

## RAISING RESEARCH POSSIBILITIES ON FINTECHS FROM THE SME'S INNOVATION MANAGEMENT AND PENROSE FIRM GROWTH THEORY APPROACHES

**Luís Filipe Serpe, D.r.**

Doutorado em Administração

UFPR - Universidade Federal do Paraná

E-mail: [luisfserpe@gmail.com](mailto:luisfserpe@gmail.com)

**Ana Paula Mussi Szabo Cherobim, D.r.**

Doutorado em Administração

UFPR - Universidade Federal do Paraná

E-mail: [cherobimanapaula@gmail.com](mailto:cherobimanapaula@gmail.com)

## Abstract

The emergence of Fintechs as competitors in the financial industry has created a debate concerning their ability to compete with traditional banking institutions. There is the advantage of using virtual platforms, which makes possible to reach a wider public. Fintechs deal with investors and other stakeholders, with innovation, differing from traditional institutions. Also, they face threats that come from frauds and regulation issues. So, to propose ways to study fintechs, this article aims to build research questions and possible topics for future studies in fintechs, using as basis the Innovation Management and Penrose's Theory of Firm Growth. The methodology used was a literature review with documental analysis, in the form of essay, describing two theoretical axes, in order to find connection between the theories. According to Bense (1947), the essay discusses the development of new theories and studies, focusing on the object and finding different views. The objectives were achieved, making possible to present research questions from the theories. The findings showed that there is an incipient connection between both theories, where few studies point to the possibility of explaining the behavior of small firms (fintechs) using elements from both theories. This research is limited by the scope, to focus on an specific type of firm (fintech), and by the difficulty in establish parameters for the selection of representative works in each field. The novelty in this paper is to propose the use of these theories as basis for a new approach in the study of fintechs.

**Keywords:** Fintechs, innovation management, Firm Growth Theory.

## 1 Introduction

Innovation is one of the main factors leading to organization competitiveness. It can be explained as the acquisition and improvement of products, processes, organization and marketing, permitting the increase of market share of organizations, and consequently bringing positive commercial yields and also an increase in profitability. (OSLO MANUAL, 2013); (MOUTINHO et al., 2015).

The literature highlights the survival problem of many companies in a high competition scenario (BRADONJIC, FRANKE e LÜTHJE, 2019). It dues to factors, such as the concurrence with big organizations, which can operate with lower costs; high taxes from the government; and the bureaucracy to open a new enterprise, among other factors (SHI, GRAVES e BARBERA, 2019).

Companies seek to develop new mechanisms in order to strengthen their presence, creating particularities to achieve or create new demands. Then, it is important to develop strategies to expand their abilities in using resources to build their demand, or achieve some specific markets. (BRADONJIC, FRANKE e LÜTHJE, 2019).

So, as innovation is a boosting tool in this complex scenario of creation, expansion and maintenance in the market, it is still a theoretical theme that demands more investigation. (SHI, GRAVES e BARBERA, 2019); (BRADONJIC, FRANKE e LÜTHJE, 2019).

In certain economic sectors, small businesses tend to be bought by bigger companies, when facing frontal competition with them. So, they avoid the process of bankruptcy when expanding their market share.

In others, there are many micro and small companies that, even without being acquired, don't expand in a significant manner, but keep operating in high competitive scenario. So, this segment deserves investigation.

One of the most important and emergent sector on the current financial scenario is the Fintechs. There is still no consensus among researchers about the concept of Fintech, or well developed theoretical framework (MILIAN, SPINOLA e CARVALHO, 2019). However, a Fintech presupposes a set of digital technologies applied to the banking or financial environment, facilitating transactions and providing banking services (CHEN, WU e YANG, 2019).

Bettinger (1972) apud Schueffel (2016) describes Fintech as an acronym to “financial technology”, combining banking knowledge with modern business techniques and the use of computers.

For Gromek (2018), some Fintechs are startup companies: service providers, facilitators of financial services and technology providers. In the case, when startups, they are small companies, at least at the beginning, which offer extremely specialized products and services.

Many small financial companies are able to compete with great banks. Why and how they stay in market without expanding or being absorbed by great banks is a phenomenon to be investigated, leading to the following question: How do small Fintechs can remain in the market, attend to specific demands and respond to pressure from great corporations?

So, this article discusses the theoretical possibilities to investigate such phenomenon, the existence from micro and small Fintechs in scenarios of great competition. Far from discussing practical cases, the paper aims to highlight possible theoretical frameworks to understand the matter and help to develop future research. The paper uses for this purpose two theoretical axes, which serve as a starting point for the article.

The first theoretical axis poses the question of “innovation management in SME’s”, the theoretical advantages of such companies over big businesses; and how innovation can be converted as a component of a company’s competitive strategy.

The second axis explores the literature of the Firm's Growth theory and its discussions on the concept of growth, diversification and productive specialization. It also discusses the growth limits of organizations and how it affects competitiveness.

Then, the two themes are articulated, in order to explore the theoretical possibilities of using innovation management as a key factor to explain the survival of small companies of the Fintech type in highly competitive scenarios. It also seeks to understand how specialization and / or productive diversification, as described by Penrose (1995), is linked to the theoretical elements of innovation to sustain the demand for small businesses.

Fintechs are companies in the financial area, which have a scalable business and that provide more specialized services to customers; use digital technologies to serve a specific type of customers with great agility.

As startup companies, a significant number of these companies in the financial sector are small (MÜNCH, 2018); (BURNS, 2015), which makes it a sector that fits the objectives established here. These companies manage to remain in the market even with the presence of large commercial banks, whose operations occur in a much larger volume than in these companies. In this way, a possibility of investigation emerges.

## 2 Theoretical Framework

As showed in the previous session, this paper discusses two theoretical backgrounds, and then relates them with one another in order to give rise to possible research questions. This session will specifically discuss the characteristics of each theoretical axis.

We sought articles in the main web research databases, Scopus, Science Direct and Web of Science, in order to observe the state-of-the-art in the main fields of research. Another source were classical works that underlies each theoretical structure. The next subsessions will then discuss the theory. The results and discussion session present the possible research questions from the relation between the topics in discussion.

Then, here we discuss the main theoretical axis, or topics: Innovation Management in SME’s; and Theory of Firm Growth, in this order, as following.

## 2.1 Innovation Management in SME's

Schumpeter (1982) was the first to explain innovation from an economic point of view. Before, it was treated as something intuitive and unstructured; these practices occurred in a timely or occasional manner. There was still no methodological structuring or body of knowledge that viewed innovation as an independent area of research, or as an independent factor for organizational competitiveness. Still, there was no system for quantifying or measuring this innovation. (BRADONJIC, FRANKE and LÜTHJE, 2019).

