



TECHNOLOGICAL ENTREPRENEURSHIP AS A STRATEGY FOR ECONOMIC  
DEVELOPMENT.

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## SUMMARY

This article points out the importance of supporting and promoting entrepreneurship for the generation of technology companies, as a strategy for economic development, based on Schumpeter's concept of innovative entrepreneur and the business models based on information and communication technologies, now called Exponential Organizations.

**Keywords:**Digital. Technology. Exponential Organizations.

## INTRODUCTION

Brazil's present moment strongly highlights the need for greater promotion and incentive to entrepreneurship, since it is witnessing broken states, unable to pay their servants and providing basic security, education and health services to the people. In addition to the states, there are also large companies with no capacity to grow and sell, generating armies of unemployed, leading the country to fall in consumption, generating a vicious cycle of recession.

Thus, the figures of the state and of large companies as major job generators are questioned.

The current moment highlights the importance of the entrepreneur as creator of new businesses, jobs, income distributor and generator of innovations that change the reality of markets, create new business models, new business models, bringing new dynamics of consumption and competition in the market increasingly globalized.

The concept of Exponential Organizations, ExOs (from Exponential Organizations), (Ismail et al, 2015) is evidence of this. New technology-based business models are showing the new revolution. Companies like Facebook, Instagram, AirBnb, Uber and others are rapidly increasing in value, ten times faster than traditional large corporations and reach vast consumer markets, contingent of thousands, in several countries, on a literally global scale very quickly, leveraged by the web.

Entrepreneurship is the answer to alleviating the dependence that society has on the state and large companies for access to income.

## ENTREPRENEURSHIP

According to Dolabela (1999), the term derives from the translation of the word entrepreneurship, used to refer to studies on the entrepreneur, his profile, behaviors,

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knowledge, practices, etc. However, although the term has become popular since the import of the English language, entrepreneurship comes from France, in the 12th century, as an entrepreneur, when referring to the one who encouraged fights. Later, he started referring to the person who created and led projects and undertakings, at the end of the 18th century. At the same time, he also referred to those who bought raw materials and resold them after being processed, having then identified a business opportunity and taken the risk. Still with the intention of explaining entrepreneurship,

According to Baron and Shane (2015) and Dolabela (1999), entrepreneurship can understand the process of creating new businesses, promoted by people (entrepreneurs) looking for opportunities in the market (products or services, markets to be explored, productive processes or the gathering of technologies to shape something), identifying niches of consumption for the creation of wealth. Entrepreneurship is, therefore, the basic process of shaping the world as it is known. Just stop and reflect on the set of products or services around, they only reached the market because an entrepreneur created them. The authors converge on economic development as a result of creating new ventures. In this sense, it is worth watching the documentaries “Gigantes da Indústria” (History Channel, 2016) and “Gigantes do Brasil” (History Channel, 2016b), which portray as entrepreneurs were fundamental to the development of the United States of America and Brazil, respectively. Baron and Shane (2015) also point out that entrepreneurship does not end as the enterprise is created, but that the process extends since the created company needs to be managed along its trajectory, which implies generation profit and growth. And that is the entrepreneur's task. which implies profit generation and growth. And that is the entrepreneur's task. which implies profit generation and growth. And that is the entrepreneur's task.

Baron and Shane (2015) present a vision that meets Schumpeter's assumptions (Schumpeter, 1997), differentiating invention from innovation, in arguing that the invention of something, by itself, does not lead to the exploration of opportunity, but that this occurs only when the product or service created has commercial value, that is, it creates demand, awakens the sense of usefulness in the market, making people recognize value in what is offered. Which also refers to the idea of Schumpeter's “innovative entrepreneur”, therefore, the innovation is attributed to the entrepreneur as another feat of his.

Baron and Shane (2015) likewise, also point to economic development as a result of entrepreneurial activity. To support their vision, they point out that at the time of publication of the work, 600,000 companies were created in the United States per year. Still on the reality of that country, they mention: a) in the 1990s, more than 6 million jobs were cut by large corporations, however, the unemployment rate fell to the lowest levels registered, since, most were absorbed by the new companies; b) in 1999, more than 900 thousand companies were founded; c) in 1998, more than 10 million people were self-employed; d) the number of companies opened by women and social minorities has increased dramatically. The number of companies opened by minorities between 1987 and 1997 increased by 168%,

The importance and influence of entrepreneurship in Brazil is also no different. According to a report presented in Exame magazine (Exame, 2017), small and medium-sized companies (SMEs) account for 27% of GDP and generate 52% of formal jobs in the country.

