

Innovation and Ambidexterity

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Synonyms

Balanced innovation; Combined radical and incremental innovation; Radical and incremental innovation synergy; Sequential ambidexterity; Structural ambidexterity; Contextual ambidexterity.

Introduction

In a global market, firms need to be able to identify new opportunities and to reconfigure technologies and competences to accomplish sustainable, competitive advantage. The intensification of global rivalry and the swift increase in the rate of change in the different business environments mean firms need to encourage innovation as a means of survival and growth. The management of innovation brings many challenges, one of which is the choice between radical and moderate change. Radical innovation comes about in totally new products and processes that require new knowledge and satisfy new customers and emerging markets. Incremental innovation implies progressive improvements to previously existing products and processes, does not require new knowledge, and aims to satisfy current customers and markets through improved designs, products and services. On one hand, the incremental approach to innovation is easier than the radical approach as it implies less risk and uncertainty. Conversely, it implies a higher risk of stagnation. Therefore, managing balanced innovation is a key challenge for ensuring a company remains competitive.

In recent years, there has been an explosion of interest and research on ambidexterity. Diverse disciplines, such as organizational learning, organizational theory, organizational behavior, and strategic management have all interpreted the concept. One of these disciplines is innovation management (He and Wong, 2004), which understands ambidexterity as an organization's ability to solve tensions between the management of incremental and radical innovations. According to this perspective, the abundant and rich

developments in the field of ambidexterity, including the latest advances in the metatheory of paradoxes, are benefitting the management of innovation.

Definition of terms: radical and incremental innovation, and ambidexterity.

“Innovation is the process of turning ideas into reality and capturing values from them” (Tidd and Bessant, 2013). This simple definition reflects a broad view of innovation covering both administrative and technological innovations, as well as putting the focus on its nature as a process. The entire innovation process involves different phases, such as searching, selecting between different strategic choices, implementation, and capturing value from innovation efforts.

Innovation can take different forms; in this respect, the 4Ps model of innovation by Tidd and Bessant (2013) is well known and conceptually useful. The 4Ps model covers four main dimensions: product innovation, meaning changes in the things (products and services) an organization offers; process innovation, which centers on changes in the ways in which these things are created and delivered; position innovation, i.e. changes in the context in which the products and services are introduced, and paradigm innovation, which describes changes in underlying mental models which frame what the organization does.

Therefore, innovation means change, and according to the intensity and depth of the change we can differentiate between radical (or discontinuous) innovation and incremental innovation. This differentiation can apply to the four categories of innovation. For example, in the category of radical product innovation, the Toyota Prius introduced a new concept of cars featuring hybrid engines, while Tesla launched high-performance electric cars. Conversely, a new model of car without substantial changes is seen as an incremental product innovation. The just-in-time method is an example of radical process innovation because it means a new frame for processes, while improved efficiency of factory operations by upgrading equipment represents incremental process innovation. Low-cost airlines that created a new market for passengers who could not previously afford to travel by plane, disrupting the existing market, is an example of radical position innovation, while airlines segmenting products for different passenger groups like premium class is a case of incremental innovation. In terms of paradigm innovation, Cirque du Soleil’s redefinition of the circus experience is an example of

radical innovation, while replacing circus acts featuring animals with clowns is incremental innovation.

Radical innovation is seen as competence destroying because it means relinquishing one's own expertise, responding to market pull or technology push strategies. It implies an extensive search, leading to entirely new products or processes that require new knowledge to satisfy new customers and emerging markets. Incremental innovation focuses on refining, broadening, enhancing, and exploiting current knowledge, skills, and technical paths. It implies progressive improvements in the characteristics of already existing products and processes, and does not require new knowledge but occurs via small improvements in techniques, generating a local search within existing technological trends and aiming to satisfy current customers and markets, improving designs, products and services, as well as existing knowledge and technology. Incremental innovation entails a lower level of risk than radical innovation but can provide fewer benefits and cause stagnation.

Both types of innovations can represent tension in innovation, or in other words, they can represent a trade-off for companies due to limitations in resources, skills and cultural issues. On one hand, resources are scarce and innovations require heavy investment, so there is a need for comprehensive evaluation and selection of the available options. On the other hand, the cultural values, organizational culture and organizational context for undertaking radical innovations are not the same as the ones best suited to undertaking incremental innovation. Values such as creativity, risk-taking and the availability to give up previous expertise in favor of learning new skills are more closely associated with discontinuous innovation; and values such as refinement, continuous improvement, the demand for a job well-done and zero defects are more related to incremental innovation.

