

Innovation Creation and Innovation Adoption: A Proposed Matrix towards a Better Understanding

**CIB Student Chapter Conference, Budapest, Hungary
September 30th – October 2nd , 2010**

**ISMAEL YOUNIS ABUJARAD
REPRESENTATIVE OF USM CIB STUDENT CHAPTER
UNIVERSITI SAINS MALASIA
11800, PENANG
MALAYSIA**



Objectives of the Presentation

To better Understand the Concepts of creativity, invention, innovativeness and innovation

- To differentiate between the concepts of innovation adoption and innovation creation
- To propose a matrix that can explain the process of innovation adoption / innovation creation

Introduction

Innovation

If any economic growth of any country happens, it can be mainly due to innovations.

Innovation has been a noticeable factor in maintaining worldwide competitiveness. It can make organizational growth stronger, leads to future success, and is the engine that allows businesses to sustain their viability in a global economy (Gaynor, 2002).

Porter and Stern (2001) argued that companies must be able to create and commercialize new products and processes that extend the technology limit in order for them to surpass their rivals.

Introduction Cont.

The research on innovation began to grow in the early 1960s and continued to advance since then. In those early years, the focus was on conceptualization and theory building.

Studies in these years were more of a descriptive nature, analyzing the association between various contextual factors and characteristics of organization.

Later, in the 80s and 90s, the research has been initiated to broaden the theory of innovation and thus offered prescriptions towards designing innovative firms.

Defining, Conceptualizing, and Measuring Innovation

At its core, the term innovation captures the newness of an idea that attempts to improve organizational performance (e.g. Camisón-Zornoza et al., 2004).

Many different definitions of innovation share the idea of “newness”.

Damanpour and Gopalakrishnan (2001: 47) defined innovation as *“the adoption of an idea or behavior pertaining to a product, service, device, system, policy or programme that is new to the adopting organization”*.

Nohria and Gulati (1996) defined innovation to include any policy, structure, method or process, or any product or market opportunity that the manager of an innovating unit perceives to be new

Zaltman et al. (1973: 10) defined it as *“any idea, practice, or material artifact perceived to be new by the relevant unit of adoption”*.



Defining and Conceptualizing Innovation

Innovation, at the level of an individual firm, might be defined as the application of ideas that are new to the firm, whether the new ideas are embodied in products, processes, services, or in work organization, management or marketing systems (DIST, 1996, p.2, and credited to Gibbons et al., 1994).

However, the Business Council of Australia's (BCA) definition highlights the link between innovation and performance, that is, 'adding value' in their terminology. Thus, the creation of abstract knowledge, or the invention of new products or processes, is not normally considered innovation until it has been productively incorporated into the enterprise's activities.

According to the BCA, innovation, in business, is something that is new or significantly improved, done by an enterprise to create added value either directly for the enterprise or indirectly for its customers (BCA, 1993). This means that innovative activity is not something that can occur separate from the firm's core activities.

Defining and Conceptualizing Innovation Cont.

The definition of innovation is believed to firstly appear in Joseph Schumpeter's writing in 1930s particularly in 1934.

Joseph Schumpeter was one of the first economists to define innovation. Schumpeter (1930) defined five possible types of innovation. These types are:

- the introduction of a new product or a qualitative change in an existing product,
- process innovation new to an industry,
- the opening of a new market,
- development of new sources of supply for raw materials or other inputs, and
- changes in industrial organization.

Zaltman et al., (1973), Utterback (1994), and Cooper (1998) have all postulated that innovation can be present in various forms, such as product or process innovation, radical or incremental innovation, administrative or technological innovation.

Miller and Friesen (1983) focus on four dimensions: new product or service innovation, methods of production or rendering of services, risk taking by key executives, and seeking unusual and novel solutions while Capon et al., (1992) adopt three dimensions of organizational innovativeness: market innovativeness, strategic tendency to pioneer, and technological sophistication.

Wang and Ahmed (2004) identified five main areas that determine an organization's overall innovativeness. They are product innovativeness, market innovativeness, process innovativeness, behavioral innovativeness, and strategic innovativeness.

Defining and Conceptualizing Cont.

Zaltman et al., (1973), Utterback (1994), and Cooper (1998) have all postulated that innovation can be present in various forms, such as product or process innovation, radical or incremental innovation, administrative or technological innovation.

Miller and Friesen (1983) focus on four dimensions: new product or service innovation, methods of production or rendering of services, risk taking by key executives, and seeking unusual and novel solutions while Capon et al., (1992) adopt three dimensions of organizational innovativeness: market innovativeness, strategic tendency to pioneer, and technological sophistication.

Wang and Ahmed (2004) identified five main areas that determine an organization's overall innovativeness. They are product innovativeness, market innovativeness, process innovativeness, behavioral innovativeness, and strategic innovativeness.