Thus, Baron and Shane (2015) continue pointing out that history has witnessed great fortunes created by entrepreneurs, such as John D. Rockefeller, Andrew Carnegie and Cornelius Vanderbilt and that over time Michael Dell, Bill Gates and Mary Kay Ash have emerged . Specifically, here in Brazil, there are Jorge Paulo Lemann, Joseph Safra, Eduardo Saverin,

Abílio Diniz, among others (Exame, 2017b), All these great entrepreneurs who created their businesses, generating jobs, wealth and promoting economic development.

Another factor to be explored in terms of fostering entrepreneurship is the end of what they call a “lifelong employment contract”, in which, in times of cuts and restructuring in large corporations, working and performing well do not guarantee jobs anymore (Baron and Shane , 2015). Dolabela (1999) also calls attention to the “employee syndrome”, in which the individual dreams of a job in the government or in a large multinational. However, since the 1990s, however, young people, according to him, have been changing their view in this regard and are looking for opportunities for fulfillment other than employment. What Baron and Shane (2015) also point out as a question of changing “basic values”, since young people from what they have seen are no longer seeking job security, but rather a more independent lifestyle,

And when the “young person” is put in perspective, Dolabela's point (1999) is understood, when he defends that it is necessary to discuss “entrepreneurship” in educational institutions, because as he pointed out:

“The introduction of an entrepreneurial culture in high school and high school education is the first step in the pursuit of a greater objective: the formation of a culture in which values such as wealth generation and distribution, independence, innovation, creativity, self-support have priority , freedom and economic development, that is, the formation of a 'social incubator' ”.

For this reason, this Author sees the importance of deepening and fostering studies on entrepreneurship in educational institutions, as well as the need to encourage it as a value for society, so that individuals can be given another possibility of achievement. that not only the search for jobs in the government or in big companies, thus making it independent from the State or from multinationals installed in the country. In addition, as pointed out by Dolabela (1999), countries with a larger “stock” of companies can better respond to recessions and job crises. In this sense, a report presented in the magazine Exame (Exame, 2017) corroborates the performance of the 100 SMEs that grew the most in the last year, that is, in the midst of the crisis in Brazil, when he mentions that “in theory they find it easier to adapt to the crisis”.

## INNOVATION AND TECHNOLOGY

To better understand what will be discussed in this article, it is necessary to approach the theme of innovation in the light of the one who presented it, Joseph Schumpeter. It is common to read about the topic or attend lectures or even take courses on innovation management and very little or even nothing to be covered about Schumpeter. Which is a big mistake, since it is only possible to understand the importance and impact of innovation, when it is understood through the perspective that really translates its concept, the economic. Innovation is an economic process, which translates the dynamization of industries, of economies. If the reader has in mind that innovation is just a matter of launching new technologies and new products, as if this were something at random or simply a question of “being ahead of the competition”, he is wrong.

Joseph Schumpeter was one of the most renowned economists in history, born in Moravia, today part of the Czech Republic, in 1883, having died in Connecticut, in the United States in 1950, and how no one has consistently presented the importance and role of innovation for economic development. The importance of the concepts presented by Schumpeter in his works is undeniable, seeking to consolidate and disseminate the assumptions of innovation, as well stated by Oliveira (2014). Specifically, "The Theory of Economic Development", launched in 1911 (Schumpeter, 1997) and "Capitalism, Socialism and Democracy", of 1942 (Schumpeter, 1961) stand out.

Innovation is the beautiful process of conceiving the new, of generating new products, services, methods or processes, which will generate new market practices, which will make consumption, new markets and industries viable. Innovation is the bridge between the old today and the future. Were it not for innovation, one would still live in caves. It is worth remembering Schumpeter in his work "Capitalism, Socialism and Democracy" (Schumpeter, 1961), pointing out: "The fundamental impulse that puts and keeps the capitalist machine in operation comes from new consumer goods, from new methods of production or transportation, new markets and new forms of industrial organization created by the capitalist company". This statement places the role of innovation in boosting the economy, which is fundamental for job creation, increased revenue channels, gains in productivity and economic development. It is worth remembering that Schumpeter was an enthusiast of the capitalist model, although he acknowledged and pointed out his weaknesses and even their infeasibility at some point (Oliveira, 2014).

Based also on Schumpeter (1961) and in order to better understand the relevance of the innovation process, it must be borne in mind that, it was thanks to the capacity to innovate that societies left transport by coach to the plane; from the coal oven to the microwave; from loom workshops to automated factories. When examining this process, it must be understood that innovation is characterized by the ability to generate the market, create consumption, and commercialize the new. This is important, in order to understand that inventing and innovating are different things, but especially, and it is always necessary to reinforce when addressing the theme, innovation is an economic concept.