Innovation, as conceptualized by the Oslo Manual (2010), includes changes in products or processes, but also structural and organizational reengineering, or even in new ways of configuring market analysis. In SMEs, it depends on the judgment of customers on how to build demand, which becomes an important source of information. In this case, communication with the general public in these companies is direct.

Gunday et al. (2011), state that the type of innovation, the scope (scope) and the actors involved should be considered in the study. For an innovation to establish itself and allow the generation of value, there must be interest among all authors who participate in the process, and who somehow have their share of contribution to the process (LÖFQVIST, 2017).

Thus, some relevant issues are observed: the importance of innovation for organizations in general; the conceptual diversity of innovation for different organizations; the latent advantages and difficulties of SME's in identifying innovations. (LÖFQVIST, 2017); (EDWARDS, 2017). Edwards (2017) corroborates some of these points of view, and indicate innovation as a structured, interdependent process, far from being an isolated act.

Brought to the organizational environment, and therefore, delimiting the scope of the theme, one can speak of technological innovation, when working with technological changes in the business or organizational scope, be it in product, process, marketing or organizational structure (EDWARDS 2017); always observing the question of achieving commercial objectives.

It must be made clear the concept of innovation as an applied improvement with the aim of commercial profits. Therefore, "R&D alone is not enough for technical progress, if technological innovation does not bring commercial profit before being employed in production". (HUISMAN and CORT, p. 01, 2003). So, innovation becomes a central element for competitiveness. The innovation process is complex, structured and not isolated from other business processes; depending on how the organization deals with external information and how this information is managed and converted into profitable knowledge. (ROMÁN, GAMERO and TAMAYO, 2011); (EDWARDS, 2017).

A fair innovation analysis has to observe the specifications of the analyzed sector, the size of the organization and its set of individual strategies and capabilities. All of these points directly affect the firm innovation performance. Thus, Chaochotchuang and Mariano (2016), affirm that, by highlighting the problems in developing new technology, training of skilled labor and obtaining new markets, small companies are able to remain in the market by the introduction of new ideas, products and simple, low cost innovation, not necessarily disruptive. Such situation means their survival in the medium and long terms.

In addition, there is a question of destroying old skills and creating new ones, with the objectives of innovation (GANCARCZYK AND GANCARCZYK, 2018); (TOMASELLI and DI SERIO, 2013). Other studies have assessed the contribution of cultural aspects and their impact on decision-making within companies (CHAOCHOTECHUANG E MARIANO, 2016). Gunday et al., (2011); Choi, Lee and Ham (2016), and Carvalho and Yordanova (2018) demonstrate how marketing strategies can affect innovation policies, through the development of industrial protection (branding, copyright and intellectual property).

The creation and maintenance of networks with stakeholders, customers and other institutions, as well as financial institutions, dissemination of information, receptivity and ideas and knowledge creation processes and their impact on the demands of innovation were already studied by Dahlander and Gann. (2010), Choi, Lee and Ham (2016), Maldifassi and Crovetto (2013) and Silva, Bagno and

Salerno (2014), among others. In addition, an assessment of practices in relation to stimulating innovation and developing new sources of profit in product development and in researching the main factors that affect the growth and development of industrial technology-based companies in Brazil was previously studied by Belenzon and Berkovitz (2010) and Vitoreli and Gobbo (2013).

Gancarczyk and Gancarczyk (2018), and Carvalho and Yordanova (2018), demonstrate, just to reinforce, that the size of a company determines the innovation strategy used by the company and the type of approach that should be developed for that company or set of companies.

Small businesses have less bureaucratic complexity and a more streamlined organizational structure, facilitating adaptation to different competitive scenarios and possible market contingencies (BRADONJIC, FRANKE and LÜTHJE, 2019), (GANCARCZYK and GANCARCZYK, 2018).

In this study, aimed at SMEs of the startup type in the financial services sector, for example, the set of characteristics of these businesses and their competitive market joins the fact that the majority are small companies, thus allowing the future development of a model analysis of innovation. (CARVALHO and YORDANOVA, 2018).

Fundamentally, small businesses need external incentives to innovate. Unlike large businesses, where there is human and financial capital to finance these activities, these companies need to be able to understand what these strengths and weaknesses are; factors that can identify the potential to innovate in startups companies that are still vulnerable to market pressures, either because they are nascent, or because they are small, or both scenarios (CHOI, LEE and HAM, 2016). Kesting and Günzel-Jensen (2015) and Choi, Lee and Ham (2016) talk at length about inefficiencies in accessing information (knowledge gaps); ineffectiveness of protection mechanisms, threats from competitors, etc.

It is observed that the access mechanisms are hampered both by internal (controllable) problems and external variables, although the authors confirm that both hamper the formation of the appropriate channel for formatting an innovation strategy.

For Carvalho and Yordanova (2018), openness is translated by the use of external sources of information; then there is the impact on the perception of the importance of innovation as a strategic element of maintenance in the market and growth, especially in small technology-based companies (startups).

An important discussion, when looking at the importance of small businesses, refers to those businesses that are highly efficient in carrying out their activities. This intrinsic competence is due to many factors, but all these businesses have some characteristics in common, especially those that work with volatile markets, or with products and services that are disruptive from a technological or innovation point of view. (KESTING and GÜNZEL-JENSEN, 2015); (CARVALHO and YORDANOVA, 2018).

Concerning startups, they are understood as small businesses, based on innovative business models, be it in products, in the form of offering them, their functionalities or by the very nature of the services provided. According to Kesting and Günzel-Jensen (2015), small companies, specifically startups, and new ventures must focus efforts on new business models, that is, on the recombination of internal resources to develop what the authors call a systematic approach towards small business, associated with two main issues.

First, the ability to develop innovative products or services based on their administrative and production flexibility, as described at the beginning of this chapter; second, the search for alternatives in the face of a scenario of limited access to financial and market resources (MacDowell et al., 2018), which was also extensively discussed.

Fintechs are, at least some of them, startups, which tend to focus on a core business, which is able to demonstrate the ability to innovate and obtain certain portions of the market. Thus, startups differ from traditional small companies precisely because they invest their capital and their resources in efforts of productive specialization in highly innovative services, whether with the intention of selling or expanding through acquisition/merger (GÜNZEL-JENSEN, 2015).

