

# The concept of innovation with some insights from resource-based view and evolutionary theory

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**Abstract:** The aim of this paper is to present some approaches to study innovative activities from the company's perspective with a focus on resource-based view and evolutionary theory. In the resource-based approach, companies develop competitive advantages through resources and innovations that are rare and difficult to imitate. The current economic environment is increasingly turbulent and companies are developing skills through human resources, technologies and Research & Development to cope with declining product cycles and faster technological changes. In evolutionary theory, innovations are heterogeneous and firms learn dynamically from interacting with other firms and technologies, from which incremental or radical innovations can emerge. After a new technology appears, the embedded part of the technology will be disseminated within the industry through some channels and the non-embedded part of the technology will accumulate some idiosyncratic knowledge within the innovative companies through the appropriation of knowledge and knowledge spillovers. There are two major trends in studies, some do not study the innovation per se but are oriented towards the transformations regarding the innovative strategies of the companies in different economic and social environments. The other trend of studies is oriented towards the innovation process itself which has evolved from a linear process of R&D-patent-innovation-market to one towards open-innovation in which the company interacts with other entities.

**Keywords:** innovation activities, resource-based view, evolutionary theory, competitive advantage, technological changes.

**JEL Classification:** D21, L25, O33

## Introduction

Most inventions represent new acts of understanding, instead a major invention involves significant critical review work because old ideas can be adapted to a particular use. This idea remained in the economic literature of innovations and is expressed by the notion of “incremental” learning, meaning that certain minor contributions can be made to a particular product, and over time, these small contributions will reflect in an innovative product. The advantage of this theory is that some “stages” are established through which the individually effort can be oriented towards the choice of innovation directions that are considered more economically efficient. Innovation can be differentiated as objective efforts and subjective perceived innovation.

When it is measured by R&D expenditure with the aim of obtaining a certain innovation, it represents an objective measurement. When a manager is asked in a questionnaire if he has introduced a certain innovation in a certain period of time, it represents a subjective perception that can change. In general, innovation is seen as the implementation in the company “of a new or significantly improved product, or process, or marketing method, or organizational method of good practice” (OECD, 2018). The literature studying the innovation term shows that there is a very wide range of innovative activities especially as uncertainty and risk are present in all stages of process innovations.

In the Oslo Manual (OECD, 2018) we find that innovation can be measured both as a process and as a result, thus there are two distinct definitions. Innovation is measured by inputs and innovative activities or as resulting innovations. Innovative activities include all commercial, financial and development activities carried out by a company that seeks to obtain an innovation. A business innovation is a product or process that is new or improved and differs significantly from products or processes that have already been introduced in the company or market.

There is a distinction between companies that have introduced innovations during the analyzed period and companies that are innovative in the sense that they have the potential to innovate in the future. In this interpretation, even if a company is active-innovative and has not introduced an innovation during the analyzed period, then the company is non-innovative. During the analyzed period, creative activities, Research & Development, etc. can be carried out without being completed by introducing a product innovation or a process innovation.

## Literature review

Business innovation capabilities is a concept recently introduced in the Oslo Manual (OECD, 2018) and includes the resources, knowledge and skills that a company accumulates over time. The company’s objective is to improve economic performance and can be achieved by carrying out innovative activities. Innovative activities can be performed within the company, can be transferred from other firms or a combination of the two options, and represent a key element of the business models of many companies in the Fourth Industrial Revolution (Toma and Gradinaru, 2017; Tohanean and Toma, 2018; Toma and Marinescu, 2018).

Becheikh, et al. (2006) conducted a comprehensive study on manufacturing and considered innovation as an independent variable identified by innovation and studied the following

internal factors, seen as specific to the company: general characteristics, global strategies, company structure, control activities, culture, assets and functional strategies and management team. The limitation of the study is that they considered only the manufacturing sector and innovation is strictly related to product and process (Becheikh, et al., 2006).

Galende (2006) identified five approaches to the company's innovative activities: industrial organization, transaction cost analysis, positive agency theory, resource-based vision and evolutionary theory. There is a complementarity between these approaches and they can all be used to measure some perspectives of the innovative activity.

Galende (2006) describes the following perspectives on measuring innovative activities:

- Industrial organization is an approach in which the effects of external factors on innovation are studied;
- Transaction cost economics studies the relationship between the market and the company as a means of planning innovations;
- Positive agency theory studies the effects of different interests of economic agents on the innovative activity of the company;
- The resource-based view highlights the importance of internal resources for competitive advantage, including innovation;
- Evolutionary theory studies the ways in which the innovative process is carried out in the company and highlights the degree of heterogeneity of innovations.