Differentiating invention from innovation is easy. An invention is something new, a new element, artifact or equipment, but which, however, did not become capable of creating a new market, of awakening consumption, or that, at least, was not applied for such. Innovation, in turn, is an invention that became economically viable, that created market, demand, aroused consumption, created revenue (Santos et al, 2011).

This understanding is fundamental because what we intend to address in this work is precisely the importance and impact of the emergence of new business models, new markets. Therefore, it must be understood that innovation is an economic phenomenon. Schumpeter saw economic development as a dynamic process, resulting from structured actions, such as what he called "creative destruction", which would be generated or promoted by a figure like the "innovative entrepreneur". Since the view he had at that time was that the economy was somewhat "stationary", did he turn his curiosity to understand how development arises in an economy without development (stationary)? What phenomena directed it? (Oliveira, 2014)

Among his positions, one that is intriguing and fundamental to be put - as well done by Oliveira (2014) - is that Schumpeter did not see in the change in consumer tastes and behavior enough strength to pressure the industry to generate innovations, but that, innovations were generated by the industry and consumers were then "educated" about their use and consumption. This position has its value, when reflecting a little: was there any change in the

behavior or taste of consumers that originated the personal computer? Can the same be exercised about the cell phone? This placement is really very timely and rich, because it shows the power that innovations have, being really “so new”, original, that gave consumers new needs, that they most likely did not know, or they didn't know they needed these. It would then be the process of “inventing a need” and thereby making people consume.

Another also intriguing position is that economic development would not come from new combinations of the means of production, through “continuous adjustments”, but that only through new combinations would appear discontinuously. At this point, it is understood that the process of “continuous improvement”, a fundamental pillar of the Total Quality movement, and that, at some point, is also seen as central to the competitiveness of companies, so for Schumpeter it would not lead to innovation [rupture ], but only the introduction of something really new, disruptive. As Wu (2012) puts it, there are two types of innovation, the “sustainable” ones, which are characterized by improvements in products, making it better, but without threatening its market, and the “disruptive ones”, which are those that threaten to destroy its market, further exemplifies that,

So, it turns mainly to two factors that would lead to economic development - as pointed out by Oliveira (2014): a) the introduction of a new good or product or new quality of a and b) the introduction of a new method or productive process. With that, it stops its analysis in new products and production processes, as main factors for the economic development. And it complements, in a very timely manner for this work, that innovation is “generally” generated by new companies, not by old ones, and that, with this, “true competition” would occur between new companies, endowed with innovations, and the fighting for their survival in the face of the new wave. And at this point, attention is drawn to the fact that this article was written precisely in the period when Tesla, an automaker of luxury cars powered by electricity, founded by Elon Musk becomes the most valuable American auto company on the market. On April 4, 2017, the company is worth \$ 49 billion while Ford, \$ 46 billion (BBC Brasil, 2017). Then, on the next 10th, Tesla is worth U \$ 51.56 billion and General Motors, U \$ 50.26 billion (BBC Brasil, 2017b). In other words, Tesla is precisely the “new company, created by the innovative entrepreneur”, bringing the new technology and business conception, rivaling the old ones already installed in the market.

And so, Schumpeter puts the concept of innovation as a result of the “creative destruction” process, in which new products and methods appear destroying their predecessors, then there is competition between old and new products and processes, old and new companies. This dynamic would be central to the capitalist process that would feed on this continuous discontinuity, in which the new destroys the old, thus generating new means of consumption, value and wealth (Schumpeter, 1961).

In this scenario, then, one can have technology as a rupture factor, separating the moments in history, as when referring to the II Industrial Revolution, from the improvement of the use of steam in the productive processes, over the years, the emergence of computing, internet, robotics, nanotechnology and artificial intelligence, as pointed out by Brynjolfsson and McAfee (2015), in “The second era of machines”. In this work, the authors make a deep discussion about the impacts of technological advances on education, job creation, wealth generation, the emergence of new business models and the competitiveness of markets, among other aspects also worked on. The provocations posed by the authors are worrisome for countries like Brazil (this is the motivation for this article), since,

Recently, works like “The second era of machines” have been reporting the impacts of technology on societies and markets, but especially, alerting to the emergence of new

business models, based on information and communication technologies, also worth relating: “Think how the new billionaires ”(Lane, 2015); “Exponential organizations” (Ismail et al, 2015); “Digital business” (Pakes, 2015) and “Leading in the digital age” (Westerman et al, 2016).

