

Startups and innovation challenges – Does the use of Social Media impact the New Product Development process in Startups?

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Dissertation written under the supervision of Professor Boris Durisin

Dissertation submitted in partial fulfilment of requirements for the MSc in International Management, at Universidade Católica Portuguesa and for the MSc in International Management at ESCP Business School.

Abstract

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This thesis investigates the impact of social media usage on the new product development process in Portuguese startups. The study aims to fill the gap in research on how social media usage impacts the different stages of the new product development process in startups. The research objectives are twofold: to assess the innovation intentions of Portuguese startups over the next 12 months and understand the extent to which they plan to engage in new product development, and to investigate the impact of social media usage on the new product development process in these startups. The study employs a quantitative research design, collecting data from a sample of 76 Portuguese startups using a self-administered survey. The results indicate that external knowledge acquisition is more prevalent than internal knowledge generation, and startups in Portugal are increasingly using social media as a tool for product development. The findings also suggest that social media usage is an important factor that can positively impact the level of innovation in a company. Overall, the study provides valuable insights into how startups can use social media effectively to develop and launch new products and contributes to a better understanding of the role of social media in the Portuguese startup ecosystem. The recommendations provided can inform startup managers, policymakers, and researchers and serve as a foundation for further research in this field.

Keywords: Social Media, Innovation, New Product Development, Startups

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Résumé

Startups and innovation challenges – Does the use of Social Media impact the New Product Development process in Startups?

Cette thèse examine l'impact de l'utilisation des médias sociaux sur le processus de développement de nouveaux produits dans les start-ups portugaises. L'étude vise à combler le fossé dans la recherche sur la façon dont l'utilisation des médias sociaux affecte les différentes étapes du processus de développement de nouveaux produits dans les start-ups. Les objectifs de recherche sont doubles : évaluer les intentions d'innovation des start-ups portugaises au cours des 12 prochains mois et comprendre dans quelle mesure elles prévoient de s'engager dans le développement de nouveaux produits, et étudier l'impact de l'utilisation des médias sociaux sur le processus de développement de nouveaux produits dans ces start-ups. L'étude utilise une conception de recherche quantitative, collectant des données auprès d'un échantillon de 135 start-ups portugaises à l'aide d'une enquête auto-administrée. Les résultats indiquent que l'acquisition de connaissances externes est plus répandue que la génération de connaissances internes et que les start-ups au Portugal utilisent de plus en plus les médias sociaux comme outil de développement de produits. Les résultats suggèrent également que l'utilisation des médias sociaux est un facteur important qui peut avoir un impact positif sur le niveau d'innovation dans une entreprise. Dans l'ensemble, l'étude fournit des informations précieuses sur la manière dont les start-ups peuvent utiliser les médias sociaux de manière efficace pour développer et lancer de nouveaux produits et contribue à une meilleure compréhension du rôle des médias sociaux dans l'écosystème de start-ups portugaises. Les recommandations fournies peuvent informer les gestionnaires de start-ups, les décideurs politiques et les chercheurs et servir de base pour des recherches ultérieures dans ce domaine.

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Abstrato

Startups and innovation challenges – Does the use of Social Media impact the New Product Development process in Startups?

Esta tese investiga o impacto da utilização de redes sociais no processo de desenvolvimento de novos produtos em startups portuguesas. O estudo visa preencher a lacuna existente na pesquisa da forma como a utilização de redes sociais impacta as diferentes fases do processo de desenvolvimento de novos produtos em startups. Os objetivos da pesquisa são duplos: avaliar as intenções de inovação das startups portuguesas nos próximos 12 meses e entender até que ponto as mesmas irão desempenhar atividades de desenvolvimento de novos produtos, enquanto investiga o impacto da utilização de redes sociais no processo de desenvolvimento de novos produtos nessas startups. O estudo utiliza um desenho de pesquisa quantitativa, agregou dados de uma amostra de 76 startups portuguesas usando um questionário autoadministrado. Os resultados indicam que a aquisição de conhecimento externo é mais prevalente do que a geração de conhecimento interno, e que as startups em Portugal estão a utilizar cada vez mais as redes sociais como ferramenta para o desenvolvimento de produtos. Os resultados também sugerem que a utilização de redes sociais é um fator importante que pode impactar positivamente o nível de inovação de uma empresa. No geral, o estudo fornece informações valiosas sobre como as startups podem usar as redes sociais de forma eficaz para desenvolver e lançar novos produtos e contribui para uma melhor compreensão do papel das redes sociais no ecossistema de startups português. As recomendações fornecidas podem informar os gestores de startups, os membros políticos e os investigadores servindo como base para pesquisas futuras nesse campo.

