See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/341213321>

Impact Practice Empirical Process Study to Explore the Mechanisms in Architecturally Hierarchical Systems Managing Innovation

Article · April 2020

CITATIONS

0

READS

11

2 authors, including:

Anshar Daud

STIE Nobel Indonesia Makassar

14 PUBLICATIONS 11 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:

Product & Consumer Behavior [View project](#)

Project portfolio management [View project](#)

Impact Practice Empirical Process Study to Explore the Mechanisms in Architecturally Hierarchical Systems Managing Innovation

Anshar Daud¹, Fitriani Latief²

¹ Sekolah Tinggi Ilmu Ekonomi (STIE) Nobel Indonesia Makassar, Indonesia. E-mail: anshar@stienobel-indonesia.ac.id

² Sekolah Tinggi Ilmu Ekonomi (STIE) Nobel Indonesia Makassar, Indonesia.

Abstract

Levels are ordered asymmetrically in basic structure of hierarchy. Classic supply chain represents the strict hierarchy in an industry setting, but the clusters can go in many directions. In extensive hierarchies it connected with technologies. The tool technologies and component technologies are the product that applied within production and product technologies. The combination of change management and innovation process of management of innovation is known as innovation management. The innovation management is refers to as organizational innovation, business process, marketing process and product innovation. In the management including common understanding of goals, processes and common set of tools is known as architecturally Hierarchical Systems.

Keywords- hierarchy, Innovation management, innovation processes, business process.

1. INTRODUCTION

For a product construction with high level structuring of rule definition and configurations the architectural design of systems is actively deal with it [1]. It proposed the concept of Architecture Description Languages (ADLs), for architecture-based development tools and formal notations requirement [1]. For the description of architectures hierarchical composition and style checking are two related aspects [2]. For a given architecture a type of architecture is known as style. An instance of style of architecture is determined by style checking.

Figure 1: Hierarchy Architecture

The Joseph Schumpeter that was the economist in Austria in 1930 defined that in economic growth of an organization innovation is the important factor [3]. The concept of creative destruction is defined in his research.

For getting the opportunities and to introduce and create new products, ideas and process innovation management helps in organizations [4] [5]. The idea of innovations are the outcome of two steps:

1. Invention and
2. Imitation [6] [7].

Figure 2: Hierarchy Architecture Framework

2. LITERATURE REVIEW

Into innovation of organizations it has been driven the research that practical demands and concern the managers. For improving the result of innovation in organizations it offer the advanced prescriptions by predominantly normative theories. In 1996 Fiol [8] introduced that for extent of empirical research, an extensive literature, it remain elusive the concept of a consistent body of theory and a dominant theory.

In 1994 wolfe [9] defined the concept that in the literature of organisational innovation the most consistent theme's result was not consistent.

In 1994 Pisano and Teece [10] introduced the concept of dynamic capabilities theory. It responds to circumstances of changing the market and the subset of the capabilities or competences permit to build new process and product [11]. The collection of inimitable resources and management capabilities emphasis dynamic capabilities. These dynamic capabilities cut across all functions like organisational learning, process development, R&D, human resources, manufacturing and product development [12].

In 1999 Verona [11] defined that on the basis of knowledge it can distinguish the capabilities. In 1993 Schoemaker and Amit, in 1990 Hamel and Prahalad and in 1997 Pisano proposed that for developing the technical knowledge the firm can use functional capabilities. In 1993 Peteraf introduced that it is difficult to study the knowledge development and replication without understanding the specific activities of capabilities. In 1995 Leonard-Barton [16] defined that according to the time the resources value can change although the form of resources may not change.

3. HIERARCHY IN INDUSTRY ARCHITECTURE

For two reasons through measurements of objective hierarchy analyzing is difficult. First is that in a theoretical sense the, real systems may not be complete hierarchies so there is need to develop the measure deviation between some theoretical ideal hierarchy and actual system [13]. And the 2nd one is there are several different forms of hierarchy so in different contexts the term has different meanings [18].

Typology of Hierarchy

According to the relation and specific type the levels are asymmetrically ordered in general structure of hierarchy [14]. For understanding the network architectures two types of hierarchies are important i.e flow hierarchy and containment hierarchy [15].

1. Flow Hierarchy (Network)

By the network the direction of flows of required resources determined the level's order of hierarchy in flow hierarchy.

Figure 3: Typology of Hierarchy

2. Containment Hierarchy (Network) – entities are divided into groups and these groups are further divided into subgroups and then divided further so on at multiple levels.

4. INNOVATION MANAGEMENT

The topic of innovation management is also having debate. Some researchers defined that it cannot use for management, but some other believes that for the purpose of creating more innovation ii build the processes and systems [16].

Key aspects of innovation management:

As for all intents and purposes any new advancement in the association can be viewed as identified with innovation, it very well may be very hard to get a handle on what innovation management implies practically speaking. Through our involvement in helping associations with their innovation activities, it have discovered that the least difficult approach to comprehend the point is to separate it and talk about every one of the key viewpoints identified with advancement the board independently [17]. The outline beneath grandstands the four angles that we normally use, every one of which it'll at that point clarify quickly.

Culture: If structures permit the powerful utilization of capacities, culture is the thing that empowers the association to get the abilities identified with individuals.

Capabilities: Capabilities is an umbrella term used to cover the various capacities and assets the association has for making and managing innovation.

Strategy: for achieving long term success the plan of organization is consider as strategy.

Structures: The enable the effective use of the capabilities this is the main difference between capabilities and structures [20].