Although it is true that all startups are innovative, or that all small businesses of this nature have innovation as an intrinsic value, there are some arguments to support and other to refute innovation as a component of the competitiveness of these small companies. For example, market power and cost efficiency can be considered (HYYTINEN, PAJARINEN and ROUVINEN, 2015). As for the first element, it is argued that these companies, by adopting an innovation strategy, increase their market share, being able to not only create new demands, but also sustain them in the long run; as well as the ability to respond to unforeseen demand fluctuations, such as new market entrants, innovation in competitors or changing interests in demand itself.

As for cost efficiency, the authors state that, by focusing their efforts on product and service innovation, these small companies are able to dilute their costs over time, due, according to them, to the increase in productive efficiency resulting from the necessary specialization that an innovation requires. (SAKIDU-DUSHI, DANA and RAMADANI, 2019).

In this case, by concentrating their efforts on their core business, small innovative start-up companies are able to specialize not only their product or service, but, as a result, also their business model and administrative structure. According to Hyytinen, Pajarinen and Rouvinen (2015), another consequence of the adoption of an innovative model in these companies to stand out is the increase in the absorption capacity, that is, the ability to convert market opportunities based on external information collected in value for the organization.

For Hyytinen, Pajarinen and Rouvinen (2015), an innovation policy can also harm a small startup as there are many risks inherent to the small size issues and the need to present something new; risks that are less pronounced in larger firms established in the market for a longer time and with a relatively stable consumer market.

These authors indicate a negative association between degree of innovation and survival of startups in the long run: the “great appetite” for risks ends up strengthening this negative association, which ironically can become a problem in the medium and long term. In other words, a high degree of innovation activity is not always desirable for a nascent startup.

This does not indicate that innovation should be avoided as an organizational policy, but that, according to the authors, it is better, the point of view of the organizational organization, specializing its activities and innovating in existing services, rather than unique innovative models that involve a high risk associated with its creation and subsequent management. But it can be said that, even so, there are innovation resources in small businesses that consider competitive advantages, and not just advantages of the product or personalized service (HYYTINEN, PAJARINEN and ROUVINEN, 2015)

Competitive advantages can be translated as high capacity for anticipation and alert or threats to the market: they do not only deal with access to information that shows the exploitation of opportunities, or transform knowledge into commercial returns; but the observation of possible different types of access to different markets or challenges offered by competitors (DISTANONT & KHONGMALAI, 2018). Such challenges occur not only at the global level, but also at the regional level and present a complexity that depends on the study of a sector delimited by a very specific geographical region.

And, in startups, where the focus of efforts in the core business and the high degree of specialization of activities coexist, the management of internal resources allows an adequate innovation management. In such companies, where the administrative structure is more simplified and the development of highly innovative products and services is a source of competitiveness, the specialization of intellectual capital becomes one of the pillars of the innovation process: it is through it that it can manage innovations, transform knowledge into commercial returns (explore market opportunities) and predict possible threats from the competitive environment. (McDOWELL at al., 2018); (DISTANONT & KHONGMALAI, 2018).

Especially in those companies that have an internal structure that favors innovation as a strategy for growth and maintenance in the market, there is an orientation of the business model that

favors innovation as a business strategy since the beginning of the formation process of the company. (GUEZZI and CAVALLO, 2018).

Ghezzi & Cavallo (2018), highlight two elements in small technological service companies: first, the innovation necessary to create and adapt their products and services; and also innovation in its business model, that is, the entire set of administrative structures that allow the company to generate value for consumers. In other words, assigning value to market interests to retain part of their economic viability. (GHEZI & CAVALLO, 2018); (WEILL & VITALE, 2001).

More specifically, when analyzing Fintechs, there are financial companies offering services that are more customized, cheaper and easier to access, better than traditional services. Another point to be highlighted is that traditional financial institutions are susceptible to greater government regulation, require a greater amount of capital to be established and have a higher operating cost. (BURNS, 2015); (MÜNCH, 2018).

Small companies like Fintechs challenge the Firm's Growth Theory, because, although their objective is the expansion and fundraising of potential investors, they do not necessarily expand in the medium and long term, but still manage to remain in the market.

Thus, the central idea of this article is to identify the theoretical articulation to understand why some innovative financial services companies, the fintechs, manage to remain in the market without necessarily growing or being acquired by other larger companies (GUARASCIO and TAMAGNI, 2016); (ALMEIDA and PESSALI, 2017); (GARNSEY AND HEFFERNAN, 2015).

The main inference, as already described, refers to Penrose's (1995) assumption of productive specialization, although at this point the author does not indicate in theory that innovation may be the theoretical element that would explain this specialization and consequent maintenance of the competitive standard in a specific set of companies.

Anyway, the elements raised throughout this chapter on innovation management in SMEs are listed briefly in Chart 1. Subsequently, these elements can be identified for Fintechs.

Chart 1: Innovation Management in SME's: elements of analysis.

Elements of analysis of Innovation Management in SME's	Authors
Strategies of creation and maintenance of demand	(BRADONJIC, FRANKE e LÜTHJE, 2019); (LÖFQVIST, 2017); (MANUAL DE OSLO, 2010); (CHAOCHOTECHUANG e MARIANO, 2016); (CARVALHO e YORDANOVA, 2018).
Innovatin/Specialization strategy	(GANCARCZYK e GANCARCZYK, 2018); (EDWARDS, 2017); (MANUAL DE OSLO, 2010); (CHAOCHOTECHUANG e MARIANO, 2016).
Production/adaptation flexiblity	(EDWARDS, 2017); (BRADONJIC, FRANKE e LÜTHJE, 2019); (CARVALHO e YORDANOVA, 2018); ; (KESTING E GÜNZEL-JENSEN, 2015).
Types and scope of innovation	(BRADONJIC, FRANKE e LÜTHJE, 2019), (CARVALHO E YORDANOVA, 2018); (CHOI, LEE e HAM, 2016); (KESTING e GÜNZEL-JENSEN, 2015)
Core business analysis	(MANUAL DE OSLO, 2010); (CHAOCHOTECHUANG e MARIANO, 2016).
Productive specialization	(EDWARDS, 2017); (CARVALHO e YORDANOVA, 2018); (CHOI, LEE e HAM, 2016); (KESTING e GÜNZEL-JENSEN, 2015).
Risk/investment analysis	(GANCARCZYK e GANCARCZYK, 2018); (ROMÁN, GAMERO e TAMAYO, 2011); (BRADONJIC, FRANKE e LÜTHJE, 2019), (CHAOCHOTECHUANG e MARIANO, 2016).
Resource limitation	(ROMÁN, GAMERO e TAMAYO, 2011); (CHOI, LEE e HAM, 2016).
Absorption and improvement of practices from competitors	(BRADONJIC, FRANKE E LÜTHJE, 2019), (CARVALHO e YORDANOVA, 2018); (KESTING e GÜNZEL-JENSEN, 2015).