Ambidexterity is the valuable organizational ability to manage both types of innovation; it consists of the ability to pursue simultaneously both incremental and discontinuous innovation.

Ambidexterity is a metaphor – the ability to use both hands with equal skill – which is used to describe organizations that are capable of exploitation (activities and learning through a specific search, fine-tuning and improving what already exists) and exploration (learning through completely new processes, planned experimentation and play) (March,

1991). Its etymological root is derived from the Latin word “ambidexter” (right on both sides), a word which comprises the prefix ambi (both sides) and the word dexter (right). In so far as radical innovation is identified with exploration, and incremental innovation with exploitation, the original concept of ambidexterity can apply to the management of balancing both types of innovation.

There are risks in any imbalance. Organizations that concentrate on exploitation and neglect exploration will certainly see visible improvements in effectiveness over the short-term, but this direction will prove to be self-destructive in the long term. On the other hand, organizations that focus on exploration at the expense of exploitation tend to suffer from a lack of efficiency, which can hinder their competitiveness (March, 1991).

In short, ambidexterity is a valuable capability to deal with tensions, originally used to define and manage the trade-off between exploration and exploitation, which can define the capability to solve tensions in the management of incremental and radical innovations.

Theoretical background and open-ended issues

Research on ambidexterity has burgeoned in the last few years. Prestigious journals such as the *Academy of Management Review*, the *Academy of Management Journal*, the *Journal of Management*, the *Journal of Management Studies* and *Organization Science* have published numerous articles on the subject. Some journals have even devoted special issues to the topic: the *Academy of Management Journal*, 2006; *Organization Science*, 2009; and the *Academy of Management Perspectives*, 2013. One of the multiple states-of-the-art appears in O'Reilly and Tushman (2013).

The origin of the concept resides in Duncan (1976), who first coined the term “ambidextrous”, arguing that firms need to shift structures to initiate and, in turn, execute innovation. Duncan is then the precursor of structural ambidexterity. However, the turning point and the consequent increase in interest and research on the phenomenon dates back to March (1991), who was concerned with finding a balance between two different actions and ways of learning; exploration, which means building new competences; and exploitation, which means using and refining existing ones. March, who was highly concerned by the limitation of resources in companies, presented the problem as a trade-off, in the form of an important dilemma for management. After

March, and especially in the last ten years, the application of these interesting concepts to different fields has been notable. In addition to being used to balance radical and incremental innovations and the two types of learning, research has also focused on and used the concept to define other tensions and trade-offs, like efficiency versus flexibility, stability versus adaptation, and short-term profits as opposed to long-term growth, among others.

However, despite this explosion of research and publications on the issue, there are still some open-ended issues which should be the object of clarification in future research. Firstly, the use of organizational ambidexterity is often too generic and vague in the literature, simply referring to the ability of a firm to do two things simultaneously. “As the research base has broadened, ambidexterity has been applied to phenomena such as strategy, networks, new product development, technology, software development, intellectual capital and other topics that, while interesting and important, may have little to do with the practical tensions involved in how managers and organizations deal with exploration and exploitation. The risk in applying the term so broadly is that the research moves away from the original phenomenon and loses its meaning” (O’Reilly and Tushman, 2013: 332). In addition, and along these lines, “if the term ‘organizational ambidexterity’ continues to be used to describe highly disparate phenomena, our insights into how firms actually explore and exploit are likely to become less and less useful” (O’Reilly and Tushman, 2013: 332).

One factor that adds complexity to the analysis is the broad typology in making the concept operative. The main responses of the literature to the question of how ambidexterity is achieved are (O’Reilly and Tushman, 2013):

- Sequential ambidexterity, changing structures over time.
- Simultaneous structural ambidexterity, which achieves ambidexterity differentiating between organizational units, and later coordinating them at a higher management level.
- Contextual ambidexterity, according to which ambidexterity can be achieved by designing features of the organization to permit individuals to decide how to divide their time between exploratory and exploitative activities.

- There is also a behavioral approach to this managerial capability at an individual level, and at top management team level, which has attracted the interest of academia (Moreno-Luzon and Valls Pasola, 2011).

