

**THE MEDIATING ROLE OF ENTREPRENEURSHIP AND NEW  
PRODUCT DEVELOPMENT ON CUSTOMER SATISFACTION**

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## Resumo

Atualmente, a satisfação das necessidades dos clientes é fundamental para o sucesso das empresas. Efetivamente, a generalidade das empresas usa a satisfação do cliente como método para determinar e avaliar a sua *performance*, bem como delinear estratégias futuras. Assim, esta dissertação tem como principal objetivo a melhor compreensão dos antecedentes e das implicações do empreendedorismo e do desenvolvimento de novos produtos na satisfação do cliente.

Foi delineado um modelo que avalia as relações entre dois antecedentes do empreendedorismo, assim como do desenvolvimento de novos produtos, e uma medida de *performance*. Este modelo foi testado com base em dados recolhidos através de um questionário realizado numa amostra de pequenas e médias empresas portuguesas, com 197 respostas válidas. Os resultados empíricos surgem como consequência dos testes realizados através da metodologia Partial Least Squares (PLS).

Os resultados evidenciam que o capital relacional e a orientação para a inovação, influenciam positivamente o empreendedorismo e o desenvolvimento de novos produtos. Sugerem ainda uma relação positiva entre o empreendedorismo e a satisfação do cliente. Contudo, embora haja um impacto positivo do desenvolvimento de novos produtos na satisfação do cliente, esta relação não se mostrou significativa. Os resultados indicam que o capital relacional e a orientação para a inovação influenciam positivamente a satisfação do cliente, através do empreendedorismo e do desenvolvimento de novos produtos.

Consequentemente, de forma a contribuir para a melhoria do desempenho das empresas e incrementar a satisfação dos clientes, os gestores devem investir no empreendedorismo, no desenvolvimento de novos produtos e nos seus antecedentes.

**Palavras-chave:** Empreendedorismo; Desenvolvimento de Novos Produtos; Orientação para a Inovação; Capital Relacional; Satisfação do Cliente.

**Classificações JEL:** Geral (M30); *Marketing* (M31); Objetivos de Negócio da Empresa (L21).

## **Abstract**

Currently, meeting the needs of customers is fundamental to the success of companies, particularly in the long-term. In fact, most companies use customer satisfaction as a method to determine and evaluate their performance and outline their strategies for the future. Therefore, this dissertation's main objective is to better understand entrepreneurship and new product development antecedents and implications for customer satisfaction.

In accordance with the literature, a model was designed to assess the relationship between two antecedents of entrepreneurship and new product development, and a measure of performance. This model was tested empirically based on data collected through a questionnaire carried out on a sample of small and medium-sized Portuguese companies, and the number of valid responses was 197. The empirical results appear as a consequence of the tests executed using the Partial Least Squares methodology (PLS).

The results show that both the relational capital and innovativeness, positively influence entrepreneurship and new product development. They also suggest a positive relationship between entrepreneurship and customer satisfaction. Although there is a positive impact of new product development on customer satisfaction, this relationship was not significant. In addition, the results indicate that relational capital and innovativeness positively influence customer satisfaction, through entrepreneurship, and new product development.

Consequently, to improve the performance of companies, namely, in the long-term, and to increase customer satisfaction, managers must invest in the development of entrepreneurship, as well as in the development of new products and their antecedents.

**Keywords:** Entrepreneurship; New Product Development; Innovativeness; Relational Capital; Customer Satisfaction.

**JEL Classifications:** General (M30); Marketing (M31); Business Objectives of the Firm (L21).

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## **List of Abbreviations**

AVE - *Average Variance Extracted*

CEO - *Chief Executive Officer*

CR - *Composite Reliability*

EU - *European Union*

HTMT - *Heterotrait-Monotrait Ratio*

IT - *Information Technology*

NPD - *New product development*

PLS - *Partial Least Squares*

R&D - *Research and Development*

SEM - *Structural Equation Modelling*

SMEs - *Small and medium enterprises*

VIF - *Variance Inflation Factor*



## 1. Introduction

Understanding customer needs is fundamental to guarantee the success of an organisation (Nazari-Shirkouhi, 2017). Nowadays, several companies use customer satisfaction to measure their performance and plan their future. Indeed, the literature about customer satisfaction, from a performance-centred perspective, has been increasing (Yu, Jacob, Salisbury & Enns, 2013) and some authors have found that customer satisfaction positively correlates with organisational performance (Assaf, Josiassen, Knežević, Cvelbar & Woo, 2015; Chew & Shi-Min, 2019).

In order to develop successful products and ensure efficient new product development (NPD), companies need to consider market development and customers' requirements. Companies that consider these factors, will be more capable to successfully satisfy customers' needs than their competitors (Kibbeling, Van der Bij & Van Weele, 2013; Rubera, Ordanini & Calantone, 2012). Customer satisfaction happens as a result of the process of defining present and future customer needs, which consequently delineates the nature and scope of NPD and innovation (Bruni & Verona, 2009; Fang & Zou, 2009).

Research on entrepreneurship has increased and scholars have increasingly studied its role in customer satisfaction. There are many authors arguing that the relation between the customer and the organisation is crucial to achieve success (Tse, 2001; Stokes & Lomax, 2002). In fact, in recent literature there are numerous models trying to link some variables, for instance, Tajeddini (2010) analysed the relation among customer orientation, entrepreneurial orientation, innovativeness and found a significant and positive effect of these concepts on an organisation's long-term performance.

Innovativeness has regularly been presented as a fundamental concept for organisations to achieve long-term success (Noble, Sinha & Kumar, 2002). Scholars have emphasized innovativeness as crucial to fulfil customer needs and, consequently, increase customer satisfaction (Christensen, Cook & Hall, 2005). In addition, in literature there is evidence that exists a direct relation among innovativeness and a company's performance (Kellermanns, Eddleston, Sarathy & Murphy 2012), innovativeness and NPD (Liu & Chen, 2015), innovativeness and entrepreneurship (Yu, Dong, Shen, Khalifa & Hao, 2013).

Relational capital has also come under considerable study by researchers. The findings suggest that relational capital influences, directly or indirectly, an organisation's performance (Sulistvo

& Sivamtinha, 2016). Furthermore, literature shows that relational capital has a positive impact on entrepreneurship (Kim & Kang, 2014) and on NPD (Chen, Lin & Chang, 2006; Chen, Liu, Chu & Hsiao, 2014).

However, according Moriano, Gorgievski, Laguna, Stephan and Zarafshani (2012), further research should be done with respect to entrepreneurial intentions and succeeding behaviours within other cultures. Moreover, Liñán, Fernández and Romero (2013) mentioned a gap on literature about the particular effect of numerous cultural value-dimensions on entrepreneurship. Additionally, Hayton and Cholakoya (2012) defended that the underlying assumptions of entrepreneurs ought to be better examined.

Furthermore, research points to the importance of setting out the role of personal-level variables, context and institutions in the formation of entrepreneurial intentions (Fayolle & Liñán, 2014). A supportive addition to the literature involves the development and testing of new theories about entrepreneurial opportunities and how these affect entrepreneurial processes (Davidson, 2015).

Taking into account the increased importance of a company's human capital, research points to the need of examining the development and the role of relational capital in different cultural and organisational contexts (Kohtamäki, Partanen & Möller, 2013). Furthermore, future research is essential to comprehend the effects of relational capital on exploitation and how they are influenced by contextual factors (Chang & Taylor, 2016). Besides, a better understanding of how individual relational capital and exploitation result in organisational outcome is also important (Mom, van Neerijnen, Reinmoeller & Verwaal, 2015).

Nowadays innovativeness is fundamental to every organisation. Thereby, there is an increasing need to investigate business innovativeness triggers (Akgün, Ince, Imamglu, Keskin & Kocoglu, 2014) and also understand how the impact of innovativeness on customer satisfaction develops over time (Wallenburg, 2015). In addition, a deeper comprehending of personal innovativeness is also necessary and interesting (Walley *et al.*, 2017). Finally, the literature recommends further research in order to better comprehend NPD. Thus, research in this field is necessary in different countries with different organisational environments (Cheng & Yang, 2019).

Consequently, the theme of this research is the result of a recent literature review that shows how the relevance and importance of customer satisfaction is emerging as an important factor in organisations and how crucial is to comprehend its mediators and antecedents. Additionally, this dissertation aims to contribute and enrich the literature about these subjects and to support managers who want to apply leverage on an organisation's performance through customer satisfaction.

Since the general objective proposed for this dissertation is the study and understanding how NPD, entrepreneurship and their antecedents, influence and have impact on customer satisfaction, from an organisational perspective, the specific objectives are:

- ✓ Comprehend the relationship among of relational capital, NPD and customer satisfaction;
- ✓ Understand the influence of innovativeness on NPD and on customer satisfaction;
- ✓ Evaluate the association between relational capital, entrepreneurship and customer satisfaction;
- ✓ Analyse the effect of innovativeness on entrepreneurship and on customer satisfaction;
- ✓ Study the mediating role of NPD and entrepreneurship.

The present dissertation is divided into seven chapters. The first chapter is a summarized introduction for the dissertation; in the second chapter is shown the literature review about the main concepts and the hypotheses developed; in the third chapter the research methodology is presented as well as the operationalization of the variables in study; in the fourth chapter the data obtain is analysed and the main results are presented; in the fifth chapter the discussion about the findings are done and supported with literature, and finally, the seventh chapter concerns with the main conclusions and contributions of the dissertation.

## 1. Literature Review

### 1.1. Concepts

#### 1.1.1. Relational Capital

From a more general perspective, relational capital is based on trust, obligations, respect and friendship among all the players across their interactions (Villena, Revilla & Choi, 2011). This concept has been recognized as a resource produced through social network processes or as the actual networks of relationships themselves (Dyer & Singh, 1998; Wathne & Heide, 2004).

For Dyer and Singh (1998), relational capital suggests that an organisation's potential to create competitive advantage relies not only on its resources, but also on its relational assets. Even more, relational capital is path dependent and organisations are restricted by the boundaries of their networks, as they might be incapable of taking advantage of some opportunities because their relationships do not allow them to access to the appropriate resources (Hitt, Lee & Yucel, 2002).

