HOW PATENTS BECOME DISRUPTIVE TECHNOLOGIES AT THE HIGHER EDUCATION INSTITUTION: POINTS OF CONVERGENCE

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ABSTRACT

The disruptive technologies are present as a current theme since the and creation and application of innovations is a source of economic growth (Schumpeter, J.A., 1911; Christensen, C.M, 2000; Rogers, E. M. 2003; Bessant, J.; Tidd, J., 2009; Christensen, Clayton M., Michael Raynor, and Rory McDonald, 2015) for all segments that want to remain competitive. In most educational and research institutions in Brazil, there is an institutional process of encouraging patents, but we do not perceive the same concern with the organization. The purpose of this paper is to raise convergence points between patent filings identified in a public school in Ceará-Brazil over the past ten years through Google patents and the disruptive innovations analyzed by Christensen, Clayton M., Michael Raynor, and Rory McDonald (2015).

KEYWORDS

Innovation, Patents, Disruptive, Educational Institution

1. INTRODUCTION

Joseph Alois Schumpeter's (1911) epistemology contributed to innovative thinking, as the author discussed the processes that culminate in the dynamics of creative destruction, denying old paradigms and assuming a cycle of prosperity due to the breaking of past practices and the acceptance of a new one. transformative and different process that cooperates in the alteration of the economic cycles, because the limit and the traditional course of the relations between the agents of the economic system change. Schumpeter (1911) points out that the individual is responsible for generating these new combinations between the elements and through these combinations obtain new means of production, new products, services and innovations. Innovations can be identified as closed or open. Closed innovation occurs within the company, while open innovation seeks to implement innovations through network collaboration that can present itself as strategic alliances, licenses among other formal or informal associations. Otlet glimpsed the role of networking through the Mundaneum, however, the concept of innovation networking has stood out in the last decade with different meanings and approaches. In Europe this approach emphasizes social, geographical and institutional aspects. (Bessant and Tidd, 2009).

Organizing higher education institutions, representatively, Federal Institutes and Universities for networked innovation requires the elaboration of complete and successful processes that facilitate the understanding of how to elaborate and prepare an innovation.

Higher education institutions make many attempts to instill innovation, but fail in many areas. Because of the structure and model of the educational institutions in Brazil. However, in public education institutions there is a sometimes individual approach by the researcher to developing products or services for private enterprise and these see it as an opportunity leaving some researchers in educational institutions an ever-increasing proportion of the research. product planning and development leading to licensing and patents for companies. The patent is particularly difficult in Brazil because of its cost and long submission process and, even with the help of a patent office and the NIT Technological Innovation Centers to assist you, its approval does not guarantee its adoption.

The articulation between patent filing, companies and innovation in Brazil started from the increasingly consensual idea of the importance of involvement with public education institutions in this scenario.

The purpose of this paper is to raise convergence points between patent filings identified in a public school in Ceará-Brazil over the last ten years and the disruptive innovations analyzed by Christensen, Clayton M., Michael Raynor, and Rory McDonald (2015). This research has a qualitative, exploratory and descriptive approach. For the development of the work was used the search engine Google patents that indexes patents and patent applications. The graphs were made to facilitate the demonstration of results.

2. DISRUPTIVE INNOVATION

Christensen, Clayton M., Michael Raynor, and Rory McDonald (2015) analyze that the theory of disruptive innovation over the past two decades has influenced business cycles, but was also misunderstood, as the term disruptive was applied to companies that did not really bring innovation. The term disruptive is considered as an interruption to the process, so it is misleading when used to evaluate a product or service that is marketed in a timely manner, but business models are considered disruptive when they can challenge new customers with a new proposal. by industry leaders. The disruptive innovations are revealed when they reach neglected segments with products or services. The authors point out that incumbent operators already neglecting this audience do not respond vigorously to new products, but the products or services generated continue to develop and establish themselves in the market and may at one time or another reach the same audience as incumbents offering a service or high-end product while preserving the advantages that made it enter the industry.

Disruptive technology generated by innovation occurs when the product or service is adopted by the customers of historic companies. So, to be disruptive you need to consider sales volume, low end or the creation of new markets when companies find a way to turn non-consumers into consumers.

2.1 Income Statement

We identified 31 patent results made by the researched institution between the years 2010 to 2019, however in 2011, 2013, 2018 and 2019 has not had any patent grant, as shown in figure 1.

Figure 1. Patents of Institution

The year of 2017 stood out with 12 patents granted, among the simple patent areas are the electrical, motors, chemistry and power areas. It is observed that the patent families of some products present themselves as not defined in the researched documents.

By surveying the institutional website and the research labs, we found that the areas that the institution filed patents are 11 patent units from different areas with no relationship between them and 01 that relates having the same principal inventor. We emphasize that the researched institution develops research in the areas of artificial intelligence, internet of things, embedded systems and digital mobility with the contribution of agreements and innovations, in these areas no patent of the institution was identified.

2.1.1 Discussion

Together with the authors Christensen, Clayton M., Michael Raynor, and Rory McDonald (2015) we realize that innovations begin primarily on a small scale. The relationship between innovation and whether it will be

disruptive or not is still premature to say, because according to the documents studied, the patents were intended for companies in the industry for their size and complexity and not for the end customer and user. The search to enter the market through the low end was not evidenced, nor did we evidence the search for new markets. Thus, innovations were considered incremental when the product was improved compared to the competitors.

3. CONCLUSION

The result presented shows that for patents to be disruptive in educational institutions, they need to meet low-end criteria or new markets, two criteria that are not yet considered by patents. We found that how to make patents within public institutions is new and we still have a lot to build relationships, alliances that aim at institutional and national improvement, because patents reflect as an evaluative indicator for the country. We will continue to delve into this subject by highlighting the importance of strengthening innovation as an institutional rather than individual and unilateral policy, as has been done. Investing in disruptive innovations demands a lot of work that consolidates the institution to explore a new business model that can add to society as it reaches a market that is sometimes unknown and unexplored. Using this view of disruptive innovation helps in the assessment and makes it measurable. Thus we can conclude that the points of convergence between the theory adopted by the authors and the disruptive technology is to integrate the exploration of a new model and to continue to develop researches and integrates with other perspectives expanding the study and refining the disruptive innovation theory.

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