There is another challenge emerging from the way empirical studies measure ambidexterity. While they accurately document the psychometric properties of these measures, the underlying meaning is often ambiguous. It is often difficult to know what “exploration” and “exploitation” mean in the context of specific research, especially when compared to studies about different industries carried out from different perspectives (Moreno-Luzon and Gil-Marques, 2015). In this respect, one of the challenges related to the measurement of ambidexterity in the field of innovation is the total identification of exploration with radical innovation, and exploitation with incremental innovation. As we saw above, innovation, understood as a process, has many phases. These phases may require both exploration as well as exploitation, and this is true for both types of innovation. To avoid tackling this challenge, some scholars created the terms exploitative and explorative innovation to mean the predominance of exploration or exploitation in each type (Jansen *et al.*, 2006). Other alternatives employed to avoid this issue have led some researchers to use innovation results instead of taking innovation on board as a process (He and Wong, 2004).

Implications for theory and practice

John Thesmer, Managing Director of Ictal Care (Denmark) stated, when answering the question “Where do you see the main challenges in managing innovation?” “To drive a project portfolio of both incremental (do better) and radical (do different) innovation. How do you get the right balance?” (Tidd and Bessant, 2013, p.49).

The interest of academia in this topic responds to a real management need. How can management provide stability and yet be at the forefront of change? This is a basic dilemma that managers face nearly every day, and it is implicit in many decisions, even beyond the field of innovation management. Management often deals with dilemmas in terms of decision-making. We have focused on the exploration-exploitation and radical-incremental innovation dilemmas. However, in an increasingly complex and chaotic environment, the opportunities to deal with dilemmas frequently is present in nearly all management fields.

The theory for analyzing organizational tensions has also evolved in response to this increasing management need. An important sign of the evolution in this topic is the decreasing interest in analyzing organizational tensions as dilemmas and problems and the increasing trend in the perspective of viewing organizational tensions as paradoxes and opportunities.

Figure 1 shows the perspective of tension as a dilemma, seeing both sides as competing choices, each one with advantages and disadvantages. In this case, the decision must take the form of a choice: either one or the other. This is a disruptive view of reality.

Figure 2 represents the perspective of a tension as a paradox. Opposites are seen as being part of the same unified whole, like in the yin and yang symbol. Moreover, they are somehow interrelated and complement each other. We can even see that one side also has a small part of the other side. The decision in this case takes the form of this one and the other one too. This is a systemic and unifying view of reality.

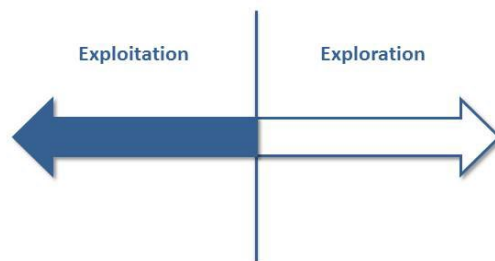


Figure 1. The exploration/exploitation dilemma.

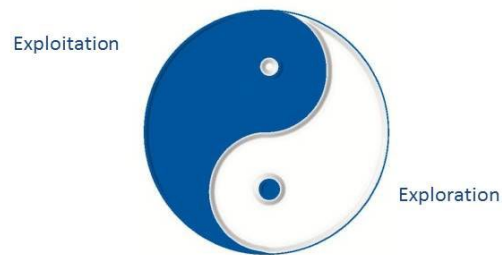


Figure 2. The exploration/exploitation paradox.

The paradoxical view of contradictions is not new in organizational literature. It was introduced by Cameron and Quinn (1988) as a framework for dealing with the inherent complexity of organizational life yet it has only recently received increasing attention in organizational theory literature as organizations have become more complex, dynamic, and pluralistic.

Initially, researchers and managers viewed exploration/exploitation tension as a dilemma, and even March (1991) and other prominent academics in the field adopted this perspective. However, recent research has centered on a paradoxical approach (Papachroni *et al.*, 2015). This change of perspective has important implications for management and academia as it moves from separation-orientated prescriptions to synthesis or transcendence of paradoxical opposites. This new focus may enable managers to move beyond the assumption of conflict between exploration/exploitation and radical/incremental innovations and explore new ways in which they can achieve them simultaneously.

Conclusion and future directions

One of the main challenges in the management of innovation is the choice between radical and moderate change. On one hand, the incremental approach to innovation is easier than

the radical view as it implies undertaking less risk and uncertainty, though conversely, it implies a greater risk of stagnation.