This dimension of social capital is based on the fact that organisations rely significantly on the relationships they build up within their environment rather than being an isolated system and embraces the value created by these relationships, not only with customers, suppliers, or shareholders, but also with all the groups of interest, both internal and external (Ordóñez de Pablos, 2003).

Furthermore, Capello and Faggian (2005: 77) classified relational capital as *“the (rare) capability of exchanging different skills, interacting among different actors, trusting with each other and cooperating”*. Thus, relational capital is the accumulation of goodwill that arises from the relationships among actors of a network or system (Dyer & Nobeoka, 2000).

In a more alliance-oriented perspective, relational capital states the relational result generated in an exchange relationship that cannot be produced by any isolated organisation (Dyer & Singh, 1998). Liu, Ghauri and Sinkovics (2010), considered three key dimensions for this capital, crucial to alliance learning: interaction, transparency and trust.

According to Gulati and Gargiulo (1999) strong interpersonal bonds among organisations provide channels for learning about other organisations' capabilities and reliability. From this

perspective, relational capital can also be very important in constructing and building greater alliance networks (Kale, Singh & Perlmutter, 2000). As seen from another perspective, relational capital can be defined as the perception of the value detained by customers when they establish business relations with their suppliers of goods or services (Petrash, 1996).

### **1.1.2. Innovativeness**

Owing to the increasing changes in the competitive environment, an emerging need for value-creating opportunities, original organisational procedures and relationships was created (Hamel, 1998). Consequently, innovativeness has become a fundamental characteristic for organisations to distinguish themselves among others (Vila & Kuster, 2007).

The interactional process initiated by the identification of a new market or service opportunity is called innovativeness (Garcia & Calantone, 2002). This concept has already been characterized as an intangible resource that grants competitive advantage to organisations (Rasmussen, 2014; Wiklund & Shepherd, 2003), improves organisations' financial performance (Akgün, Ince, Imamoglu, Keskin & Kocoglu, 2014), contributes in developing organisations' core competencies and capabilities (Damanpour, Walker & Avellaneda, 2009) and increases organisations' efficiency to identify and use available resources (Habtay, 2012).

According to the literature, innovativeness fluctuates in complexity, extending from changes to existing products and service processes (Craig, Dibrell & Garrett, 2014). In fact, based on literature, there are two most common types of innovativeness used: product innovativeness and process innovativeness (Hansen, Rasmussen & Nybakk, 2017). Regarding the product perspective some authors refer innovativeness as the capability of an organisation to create new products (Keupp, Palmié & Gassman, 2012; Monreal-Pérez, Aragón-Sánchez & Sánchez-Marín, 2012).

Taking into account the more focused in the process perspective, literature refers innovativeness as the ability to create, develop and implement original production procedures (Keupp *et al.*, 2012; Monreal-Pérez *et al.*, 2012). Following this stream of literature, Hult, Snow and Kandemir (2003: 204) considered innovativeness "*the organisation's cultural orientation (values and beliefs) towards innovation*" and Hult, Hurley and Knight (2004) mentioned innovativeness as an organisation's capacity to embrace innovation.

There are still some authors who encompass everything in the same concept, such as Hansen *et al.* (2017: 81) who consider innovativeness “*as a characteristic of an organisation, and an innovative firm tends to be an early adopter and/or creator of new products and processes*”.

### **1.1.3. New Product Development**

The study of NPD has remained interesting for several decades (Wind & Mahajan, 1988; Kleinschmidt, Brentani & Salomo, 2007). In a broader perspective, this concept has been defined as the conversion of a market opportunity and multiple assumptions regarding a product into a product commercialization (Brown & Eisenhardt, 1995; Krishnan & Ulrich, 2001; Marion, Friar & Simpson, 2012).

This subject has been defined as one of the most significant and crucial set of activities for every organisation in order to survive, grow and achieve its final objectives, in both domestic and foreign markets (Millson, 2013; Alegre, Sengupta & Lapiedra, 2013). NPD has been classified as a complex process that requires time, money, collaboration, communication and coordination of teams (Graber, 1998; Stalk, 1998).

NPD research covers the procedures, approaches and strategies used to develop new products, in order to maximize their relevance to customer needs and reduce time-to-market (Schilling & Hill 1998). According Millton (2013), the integration of NPD teams with customer, suppliers and internal department of a company has a positive impact on market success of new products.

Research by Sun and Wing (2005) characterizes the NPD process perspective as a rigorous group of actions starting with an innovative idea and ending in the commercialisation of a new product. Moreover, the process involves: preliminary investigation, meticulous investigation, development, testing and validation, full production, and market launch (Cooper, 1996).

From another perspective on performance, “*the success of new product development efforts*” (Troy, Hirunyawipada, & Audhesh, 2008: 136) embraces not only the process but also the new product itself. This concept is divided into three main aspects of a successful performance: operational (efficiency and effective development), financial (economic return), and marketing (satisfaction and loyalty in the customer–organisation relationship) (Chang & Taylor, 2016).

### **1.1.4. Entrepreneurship**

Entrepreneurship has been properly classified as one the most fascinating and elusive subjects in economics (Baumol, 1968). Since the 80's, this subject has come more and more important for economic growth and innovation across economies (Acs, Desai & Klapper, 2008).

Originally visualized by Schumpeter in 1934, entrepreneurship was classified as a function that states the disturbance of equilibrium in an organisation (or economy) produced by the conception and application of new arrangements of resources. As a function, entrepreneurship may happen both within and across organisations and its level varies (Miles, Snow, Meyer & Coleman, 1978).

In the literature, entrepreneurship can be found from the perspective of improving efficacy of allocating certain means or ends, like Davidsson (2005) who identified entrepreneurship activities as starting and managing the company itself, establishment of new businesses, and development of new-to-the-market economic activities.

Nevertheless, entrepreneurship can be found as a driver of a dynamic performance of an organisation by the progressive conception of new products, processes or markets as Shane and Venkataraman (2000: 218) who stated that entrepreneurship field “(...) *involves the study of sources of opportunities; the process of discovery, evaluation, and exploitation of opportunities; and the set of individuals who discover, evaluate, and exploit them.*”.

Following the same path of Shane and Venkataraman (2000), Hitt, Ireland, Camp and Sexton (2001: 480) classified entrepreneurship as “*the identification and exploitation of previously unexploited opportunities*”. Hitt *et al.* (2001: 51) widened this definition to “*specific social process through which individuals and teams create wealth by bringing together unique packages of resources to exploit market-place opportunities.*”

Research by Henrekson and Stenkula (2016) defined entrepreneurship as the capability and willingness of persons, within or outside organisations, to recognize and generate original economic opportunities; to put in practice on the market their ideas even under uncertainty, making decisions about the localisation, product design, use of resources and reward systems; to generate value, by expanding the organisation to its entire potential.

#### **1.1.5. Customer Satisfaction**

Customer satisfaction research has been one of the most extensively studied subjects in marketing over the last 30 years (Erjavec, Dmitrović & Povalej Bržan, 2016). There are a lot of different ways in literature to define the idea of customer satisfaction (Filina-Dawidowicz & Gajewska, 2018). Oliver (1997) provided a broad definition of customer satisfaction concerning pleasurable fulfilment. The author stated that customer satisfaction is an approval response of customer. Moreover, it is an opinion about a product or service characteristic, or the product or service itself, and if those provided an enjoyable level of consumption-related accomplishment.

In fact, Yi (1991) argued that different definitions of customer satisfaction may be used according to the highlighted target and stage of specification. The main levels of satisfaction are with regard of product or service; relative to a purchase experience; regarding the performance attribute; with respect to consumption-use experience; concerning the department or store of the business organization and, finally, in the context of the pre-purchasing experience.

There are some authors who define customer satisfaction in a more focused perspective of the person's perception, for instance Mendoza, Marius, Pérez and Grimán (2007) defined customer satisfaction as someone's perception, discontent or pleasure, by comparing the perceived performance of a product against someone's expectations or a customer's emotional and cognitive evaluation about an experience among a product or service (Oliver, 1999).

However, according to different authors, customer satisfaction may be defined as "*overall evaluation of a firm's product, rather than a particular individual's evaluation of a specific transaction*" (Anderson, Claes & Rolan, 1997: 130). Thus, there are two simple forms which can be used to describe customer satisfaction, as a process or an outcome (Yi, 1991).

As a process, Tse and Wilton (1988) described customer satisfaction as the reaction of the customer regarding the apparent difference among the current performance of a product after consumed and past exceptions. As an outcome Churchill and Surprenant (1982) defined customer satisfaction as a result of customer judgement about the rewards and costs comparing to the expected consequences of a purchase.

## **1.2. Hypotheses**

### **1.2.1. Relational Capital and NPD**



Relational capital, in general, can be described as all the relationships between an organisation and its stakeholders, customers and suppliers. In order to improve the NPD performance, organisations should comprehend and satisfy all stakeholders requests since these provide significant resources to the organisation (Hsu & Fang, 2009; Hill & Jones, 2001). In fact, a study realized by Heikkinen, Mainela, Still and Tähtinen (2007) shows how the NPD network can break due to divergent goals among the actors.

There are many studies proving the importance of customer cooperation with a view to achieve economic success. Consistent with the previous literature, Gupta and Souder (1998), found that the early participation of customers on the development of new products is a fundamental element to reach new product success. Indeed, a study realized by Bonner and Walker (2004) defends that customers who organisations have strong past relationships with, normally provide effective contributions to NPD projects, leading to superior products.

The literature about NPD highlights the relevance of relationships development as a precursor to efficient supplier participation in NPD. By building robust and long-term relationships with the suppliers, organisations would benefit from their strengths. Thus, organisations would be more able to develop new products and bring them rapidly into the market (Gupta & Souder, 1998). Therefore, the integration of suppliers is positively related with NPD and performance (Ragatz, Handfield & Petersen, 2003; He, Keung, Sun & Chen, 2014).