Source: Elaborated by the author (2020).

So, these are the elements of analysis in innovation, which, when added to the elements of the Theory of Firm Growth, shown in the next chapter, may help explain the survival of small fintechs in high competitive scenarios.

## 2.2 Theory of Firm Growth

The firm's growth theory brings the aspects of innovation management. According to Guarascio and Tamagni (2016), this theory emanates from an economic perspective, and is not necessarily associated with management theories.

The bibliographic review shows that the construction of the theoretical body on Innovation Management also emanates from Economics. In other words, they are theories developed by economists, to demonstrate how a firm behaves in the market, throughout its creation, evolution and growth; factors that permeate their business strategy, especially from a microeconomic point of view. (NASSAR, KHALID and AL-MAHROUQ, 2014); (REZENDE, SALERA and CASTRO, 2015).

The Theory of Firm Growth is one of the theoretical axes of this article, because it presents the theoretical basis for understanding how a firm behaves throughout its growth process, as well as its relationship with the competitive environment and other market forces. (PENROSE, 1995).

Penrose is one of the first to consider a theoretical construction to explain the firm's internal growth. According to Pelaez (2007), one can verify the main points of analysis of this theory.

This last author summarizes Penrose's seminal book in his paper. According to Pelaez (2007), Penrose establishes her analysis of private companies in the first chapter: productive firms aimed at making a profit. In the second chapter, Penrose devotes herself to discussing the firm's growth limits, seeking to understand why and how the diminishing returns fit into a market equilibrium model, as it would not be possible for companies to expand indefinitely.

In the next chapter, Penrose describes the limits of growth as also determined by the entrepreneur's internal skills in observing market opportunities and counterbalancing asymmetries in access to information. In the sequence, the author deals with the growth potential offered by the recombination of internal resources and specialization. The following chapters discuss the external elements that block the growth of firms and the barriers faced by small incoming companies, created by larger companies already established in the market.

Tigre (2005) presents the elements of analysis of the firm's growth in the light of three main theories: the neoclassical theory, the Fordist paradigm and the information technology paradigm. For the author, "the greatest weakness of the theories of the firm and of the industrial organization is its inability to comprehend the importance of technological change in the configuration of the firm and the markets." (TIGRE, 2005).

From the detailed analysis of each chapter of Penrose's classic book and the definition offered by Tigre, the use of this theory in the present study is justified. Penrose's classical book is the starting point for analyzing the limits of growth and the possibilities of productive specialization, innovation and resource recombination in Fintechs. As possible explanations for their survival in the financial industry. And Tigre's arguments points out to the fact that technological change (highlighted in the preceding paragraph and interpreted as innovation, one of the theoretical axis of analysis) still has a secondary role as an element of configuration of firms within the Firm Growth Theory.

"Innovation Management" here seeks to propose a deeper analysis about the role Innovation factors play in determining the configuration and evolution of small businesses. In the sequence, other authors are presented, who revisited the Theory of Firm Growth in more recent years.; Thus, arguments are observed that complement or corroborate those points highlighted in Penrose's seminal book. Through the readings carried out, it was possible to elaborate a table with possible points of analysis that can serve as a basis for the study of Fintechs in high competition environments.



### 2.3 Elements of analysis of the TFG

The starting point for the use of the TFG is centered on the fact that SMEs have innovation characteristics quite particular (Innovation Management in SMEs), different from large companies, and that may indicate a pattern of behavior or conditions of existence (Theory of Firm Growth) in environments highly competitive that differ from that of large corporations. (NASSAR, KHALID and AL-MAHROUQ, 2014); (REZENDE, SALERA and CASTRO, 2015).

And these existence conditions are only partially explained (PENROSE, 1995); the author indicates that there is an analysis of specific cases, which disregard a statistical strength to explain the phenomenon, as may be the case of SMEs, especially in startups. In this case, the Firm's Growth Theory indicates the theoretical assumptions that guide this growth and stay in the market, but does not clearly explain how a significant group of small companies manage to remain efficient in highly competitive environments for long periods of time. This is precisely the meeting point between the two theories: there seems to be a gap in how and why the phenomenon occurs.

In this paper, the TFG deals with identifying growth and maintenance factors of firms in the market, and not necessarily with their size. (PENROSE, 1995). In this sense, the term growth evokes elements of analysis, such as the criteria for this growth, be it associated with production, revenue, sales or exports.

According to Rezende, Salera and Castro (2015), a theory of firm growth must encompass the human decisions of managers, as it is these attempts to achieve something, or to achieve a goal, that impact the firms' results, whatever be the type of growth, competitiveness or even maintenance in the market.

According to Penrose (1995), firms' definitions of growth can be assessed by observing individual histories. When considering the individual entrepreneur, some very particular elements can be identified in the process of establishing and growing firms. In this case, according to Nassar, Khalid and Al-Mahrouq, (2014), these are particular and unique cases, highlighting one of the topics of study of entrepreneurship, that is, the weight or importance of individual characteristics in the process of creation and growth of the firms.

However, when analyzing the limits of growth - to use the words of Penrose (1995), an abstraction is necessary not based only on the "facts of the real world", making it necessary to obey an intuitive logic of observing the general characteristics of the business provided and the characteristics of the competitive market in which it operates.

A firm's growth theory must therefore take into account the changes generated by the growth of a firm, as well as changes generated externally, which are beyond its control.

It should also be noted that this growth process is not permanent, but interspersed with phases of stabilization and limitation of the expansion rate, followed by a new growth phase. This process of expansion, stabilization and new expansion, for Nassar, Khalid and Al-Mahrouq, (2014), obeys not only the elements external to the firm, outside its direct control, but also the combination of internal elements, easily recognizable and controllable: productive resources (PENROSE, 1995). Resources that produce internally generated services - and that demonstrate a firm's environmental behavior.

Bearing in mind that the entrepreneur is faced with a scenario where he sees possibilities and difficulties of expansion, he imagines a growth rate that in some cases does not take into account the forces at work, such as his own characteristics and experience, inherent to the process, or companies competitors, which limits the growth rate. (REZENDE, SALERA AND CASTRO, 2015); (GARNSEY AND HEFFERNAN, 2015).