Transaction cost theory and the neoclassical production function of new industrial economics is a marginalist approach in which costs are compared with the marginal benefits of various alternatives that do not allow a concept such as "innovation networks" based on mutual trust in a co-operative relationship (Pyka, 2002).

### **Research methodology**

The research method is based on a qualitative approach and provides a conceptual overview of innovation through some of its elements such as knowledge, learning, competencies, Research & Development, intangible, non-embedded and embedded technologies. Several bibliographic sources were consulted from the Central University Library via ANELIS PLUS from databases such as Emerald Publishing, Springer and ScienceDirect to cover the topic of the paper.

### **Results and discussion**

The study compares the concept of innovation and innovative activities in two theoretical approaches, namely resource-based view and evolutionary theory.

The resource-based view suggests that companies create value and are competing through resources that are unique, rare and difficult to imitate. The development of innovative capabilities becomes a critical activity for the evolution of the company. Innovation can be generated from a variety of sources, internal through R&D and creativity of employees. Also, innovation can be obtained from external sources through collaboration with other companies or from customer feedback. Companies use creativity and are innovative to survive in the face of competition and

to grow and the current economic environment is characterized by faster technological changes and shorter product life cycle.

Innovation is the main element to gain a competitive advantage (Lukovszki, et al., 2020). In the resource-based view of internal factors, the focus is on intangible assets as an important aspect of the strategic analysis of innovation as a source of competitive advantage (Galende, 2006). Innovation has an intangible component along with other intangible resources with which it interacts and which are used in companies' strategies.

Porter (2001) shows that firms should be both competitive nationally as well as internationally. In Porter's (2001) view, companies can invest strategically in competitive advantages to compete through costs and / or quality in the components of the added value of the supply chain in an attempt to be competitive domestically and / or at an international level. In order to become as efficient as possible, companies should give up their comparative advantages offered by the use of cheap labor and channel resources to invest in some competitive advantages. To be competitive, some companies opt for a strategy of adoption of new technologies. In the literature we find a structural distinction between innovative and non-innovative companies, in the sense that certain specific patterns of behavior are created by the innovative companies.

Various approaches to the relationship between performance and innovation in the company are structured by Brusoni, et al. (2006), a higher level for R&D spending involves greater learning opportunities about new technologies but also a process of harmonization within the company. Companies invest in R&D to get updated to new technologies, new production processes, new products etc.

Brusoni, et al. (2006) argue that firm survival and growth depends on their ability to successfully adapt their strategies to the turbulent environment in which it operates. Zahra and Covin (1993) show that the adopted technology differs significantly between companies, but also the business strategy differs and the business strategy affects the intensity of the relationship between the company's performance and the adopted technology.

Efendioglu (2007) argues that a competitive business strategy includes the ability to benefit from the latest technologies and to integrate them efficiently in one's own production system, but also the ability to adapt the company from the old industry to the new industry. One way to invest in competitive advantages is to formulate strategies for the company in ways to try to permanently access advanced technologies. Lukovszki, et al. (2020) considered that the performance of innovation is a synergistic effect of the company's competencies, innovative effort and resources. An innovation can bring the company a higher level of performance, but the competitive advantage is obtained only if consumers perceive the improvement of the product compared to alternative products (Torres and Augusto, 2019).

According to the Oslo Manual (OECD, 2018) the effects of innovation on competitiveness are:

- an improvement of the company's position in the market or the increase of consumers' utility and includes the diffusion of innovation, meaning that innovation can come from the efforts of the analyzed company or from the efforts of other companies;

- an innovation has the potential to transform or create markets and is an indicator on the

intensity of innovation, whether it can create disruptions or radical transformations in the market;

- the effects of innovation on the company's competitiveness can be observed for product innovations by measuring sales over an analyzed period of time or by future expectations regarding the effect of innovation on competitiveness.

Montalvo (2006) considers that companies engage in innovative activities due to constraints to maintain their competitive position in the market, where the market is seen as an external pressure. The interactions between innovation, technology institutions and economic dynamics represent the sources of evolution of the economy through differentiation and selection, while innovation and entrepreneurship are defining processes that create variety and selection in industries (Malerba and McKelvey, 2020).

Luño and Cabrera (2012) argue that in a turbulent environment with higher uncertainty, the generation of innovations works better than adopting innovations and radical innovations will emerge rather than incremental innovations.