Indeed, a lot of manufacturing companies are creating closer relationships with their suppliers with the purpose of obtaining access to their skills, capabilities, information and resources, leading to faster NPD and lower costs. Depending on trust and commitment of the suppliers, the authors reach the conclusion that the involvement of partners has a positive impact on NPD (Walter, 2003).

The information transferred through a network is very important. Mazzola, Perrone and Kamuriwo (2015) studied the effect of structural holes and centrality of networks on NPD. The authors found that being centrally located in the network means having more contact with several potential suppliers, thereby improving the likelihood of developing new products. Thus, investing in relational capital leads to an improved interchange and knowledge involvement, which, in consequence leads to a better customer and partners relationships (Tsai, 2001).

Besides the relationships between a company and its partners and customers, the relationships inside the company are also crucial to NPD. Indeed, Hansen (1999) stated that the absence of relational embeddedness among the NPD team members would increase the necessary time to complete the project, confirming that relational embeddedness enhances the speed of NPD.

A study conducted in Taiwanese manufacturing companies, shows that relational capital has a positive impact on NPD performance. In fact, the authors suggest that the higher the growth rate of an industry, the stronger the relationship among relational capital and NPD performance (Chen *et al.*, 2006). In order to manage the credibility of information, board prominence allows the board directors to help managers to filter the information useful for NPD. Actually, prominent directors are more well-informed about technology and market trends that are crucial to the NPD (Mizruchi, 1996). According to Mazzola, Perrone and Kamuriwo (2016), there is a positive relationship among prominent directors and NPD.

In accordance with the literature, a study tested the impact of the relational embeddedness on new product creation and on the speed of the NPD, and proved the existence of a positive association between the strength of networks and the development of new product, as well as the importance of relational embeddedness on new product creation and on NPD speed. According to the authors, networks have an impact on the NPD and the closer the relationship, the greater is the positive impact on NPD (Peng, Liu, Sun & Chen, 2010).

According to Mu (2014), the ability of an organisation to manage its interfirm relationships has a positive impact on the likelihood of the development and use of its network, including strong ties and bridge ties which NPD projects created by the organisation are dependent on. Thereby, the author defended that networking capability promotes NPD and has a crucial position in developing network structural relationships on NPD performance. Furthermore, the study demonstrates that strong ties and bridge ties have a positive impact on NPD performance only when the organisation has a proper networking capability. This leads to the next hypothesis.

**Hypothesis 1a:** Relational capital positively relates to NPD.

### **1.2.2. Relational Capital and Entrepreneurship**

The impact of the three dimensions of intellectual capital on entrepreneurial orientation has become of great interest to scholars due to the nature of the current business environment. Some

authors believe that the development of favourable relationships and social networks between an organisation and its stakeholders has a considerable positive impact on entrepreneurial orientation (Al-Jinini, Dahivet & Bontis, 2019). Thus, investing in relational capital enables an organisation to enhance the development of an entrepreneurial orientation that stimulates proactivity, autonomy, risk taking and innovativeness (Chen, Tzeng, Ou & Chang, 2007; Gruber-Muecke & Hofer, 2015).

As a matter of fact, a research developed for the purpose of examining the empirical relationship between social capital, entrepreneurial orientation and entrepreneurial performance on new ventures in Taiwan indicates the existence of a significant association among those variables. The results show that the acceleration of information transmission and the search for opportunities in new technology, new products, markets and financial resources can be made by new ventures through expanding external networks and sustaining trust and interdependence among network partners (Chen *et al.*, 2007).

A study performed with the objective of investigate the impact of intellectual capital on entrepreneurial orientation in small and medium enterprises (SMEs) shows that all the dimensions of intellectual capital, namely relational capital, have a strong impact on entrepreneurial orientation. Indeed, relational capital and human competence have the strongest effects on entrepreneurial orientation (Al-Jinini *et al.*, 2019). Moreover, other research done to increase the knowledge of tourism business development in Guangxi proves that relational social capital supports entrepreneurial performance (Zhao, Ritchie & Echtner, 2011).

The strength of ties is crucial in network contexts. In fact, strong ties lead to a greater level of entrepreneurial behaviours. Along the same path of theory, Uzzi (1997) defends that strong ties have numerous benefits that simplify entrepreneurship. In fact, strong ties generally stimulate detailed communication, besides encouraging precise and useful information exchange. Research done by Simsek, Lubatkin and Floyd (2003) argues that relational embeddedness influences the entrepreneurial culture and, hence, behaviour.

According to Davidsson and Hoing (2003), it is crucial to view entrepreneurship in a social context since new venture creation is expected to be influenced by individual social capital and also by a specific particular group of external conditions. In this regard, social capital can be a

valuable resource to increase organisational trust among the bonding of actors as well to connecting external networks with the purpose of providing resources (Adler & Kwon, 2002).

Social networks appear in literature as being part of relational capital. Leyden, Link and Siegel (2014), found that social networks allow entrepreneurs to create and exploit opportunities. The authors' findings suggest that social capital related to entrepreneurship increases the likelihood of entrepreneurial success. Furthermore, these findings suggest that social networks increase the probability of entrepreneurial success. Moreover, a large number of scholars have studied and proved that networks are fundamental to establish, develop and generate progress in new and young businesses, with the position of trust implied or explicit (e.g. Witt, 2004).

Entrepreneurship scholars have become more curious about the role of trust (Welter & Smallbone, 2006). In fact, trust is related to lower transaction costs of commercial actions and lower risks associated to entrepreneurship (Welter, 2012). Besides that, throughout the early stages of enterprise development, strong ties can boost entrepreneurial perseverance (Davidsson & Honig, 2003). For the networks to hold together, trust is essential and works as the glue and lubricant, thus trust is one of the main properties of social capital (Anderson & Jack, 2002).

Since personal experiences and past interactions affect who the entrepreneur approaches and successfully engages with, relational capital is crucial for entrepreneurship. Among several aspects that contribute to a social tie being strong or weak, relational trust plays a key role. Trust and dependability contribute to an easier flow of information, resources and engagement in cooperative behaviours (Davidsson & Honig, 2003).

Along this same path, Klyver, Hindle and Meyer (2008) presumed that people who have entrepreneurs in their social networks have access to valuable resources. These social relationships influence entrepreneurs and their choices in many important ways. In fact, social relationships impact the decisions about becoming an entrepreneur, how to raise capital, recruit employees, secure suppliers and captivate customers (Zhao *et al.*, 2011). Entrepreneurship scholars found that family and friends offer much of the initial capital for start-ups (Bygrave, Hay, Ng & Reynolds, 2003). The following hypothesis is therefore developed.

**Hypothesis 1b:** Relational capital positively relates to entrepreneurship.

### **1.2.3. Innovativeness and NPD**

A deep comprehension of the needs and requirements of customers is fundamental to guide the exploitation of new product ideas with the purpose of creating exclusive products. In fact, the conventional NPD framework which is based on the fact that companies are completely responsible for launching new product ideas and for deciding which product should be marketed, has progressively been confronted by innovation management academics and practitioners (Lakhani, 2006; Fuchs & Schreier, 2011).

According to Salomo, Weise and Gemünden (2007), innovativeness has a powerful impact on NPD instability and complexity. In fact, growing levels of innovativeness are accompanied by more technological gaps, organisational and environmental changes. Therefore, higher levels of innovativeness among NPD projects come with stronger uncertainties. Moreover, several studies suggest that NPD teams face more difficulties and need more time to develop more innovative new products compared to less innovative products (Griffin, 2002; Olson, Walker & Ruekert, 1995).

Due to the fact that extremely innovative NPD projects are usually developed in yet undiscovered technological fields, the likelihood of unpredicted opportunities during the development process rises. Thus, higher innovativeness is associated with more potential risks and growing potential benefits of early identification of uncertainties (Salomo *et al.*, 2007). However, Chen, Reilly and Lynn (2005) suggested that innovation speed is fundamental in uncertainty, since it enables companies to have a quicker response. Therefore, accelerating the NPD development speed can decrease uncertainty.

Product innovativeness is a crucial factor in order to fulfil customers' needs and requests within NPD projects (Griffiths-Hemans & Grover, 2006; Atuahene-Gima & Wei, 2011). Indeed, high levels of product innovativeness improves NPD since it completely and accurately satisfies customer preferences (Tsung-Chi & Yi-Jen, 2015). Consequently, when companies combine customer participation with product innovativeness, enhance the performance of NPD projects, in order to satisfy customer needs (Lin, Tu, Chen & Huang, 2013).

Current literature suggests that product innovativeness has a crucial role in transmitting the outcomes of technology orientation (Lau, Yam & Tang, 2011). Moreover, new product performance benefits from technology orientation consequent on increased product

innovativeness (Tsung-Chi & Yi-Jen, 2015). In fact, product innovativeness is essential during NPD projects to develop distinct products that satisfy customer needs (Joshi & Sharma, 2004).

Since NPD projects are uncertain and dynamic, the use of information technology (IT) tools has a different impact on each phase of NPD process (Kessler, 2003). Up to date technology orientation increases the innovativeness of innovative NPD projects, differentiating them from those of their competitors and increasing the performance of new products. Moreover, a study based on data collected from NPD managers in the US and Canada, shows that specific IT tools have influence on different phases of NPD (Tsung-Chi & Yi-Jen, 2015). Indeed, computer-mediated communication technologies are IT tools that enhance communication among NPD works and promotes knowledge dissemination (Song, Berends, Van der Bij & Weggemen, 2007).

Innovativeness supports an effective NPD. Although, a prosperous innovative environment can only be produced if there is a rigorous flow of human capital, primary knowledge and IT stream among all the participants (Chen, Lee, Wang & Tong, 2008). There are some factors for NPD to be successful, namely, an innovation culture to encourage product development and collaboration with external parties, such as customers and suppliers, as well as modern advanced innovation practices to comprehend the needs of customers through formal processes, to assess ideas and open innovation (Kahn, Barczak & Moss, 2006; Barczak, Griffin & Kahn, 2009; Markham & Lee, 2013).

