, even as the action itself unfolds in the process of the performance. For our purposes here, the key feature of improvisation theory is the notion of intent in the process of learning and the anticipation of outcomes. In other words, unlike *incidental* and *accidental* learning which has no explicit prior intent and expectations, improvisers start an activity with the intention of creating and at the same time learning from the process of so creating, whether this is in the performing arts and bricolage, or amongst organizational members improvising solutions on the basis of trial-and-error. The latter might include the photocopier repairers described by Orr (1996), or Orlikowski's (1996) IT support staff. Learning through improvisation is grounded in the notion of learning through practice (Hatch, 1998; Miner et al. 2001; Orlikowski 1996). Thus, organizations or individuals inclined or expected to improvise might embank on using MI with the deliberate intention to modify it in order to learn and improve on it. This echoes the actions of the bricoleur who makes do with whatever materials or tools are on hand in creative new ways (see also Weick, 1993) and in the process might also modify the tools themselves. In fact previous research has demonstrated that intention and work routine can influence organizational tendency to improvise (Brown & Eisenhardt, 1995; Eisenhardt & Tabrizi, 1995; Hatch, 1998; Miner et al. 2001). It is important to recognize

that improvisation does not take place in a vacuum, but within what Kamoche and Cunha (2001) define as a minimal structure, or an operational template which guides without constraining unnecessarily. The minimal structure is defined by social and technical structures which range from behavioural norms and trust to knowledge, attitudes and the propensity for creativity and risk-taking. This suggests that adopting an improvisational approach to the modification of MI is likely to be subject to the constituent elements of the organization's social and technical context. The subsequent learning that takes place is also, ipso facto, likely to be determined by this context, including members' attitudes to improvise, the confidence they have in their stock of knowledge hence the level of training available, and the extent to which the organization is prepared to permit the experimentation and risk-taking associated with improvising.

Improvisation can be viewed from the perspective of short term practice-based learning (Miner et al. 2001). This means that what is learned is not necessarily retained. Also there might not be prior intention to retain the newly developed practice given that it is a continuous process. As Orlikowski (1996: 63) points out:

> "In this organization, a series of subtle but nonetheless significant changes were enacted over time as organizational actors appropriated the new technology into their work practices, and then experimented with local innovations, responded to unanticipated break-downs and contingencies, initiated opportunistic shifts in structure and coordination mechanisms, and improvised various procedural, cognitive, and normative variations to accommodate their evolving use of the technology".

This temporal nature of improvisation raises important questions on how long a modified innovation remained modified? And at what stage will the next modification be improvised? These issues are addressed in the sections that follow. From the theoretical perspectives presented in the foregoing, it is evident that the modification of MI is a multidimensional activity ranging from Adaptation/Reinvention (e.g. adding or removing components,) to Decoupling (e.g. symbolic adoption without implementation) and finally to Contextualisation/Domestication (e.g. appropriation of components into organizational routine). These activities are undertaken formally or informally and, intentionally or unintentionally. Also, they may be undertaken by any member of the organization

whether with permission or not. Finally, modification of MI could take place at any time during the lifetime of its application. These are issues which have not been adequately addressed in the research and theoretical developments of the field.

Conclusion and Directions for Further Research

The main goal of this paper is to stimulate the development of theories and research on the modification of MI. Other objectives are to present a generic definition of modification of MI and review theoretical perspectives that attempt to shed some light on the dynamics of modification of MI.

Based on the review of literature we advanced a definition of modification of MI that took account of the multiple dimensions from which MI can be manipulated. This is in line with the complexity of the adoption and implementation of innovation in organizations (Sturdy, 2004). The broad definition of modification of MI adopted in this paper has at least two advantages. Firstly it offers researchers the opportunity to capture the multiple dimensions of adoption and manipulation of MI in organizations. The fact that the definition did not distinguish between those who make the modification or their motives allows researchers to use the definition regardless of the researchers' objectives. Secondly, the broad definition advanced in the paper accommodates the multiple theoretical perspectives that attempt to explain or elaborate on the phenomenon of modification of MI. Thus, researchers wishing to take a particular theoretical perspective to investigate the phenomenon can use the definition advanced in the paper to pursue their research objectives. Finally, we think another benefit of the definition is that researchers and theorist have the opportunity to debate and discuss the need, accuracy and value of defining modification of MI. Although we believe that, as demonstrated earlier, such definitions will enhance the development of the field, the accuracy of the definition is open to debate. We therefore anticipate that fellow researchers will discuss critically and build on the definition advanced here.