Although the concept is not new, in recent years there has been increasing interest and research on ambidexterity. Diverse disciplines, such as organizational learning, organizational theory, organizational behavior, and strategic management have interpreted the concept. Innovation management has featured prominently in this case, viewing ambidexterity as an organization's capability to solve tensions in the management of incremental and radical innovations. Accordingly, the abundant and rich developments in the field of ambidexterity, including the latest advances in the metatheory of paradoxes, are benefitting innovation management.

One future direction in research on the topic is to develop approaches to shed light on how ambidexterity, from a paradoxical viewpoint, can solve the tension between radical and incremental innovations, moving beyond the structural and temporal separations that have predominated in the field up until now. The path of the theoretical view of paradoxes is well developed, and it has even evolved as a metatheory, capable of embracing multiple theories and insights, from a meta-perspective. These developments have helped to better understand the complexity of organizational life. Nevertheless, there is a need to close the bridge between the theory and the practice of decision-making, transforming theories into operative proposals for the management of innovation.

Some open-ended issues still remain in the field that will require further development in future research. Firstly, rigor and clarity in the use of organizational ambidexterity are essential, as this is often too generic and vague in literature, simply referring to the ability of a firm to do two things simultaneously. Secondly, more research is needed in response to the question of how ambidexterity is achieved, defining new specific types of ambidexterity that can help in terms of decision-making. Thirdly, there is a need for rigor in the way empirical studies measure ambidexterity, not only in providing the psychometric properties for measurements, which are normally well presented, but also in clarifying underlying meanings. In this respect, one of the challenges related with the measurement of ambidexterity in the field of innovation is the total identification of radical innovation with exploration, and of incremental innovation with exploitation. Innovation, understood as a process, has many phases which need both exploration as well as exploitation and this is true for both types of innovation.

Cross-References

- Ambidexterity
- Innovation future/Future of Innovation
- Innovation Policies (vis-à-vis Practice and Theory)
- Innovation in Business Administration
- Innovations of and in Organizations
- Product Innovation, Process Innovation
- Systems Theory and Innovation
- Techno-Globalization and Innovation
- Organizational Innovation

References

- Cameron, K.S., Quinn R.E. Organizational Paradox and Transformation. In R.E. Quinn and K.S. Cameron (Eds.). Paradox and Transformation: Toward a theory of change in Organization and Management. Cambridge, MA: Ballinger. 1988; 1-18.
- Duncan, R.B. The Ambidextrous Organization: Designing dual Structures for Innovation. In R. H. Kilmann, L. R. Pondy, and D. Slevin (Ed.), The Management of Organization. North-Holland, New York. 1976; 1: 167-188.
- He, Z., Wong, P. Exploration vs Exploitation: an empirical test of the Ambidexterity hypothesis. *Organizational Science*. 2004; 4: 481-494.
- Jansen, J.J.P., Van Den Bosch, F.A.J., Volberda, H.W. Exploratory Innovation, Exploitative Innovation, and Performance: Effects of Organizational Antecedents and Environmental Moderators. *Management Science*. 2006. 52 (11):1661-1674.
- March, J.G. (1991). Exploration and Exploitation in Organizational Learning. *Organization Science*. 1991; 2 (1): 71-87.
- Moreno-Luzon, M. D., Gil-Marques M. The Contribution of TQM to Organizational Ambidexterity: The State of the Art and Promising Research Streams. In Peris-Ortiz M. et al. (eds.), *Achieving Competitive Advantage through Quality Management*. Springer International Publishing. 2015. Chapter 19: 293-305.
- Moreno-Luzon, M.D., Valls-Pasola, J. Ambidexterity and Quality Management: Towards a research agenda. *Management Decision*. 2011; 49(6): 927–947.
- O'Reilly, C.A., Tushman, M.L. Organizational Ambidexterity: Past, Present, and Future. *The Academy of Management Perspectives*. 2013; 27 (4): 324-338.

- Papachroni, A., Heracleous, L., Paroutis, S. Organizational Ambidexterity through the lens of Paradox Theory: Building a novel research agenda. *The Journal of Applied Behavioural Science*. 2015; 51(1): 71-93.
- Tidd J., Bessant, J. *Managing Innovation. Integrating Technological, Market and Organizational Change*. Wiley. 2013.