## DIGITAL ENTREPRENEURSHIP AND EXPONENTIAL ORGANIZATIONS

Lane (2015) brings a collection of profiles of technology entrepreneurs from the last few years, practically an “internet generation”, who saw in the digital environment a field of business opportunities to be explored. Business, such as “Facebook”, “Spotify”, “Whatsapp”, among others. In the same way, Pakes (2015) lists a team of digital entrepreneurs in Brazil, reporting their experiences and learnings when exploring the digital world for business creation. The work is rich in tools, experiences and concepts of digital marketing. These two works form a field of knowledge around digital entrepreneurship, the initiation of business using communication technologies through the internet.

Pakes, in turn, calls attention to the fact that, according to the author, "the real power of the internet in business is still little explored". It claims that the internet business revolution has barely started. It goes on to point out that at first, companies only digitalized the offline world and that, however, with technological developments, better, smarter ways of using the internet in business have emerged. He concludes by listing why the internet is the “Great Opportunity”: a) scope: the internet's power of coverage is enormous, giving the entrepreneur a much greater capacity to reach people, than outside the internet; b) low cost: the cost necessary to scale the business is low, since the necessary tools are either very cheap or free; c) ease: the tools available are easy to use and automate a large part of the work, generating scale, sometimes eliminating the hiring of specialized technical labor; d) remote work: with great communication skills and easy tools, the entrepreneur can work in his digital business from anywhere on the planet, when and with whomever he wants and e) low competition: competition is low, as most entrepreneurs still don't understand the real power of the internet. These characteristics are very timely and refer us to the business model that knew how to take advantage of them and create enterprises that grow rapidly and have revolutionized industries, generating wealth, moving billions of dollars in revenue and share value, the new capitalist way of creating value , Exponential Organizations (Ismail et al,

Ismail et al, (2015) address the concept of “Exponential Organizations”, the ExOs, as they are called, which would be just businesses like those listed above, which have specific characteristics, such as:

- a) rapid economic growth: they would be characterized, mainly, by the capacity of rapid growth (exponentially), reaching a large number of consumers (or adepts), obtaining accelerated wealth generation, through rapid appreciation in relation to other businesses in the market, because as the authors point out, traditional companies would have taken an average of 20 years to be worth \$ 1 billion, while ExOs only 1.5 to 6 years. And we must also pay attention to examples, such as Google, valued at \$ 101.8 billion and Facebook, at \$ 73.5 billion (Forbes, 2017), which are relatively new companies, but, nevertheless, are rapidly increasing. Google was founded in 1998 and had its initial offering of shares on Nasdaq in 2004. (Google, 2017), while Facebook was launched in 2004 (The Guardian, 2007). As mentioned, Ismail et al,
- b) Impact on traditional industries: An impacting aspect of these business models is the competition they impose on traditional industries. Take Uber and Airbnb, for example. Uber revolutionized the private transport industry, specifically taxis, offering a

differentiated proposal in the service and management of relationships between drivers and consumers, creating a model for evaluating both, due to the experiences obtained with the service. Airbnb has the largest offer of accommodation infrastructure in the world, without being a hotel company, but promoting the most efficient meeting between need and offer, between the consumer market and the “industry”, this, in fact, is constituted in anyone that has from just one room to a house for rent. Whatsapp, for example, today it is a major threat to the telephone industry, even the mobile one. This is because in a very efficient way, it promotes the connection between people through its messaging service without charging the user anything. In addition, because it is a service that aims to connect people, it quickly creates membership;

- c) Scalability: these companies are characterized by a lean structure, with a very small staff, are businesses that are characterized by having started with small groups of 2 to 4 young people in universities or garages, (like the generation of their predecessors, Steve Jobs and Bill Gates, for example) and very little investment in fixed assets. Uber did not invest in car fleets to transport people, but only to leverage drivers through its app and business proposal. Likewise, Airbnb did not invest in buildings or hotels, but in creating a means of communication between owners of rooms or residences willing to rent them and people in need of using them. This promotes a great capacity for leverage in business,
- d) Business is information: a key factor that leads these enterprises to not invest in physical assets is that their businesses are based on information. What these companies do is find the value that the right information has for people and try to find a way to get it to them. What do Uber and Airbnb do but communicate “demand to supply” and “offer to demand”? As Pakes (2015) cites, information is worth a lot of money, however, not just any one, but that of the “solution” type;
- e) Sense of community: it must also be understood that this accelerated appreciation is based on the rapid market penetration that these companies have. Connectivity is a decisive factor in the penetration capacity of these businesses. And they do this by promoting a sense of community. Facebook is in fact a social network through which people share their routine experiences, tastes, ideas, further illustrated by photos and videos. So does Instagram. Uber unites passengers and drivers in a single application creating a community that is interested in the best possible use of this “space”, so that they can benefit each other and continuously. The same for Airbnb. People are not only consumers of these services, but also followers.