In this paper we have attempted to summarize the theoretical perspectives that explicitly or implicitly explain modification of MI in organization. To the best of our knowledge this is the only attempt to do so, so far. Although similar attempts have been made (see Sturdy, 2004; Abrahamson, 1991; 1996), the focus of those reviews was on the adoption of MI rather than on its modification. However, in spite of the effort of this paper, the topic of modification in particular and the field of MI in general are in their infancy. Therefore more research and theorization is needed to advance the development of the field. Hence, in the following sections we outline some directions for further research and theorization.

Directions for Research

Our review of the literature on modification of MI has unearthed a number of issues and research questions that require further investigation and theoretical development. In no particular order, we outline the issues and questions below:

Characteristics of MI: Research on organizational innovation has recognized that innovations have intrinsic and perceived characteristics (Rogers, 1995; Wolfe, 1994). These characteristics have been found to relate to the rate of their diffusion across organizations (Lee, Smith & Grimm, 2003; Mansfield, 1985; O'Neil et al. 1998; Rogers, 1995). The issue of innovation characteristics has research and theoretical implications for modification of MI. For example the following questions can lead to the theoretical development of the topic. Firstly, what characteristics do MI manifest, if any? If so, can they be categorized in terms of intrinsic and perceived characteristics? Secondly, do the characteristics shape or constrain modification? Also, which dimension of characteristics leads to particular outcome after modification?

Structure: A significant advancement has been made in technical innovation. For example, Henderson & Clark (1990) argue that an innovation has two dimension; (a) architectural dimension and (b) component dimension. It can be argued or speculated that some MI can have similar but not identical structures. However, currently no attempt has been made to explore the possibility of structures in MI. This is partly because some MI are entirely ideological/abstract concepts rather than practical ones. Nevertheless

successful identification of structures of some MI which are amenable to such analysis can help in the transfer and implementation of MI. It would also help researchers to understand the type and degree of modification undertaken on the innovation. Finally, we believe the concept of structure will enable proper analysis of the robustness and efficacy of MI.

Types of Modification: The literature on the types of modification is still largely patchy. For example we still do not know enough about how common are *addition*, *omission* and *hybridization*. It has been argued that the study of the impact of the adoption of management innovation has been ignored (see Sturdy, 2004; 171). While this assertion is a bit strong, it is true to say that research on what happens after the adoption of innovation has not attracted adequate attention. For example, research and theorization on the impact of modification of management innovation is almost nonexistent.

Types of MI: Attempts have been made to categorize innovations into Administrative or Technical; Radical or Routine/Incremental; Product or Process; Simple or Complicated; High cost or Low cost (see Daft, 1978; Damanpour, 1991; Dewar & Dutton, 1986; Hage, 1980; Henderson & Clark, 1990; Nord & Tucker, 1987; Tushman & Anderson, 1986). This is in recognition that innovations vary in terms of their characteristics, scope and implications. Within each broad category of innovation, there are further dimensions which can distinguish one innovation from the other. For example, one MI can be distinguished from the other using the criteria of *scope* and *complexity* (Birkinshaw et al. 2005; Levin, 2004). Similarly, Abrahamson (1997) distinguished *rational* from *normatic* MI. Given that there are diverse MI, it is reasonable to expect that such diversity can impact on their amenability for modification. Therefore the following questions are worth investigating: How do the specific characteristics of MI constrain and/or shape modifications? Which type of MI is more likely to be modified and why?

User characteristics: Sturdy (2004) speculated that people (managers) with responsibility for implementation of innovation might have different approaches to the adoption of MI (i.e. they might use an efficiency evaluative approach than a socio-cultural one). Similarly, Sturdy (2004: 108) question whether people with quantitative background are

more likely to use systematic evaluation before adoption. The same question and arguments can be advanced pertaining to modification of MI. It has already been argued that users' characteristics can influence modification of MI. Therefore the same arguments can be advanced for professional background and position. For example, we need to know whether a specific background leads to a tendency to modify MI in a specific way (e.g. *addition* or *omission)*.

Organizational Characteristics: A number of investigations have been undertaken to establish the relationship between organizational characteristics and the diffusion and adoption of organizational innovation. Several organizational characteristics have been found to influence the adoption of innovation (Damanpour, 1991; Rogers, 1995; Storey & Salaman, 2005). Such characteristics include organizational culture, organizational structure, size, and age (Ettlie, et. al. (1984; Kimberly and Evanisko, 1981; Storey & Salaman, 2005). For example, Ettlie, et. al.. (1984) found that the adoption of radical or incremental innovation tends to vary with size, complexity and degree of decentralization of an organization. In a meta-analysis of the determinants of organizational innovativeness, Damanpour (1991) found relationships between organizational innovativeness and specialization, functional differentiation, professionalism, centralization, managerial attitudes towards change, administrative intensity, slack resources, internal and external communication. Dewar and Dutton (1986) also reported a strong relationship between organizational characteristics and the adoption of radical or incremental innovation. In the same vein, Kimberly and Evanisko (1981) found that the adoption of technical or administrative innovation is influenced by individual, organizational and contextual factors.