In startups, this growth rate explains the interest of investors. For example, venture capital funds are expected to provide resources to these companies, with a view to obtaining high rates of return.

According to Penrose (1995), the economic system itself is defined as a set of firms and their relationships, the nature of their services and resources. In this case, the analysis of the growth of a

firm must take into account the characteristics in which such company is inserted: the type of product / service, the nature of the competitive environment and the network of relationships existing between the various economic entities in its market.

At this point, the importance of innovation is inserted according to the classic concept of Schumpeter (1982): in order to avoid decreasing profits with a certain product or service, companies seek innovation as a way to renew the life cycle of these products and obtain again rising incomes in creating new demands and eliminating potential competitors at this early stage.

The complexity of the issue of limiting growth encompasses not only the external issue of decreasing yields (competitive pressure), but internal elements such as the limitations of management itself (REZENDE, SALERA AND CASTRO, 2015). One of the limitations of this administration is to base the development of products and their demand on the expectations of the manager: a minimum level of risk is assumed and a hope of return that, even based on econometric projections or scenario construction, may fail to obtain success or acceptable returns on their investments. (STRIKE, 2017).

It is worth highlighting the dichotomy between the internal economic activities of the firm and those carried out externally, considering the market as a set of interactions. And this is important, because the bigger the firm becomes, the less it is vulnerable to market pressures.

Thus, the larger its size, the distribution and / or allocation of resources becomes more independent from market fluctuations the greater its size (PENROSE, 1995); (GARNSEY and HEFFERNAN, 2015). In this sense, when it comes to micro and small companies, the opposite is true: small enterprises, by the rule of Penrose, generally have their efforts to allocate resources strongly influenced by the market situation, especially the competitive scenario. (REZENDE, SALERA and CASTRO, 2015)

It is important to note that resources and services are different: while the first is related to "potential services", the latter indicates a real operation, an allocation or activity that is already being carried out. (REZENDE, SALERA and CASTRO, 2015); (STRIKE, 2017)

In this case, one should avoid defining a resource and service from an exclusively marketing point of view, but view the issue from an economic or utilitarian point of view: the resources that potentially produce a certain result and the services actually being performed. (GARNSEY and HEFFERNAN, 2015); (REZENDE, SALERA and CASTRO, 2015);

For this paper, the growth of firms can be limited by the productive opportunities of the firm, that is, by the set of available resources (PENROSE, 1995). This raises a question as to why productive opportunities may offer growth limitations.

For Garnsey and Heffernan, (2015), there are limiting factors, ranging from the asymmetry of access to information (which would limit the perception of market opportunities or identification of specific demands in certain markets) to the inability or inexperience to appropriate these opportunities. And this access and use of information directly affects the effort and the result that can be obtained by innovation. (ALMEIDA and PESSALI, 2017); (NASSAR, KHALID and AL-MAHROUQ, 2014); (STRIKE, 2017). Therefore, information becomes one of the countless resources used by the company to produce economic results. (NASSAR, KHALID and AL-MAHROUQ, 2014); (GUARASCIO and TAMAGNI, 2016); (STRIKE, 2017).

The way to allocate these resources and the results that can be obtained from this are practically infinite, since, in the context of a Schumpeterian type of entrepreneur, the demand is not taken for granted: it can be created and shaped according to the different combinations of resources and the results in the form of offers that can be obtained from that. (GUARASCIO and TAMAGNI, 2016).

This cycle of growth and diversification takes place precisely by creating demand and obtaining competitive advantages (ALMEIDA and PESSALI, 2017). In a scenario of increasing demand, or constant or increasing profits, it is difficult to observe this recombination of resources that enables innovation, or the renewal of the product cycle or even the creation of new demand.

When studying diversification economics, according to Penrose (1995) and Garnsey and Heffernan, (2015), there is an argument that helps to understand the advantages of small businesses over large ones: in small companies, which are usually concentrated in specific activities, or in highly

specialized products, as in the case of startups, costs tend to be lower than in large companies with a high degree of diversification. (NASSAR, KHALID and AL-MAHROUQ, 2014).

Regarding the role of competition in the process of innovation and diversification, Penrose (1995) indicates that neither the attainment of a monopolistic position in the market nor the technological development is capable of reducing the organization's vulnerability to demand fluctuations. (ALMEIDA and PESSALI, 2017).

For Guarascio and Tamagni, (2016), due to this vulnerability arising from high levels of competition even in organizations with a high degree of diversification, there is a need for continuous investments in already existing fields and markets: a horizontal integration where organizations start to invest incremental innovations in products and services that already exist, but that can be improved by technological changes. (ALMEIDA and PESSALI, 2017); (GARNSEY and HEFFERNAN, 2015).

Penrose (1995) indicates that diversification alone does not guarantee financial success, but the continuous investment in innovation is fundamental. Using the theory of comparative advantages, Nassar, Khalid and Al-Mahrouq, (2014) affirm that firms must specialize in products and services that better take advantage of the set of resources and capabilities, whether these are human, financial, material or information.

In this case, even acting in several fields, organizations must be prepared to invest funds in each one, in order to create specializations that can, in turn, bring advantages in competition (ALMEIDA and PESSALI, 2017). Therefore, it is not only diversification itself, but also the continuous search for specialization that should lead an organization to maintain a high competitive standard.

Although Penrose indicates the possibility of obtaining increasing returns when applying the available resources, there are still limits to growth, referring to a large additional commitment of resources.

When the company presents sufficient commercial returns to maintain its market position (if this position is satisfactory), then increasing investments in existing products may not achieve the expected return, and then there is the possibility to explore new combinations of resources, to create new product opportunities or differentiated demands (GUARASCIO and TAMAGNI, 2016). If the entry into a new market occurs through an internal expansion, a large portion of resources will be needed to "establish and maintain" the position in the new area; that is, investments in new areas are limited.

However, diversification can become a solution to some specific problems of the firm, such as demand fluctuations: the demand for a good or service is hardly stable over long periods of time. (KHALID and AL-MAHROUQ, 2014).

The process of organizing resources to obtain a commercial return must then obey certain patterns of demand, although, according to Penrose (1995), it is very difficult to determine or predict variations or fluctuations in demand.

It is assumed, according to Penrose (1995), that returns from goods with unchanged demand are preferable to products that suffer seasonality or unexpected fluctuations in demand. A useful argument at this point is the role that innovation plays in building demand: by recombining resources to specialize in a particular product or service, developing an incremental improvement in the characteristics of this product or service, the organization is able to cope with the possible fluctuations in demand arising from numerous factors.