Coordination among all phases and parties is crucial to ensure NPD success and, consequently, satisfy the diverse markets and technological requirements. This reinforces the importance of innovativeness as well as new product innovation (Krishman & Ulrich 2001; Lukas & Menon, 2004; Kim & Kim, 2009). Different NPD projects require different innovation environments and different innovation conditions to be successful (Chen *et al.*, 2008). In fact, according to Ozdemir, Kandemir, Eng and Gupta (2019), new product performance can be influenced by company stakeholders through the improvement of innovativeness.

Based on current literature, the cost of NPD is negatively associated to product innovativeness since developing products with a superior level of innovativeness is more uncertain, difficult and risky (Sheremata, 2000; Griffin, 2002). The following hypothesis is developed.

**Hypothesis 2a:** Innovativeness positively relates to NPD.

#### **1.2.4. Innovativeness and Entrepreneurship**

Innovativeness has been studied within practically all previous models, with the purpose of understanding the entrepreneurial attitude (Miller, 1983). Schumpeter (1934) stated that innovation was primary and an essential duty of an entrepreneurial organisation. In fact, organisations with higher levels of entrepreneurial orientation are frequently engaged in innovation. Thereby, those organisations are more willing to take risks and take advantage from eventual opportunities when they arise (Rezaei *et al.*, 2012). Among the research studies about firm-level entrepreneurship, innovativeness has been one of the most frequently and consistently used variables (Kreiser, Marino, Davis, Tang & Lee, 2010).

According to Hult, Ketchen and Nichols (2002), in order to enhance the performance and competitiveness of a company, entrepreneurship must interact with other factors within the organisation, such as innovativeness. Indeed, only with those interactions, entrepreneurship is capable of making a company achieve favourable business results. A study based on data from a sample of 764 organisations, assessed the role of entrepreneurship on supporting and boosting cultural competitiveness within organisations. The results demonstrate that entrepreneurship represents the most important and proactive phenomenon of developing a market-based culture. Moreover, a set of variables including innovativeness were shown to facilitate the capacity of competitiveness (Hult *et al.*, 2003).

Entrepreneurship has a crucial but different role relative to performance, depending on the type of organisation (Slater & Olson, 2001). Hult *et al.* (2003) demonstrate that large and young organisations reach robust performance by concentrating directly on entrepreneurship. However, entrepreneurship has an indirect effect on performance in other types of organisations. Indeed, the role of innovativeness linked to entrepreneurship can also be different according to the type of organisation. In accordance with Hult *et al.* (2004), entrepreneurial orientation is crucial to the development and maintenance of innovativeness, regardless of the level of market turbulence. In fact, the results show that entrepreneurial orientation is an essential driver of innovativeness.

In support of the existing literature, a study conducted by Tajeddini (2010) in 156 hotels in Switzerland, demonstrated that the higher the magnitude of entrepreneurial orientation is, the

higher the magnitude of innovativeness is. Furthermore, the author stated that higher levels of customer orientation, entrepreneurial orientation and innovativeness are related to higher levels of performance. Nevertheless, SMEs face a bigger challenge in undertaking actions connected with pursuing and implementing innovation than larger organisations (Lubatkin, Simsek, Ling & Veiga, 2006).

Even so, there are in literature few entrepreneurship studies which stress the link between entrepreneurial orientation and product innovativeness. Miller and Friesen (1982) claim that entrepreneurial organisations, contrarily to conservative organisations, innovate courageously and regularly while taking substantial risks in their product market strategies. A Greek study about SMEs in the food and beverages industry investigated the strategic drivers of radical product innovation and provided support for a positive relation between entrepreneurial orientation and product innovativeness (Salavou & Lioukas, 2003).

According to Avlonitis and Salavou (2007), new products with low levels of innovativeness are launched by SMEs characterised as old-fashioned cultures. On the other hand, new products with high levels of innovativeness are launched by SMEs with trendy cultures. In fact, industry experts suggest that lower product innovativeness is originated by feebleness entrepreneurial orientation, while higher product innovativeness from solid entrepreneurial orientation (Avlonitis & Salavou, 2007).

Over the last few years, the interrelationships between innovation and entrepreneurship have become an intriguing field of research. Both entrepreneurship and innovation are observed as fundamental activities that enhance economic development. A study about the key concepts of organisational entrepreneurship, learning orientation, research and development (R&D), innovation strategy, and innovation performance in the biotechnology industry showed that learning orientation and organisational entrepreneurship have impact on R&D innovation strategy choice and implementation. The learning orientation, organisational entrepreneurship, and R&D innovation strategies are the main determinants of organisational innovation performance (Soriano & Huarng, 2013).

There is a significant difference among active and passive entrepreneurs in one dimension of product innovativeness, specifically, new product uniqueness. As a matter of fact, entrepreneurial attitude is replicated in new products, namely in higher product uniqueness, a



fundamental key to the performance (Avlonitis & Salavou, 2007). Following this path, the next hypothesis is developed.

**Hypothesis 2b:** Innovativeness positively relates to entrepreneurship.

#### **1.2.5. New Product Development and Customer Satisfaction**

During the last years, the business environment has changed due to several aspects, namely globalization and an increasing importance about customer's needs. Indeed, several companies changed their orientation to be customer driven. As a result, customer satisfaction has become a growing concern to companies and developing new products which create higher levels of customer satisfaction has become a crucial issue to be addressed (Jiang, Kwong, Ip & Wong, 2012). Moreover, an increasing number of companies has been using satisfaction ratings as a performance indicator, as well as company's future indicator (Matzler & Hinterhuber, 1998).

According to Zwikael, Pathak, Singh and Ahmed (2014) project planning is fundamental to a project success. Hence, the comprehension of customer needs, business environment, market demand and other conditions, is mandatory to new product's success. Thereby, NPD allows companies to fulfil customer's requests and increase their market share through continuous practices and strategies (Um & Kim, 2018). As a matter of fact, keep a general market orientation in NPD process must be done by using customer satisfaction and customer acceptance as evaluation criteria during the entire NPD process. Moreover, among the years customer expectations and perceptions may change. Thus, keeping track the product performance in the long-term through customer satisfaction is necessary to support important decisions about other NPD projects (Tzokas, Hultink & Hart, 2004).

In the same path as literature, Griffin and Page (1993) have reported that among others, customer satisfaction is one of the most often used NPD project success measure, as well as output control for NPD project teams. Data from 95 projects across several industries suggest that the use of an output control, such as customer satisfaction, conducts to higher customer interactivity. This finding supports the idea that output control motivates teams to seek external information from customers in order to achieve market success. Output control also warns NPD teams about the product's success in the market (Bonner, 2005).

New products are a very important drive of customer satisfaction, which in turn is very important for the sustainability of a business (Chan & Ip, 2011). In order to be successful in the current business environment, organizations must be focused on enhance their NPD, namely recognizing customer needs for continuous NPD. Hence, satisfying customers' needs allows companies to build and support customer relationships productively, but also stimulates positive word of mouth communication among customers, which impacts on market demand (Liu, Zhang & Jiang, 2008; Melissa, 2005; Herrmann, Huber & Braunstein, 2000).

Based on several studies, successful organizations in accessing customers' needs and developing new products that meet customers' requests could improve their performance in the market (Fang, Palmatier & Evans, 2008; Henard & Szymanski, 2001). Successful product development demands an extensive understating of customer, their requests, their current situation, their needs and their wants (Kärkäinen, Piippo & Tuominen, 2001). In fact, this process involves a high level of customer integration, for this reason a set of tools for customer-driven product development can be used to increase short-term product development, in order to increase customer satisfaction (Lagrosen, 2005).

According to the literature, a well understanding of customers' requests might be favourably correlate with the product design. Moreover, could also have an important role in choosing the product's features regarding the lead time, quality and cost-customer satisfaction management (Jiao & Chen, 2006). However, in order to use customer satisfaction as a measure of product's performance and as a basis to plan the future, companies must use different customer satisfaction models to determine customers' vision about new products and matching customers' satisfaction level (Chan *et al.*, 2011).

Furthermore, the results of multiple studies have shown that one of the main reasons of new product success is due to product superiority (Flint, Blocker & Boutin, 2011; Slater, Mohr & Sengupta, 2014). The findings of a study conducted by Oliver (1999) stated that the most important reason to customers be satisfied is the superiority of the products bought by customers. Yeh, Pai and Lia (2014) conclusions demonstrate that customer satisfaction is one of the most crucial critical factor criteria in NPD.

Even with all the efforts put into NPD by a company, many NPD projects fail and result in products that do not satisfy the needs and expectations of customers (Matzler & Hinterhuber,

1998). Thereby, is clear the importance of involving customers in NPD, mainly due to the fact that the understanding of customer needs is fundamental to the development of better and successful products or services (Griffin & Hauser, 1993). Indeed, companies that are capable to link the development of new products and customer requests achieve better levels of customer satisfaction (Anderson & Sullivan, 1993). This relationship is captured in the following hypothesis.

**Hypothesis 3a:** NPD positively relates to customer satisfaction.

#### **1.2.6. Entrepreneurship and Customer satisfaction**

According to the new competitive environment, entrepreneurship and market orientation are considered key factors for companies' longevity. There is in literature, an extensive research about these concepts. However, the majority of the studies use samples that reject SMEs, which embody the majority of economic activity worldwide (Sciascia, Naldi & Hunter, 2006). In fact, both of these concepts have as a focal aim to satisfy the needs of customers, as well as to have quick answers to the demands created by the external environment of businesses (Kwak, Jaju, Puzakova & Rocereto, 2013).

The interest of academics in entrepreneurship has grown in recent years. The number of studies of entrepreneurship and performance has increased (Rauch, Wiklund, Lumpkin & Frese, 2009). For instance, Eggers, Kraus, Hughes, Laraway and Snyckerski (2013) examined the effect of entrepreneurial orientation on SMEs performance and discovered that entrepreneurial orientation has a significant impact on SMEs performance. Moreover, a study about Spanish sports service companies, analysed entrepreneurial orientation and business performance considering self-perception, namely, perceived customer satisfaction. The findings show that entrepreneurial orientation has a significant impact on small Spanish sports service company's performance. Even though, entrepreneurial orientation alone it is not enough to have a significant impact on large companies. Additionally, the size of a company aligned with the correct orientation towards entrepreneurship is sufficient to reach a positive company performance, considering a self-perceived performance measure as customer satisfaction (Núñez-Pomar, Prado-Gascó, Sanz, Hervás & Moreno, 2016).