Figure 4: key aspects of innovation management

5. TYPES OF INNOVATIONS

Some types of are described below:

1. Radical innovation
 - a. In both business and technology model dimensions do the Significant changes
 - b. Change of game
2. Technology Innovation related to technology
 - a. It required specialized capabilities and deep knowledge
 - b. In important architectural or performance change Significant technological changes delivering quantum leaps
 - c. It consider the Intellectual Property as a major tool
3. Incremental innovation
 - a. Fights commoditization
 - b. constrained creativity and skills of problem solving
 - c. small improvement
 - d. In established companies dominant form of innovation
4. Innovation related to business model
 - a. It required deep understanding of competition and market dynamics
 - b. In a new way slightly change or leverages existing technology
 - c. In the dimension of business model significant change

Figure 5: Types of Innovations

Type of innovation	Example
Product innovation	The development of a new product
Process innovation	The development of a new manufacturing process, e.g. Pilkington's float glass process
Organizational innovation	- A new venture division - A new accounting procedure
Management innovation	- TQM systems - BPR systems - SAP R/3
Production innovation	- Quality circles - JIT - MRP II or a new inspection system
Commercial / marketing innovation	- CRM - Direct marketing
Service innovation	Internet-based financial services

Table 1: Innovation types with examples

6. INNOVATION MANAGEMENT TOOLS

As an innovation management tool the use of typologies introduced by Jose Albor and Antonio Hidalgo [21]. For knowledge-driven Innovation Management Tools at a European level it used 10 typologies in their study. By focusing 32 characteristics [22] these typologies were found. These characteristics classify the tools of Innovation Management. Albors and Hidalgo [23] defined 8 criteria in their research. There are many scopes in field of innovation tools to concern. Using of topologies is the easy integration of availability of tools and new methods [23].

Figure 6: Innovation Management Tools

Figure 7: Innovations diffusion

Figure 8: Innovation incremental

7. CONCLUSION

In this paper it introduced concept of Innovation, Hierarchy, and hierarchy in industry architecture and innovation management. For the monitoring problems in the development of efficient hierarchical Systems has an important role. Levels are ordered asymmetrically in basic structure of hierarchy. Classic supply chain represents the strict hierarchy in an industry setting, but the clusters can go in many directions. In extensive hierarchies it connected with technologies. For understanding

Hierarchical Innovation and Innovation management this exploration ideally indicates the way new approaches.

REFERENCES

- [1] Garlan, D. and Shaw, M(1996), “Software Architecture: Perspectives on an Emerging Discipline”. Prentice Hall.
- [2] Medvidovic, N. and Taylor (2000), “R. A classification and comparison framework for softwarearchitecture description languages”. vol:26, issue:1, pp:70–93. IEEE TSE.
- [3] “Innovation and Schumpeter's Theories”. innovationzen.com. Retrieved 2018-02-18.
- [4] Kelly, P. and Kranzburg M. (1978). “Technological Innovation: A Critical Review of Current Knowledge”. San Francisco: San Francisco Press.
- [5] Godin, Benoît (2008). "Innovation: the History of a Category". Project on the Intellectual History of Innovation.
- [6] Clark and Charles H. (1980), “Idea Management: How to Motivate Creativity and Innovation”. New York: AMACOM
- [7] Tidd, Joe; Bessant and John (2009). “Managing Innovation: Integrating Technological, Market and Organizational Change 4e - first ed”. with Keith Pavitt. Chichester: Wiley.
- [8] Fiol, C.M. (1996), Squeezing harder doesn't always work: Continuing the search for consistency in innovation research.vol:21,issue:4), pp:1012–1021, Academy of Management Review,
- [9] Wolfe , R.A. (1994), “Organisational innovation: Review, critique and suggested research directions”. vol:31, issue:3, pp:405–425, Journal of Management Studies.
- [10] Teece, D.J. and Pisano, G. (1994), “The dynamic capability of firms: An introduction”.vol:3, issue:3, pp:537–556 Industrial and Corporate Change.
- [11] Verona, G. (1999), “A resource-based view of product development”. vol:24, issue:1, pp:132–141 Academy of Management Review.
- [12] Amit, R. and Schoemaker, P.J. (1993), “Strategic assets and organisational rent”. vol:14, pp:33–46, Strategic Management Journal,
- [13] Pisano, G.P. (1997), “The Development Factory: Unlocking the Potential of Process Innovation”. Boston: Harvard Business School Press
- [14] Maselena, A., Huda, M., Jasmi, K. A., Basiron, B., Mustari, I., Don, A. G., & bin Ahmad, R. (2019). Hau-Kashyap approach for student's level of expertise. *Egyptian Informatics Journal*, 20(1), 27-32.
- [15] Peteraf, M.A. (1993), “The cornerstones of competitive advantage: A resource-based view”. vol:12, pp:95–117, Strategic Management Journal.
- [16] Leonard-Barton, D. (1995), “Wellsprings of Knowledge: Building and Sustaining the Sources of Innovation”. Boston, Mass: Harvard Business School Press.
- [17] Benn lawson and danny samson(2001), “developing innovation capability in organisations: a dynamic capabilities approach”. vol:5, no:3, pp:377–400.
- [18] Jianxi Luo, Daniel E. Whitney, Carliss Y. Baldwin and Christopher L. Magee(2009), Measuring and Understanding Hierarchy as an Architectural Element in Industry Sectors.
- [19] Jianxi Luo(2010), “Hierarchy in Industry Architecture: Transaction Strategy under Technological Constraints”.
- [20] Jesse Nieminen(2018), “Innovation Management – The Complete Guide”.
- [21] Hidalgo A. and Albors J. (2008). “Innovation management techniques and tools: a review from theory and practice”. R&D Management.
- [22] European Commission (2004). “Innovation Management and the knowledge-driven economy (PDF). Luxembourg: Directorate-general for Enterprise”.
- [23] https://en.wikipedia.org/wiki/Innovation_management