So, Penrose (1995) defends the use of specialization as a reaction to the presence of strong competitors / entry of new competitors in the market. For the author, this strategy, as a reaction to seasonal fluctuations in demand, approaches diversification as a means to face general uncertainties.

When discussing productive diversification / specialization, it is necessary to highlight the role of adverse and permanent changes in demand (GUARASCIO and TAMAGNI, 2016). However, it is possible to anticipate changes in demand caused by technological changes, which means that these changes do not occur so abruptly, or that they can catch a company off guard. (ALMEIDA AND PESSALI, 2017); (GARNSEY AND HEFFERNAN, 2015).

This, of course, indicates to companies the internal competences for predicting the minimum innovation possibility or technological interventions by its competitors. To Innovation theory, this is equivalent to saying, to use Schumpeter's (1982) argument, to be aware of the possible small incremental changes that can occur in a given market segment, regarding competing companies.

In this case, it is a question of not only forecasting, but establishing a strategy for maintaining demand based on small incremental changes that translate into small innovations seen as differentials by its consumer market (GUARASCIO and TAMAGNI, 2016).

Chart 2: Elements of analysis of the Theory of Firm Growth:

Elements of analysis of the Theory of Firm Growth	Authors
Recombination of productive resources	(PENROSE, 1995).
Resource allocation	(PENROSE, 1995); (NASSAR, KHALID e AL-MAHROUQ, 2014);
Use of competitive advantages	(GARNSEY e HEFFERNAN, 2015); (NASSAR, KHALID e AL-MAHROUQ, 2014).
Productive specialization	(PENROSE, 1995); (NASSAR, KHALID e AL-MAHROUQ, (2014); (GUARASCIO e TAMAGNI, 2016).
Identification of growth limits	(PENROSE, 1995); (GUARASCIO e TAMAGNI, 2016); (GREVE, 2017); (REZENDE, SALERA e CASTRO, 2015).
Evolution: foundation, growth, stabilization.	(PENROSE, 1995); (ALMEIDA e PESSALI, 2017).

Source: Elaborated by the author (2020).

After showing the charts with the elements of analysis, and observing the connections that can emerge from the association between the two main axis, it is possible to conjecture some insights that could help to understand how the elements in Innovation Management and the Theory of Firm Growth can explain the survival of Fintechs in high competitive scenarios.

### 3 Methodology

**A** theoretical article presupposes reflection on the related themes, theoretical foundation and the development of new possibilities, according to Bense (1947), cited by Meneguetti (2011).

This article, as a theoretical analysis, uses the form of essay, describing two main theoretical axes, in order to find interconnections between them that could help create a research design.

“The essay article is the form of the critical category of our spirit, because whoever criticizes needs to experiment, needs to create conditions under which an object becomes visible again and differently than in an author” (Bense, 1947, p.420). Then, for the survey of articles relevant to the two theoretical axes, a theoretical review of the proposed themes was carried out.

Thus, the preliminary search for relevant works was carried out in online article bases: Science Direct, Scopus and EBSCO. In the initial filter, the following criteria were used: selection of articles published in the last five years (originality and topicality); research papers (exclusion of review articles). The search words used were the same in all databases, namely: “innovation management”; “MPE”; "Startup"; “Theory of firm growth”.

In Table 1, there is a synthesis of the articles obtained in this primary research:

Table 1: search terms, bases and results

Search terms (all fields): <i>“innovation management*” AND “SME” AND “startup” OR “theory of firm growth”</i>	
<i>Science Direct</i>	38 articles
<b>Scopus</b>	16 articles
<b>EBSCO</b>	21 articles
<b>Total</b>	75 articles
<b>After download, it was proceeded to exclude the common articles to two or more bases</b>	
<b>Results after filtering</b>	30 articles

Source: Elaborated by the author (2020).

After reading the titles and abstracts, the articles were recorded, and the articles that included the following themes were included: concepts of innovation; innovation activities; implementation and maintenance of innovation in SMEs and startups ”; as for the elements involving SMEs, we sought those that dealt with productive flexibility; adaptability; conceptual diversity.

Of the filtered articles, 28 were used. After performing the aforementioned reading and filing of the works, those who did not meet the established criteria were excluded, that is, the works that did not directly discuss the theme of innovation management associated with the Theory of Growth of the Firm in SME's.

Additional articles were researched, filtering them by the 5 years criteria for state-of-the-art articles on the subjects. It should also be noted that other articles that were already part of the researcher's database were used, which explains the existence of works with more than 5 years considered useful to help establish the theoretical arguments.

**4 Results and Discussion**

This session discusses the core and objective of the paper: present research propositions that may emerge from the connection between both theories previously described. The first subitem (4.1), discusses the research possibilities that may emerge from elements from both theories. The previous charts highlight elements of analysis, and now these elements are compared and discussed altogether.

The discussion, in the first subitem, presents these possible connections through text, pointing that there are gaps and possibilities of discussion between the theories, concerning the study of fintechs. As a result from a theoretical essay, the subsection 4.1 focuses on the inexistence of connection between both theories in the present literature.

The sequence, subsection 4.1, summarizes the possible connections and hypothesizes about managerial problems that could be explained using both theories. In other words, the subsection 4.2 shows possible questions that could give rise to future discussions. And these theory inferences may help comprehend how innovative fintechs operate in the market.

4.1 The incipient connection between Innovation Management and the Theory of Firm Growth

The connection between the theoretical axis of the Theory of Firm Growth and the Innovation Management theories are: the strategies of diversification and specialization. According to Penrose (1995), these strategies are driven by the wishes of entrepreneurs. However, they obey competitive pressures, internal structural changes, analysis of consumer market behavior, other micro and macroeconomic issues, and forces that are not directly under the manager's control or that cannot be predicted with accuracy. Accordingly, all elements underlying a company, such as strengths and

weaknesses, threats and opportunities, environmental and internal characteristics form the backdrop for analyzing the behavior of a group of companies.

Although the expansion makes latent the need for investments in innovation, whether in the productive area, in the administration of marketing and distribution of products or in the administrative structure itself, expansion is not always desirable, mainly, according to Penrose, when the costs for this expansion are far beyond the possible returns that would be obtained with this expansion. (ALMEIDA and PESSALI, 2017); (GARNSEY and HEFFERNAN, 2015).