Defining and Conceptualizing Innovation Cont.

Economists have generally viewed innovation as the output of “*a process that uses R&D resources and existing ideas as inputs*”. New ideas are produced by people working in R&D – scientists and engineers – who use their creativity and knowledge to develop new ideas, and subsequently new technologies and products.

Technical R&D cannot explain the whole growth process within advanced economies, since service activities increasingly dominate economic life.

Understanding innovation within these economies requires a broader conception of its nature and determinants (Bottazzi and Peri, 2007).



Defining and Conceptualizing Innovation Cont.

The major problem that concerns organizational innovation is the absence of a valid and general approach to organizational innovation and this is due to the absence of a single accepted method through which innovations could be conceived.

Through the literature on innovation, it is clear that past researchers concentrated on the characteristics, processes, determinants, sources, and types of innovations. However, theoretical advancements to resolve the complexities of innovation have not been fully achieved.

Most innovation research conducted so far is related mainly to the context of adoption. This notion is well stated by Schoonhoven, Eisenhardt & Lyman (1990:179) who said: “ Although innovation has been widely studied in the past fifteen years . . . Much of the research is about innovation adoption and diffusion”.

Defining and Conceptualizing Innovation Cont.

As early as 1965, Thompson defined innovation as “the generation, acceptance and implementation of new ideas, processes, products and services”. While this definition rightly highlights the “creation” and “utilization” aspects – the very essence of innovation, it is unfortunate that researchers, with some exceptions, failed to enhance this view and bounded themselves within the adoption perspective.

Before I highlights the concepts of innovation creation and innovation adoption, it is important to shed the lights on the concepts of creativity, invention and innovation.

-According to Oxford, “creative” means involving the use of skill and the imagination to produce something new while invention is defined as “a thing or an idea that has been invented”.

Thus, creativity is a process of generating a new thing (be it a product or a process). Once this thing is carried out and exist in the real world, it becomes an invention.



Defining and Conceptualizing Innovation Cont.

However, innovation is defined as “the introduction of new things, ideas or ways of doing something”. Innovation is a broader term, which involves many things including creative employees, a culture which supports generating new ideas, and investing in R&D.

While creativity is typically used to refer to the act of producing new ideas, approaches, or actions, innovation is the process of both generating and applying such creative ideas in some specific context.

Roberts (1989) defined innovation as the summation of invention and exploitation. This points out that an invention does not become an innovation unless it is implemented or utilized. In the context of an organization, therefore, the term innovation is often used to refer to the entire process by which an organization generates creative ideas and converts them into novel, useful, and viable commercial products, services, and business practices.

The term creativity is reserved to apply specifically to the generation of novel ideas by individuals or groups, as a necessary step within the innovation process.



Defining and Conceptualizing Innovation Cont.

Ambaile et al., (1996) suggest that while innovation “beings with creative ideas,” . . . Creativity by individuals and teams is a starting point for innovation; the first is a necessary but not sufficient condition for the second.”

As for the term innovativeness, Rogers (1983), stated that it is the degree to which an individual or other unit of adoption is relatively earlier than any other member of the system in adopting new ideas.

Innovativeness is a process in which new ideas are generated and applied to come up with inventions that , if put into organizational system as a whole, will form innovation.

Innovation Creation vs. Innovation Adoption

Despite the clear differences between the two terms “innovation creation” and “innovation adoption”, it is surprising to find how researchers equated them and measured innovation as the number or the rate of adoption.

The differences in the process of innovation creation and innovation adoption exist, differences in the cost are evident and differences in the management of adoption and innovation can easily be noticed.

For example, Utterback (1974), Daft (1982), and Attewell (1992) defined an innovative firm as one that adopts innovations. Rogers (2003,pg.22) looked into the time of adoption, making the definition of innovativeness more comprehensive. However (2003) still looks at innovation from an adoption perspective.

A study by Hovgaard and Hansen (2004) looked into the forest products industries or Oregon and Alaska. To them, innovativeness is the propensity of firms to create and / or adopt new products, manufacturing process, and business systems. This shows that they did not differentiate innovation creation and innovation adoption.

Innovation Creation vs. Innovation Adoption Matrix

Such a matrix could serve as a first step towards coming up with a clear measurement to the phenomenon of innovation.

Innovation creation and innovation adoption should be treated separately. Why???

The most cited work in innovation theory is Downs & Mohr (1976). However, this work does not seem to have any departure from the conventional approach because they equated organizational adoption to innovation and offered guidelines for developing innovation theory in the context of adoption.

The authors state, “ We will be employing the rather broad, conventional definition of innovation as the adoption of means or ends that are new to the adopting unit” (p.701).