Martínez-Sánchez, et al. (2020) tested if some human resource (HR) flexibility mediated the relationship between R&D efforts and the absorptive capacity (AC) of knowledge and found that the mediator effects of HR and AC are positively related to innovation performance. There is a strong effect to performance when it is based on the innovation from the complementarity of innovation resource and capability because the firms with superior learning capability will question their routines and adjust from feedback (Sok and O'Cass, 2011). Technological capabilities and innovation strategy have had a greater influence on performance innovative versus customer-supplier relationship, formal structure and culture of innovation constructs (Rifat, 2015).

Gu, et al. (2016) found that cooperative networks and customer input have a positive impact on the innovation performance of high-tech SMEs and R&D positively moderates the relationship between network size, customer input and innovation performance in high-tech SMEs.

In evolutionary theory, knowledge is heterogeneous and company-specific, innovations are difficult to pass on to other firms and represent a strategic asset over competition. Evolutionary theory is an alternative approach to draw the sources of innovations as being created by the dynamics of the market in which the company operates. Companies can change their market position through innovations and looks for ways to capitalize on a certain innovation.

From the economic perspective, the sources of innovation, the factors that generate it and the effects of innovations on industry and economy are studied. Companies constantly identify the available options depending on the context in which they are, the degree of uncertainty of technologies, the behavior of competitors and consumer behavior, companies must learn dynamically about new technologies, change their capacity, adjust the organizational structure etc.

The technologies can be incorporated or not incorporated in the technical capital and are distributed within the industries. Some technologies are easy to imitate by companies, but even when they are imitated, there is a process of learning and adapting that technology to local conditions and to the specific conditions of the company. As the company accumulates knowledge about the respective technologies, the organizational structure changes and new competencies are acquired by the human capital. When an innovation is introduced in the company, it can be

new for the company, new for the industry or new for the world and will create new technological trajectories for that company, that respective technology, that industry and for the economy.

Non-embedded technologies can be seen as a stock of knowledge that accumulates within the company and is found in the development of new skills of human capital, can be stored in databases or can be combined in R&D activities. This knowledge can be tacit or explicit and accumulates in certain directions of development within the industries and creates permanent changes in the organizational structures of the company and in the competencies of the human capital.

There are some degrees of uncertainty about future technological developments and future radical changes cannot be anticipated, but there are constantly small changes in existing technologies, as measured by incremental innovations. At the same time, there is the possibility of the emergence of revolutionary technologies that will bring "mutations" within the structure of the economy. A distinction can be made between embedded technology in capital and non-embedded technology which is an important analytical approach because embedded technical progress is much easier to signal through the market mechanism. After the emergence of a new technology, you can follow the channels through which this technology will broadcast between companies from an industry.

However, there are problems in measuring the effects of non-embedded technology, for example, an employee who has tacit knowledge about the use of an equipment can change jobs and work for another company. Unembedded technological changes are characterized by a dynamic process that consists in the accumulation of knowledge and the firm-innovator learns in specific ways about technologies.

Evolutionary theory has contributed to studies on the internal features of innovation, types of innovation, innovation objectives, mechanism for approximating the results of innovative activity, patterns of innovation and spillover effects (Galende, 2006). Meissner and Kotsemir (2016) reviewed the innovation models and identified the innovation management process models from the historical perspective: technology push, market pull, coupling model, interactive model, integrated model, networking model and open innovation. In the "innovation management process models" approach, innovation is not analyzed as a process per se, but are studied the transformations of management strategies in different social and economic contexts.

Meissner and Kotsemir (2016) classified the conceptual innovation process models from the historical perspective: black box model, linear model, interactive models, system model, evolutionary model and innovation milieu model and in all these models the study of the regional or national "innovative system" is pursued. The models of the first generation of "conceptual innovation process models" considered the innovation process as a linear one, there being a succession between R&D, patents, innovation and marketing through the market and shifted to the current approach which is specific to "open innovation paradigm" in which innovation is a system of interactions and relationships between different entities and companies.

Lee, et al. (2012) found that co-innovation is a paradigm in which new approaches and ideas from internal and external sources are integrated into a platform that generates new shared values and includes co-creation, engagement and experiences that are hard to imitate. In this view of theory, the company's internal competencies are no longer sufficient for it to remain competitive

and there is a global business ecosystem in which the economy, governments, firms and individuals are networked and create a process of co-innovation.

### Conclusions

Both resource-based view and evolutionary theory have important contributions when studying innovative activities. Some approaches are from the company's perspective and respond to different economic and social situations. Complex interactions regarding competitiveness, competencies, synergy, knowledge, learning, etc. are studied in flexible, dynamic, integrated, fluctuating or interconnected processes. In evolutionary theory, knowledge is specific to the company and has a high degree of heterogeneity, it accumulates for each technology and for each industry.

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