The Firm's Growth Theory highlights the reasons for the expansion of the firm, and that such growth is absolutely desirable, or even inevitable. The discussion about the advantages of accessing technical services or other categories, which would not be available to small companies, stands out. Penrose calls this the administrative problem.

According to the author, financial limitations inhibit growth and facilitate the sale of the company, imposed by competitive pressure or by fiscal limitations; as access to credit, associated with the difficulty of obtaining the necessary capital to mobilize its internal resources.

Penrose also indicates that, in order to avoid these growth problems, the organization has some alternatives, such as "the sale of its assets; stop growing significantly; or gradually become inefficient, eventually failing". (PENROSE, 1995, p. 249).

In this case, it becomes clear the observation that there are small companies that obey a standard of operation capable of maintaining their efficiency, specializing their activities and avoiding a growth trend with all the problems inherent to this. Such companies remain competitive in markets with fluctuating demands, but are not acquired and still manage to specialize their portfolio of products and services.

When Penrose says that, for this analysis, one should resort to individual biographies and the cases of successful entrepreneurs, she indicates that mergers and acquisitions are recurrent phenomena to avoid the growth problems mentioned above. But a possibility suggested in the reading of these texts, and in association with the theory of innovation management, indicates another way, or alternative, capable of facing the pressures of demand, which would be the use of the elements of innovation management in the formatting of a competition strategy (GARNSEY and HEFFERNAN, 2015); (NASSAR, KHALID and AL-MAHROUQ, 2014).

It is important to highlight that, by reading and identifying the elements of analysis, productive specialization can be the theoretical element that could support the analysis of maintaining the competitive standard in a specific set of companies. This is the clearest association in the article, and it can become the starting point from which other relationships can be investigated. In this way, it is possible to trace some relationships between the elements of analysis, presenting some paths of investigation, listed below.

For example, a recombination of productive resources (PENROSE, 1995), could be explained by the limitation of present resources (ROMÁN, GAMERO and TAMAYO, 2011); (CHOI, LEE and HAM, 2016). In this case, how companies can pose different results without having to commit extra resources or even external resources.

The forms of resource allocation (PENROSE, 1995); (NASSAR, KHALID and AL-MAHROUQ, 2014), can be associated with the concepts of innovation/adaptation strategies (GANARCZYK and GANKARCZYK, 2018); (EDWARDS, 2017); (OSLO MANUAL, 2010); (CHAOCHOTECHUANG and MARIANO, 2016), in order to explain how the disposition of internal resources can be affected by internal policies or innovation strategies.

As for the use of comparative advantages in TFG (GARNSEY and HEFFERNAN, 2015); (NASSAR, KHALID and AL-MAHROUQ, 2014), the following associations can be created: with the flexibility of production / adaptation, meaning that MPE's have the flexibility to adapt to scenarios that favor meeting regional demands, which brings to the fore the question of the use of potential advantages or opportunities presented by the local market

With limited resources (ROMÁN, GAMERO and TAMAYO, 2011); (CHOI, LEE and HAM, 2016), comparative advantages could become a strategy to face this small amount of resources. When

it comes to the absorption and improvement of competitors' practices, this can be achieved with the use of certain specific advantages of small businesses, which would generate another point of investigation. More clearly, the analysis of the core business (MANUAL DE OSLO, 2010), (CHAOCHOTECHUANG and MARIANO, 2016) is a strategy for the identification and focus on comparative advantages that can become differentials in the market.

With regard to productive specialization (PENROSE (1995); (NASSAR, KHALID and AL-MAHROUQ, 2014); (GUARASCIO and TAMAGNI, 2016), the possibility of investigating the core business (MANUAL DE OSLO, 2010), (CHAOCHOTECHUANG and MARIANO, 2016), as a way for the company to focus on the elements that really bring some kind of competitive advantage without diverting resources to activities or innovations that are not involved in this aspect of competitive advantage.

This relationship seems to point to a great possibility for research, since the two elements highlighted here have great conceptual proximity. Productive specialization can still join the scope / types of innovation (BRADONJIC, FRANKE and LÜTHJE, 2019), (CARVALHO and YORDANOVA, 2018); (CHOI, LEE and HAM, 2016); (KESTING and GÜNZEL-JENSEN, 2015), which mean radical or incremental innovations; and product, process, marketing or organizational. Here, there is the possibility to focus on a particular type of innovation according to your specialization strategy.

As for the identification of growth limits (PENROSE, 1995); (GUARASCIO and TAMAGNI, 2016); (STRIKE, 2017); (REZENDE, SALERA and CASTRO, 2015), may be linked to demand creation and maintenance strategies ((BRADONJIC, FRANKE and LÜTHJE, 2019); (LÖFQVIST, 2017); (MANUAL DE OSLO, 2010), (CHAOCHOTECHUANG and MARIANO, 2016); (CARVALHO and YORDANOVA, 2018), since, according to these authors, the company can develop a defensive stance against larger competitors, observing the service to specific niches of demand, not yet served by large competitors. these niches, there would be a growth limitation when it comes to products and services already operated by large companies.

In addition, growth limits can be linked to innovation / specialization strategies (GANCARCZYK and GANCARCZYK, 2018); (EDWARDS, 2017); (OSLO MANUAL, 2010); (CHAOCHOTECHUANG and MARIANO, 2016), since this innovation strategy can be limited by factors such as very localized specific interests, as well as by the innovation strategies developed to create demand for large companies. In this case, small companies would have this difficulty due to the positioning of some large companies in certain markets. Another point refers to the limitation of resources (ROMÁN, GAMERO and TAMAYO, 2011); (CHOI, LEE and HAM, 2016), which can again indicate a growth limit.

This limitation can be of different types, as seen throughout this text, such as the asymmetry of access to information; the lack of external support, whether technical or financial; internal resource limitations.

Finally, regarding issues of foundation, growth and stabilization in the market (PENROSE, 1995); (ALMEIDA and PESSALI, 2017), can be determined by strategies for creating and maintaining demand (BRADONJIC, FRANKE and LÜTHJE, 2019); (LÖFQVIST, 2017); (MANUAL DE OSLO, 2010), (CHAOCHOTECHUANG and MARIANO, 2016); (CARVALHO and YORDANOVA, 2018); in the case of meeting specific demands not identified by major competitors, creating specific niches that provide the basis for stabilizing the market, even without growth, which could help answer the main research problem, which is precisely the explanation of the phenomenon stabilization of startup-type Fintechs in highly competitive markets. In addition, the history of foundation, growth and stabilization may constitute a defensive innovation strategy (serving niche markets).