Seilov (2015) realized a study which the results show a positive relation among customer orientation and entrepreneurial orientation, in hospitality SMEs. This finding is in line with the results of the study by Baker and Sinkula (2009), who suggest that entrepreneurial orientation and market orientation complement one another, at least in small companies, to boost profitability. In addition, the authors stated that the relation among entrepreneurial orientation and market orientation is strong, and the relation between entrepreneurial orientation and SMEs performance is mediated by market orientation. Moreover, the effects of entrepreneurial orientation on market orientation could enhance SMEs performance (Baker & Sinkula, 2009). In accordance with the literature, a research based on a sample of 102 hotels states that entrepreneurship positively and significantly affects hotel performance (measured, among others, with customer satisfaction) (Hernández-Perlines, 2016).

In compliance with the literature, a study based on a sample of 70 independent hotels located in the south of Spain analysed how entrepreneurship affects the business results through market orientation. The results show that market orientation plays a mediating role between entrepreneurship and performance. In this case, exists a positive effect when the relationship is mediated by market orientation, namely when is mediated by strategies and goals which are oriented toward customer satisfaction. Thereby, companies must emphasis market orientation in order to enhance business results (Vega-Vázquez, Cossío-Silva & Revilla-Camacho, 2016). According to Liu, Takeda and Ko (2014), there is positive and significant relationship among market orientation, entrepreneurship and SMEs performance. Consequently, this relationship has a significant positive impact on customer satisfaction (Liu *et al.*, 2014).

Based on a data of 182 companies, González-Benito, González-Benito and Muñoz-Gallego (2009) investigated the association among entrepreneurship and market orientation and their effect on performance, using customer satisfaction among other parameters. The findings show that highly entrepreneurial companies tend to be highly market orientated, but highly market-oriented companies are not inevitably highly entrepreneurial companies. Even though entrepreneurial orientation and market orientation may be implemented separately, companies tend to emphasize entrepreneurship when they are market oriented. Entrepreneurial orientation, as well as market orientation demonstrate a robust association with performance, where each contributes specifically. As matter of fact, entrepreneurship contributes positively and highly significantly to customer satisfaction as a performance measure (González-Benito *et al.*, 2009).

In the same path, the findings of study based on Taiwan's electronics industry indicate that entrepreneurial orientation enhances the exploitative and exploratory capabilities of a company and, consequently, contributes to a better organizational performance, namely, better product innovativeness, product development speed and customer-focused performance (Chen, Li & Evans, 2012). A study based on a data from Japanese food restaurants shows that entrepreneurial orientation has a positive impact on the service company's performance. According to the authors, those findings stress the importance of developing entrepreneurship among the owners of small and medium sized service businesses for their success. The findings from previous studies show that a relationship among entrepreneurial orientation and company performance is expected (Lee & Lim, 2009).

Based on a sample of 2500 Swedish SMEs, Sciascia *et al.* (2006) found a positive correlation among market orientation and entrepreneurial orientation in conformity with Miles and Arnold (1991) findings. The authors suggest that entrepreneurial orientation is significantly correlated with market orientation. In fact, among all the variables in study, Sciascia *et al.* (2006) stated that market orientation seems to be moderately more important than any other variable in explaining entrepreneurial orientation. Thus, market orientation is a key determinant of entrepreneurial orientation. Developing market orientation appears to be the first strategy in sustaining entrepreneurship within companies. This leads to the next hypothesis.

**Hypothesis 3b:** Entrepreneurship positively relates to customer satisfaction.

#### **1.2.7. Relational Capital and Customer Satisfaction**

Intellectual capital has been recognised as a main resource and a driver of organisational performance and value creation (Teece, 1998; Mayo, 2000). During the last years, some measures of intellectual capital have been formulated and implemented in several organisations. Nevertheless, a need to clarify the interactions between each type of intellectual capital still exists in the context of SMEs, as well as a need to understand how each type of intellectual capital influences the organisation performance (Cohen & Kaimenakis, 2007).

According to Mayo (2011), the interaction among a company and its customers represents the most fundamental part of relational capital, designated as customer capital. This comprises customer relationships, contracts, loyalty satisfaction, reputation, networks, among others

(Mayo, 2011). Due to its external nature, customer capital is a challenge when it comes to its development. As a matter of fact, comparing with large companies, SMEs improve their relational capital easily and use promptly the existing information originated from their networks with a view to attain superior levels of performance (Desouza & Awazu, 2006). Similarly, Wong and Aspinwall (2004) argue that the closeness between SMEs and their customers allow those companies to obtain information in a more straight and faster stream likened to larger firms.

Moreover, in the context of SMEs, Verhees and Meulenbergh (2004) suggested a positive relation among customer market knowledge and performance, while Cohen and Kaimenakis (2007) indicate a positive association among customer appropriateness, customer satisfaction, market orientation and corporate performance. According to Narver and Slater (1990), market orientation, relational capital and business performance are strongly associated. In the same path, Jaworski and Kohli (1993) found that market orientation is a crucial factor of performance. As has been mentioned on several researches, being supported by customers who have strong and close relationships with a company, increase the performance of an organisation (Bonner & Walker, 2004).

Nowadays, within this highly competitive business environment, the essential factor to increase profit and organisation's performance is the capability to build strong, solid and long-term relationships with customer, therefore gain their loyalty and trust (Huang & Hsueh, 2007). Pursuant to Hansen (1999) and Tsai (2001), the relationship among customers and organisations is boosted when relational capital within an organisation is improved. A research based on a sample of 150 SMEs, analysed the impact of each component of relational capital on customer performance. The results demonstrate that customer performance is improved by company's marketing capability, open innovation with business partners and technological reputation, keeping in line with most of previous studies (e.g. Angulo-Ruiz, Donthu, Prior & Rialp, 2014; Lefebvre, De Steur & Gellynck, 2015; Reid & Brentani, 2012).

According to the Resource Based View approach, the strategic company's resources could be enhanced by linking those resources to its partners resources, such as suppliers and allies, creating an important sustainable competitive advantage (Dyer & Singh, 1998; Koka & Prescott, 2002). Following the same research path, Kale *et al.* (2000) defended that alliance partners relationships must be constructed based on mutual trust, social ties and shared values.

Thereby, due to relational capital, a pattern of interaction among partners as well as networks can be built, increasing the alliances' results (Cullen, Johnson & Sakano, 2000) and, consequently, linking sustainable competitive advantage and performance (Huang & Hsueh, 2007; Kale *et al.*, 2000).

As the relational literature suggests, when creating a new business venture, the role of the entrepreneur is crucial in network development, specifically in establishing formal and informal relationships (Johannisson, 1998; Zhao & Aram 1995). Liu *et al.* (2010) defended the importance of establishing strong associations within the business environment. Therefore, the reputation, the customer loyalty, the informal networks, the relationships with potential suppliers and customers created by entrepreneurs, represent a massive impact on success and performance of new businesses (Hormiga, Batista-canino & Sánchez-Medina, 2011).

A research done by Ernst, Hoyer, Krafft and Krieger (2011), suggests that the management of customer relationships can generate significant inputs to the NPD process. With this, the development of new products is done according to the needs and wants of customers. In turn, new products aligned with customer requests lead to better new product performance and, consequently, to better company performance. Thus, the authors defend that NPD and its performance is an important mediator of the customer capital and business performance

According to Hsu and Wang (2012), the effect of relational capital on organisational performance is partially mediated by dynamic capabilities, thereby relational capital may have a direct impact on organisation performance or may have an indirect impact through dynamic capabilities. Nevertheless, the authors findings support the fact that relational capital is positively related with business performance through long-term relationships with supply-side partners and long-term customer relationships (Hsu & Wang, 2002). Following this line of logic, the next hypothesis is proposed.

**Hypothesis 4a:** NPD and entrepreneurship mediate the relationship between relational capital and customer satisfaction.

#### **1.2.8. Innovativeness and Customer Satisfaction**

In the last years, innovativeness has captured the attention of academics but also of companies, since stimulates competitive advantage (Tajeddini, Trueman & Larsen, 2006). Furthermore, when linked with other factors, has the capability to initiate a superior innovative capacity which guides to greater organizational performance (Hult *et al.*, 2003). There are several studies in literature proving a direct and positive correlation among innovation and superior organizational performance (e.g. Calantone, Cavusgil, & Zhao, 2002; Hult *et al.*, 2004; Keskin, 2006; Panayides, 2006; Thornhill, 2006).

Hult *et al.* (2003) analysed different models based on a data from a sample of 764 organizations. In this research, innovativeness was studied as having direct and indirect effects on organizational performance. In fact, the results show that innovativeness has a direct effect on performance thus, corroborating the arguments presented by other authors (e.g. Hult & Ketchen, 2001; Hult *et al.*, 2002). According to the results of this study, the effect of innovativeness can be modelled, among others, by entrepreneurship which, in turn, can affect organizational performance. Therefore, these findings are in line with literature (e.g. Han, Kim & Srivastava, 1998; Deshpandé, Farley & Webster, 1993; Damanpour, 1991). According to Li, Yongbin and Liu (2008), innovativeness can also be a positive moderator among market orientation and firm performance.

Regarding small enterprises, innovativeness has become an important issue. Conventional wisdom holds that higher customer orientation enables companies to recognise customers' needs. Without doubt, the relation among customer orientation and small companies' performance is affected by innovativeness. More importantly, the relationship is boosted when innovativeness rises. As a matter of fact, in companies which have lower levels of innovativeness, the performance does not benefit from customer orientation. Perhaps due to the fact that those companies are incapable to understand new perceptions and methodologies (Brockman, Jones & Becherer, 2012).