The argument for the influence of organizational factors is based on the notion that certain elements of organizational characteristics can hinder or enhance its ability to embrace new ideas. In other words, organizational characteristics can predispose the organization to behave in a specific way towards innovations. Therefore it seems reasonable to speculate that the same organizational characteristics might predispose either the organization or its members to modify an innovation. For example, it seems

reasonable to speculate that a high degree of differentiation in organizations would lead to higher modification tendencies. This is because people working in different organizational units will have different perspective on and experience with an MI leading to the tendency for modification. Yet, there is no systematic research that addresses the potential impact of organizational characteristics on modification of MI. Therefore, research on the potential influence of organizational characteristics on modification of MI is long overdue. Such research will have practical and theoretical value. For example, it can help to explain why the applications of MI varies across organizations. The findings from such research can also help in advising practitioners on the potential influence of their organizational characteristics on the MI they wish to adopt.

Resources: Closely related to organizational characteristics identified above, is the issue of organizational resources, workforce characteristics and power and politics. All these factors have been found or argued to influence the adoption of innovation in organizations (Mamman, 2002; Sturdy, 2004). In fact, the influence of professional groups, trade unions and CEOs have been found to influence modification of management innovation (Bigoness & Perreault, 1981; Fennell, 1984; Marchington, 1995; Moch & Morse, 1977; Trice; Beyer & Coppess, 1981; Trice; Hunt & Beyer, 1977; Trice & Schornbrunn, 1981). However, research on the broad dimension of employee characteristics, resources and power on modification is still limited. Such research should shed some light on the interplay between organizational actors, resources and the implementation of MI. The practical value of such investigation is to provide further understanding of the implications of organizational characteristics to the success or failure of modification of MI.

Motives: There are multiple of reasons why MI might be modified by the organization or its members. However, research on the motives for modification is based on anecdotal evidence. So far there has been no systematic investigation of the reasons for neither modification nor a theoretical framework to guide such investigation. Research and theorization on the reason for modification of MI would help in the investigation of the relationship between motives for modification and the likely outcomes. For example it

might help to answer questions such as: Are efficiency motives more likely to lead to successful modification and outcomes? Do specific motive leads to a particular pattern of modification? What is the relationship between organizational characteristics, workforce characteristics and motive for modification?

Theorists using the social construction perspectives suggest that modification of innovation can take place at the informal level (i.e. not sanctioned by the organization). Similarly learning theory suggests that the transformation of ideas and practice (i.e. modification) can take place unintentionally. Thus the issue of formal/informal versus intentional/unintentional modification is an area of research interest that can shed light on how various types and patterns of modifications play out in organizations. It can also shed light on the potential impact of types of modifications on its outcomes. For example it might help to answer questions such as: Are formal modifications more likely to lead to organizational benefits than informal modification? Are intentional modifications more beneficial than unintentional ones? Are formal patterns of modification different from the informal ones? How do intentional and unintentional modifications differ?

Time frame: Another area of research interest is the issue of temporality of modification. To further the development of the field, some key questions need answers. For example, how long does it take to modify MI to ensure that it achieves its objective? What impinges on the timeframe for modification? Is modification a continuous process or does it stop somewhere? If so, where and when does it stop?

Global issues: At the global level there is the issue of national culture and variation of business system that is widely acknowledged to influence, if not determine, the behavior of the organization and its members (Hofstede, 1991; Whiteley, 1997). It would be therefore interesting to know whether such key exogenous factors might have any impact on modification of MI. We already know that national culture and business systems can influence innovation and its diffusion (Arias & Guillen, 1997; Lundvall, 1992; 1998; Storey & Salaman, 2005). However variation in implementation of innovation across cultures and business systems is an area that requires more attention. Here we are

referring to how differences in culture and business system can enhance or hinder the modification of MI. For example, researchers might ask questions such as: What aspects of national culture and business systems are more likely to constrain or enable the modification of MI? Are certain cultures/societies more likely than others to modify MI? Are there patterns of modifications across cultures/societies?

Related to the questions highlighted above, is the issue of the implications of modification of MI for the transfer of innovation across countries. This is an important issue to address if management ideas are to have wide spread acceptance and credibility. We believe that the issues we have raised will generate further research and debate on this important issue of the modification of management innovation.

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