These would be fundamental characteristics, which are worth highlighting.

And in Brazil, there are ventures presenting performances that are not far behind, the survey “The Small and Medium Enterprises that Grow the Most”, carried out by Deloitte consultancy and Exame magazine (Exame, 2017) shows that, among the top 5 positions of the ranking, the the first two are information technology companies, which grew 590 and 218%, respectively, in revenue in the 2013-2015 period. That is, accelerated growth in the midst of a crisis. Considering the top 10 positions, growth varied between 77 and 590%, but of course, they are not just technology companies, there are other services and civil construction, for example, among these. But all of them knew how to grow by controlling costs and investing in innovation and technology, as mentioned before, 88% of the companies launched new products in 2016. The 100 companies in this survey had revenues together in 2016, 7,

Therefore, it is worth reflecting and considering that it is worthwhile to undertake agile business models, aiming at boosting markets, generating jobs and economic development.

## CONCLUSION

It is clear that this fertile ground of opportunities occurs from the increasingly intense presence of technology in the daily life of modern society, as pointed out by Silva (2015), “technology is an actor intensively present in the routines of a person”, listing the use cell phones, videoconferences, GPS, cars connected to the internet, electronic tolls and the growing use of “apps” (mobile technology apps). And it continues to draw attention to the dominance of technology companies regarding the valorization of brands in the markets. For example, consider the list of the most valuable brands, according to Forbes, currently, specifically, the top 5 positions: 1st place: Apple; 2nd: Google; 3rd: Microsoft; 4th: Facebook and 5th: Coca-Cola. Among the 10 most, for example, only Toyota, from the traditional automotive industry, appears in 8th position. Apple, for example, it has remained at the top of the list for 7 years. (Forbes, 2017b).

However, among the aspects of ExOs, special attention should be paid to the fact that the innovation that these companies bring, goes far beyond how much technology they embark on their solutions, but rather, on how they apply it to solve the problems of other industries. Uber is not a transportation company, but it has generated a solution for this industry. Likewise, Airbnb, which has the largest accommodation offer in the hotel industry, without being a hotel company. When analyzing Whatsapp, it is seen that it is a data transmission company, but that solves a problem in the communication and telephony industry. What is the major impact of these proposals? It is recalled here, of Schumpeter's “creative destruction” (Schumpeter, 1961), in which the innovation generated by the innovative entrepreneur destroys traditional industries. Around the world, where Uber operates, taxi transport systems suffer from great competition. Likewise, Airbnb facing the hotel industry. In 2015, mobile operators in Brazil lost 10 million lines to Whatsapp (in addition to the crisis factor), since they claim that users no longer have a second line because they prefer to communicate via messages (G1, 2015) .

And finally, the point that draws attention is how these business models can be a great lever for economic development, since they are configured as initiatives that demand much more the ability to identify the opportunity and combine it with a technological application, rather than raising large amounts of investment, which gives the opportunity for greater use by entrepreneurship, since the need for high investment may not be configured as a barrier, since they dispense with the intensive use of physical assets. In addition, these companies show rapid growth and appreciation, which implies the attraction of capital, which can be configured as sources of investment for the capitalist, thus promoting the circulation of money in the market, (as can be seen with Uber drivers , who have an opportunity for extra income or the owners of properties that offer them through Airbnb) through investments in them, for their growth and development, increasing their supply and coverage capacity, which would lead to the need to contract services and equipment for technological infrastructure, generating demand for professionals and companies in the respective segments, in addition to the other markets that are boosted as companies develop, lacking to constitute their office facilities, generating demand for the manufacture of equipment, services maintenance, licensing and legalization, in short, the market dynamics generating economic development. Still, they would generate new knowledge to be universalized in the market, explored and assimilated by educational institutions, both technical and superior, thus promoting the training of labor with new skills. The growth of these companies can represent new opportunities for job creation, even recognizing that they work with lean structures, although



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they also represent threats to the sectors with which they rival. However, however, one must focus on promoting a new dynamic of knowledge and professionals to be created.

And, mainly, in the encouragement and promotion of entrepreneurship as a process for the personal fulfillment of individuals, in addition to their independence in generating income and employment through governments and large companies, which, as portrayed here and in the researched works, are configured like the “old” or traditional industries.

Here is the provocation to deepen the studies on these new models as possibilities for new ways of generating employment, income distribution and economic development for Brazil.

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