This conventional definition, which has been misconceptualized by several past researchers added to the confusion and, inhibited the development of innovation different from adoption. Most studies on innovation (e.g., Mohr, 1969; Baldrige & Burnham, 1975; Daft, 1978; Damanpour & Evan, 1984) appear to focus on innovation, but in content they pertain to adoptions only.

Quoting earlier studies, Scott and Bruce (1994:582) state “innovation has to do with the production or adoption of useful ideas and idea implementation”.

Damanpour (1992:397) also equated adoption with innovation and defined innovation as “ the adoption of an idea or behavior , whether a system, policy, program, device, process, product or service, that is new to the adopting organization”.

Innovation Creation vs. Innovation Adoption

Differentiating between innovation creation and innovation adoption is mainly due to misperceiving innovation as an adoption or looking at it from an adoption perspective.

Damanpour (1987) defines innovation as adoption of an internally generated or purchased device, system, policy, program, process, product, or service that is new to the adopting company.

Abu Jarad and Yusof (2010) have proposed a matrix which differentiates between creation and adoption of innovation and treats them separately.

The matrix is highlighted in the next slide.

Innovation Creation vs. Innovation Adoption Matrix

| Create | Adopt | |
|---|--|----------------------|
| I Radical Real Innovators | III Radical Adopters of innovation | Radically |
| II Incremental Real Innovators | IV Incremental Adopters of innovation | Incrementally |

Source: Abu Jarad and Yusof (2010)
Volume

Innovation Creation vs. Innovation Adoption Matrix

Abujarad and Yusof (2010) believe that any organization involved in innovation will fall in one of the four categories in the matrix above. Organizations falling under categories **I** and **II** will be truly involved in innovation creation.

However, organizations falling under categories **III** and **IV** will be involved in innovation adoption. Below is the explanation of the four categories of the proposed matrix.

Let's ighlighting the matrix

Innovation Creation vs. Innovation Adoption Matrix

| Create | Adopt | |
|---|--|----------------------|
| I Radical Real Innovators | III Radical Adopters of innovation | Radically |
| II Incremental Real Innovators | IV Incremental Adopters of innovation | Incrementally |

Source: Abu Jarad and Yusof (2010)
Vol3 Number 1 Summer 2010
The International Journal of Organizational Innovation

Why Creation and Adoption of Innovation are Different

The argument is based on the following justifications:

- The culture in innovative firms (firms that come up with a uniquely new idea and implement it) is different from the culture in firms that adopt innovations.

Wilson (1966) argues that the greater the diversity within an organization, the greater the probability that participants will propose major innovations, and the smaller the probability that such proposals will be adopted- due to the difficulties in obtaining a decision in an organization characterized by diversity.

The culture for adoption (while not risky-ready) would not tolerate failures because of the adopted innovation's demonstrated success before hand.

- The flow of information within the organization, which adopts innovation, is also relatively less than that in organization that creates innovation.
- Organizing a successful innovation requires the firm to match the technical capabilities with the market needs. Thus, an integration between different departments such as R&D, marketing, and production is necessary. However, in case of innovation adoption, the focus is only on how to apply such innovation efficiently. in organizations which adopt innovation/s.

Why Creation and Adoption of Innovation are Different

Earlier studies demonstrated how the product and technological innovations come as a response to market needs (Myers & Marquis, 1969). The Japanese firms, acknowledged as the most innovative firms, employ highly flexible role schemes (Mac Dowall, 1984), which help to achieve a firm collaboration between R&D, production, and marketing to promote innovations.

However, Moenart, Souder, Myeyer & Deschoolmeester (1994) state that the level of integration needed between R&D and marketing will be less once product specifications have been formulated and resources have been allocated. Thus, the integration in case of innovation creation is much higher than that in innovation adoption.

- Finally, in terms of employees and workers, innovative firms must have creative employees and skilled workers who have the abilities to think out of the box. Collaborative efforts must exist between the management and the employees as well as among the different departments, but that level of collaboration is not necessarily the same

Innovation Creation vs. Innovation Adoption

| Innovation Creation (I.C.) | Innovation Adoption (I.A.) |
|---------------------------------------|-----------------------------------|
| Created | Bought/ borrowed |
| New | Familiar |
| Original | Derivative |
| Pioneers | Followers |
| Innovativeness | Responsiveness |
| Top management's support | Top management's decision |
| Committed, concerted efforts | Not necessarily |
| External visibility (due to creation) | Not necessarily |

Source: Modified from Ravichandran, 2000



Conclusion

Creativity, Invention, Innovativeness, and innovation must be clearly defined.

Innovation creation and Innovation Adoption must be treated differently.

Conceptualizing innovation from the CREATION perspective would help coming up with a better measurement and thus would contribute to better inventions and innovations.



THANK YOU

The full paper is available in

Vol3 Number 1 Summer 2010
The International Journal of Organizational Innovation