In a more service-oriented perspective, the predisposition to implement service innovations in order to enhance customer satisfaction and boost business value even with reasonable risk, has taken a considerable stance with regard to organizational capabilities (Dotzel, Shankar & Berry, 2013). A study which considered the customer side in business model innovation research, analysed the consequence of customers' perceived business model innovativeness on customer satisfaction in the service sector. The authors found that perceived value creation



innovativeness and value proposition innovativeness have a positive effect on customer satisfaction (Clauss, Kesting & Naskrent, 2019).

Moreover, still on a more service-oriented perspective, results disclosed by Bellingkrodt and Wallenburg (2015) show that knowledge intensive and network-based services, both service providers, are benefited from narrower relations with customer, when it comes to innovativeness and customer satisfaction. Another research was made in order to assess the determinants of service innovativeness and its relations with firm-level customer satisfaction. The findings suggest that p-innovativeness positively affects firm value through customer satisfaction in human-dominated industries. Moreover, companies should boost e-innovativeness in most industries and p-innovativeness in human-dominated industries (Dotzel *et al.*, 2013).

However, in line with Stock (2011), the increase in service's innovativeness is essentially due to increased customer satisfaction, as opposed to good's innovativeness that do not depend on the increase in customer satisfaction. In fact, according to the author findings, goods can be too innovative and have no limit on innovativeness. Still for services with high levels of innovativeness, customers' expected utility overcomes uncertainty, due to the previously contact with interactive services as opposed to goods.

From a more comprehensive view of the interaction among innovativeness and customer satisfaction, the results of a research with the objective of understand the effect of firm innovativeness and product innovativeness on the components of customer value, show that firm innovativeness has a positive and significant impact on product innovativeness. Moreover, the results demonstrate a positive and indirect effect of firm innovativeness on customer satisfaction mediated by symbolic brand benefits and customer expectation value (Kayhan *et al.*, 2006).

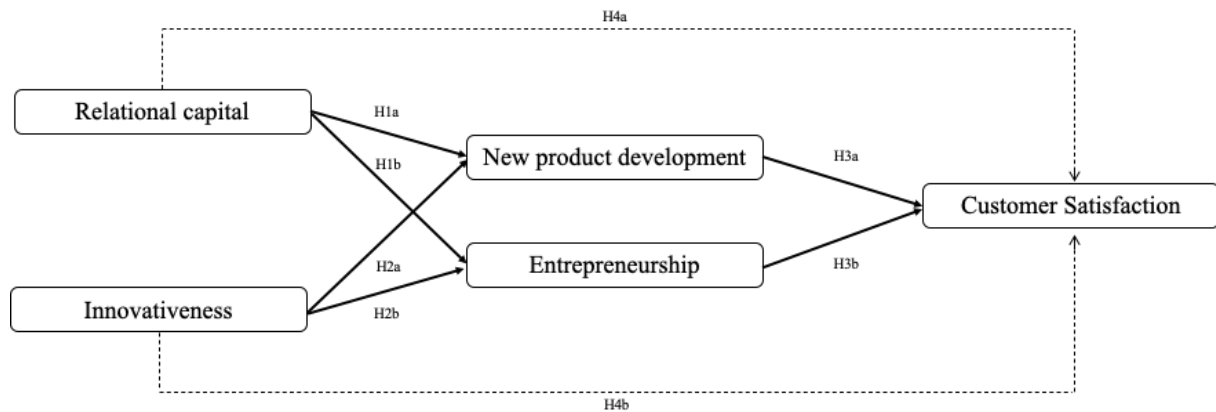
Furthermore, a research about the influence of entrepreneurship, marketing capabilities, relational capital and empowerment toward innovativeness and performance show important results. According to the results of this study, entrepreneurship, marketing capabilities, relational capital and empowerment positively and significantly affect innovativeness, which in turn has a positive and significant effect on performance. Finally, performance has a positive and

significant effect on competitive advantage (Sulistyo & Siyamtinah, 2016). According to this line of reasoning, the following hypothesis is presented.

**Hypothesis 4b:** Entrepreneurship and NPD mediate the relationship between innovativeness and customer satisfaction.

### 1.3. Theoretical framework

*Figure 1. Theoretical framework*



## **2. Research Methodology**

### **2.1. Research context**

In 2015, the shares of small enterprises among the European Union (EU) countries were 97% or above, representing the majority of enterprises (Eurostat, 2019a). Besides, the shares of small and medium enterprises are very similar among EU countries (Eurostat, 2019b). Moreover, in Portugal, the total number of enterprises has been increasing since the date of registration. In 1990 the total number of enterprises was 388892 and in 2017 the number was 126043 (Pordata, 2019a). Namely, the number of SMEs went from 1114354 in 2004 to 1259234 in 2017 (Pordata, 2019b).

Regarding the fast changing on the competitive business environment, companies must be able to maximize the satisfaction of their customers. Thus, innovation is crucial to European economy and SMEs are a very interesting target for innovation policies. Since 2011, Europe's innovation performance has been increasing. However, Portugal is still considered a moderate innovator, with 97,63% on the Innovation Index (European Commission, 2019a).

According to the European Commission, Europe's ability to support the growth of its enterprises is the main support for its economic growth and job creation. In fact, SMEs and entrepreneurship are crucial and fundamental to the growth of economy, innovation, job creation and social integration in the EU. Moreover, the European Commission considers that the most important source of employment in the EU are the SMEs and also deliberates that entrepreneurship creates new companies, creates opportunities for new markets and boosts new skills (European Commission, 2019b; European Commission, 2019c). Portugal has been exceeding the EU average in entrepreneurship and has been achieving significant progresses since 2008 (European Commission, 2019d).

### **2.2. Research design**

This research followed a hypothetical-deductive approach, based on a quantitative research method (structured survey), in order to obtain primary data and test the research hypotheses and achieve the research objectives. First, a literature review about the main subject of the research was done and the theoretical framework was elaborated. Then, based on the literature review

and previous studied scales, a questionnaire was created. In order to assess the difficulties in completing the questionnaire and improve the final version, a pre-test was conducted and tested in five companies. After that, the improvements were done. Finally, the last version of the questionnaire written in English was translated to Portuguese and a reverse translation was done with the aim of validate the translation of the questionnaire. This dissertation was based on a convenience sample of 207 SMEs, where only 197 were present at the interview meeting and answered all the questions in the questionnaire.

### **2.3. Operationalization of variables**

For the purpose of evaluate the variables under study and collect data about the key constructs, multi-item scales previously tested by other authors were adapted and used in this research. Thus, to assess relational capital was used a scale applied by Kale *et al.* (2000) composed by five questions, for innovativeness was applied a five items scale adapted by Hult *et al.* (2003) as well as the four items scale applied for entrepreneurship, NPD was assessed based on a scale proposed by Kusunoki, Nonaka and Nagata (2016) with eleven items, and finally customer satisfaction was evaluated based on a four items scale suggested by Vorhies and Morgan (2005). In order to assess each item, a performance scale of 5 points was used, where 1 = much worse and 5 = much better, with the view to evaluate the company's performance comparing with their competitors.

### **2.4. Sample**

This study was based on a convenience sample of 207 Portuguese SMEs, where only 197 were present at the interview meeting and answered all the questions in the questionnaire. More specifically, 52 responses (26,40%) were given by companies in the manufacturing industry, 66 responses (33,50%) were given by retail and commerce companies and 79 (40,10%) were given by companies in the service industry. Chief executive officer (CEO), general director, marketing director or other type of director were the main informants in this research.

### **2.5. Data analysis**

In this dissertation, the Partial Least Squares (PLS) path modelling was conducted in two-phases: the assessment of the measurement model and the evaluation of the structural model.

Thus, the PLS method and a Variance-Based Structural Equation Modeling (SEM) technique (Hair, Hult, Ringle & Sarstedt, 2017) were performed using SmartPLS 3 software (Henseler, Ringle & Sarstedt, 2015). Hence, firstly the reliability and validity of the measurement model was assessed and then the structural model was evaluated with the purpose of study and interpret the results.

With a view of evaluate the measurement model, the Indicator Reliability and the Internal Consistency Reliability were used to confirm the reliability of the model and the Convergent validity and the Discriminant validity were used to confirm the validity of the model. The individual Indicator Reliability values must be equal or higher than the reference value of 0,7 and for the Internal Consistency Reliability were used the Cronbach's alpha and Composite Reliability (CR), which values must be equal or higher than the threshold value of 0,7 (Hair *et al.*, 2017).

For the confirmation of Convergent validity were used Average Variance Extracted (AVE). These values must be equal or higher that the acceptable threshold value of 0,5 proposed by Bagozzi and Yi (1988). Finally, for Discriminant validity were used the square root of AVE which the value must be superior to all corresponding correlations (Fornell & Larcker, 1981) and Heterotrait-Monotrait Ratio (HTMT) which the values must be equal or lower than the reference value of 0,85 (Hair *et al.*, 2017; Henseler *et al.*, 2015).

Regarding the structural model, the collinearity was verified. Based on Hair *et al.* (2017) research, the Variance Inflation Factor (VIF) values should be equal or lower than the critical value of 5. Then, to assess the quality of the fit of the structural model were used the sign, structural path coefficients' magnitude and significance,  $R^2$  value magnitude of each endogenous variable as a measure of the model's predictive accuracy where the rate of reliability should be higher than the threshold value of 10%, and finally the Stone-Geisser's  $Q^2$  values as a measure of the model's predictive relevance (Hair *et al.*, 2017).

Lastly, to estimate the statistical significance of the PLS path model coefficients, a nonparametric bootstrapping procedure using 5000 subsamples was done (Hair *et al.*, 2017) in order to generate the *t-statistic* from which the statistical significance can be judged, since PLS-SEM does not considerate that the data has a normal distribution, which means that the

parametric significance tests performed in the regression analyses cannot be used to verify the loadings significance (Hair, Ringle & Sarstedt, 2011).