Reflection on the topic is only incipient here; according to Meneguetti (2011), "In the administration in which the imperative of objectivity dominates the production of knowledge, the article is an important resource to expand interdisciplinarity and promote the construction of knowledge through the intersubjective relationship."

Therefore, this article aims to build possible analysis relations between the elements of both theoretical axes. In this case, it presents starting points for the investigation of the aforementioned phenomenon, from which the researcher sees possibilities of theoretical association not yet identified in the literature.

4.2 Propositions for future research

After discussing the state-of-art of the main theories used in this paper, and analyzing their possible connections and gaps that could be explored in the study of fintechs, we aim at providing research propositions. Again, we are only presenting possibilities for future studies, and we do not state that these questions are the only ones concerning the use of these themes in studying fintechs, but they could offer ways to use the connections previously described in subsection 4.1 to help answer them.

So, we present here five research propositions, making possible connections between the gaps and themes from both theories and how they could explain the behavior of innovative fintechs in the market.

P1. Innovation management can explain the maintenance of small Fintech type companies in highly competitive markets;

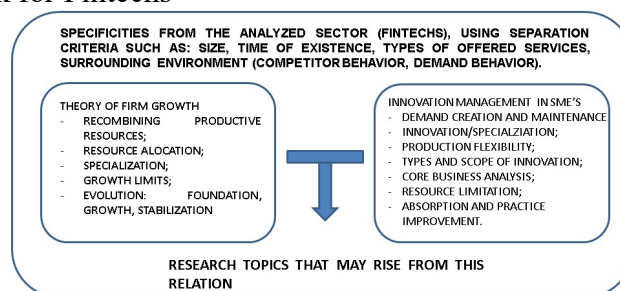
P2. Models can be developed, in the light of the firm's GI and Growth theories, that contribute to explaining how small Fintechs businesses remain in competitive markets;

P3 Innovation Management can provide, in the light of the Firm's Growth Theory, a proposal to explain reality through a model that identifies the issue of the survival of small Fintechs businesses in highly competitive markets;

P4 No models were found to assess, in the light of the Theories of Firm Growth and Innovation Management, the reasons for the permanence of micro and small companies in the financial area in highly competitive environments;

P5 The existence and permanence of small businesses in the financial sector in highly competitive environments presupposes that these companies have a business model that favors innovation as a strategy;

Chart 1: Research framework for Fintechs



Source: The author (2020)

Chart 1 shows the basic structure proposed for the research. In general, the study proposes to use Innovation Management in SMEs and TFG to help explain the survival of small Fintech businesses in highly competitive markets. As highlighted in the article itself, no more in-depth study was found within TFG concerning small businesses in highly competitive markets. Moreover, other elements of the TFG could be explained, as a proposal, using the Innovation Management in SME's.

In this case, this study highlights the basic structure proposed for future research, aiming at proposing a basic framework and research questions from which develop innovation studies in digital financing companies, i.e. fintechs, which have been through intense competition with traditional



banking institutions. This study also give special attention to characteristics of small businesses in general, and the fintechs in particular.

The article serves as a basis for future research, proposing the use of both theories to further comprehend the characteristics and relationships of fintechs in the modern financial industry. According to a study by SEBRAE (2016), the identification of size and sector is key to comprehend the questions concerning a company or a group of companies. In this case, the proposal involves small companies that provide remote and digital financial services.

As highlighted by Canova (2019), and Milian, Spinola and Carvalho, (2019), and Gromek (2018), most Fintechs are still micro and small, and the number of Fintechs has steadily increased, as an alternative traditional banks. According to Radar FintechLab, the number of such deals in Brazil is 550 in early May 2019. Thus, there is a great possibility of research in the area, provided that the filtering is carried out as established by Sebrae itself, regarding the size and the time of existence.

Thus, the relationship between TCF and MPE's Innovation Management lies in the research possibilities mentioned here, as well as in the basic research structure presented in the table. Evidently, there is still no clear evidence of the relationship between the two theoretical axes.

According to the title of this section, these relationships are incipient, and therefore demonstrate a research gap that can be investigated. The construction of theory, then, would come from the operationalization of these relationships within the phenomenon to be studied. The article is not intended to be conclusive, due to its very nature, but to point out possibilities for investigation by discussing topics not yet related in the literature.

## 5 Conclusion

This article has showed the theoretical possibilities of using both Innovation Management and Theory of Firm Growth to help create a future framework and research ground in Fintechs. There was no indication of usage of both theories together. Their theoretical elements draw possibilities that can be intertwined with competition with larger banks and their capability to sustain their business model in the long term.

Far from studying the immediate consequences or specific dynamics showed by Fintechs in the market, this article serves as a basis, or a proposal, using these theories in order to better comprehend how fintechs behavior in the market.

As a new business model, and thanks to its specific virtual service model, they offer new possibilities of discussion in an ever changing environment. The banking system has been going through a series of changes as new competitors rise; the use of digital tools and the internet enable for the emergence of remote services. The possibility posed by fintechs to reach new markets remotely gives rise to discussions about regulatory systems and how they behavior, as frauds and other crimes could harm not only customers, but their own survival in the market.

As we couldn't find any study that treat fintechs specifically from the Theory of Firm Growth and Innovation Management theory perspectives, we sought to find in the specific literature from both themes separately, the subthemes and elements that could help comprehend fintechs.

Then, the main objective was achieved: to intertwine elements from both theories in order to open new possibilities for investigation. For the choice of both theories, it could be justified that Innovation Management in small firms help comprehend how fintechs, most part of them small companies, create and manage an innovation culture based on specific services or specialized services.

The Theory of Firm Growth, by its turn, help to comprehend how these companies are created, and how they manage to survive in competitive markets, specifically, the financial market, which presents giant and well established and consolidated financial Institutions.

## 6 Implications and Further Research

Further investigation should focus then in seeking to understand how these small and highly innovative companies operate in the market, facing major external forces such as competitors and the regulatory framework itself. As a theoretical article, it serves as a preliminary study in proposing several research possibilities, and a basis to discussions and partnerships in other projects that revolve around the study of fintechs and their characteristics.

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**RAISING RESEARCH POSSIBILITIES ON FINTECHS FROM THE SME'S INNOVATION MANAGEMENT AND  
PENROSE FIRM GROWTH THEORY APPROACHES**

Tomaselli, F.C.; Di Serio, L.C. (2013) 'Supply networks and value creation in high innovation and strong network externalities industry', *Journal of Technology Management & Innovation*, Vol. 8, No. 4, pp.177–185.

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