According to the significance level of the two-tailed *t-test*, the critical *t-value* is different. For two-tailed t-test with a significance level of 10%, the t-value must be larger than 1,65; with a significance level of 5%, the *t-value* must be larger than 1,96; with a significance level of 1%, the *t-value* must be larger than 2,58; with a significance level of 0,1%, the *t-value* must be larger than 3,29 (Hair *et al.*, 2011).

### 3. Results

In fact, the standardized factor loadings of all items are above 0,7 (with a minimum value of 0,757 and a maximum value of 0,997) and the results are all significant with  $p$  value lower than 0,001, therefore supporting the evidence of individual Indicator Reliability (Hair *et al.*, 2017). Moreover, all Cronbach's alphas and CR values exceed the threshold value of 0,7, confirming the Internal Consistency Reliability (See Table 1) (Hair *et al.*, 2017).

Constructs' AVE was performed, and all the values surpass the acceptable threshold value of 0,50 (Bagozzi & Yi, 1988). Therefore, as it is shown on Table 1, all indices exceed the recommended thresholds: Cronbach Alpha > 0,7; CR > 0,7 and AVE > 0,5 (Hair *et al.*, 2017; Bagozzi & Yi, 1988). Thereby, there are enough justifications for convergent validity confirmation.

**Table 1.** Composite reliability (CR), Average Variance Extracted (AVE), correlations and discriminant validity checks.

Latent Variables	$\alpha$	CR	AVE	1	2	3	4	5
(1) Customer satisfaction	0,924	0,946	0,813	<b>0,902</b>	0,377	0,377	0,343	0,237
(2) Entrepreneurship	0,911	0,938	0,791	0,351	<b>0,889</b>	0,785	0,566	0,288
(3) Innovativeness	0,939	0,954	0,807	0,353	0,728	<b>0,898</b>	0,520	0,184
(4) NPD	0,976	0,979	0,808	0,329	0,535	0,503	<b>0,899</b>	0,415
(5) Relational Capital	0,997	0,997	0,987	0,229	0,273	0,180	0,410	<b>0,994</b>

**Note:**  $\alpha$  - Cronbach Alpha; CR - Composite reliability; AVE - Average Variance Extracted.

Bolded numbers are the square roots of AVE; Below the diagonal values are the correlations between the constructs. Above the diagonal elements are the HTMT ratios.

Finally, with the objective of determine the Discriminant validity of the measurement model, two different approaches were used. Initially, were followed the suggestions of Fornell and Larcker (1981). Fornell and Larcker principle demands that the square root of AVE (bold values in Table 1) must be superior than all corresponding correlations (Fornell & Larcker, 1981). Thus, as shown in Table 1, this criterion is fulfilled for all constructs. Posteriorly, HTMT principle were applied (Hair *et al.*, 2017; Henseler *et al.*, 2015). As seen in Table 1, all HTMT

ratios are under the threshold value of 0,85 (Hair *et al.*, 2017; Henseler *et al.*, 2015). Thus, this evidence reinforces even more the Discriminant validity. Summarizing, the measurement model shows acceptable reliability as well as convergent and discriminant validity.

First, before the structural model was tested, the collinearity was verified. The VIF values fluctuated among 1,03 and 1,40. Since the values are lower than the indicative critical value of 5 (Hair *et al.*, 2017), there is no collinearity problems. Then, to assess the structural model, it was used the sign, structural path coefficients' magnitude and significance,  $R^2$  value magnitude of each endogenous variable as a measure of the model's predictive accuracy, and finally the Stone-Geisser's  $Q^2$  values as a measure of the model's predictive relevance (Hair *et al.*, 2017).

The  $R^2$  coefficient of determination for the endogenous variables of NPD, entrepreneurship and customer satisfaction is 15,1%, 55,0% and 38,5%, respectively. These values exceed the threshold value of 10% (Falk & Miller, 1992). Since the  $Q^2$  values of all endogenous variables (NPD: 0,358; entrepreneurship: 0,550; customer satisfaction: 0,151) are greater than zero, the predictive relevance of the model is proved. In view of evaluate the significance of the mediation effect, a bootstrapping procedure using 5000 subsamples was done (Hair *et al.*, 2017).

The mediated effect of relational capital, innovativeness and customer satisfaction was tested. Table 2 sum up the structural model produced by PLS analysis. So, relational capital has a positive significant effect on NPD ( $\beta = 0,331$ ,  $p < 0.001$ ) and on entrepreneurship ( $\beta = 0,147$ ,  $p < 0.01$ ), supporting the H1a and H1b, respectively. Innovativeness has a significant positive relation with NPD ( $\beta = 0,443$ ,  $p < 0.001$ ) and with entrepreneurship ( $\beta = 0,0701$ ,  $p < 0.001$ ). These results support H2a and H2b, respectively.

**Table 2.** Structural model assessment.

Path	Path coefficient	Standard errors	t statistics	p values
Relational Capital → NPD	0,331	0,056	5,905	0,000
Relational Capital → Entrepreneurship	0,147	0,052	2,822	0,005
Innovativeness → NPD	0,443	0,071	6,240	0,000



Innovativeness → Entrepreneurship	0,701	0,064	10,975	0,000
NPD → Customer Satisfaction	0,197	0,105	1,871	0,061
Entrepreneurship → Customer Satisfaction	0,246	0,115	2,136	0,033

As it can be seen on Table 2 entrepreneurship has a positive effect on customer satisfaction ( $\beta = 0,246$ ,  $p < 0,05$ ), providing support for H3b. However, the relationship among NPD and customer satisfaction ( $\beta = 0,331$ ,  $n.s.$ ) is not significant, so the results do not support H3a.

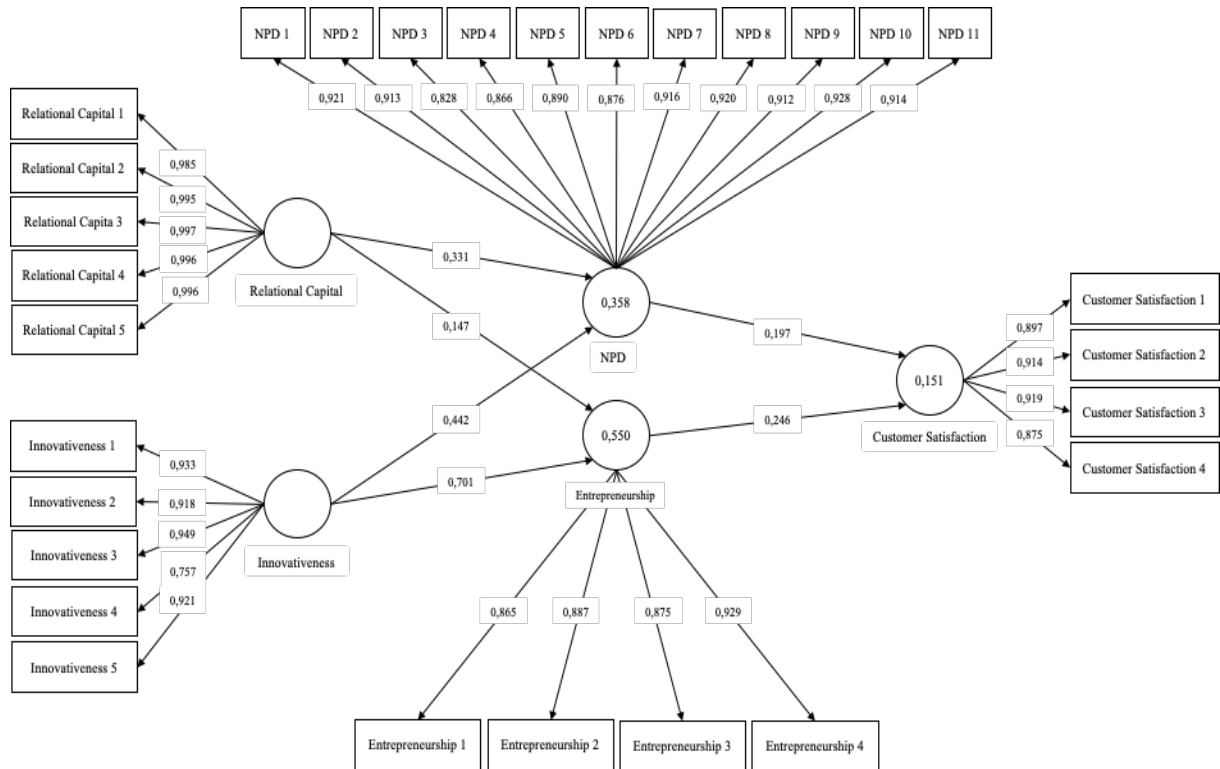
According to the recommendations of Hair *et al.* (2017), in order to teste the mediation hypothesis (H4a and H4b), the bootstrapping procedure was used to verify the significance of the indirect effects exercised through the mediators (Preacher and Hayes, 2008). In Table 3 are presented the results of the indirect effects tested.

**Table 3.** Bootstrap results for indirect effects.

Indirect effect	Estimate	Standard errors	t statistics	p values
Relational Capital → Customer Satisfaction	0,101	0,032	3,121	0,002
Innovativeness → Customer Satisfaction	0,260	0,063	4,150	0,000

Both indirect effects are significant, relational capital on customer satisfaction ( $\beta = 0,101$ ,  $p < 0,05$ ) and innovativeness on customer satisfaction ( $\beta = 0,260$ ,  $p < 0,001$ ). Thus, these results provide support for the mediation hypotheses H4a and H4b. In Figure 2 is presented the PLS-SEM model studied in this research.

**Figure 2.** PLS-SEM model



## 5. Discussion

This dissertation examined the mediating role of entrepreneurship and NPD between relational capital, innovativeness and customer satisfaction. Therefore, in order to accomplish the main objectives of this research, a multi-path model was suggested and confirmed using a structural equation model. In fact, the overall model is successful and provides support for the theoretical framework proposed. The results of the empirical analysis propose a reliable support to the theoretical framework presented in this dissertation and contribute significantly to the literature about this field.

The results suggest a positive and significant relationship among relational capital and entrepreneurship ( $\beta=0,147$ ;  $p<0.01$ ;  $t\text{-value}=2,822$ ) as well as between relational capital and NPD ( $\beta=0,331$   $p<0.001$ ;  $t\text{-value}=5,905$ ). Thereby, the findings are mainly consistent with prior research showing that businesses with greater relational capital have better levels of entrepreneurship (e.g. Gruber-Muecke & Hofer, 2015) and more probability of being successful in NPD (e.g. Hansen, 1999; Chen *et al.*, 2006). Besides, the findings are consistent with the logic that companies with better networks and relationships have more ability to understand customer needs, take more risks, be more proactive and more innovative since they have more knowledge and support from different players.

The literature indicates that strong ties within networks creates numerous benefits toward entrepreneurship (e.g. Uzzi, 1997). Moreover, the literature suggest that customer capital has a positive effect on NPD performance (Chen *et al.*, 2014). Thus, these results stress even more the importance of developing and creating a robust relational capital, networks, strong relationship with customers, stakeholders and other parties. Furthermore, this capital represents a crucial antecedent of entrepreneurship and NPD in order to have a better understanding of customer needs, therefore contributing to the achievement of higher levels of customer satisfaction and a successful performance.

The empirical findings also show that innovativeness positively and significantly affects entrepreneurship ( $\beta=0,701$ ;  $p<0.001$ ;  $t\text{-value}=10,975$ ) and NPD ( $\beta=0,443$ ;  $p<0.001$ ;  $t\text{-value}=6,240$ ). Therefore, the results suggest that innovativeness is also an important antecedent of entrepreneurship and NPD. In fact, these results are supported by the literature about the role of innovativeness on entrepreneurship (e.g. Salavou & Lioukas, 2003; Tajeddini, 2010) and its

impact on NPD (e.g. Liu & Chen 2015). Furthermore, entrepreneurial orientation alone is not enough to create a positive performance, among others, is necessary willingness to innovate more than competitors (Vega-Vázquez *et al.*, 2016). Despite the fact that innovativeness is a sufficient condition for high NPD exploration, some literature defend that different combinations of the dimensions of entrepreneurial orientation could lead to different types of NPD capabilities (Lisboa, Skarmeas & Saridakis, 2016).

This research also propose that entrepreneurship is positively and significantly related with customer satisfaction ( $\beta=0,246$ ;  $p<0.05$ ;  $t\text{-value}=2,136$ ), highlighting the importance of firms' entrepreneurial orientation in order to achieve higher levels of customer satisfaction and, therefore better levels of organizational performance. These results are corroborated by the literature which suggests that in order to improve performance, companies must be innovativeness and have a strong sense of entrepreneurship (Hult *et al.*, 2002). However, the relationship among these variables and the success is not as simples as look. According to the literature, among others, the size of the company influences its entrepreneurial orientation and, consequently, the performance and customer satisfaction (e.g. Núñez-Pomar *et al.*, 2016; Rauch *et al.*, 2009).

Even though, the results of this study show that NPD has a positive but not significant relationship with customer satisfaction ( $\beta=0,0197$ ;  $p>0.005$ ;  $t\text{-value}=1,871$ ), the literature defends the fact that NPD must be used to enhance the level of customer satisfaction and defends that this issue must be taken into account by companies (Jiang *et al.*, 2012). Although the major part of the literature suggests a positive relation among NPD and customer satisfaction, Piedras, Yacout and Savard (2006) propose that even if a company tries its best to satisfy the customer needs, there will be a point that fails to go beyond its capabilities and even with adjustments and improvements it may not reach the optimal solution to satisfy customer.

Fascinatingly, the findings of the current research propose that NPD and entrepreneurship play a full mediating role in the relationship among relational capital and customer satisfaction ( $\beta=0,101$ ;  $p<0.005$ ;  $t\text{-value}=3,121$ ) and also in the relationship between innovativeness and customer satisfaction ( $\beta=0,260$ ;  $p<0.001$ ;  $t\text{-value}=4,150$ ). Therefore, these findings suggest that NPD and entrepreneurship are responsible for a full mediation among relational capital, innovativeness and customer satisfaction. Thus, the results propose that businesses with

superior relational capital and higher levels of innovativeness have better levels of customer satisfaction, thereby better organizational performance, when the relationship is mediated by entrepreneurship and NPD.

These research results are aligned with the research of Chen *et al.* (2007) who defend that relational capital affects entrepreneurship that, in turn positively affects organisational performance. Moreover, the results are also aligned with the arguments of Hsu and Wang (2012) who stated that relational capital effect on customer satisfaction is partially mediated by dynamic capabilities. However, successful NPD does not spontaneously contribute to superior performance, companies must contemplate contingent conditions (Durand, Bruyaka & Mangematin, 2008; Sheng, Zhou & Lessassy. 2013).

Although most of the literature only mentions the direct effect of innovativeness on performance (e.g. Roach, Ryman, Jones & Ryman, 2018; Hult *et al.*, 2004; Keskin, 2006; Panayides, 2006; Thornhill, 2006), there are some other studies about the mediated effect of innovativeness on customer satisfaction and performance. Consequently, this research findings are consistent with the existing literature (e.g. Hult *et al.*, 2003). Even though, the results emphasise the possibility that relational capital and innovativeness rely more on NPD and entrepreneurship to extend the effects on customer satisfaction.

## **6. Conclusion**

### **6.1. Main conclusions**

Innovativeness, relational capital, as well as NPD and entrepreneurship have captured the attention from academics and also companies regarding practical applications. Even though, no relevant studies analysed the mediating role of NPD and entrepreneurship in the relationship among relational capital, innovativeness and customer satisfaction. This dissertation thereby tries to fulfil this research gap.

This dissertation was based on a group of Portuguese SMEs since this type of companies represent a crucial factor to the economic growth, not only in Portugal but also in EU in general. Thus, regarding the objectives proposed for this research, it can be said that all were accomplished. Grounded on the theoretical framework in analyse, this dissertation studied the relationship among all the variables in study, namely, relational capital, innovativeness, NPD, entrepreneurship and customer satisfaction.

In fact, with exception the relationship between NPD and customer satisfaction, all the studied relationships within the theoretical framework, were positive and significant. Furthermore, regarding the mediating role of NPD and entrepreneurship among relational capital, innovativeness and customer satisfaction, it is possible to conclude that innovativeness and relational capital have a mediated effect on customer satisfaction through NPD and entrepreneurship.

### **6.2. Theoretical implications**

This dissertation contributes to the literature since studied a group of important variables within a set of SMEs. In addition to the fact that SMEs represent 97% of all enterprises in the EU, these companies have a fundamental role in economic growth and job creation, not only in Portugal but also in the EU in general.

Empirical results suggest that relational capital positively and significantly affects NPD and entrepreneurship; innovativeness positively and significantly affects NPD and entrepreneurship; and finally, entrepreneurship positively and significantly affects customer

satisfaction. NPD, even with a positive association with customer satisfaction, the significance was not proven.

Moreover, this research debates the mediating role of NPD and entrepreneurship in the relationship among relational capital, innovativeness and customer satisfaction. The results propose a mediated effect of relational capital on customer satisfaction, as well as a mediated effect of innovativeness on customer satisfaction through NPD and entrepreneurship. Thus, NPD and entrepreneurship jointly contribute to the mediating effect within those relationships.

### **6.3. Managerial implications**

Since all the relationships present a positive and significant effect (except for the relationship among NPD and customer satisfaction), managers who want to improve customer satisfaction and company's performance, should do some efforts in order to improve company's relational capital, innovativeness, as well as NPD and entrepreneurship. As a matter of fact, companies which already invest in NPD and are keen on entrepreneurial orientation must enhance their relational capital and innovation capacity in order to boost the effects of those variables on customer satisfaction.

### **6.4. Future research**

Future research may try to include other antecedents and mediators in addition to those tested on this model, in order to increase the understanding about how customer satisfaction can be enhanced and provide more insights regarding customer satisfaction and also organizational performance. Finally, future research may be done in different countries, in specific groups of companies according to the commercial branch and bigger samples may be used.

### **6.5. Limitations of the study**

The main limitation of this dissertation it was the sample size. A larger sample would have contributed to a greater certainty in results generalization. Furthermore, the different type of industries existing in the samples could lead to a divergent interpretation of the questionnaire items thereby, leading to different interpretations and answers.

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## 8. Appendixes

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***Appendix A: List of items used to evaluate Relational Capital (Kale et al., 2000: 21)***

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1. There is close, personal interaction between the partners at multiple levels
  2. The alliance is characterized by mutual respect between the partners at multiple levels
  3. The alliance is characterized by mutual trust between the partners at multiple levels
  4. The alliance is characterized by personal friendship between the partners at multiple levels
  5. The alliance is characterized by high reciprocity among the partners
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***Appendix B: List of questions used to measure Innovativeness (Hult et al., 2003: 422)***

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1. Technical innovation, based on research results, is readily accepted in our organization
  2. We actively seek innovative product and service ideas
  3. Innovation is readily accepted in program/project management
  4. People are not penalized for new ideas that do not work
  5. Innovation in our organization is encouraged
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***Appendix C: List of questions used to assess NPD (Kusunoki et al., 2016: 707)***

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1. Development cost
  2. Efficiency of development investment
  3. Lead time
  4. Easiness of transfer to the production stage
  5. Precedence of commercialization
  6. Product cost
  7. Improvement in product functionality/quality
  8. Improvement in elements of product technologies
  9. Major innovation in product technologies
  10. Major innovation in product as a whole
  11. Creation of new
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***Appendix D: List of items used to measure entrepreneurship (Hult et al., 2003: 422)***

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1. We initiate actions to which other organizations respond
  2. We are fast to introduce new products and services to the marketplace
  3. We have a strong proclivity for high-risk projects
  4. We are bold in our efforts to maximize the probability of exploiting opportunities
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***Appendix E: List of items used to evaluate customer satisfaction (Vorhies & Morgan, 2005: 92)***

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1. Customer satisfaction
  2. Delivering value to your customers
  3. Delivering what your customers want
  4. Retaining valued customers
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