Palavras-chave: Social Media, Innovation, New Product Development, Startups

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Acknowledgements

I want to thank my supervisor, Professor Boris Durisin for the opportunity, support, and enlightening criticism over the course of my study. His advice and support were helpful in developing this thesis. Furthermore, I would like to thank Professor Cláudia Marante Dias with whom I have learnt tremendously throughout this process.

Additionally, I would want to express my gratitude to all the companies who agreed to take part in the study and took the time to complete the survey after receiving my request. This study would not have been feasible without their participation and openness to share their experiences.

My sincere gratitude is extended to my parents, my sisters, grandparents, and my family in general, who have been a steadfast source of encouragement, love, and commitment throughout my life. My accomplishments have always been propelled by their everlasting faith in me, and I will always be appreciative of their support and sympathy.

Last but not least, I want to thank my friends, who have always been a source of encouragement, drive, and support. They have helped me overcome difficulties and problems and have made my academic path a far more satisfying one thanks to their consistent support and encouragement.

Table of Contents

1) Introduction	8
1.1) Problem Definition and Relevance	8
1.2) Objectives	8
2) Literature Review	10
2.1) Social Media	10
2.2) Innovation	12
2.3) Social Media and Innovation	14
2.4) The role of social media for start-ups.....	15
2.4.1) The three main phases of the New Product Development process	16
2.5) Problem Statement and Hypothesis	18
3) Research Methodology	23
3.1) Sample	23
3.2) Results.....	24
3.3) Variables and Measures	25
4) Analyses and Discussion	30
4.1) Relation between Funding Stage/Company Size/Founding Year	30
4.2) Startups' usage of Social Media Platforms	31
4.3) The connection between the prevalence of a Social Media type and the respective Innovation Stage	33
4.3.1) Ideation Phase and the usage of Company-Built Social Media.....	33
4.3.2) Development Phase and the usage of Company Licensed Social Media	34
4.3.3) Launch Phase and the usage of Public Social Media.....	36
4.4) The impact of Social Media usage on the New Product Development process.....	37
5) Discussion of the results	41
5.1) Discussion in light of prior research	41
5.2) Limitations.....	42
6) Conclusions	44
6.1) Implications for managerial practice	45
6.2) Future Research.....	46
7) Bibliography	48
8) Appendix	52
9.1) A - Sample	52
9.2) B – Variables and Measures.....	53
9.3) C – H1 - Startups' usage of Social Media Platforms	54
9.4) D - H2a - Ideation Phase and the usage of Company-Built Social Media	55

9.5) E – H2b - Development Phase and the usage of Company Licensed Social Media	56
9.6) F – H2c - Launch Phase and the usage of Public Social Media.....	57
9.7) G – H3 - The impact of Social Media usage on the New Product Development process.....	58

Table of Figures

Figure 1 - Classification of Social Media (Kaplan & Haenlein, 2010).....	10
Figure 2 - Honeycomb of Social Media (Kietzmann et al., 2011).....	11
Figure 3 - Proposed theoretical framework between Innovation Stages and Social Media types	19
Figure 4 - Set of sentences to measure Innovation, External Knowledge Acquisition, and Internal Knowledge Generation.....	27
Figure 5 - Set of Social Media Platforms.....	29
Figure 6 - Descriptive statistics on Founding Year.....	52
Figure 7 - Descriptive statistics on Number of Employees.....	52
Figure 8 - Descriptive statistics on Funding Stage.....	52
Figure 9 - Descriptive statistics on Products/Services launched.....	53
Figure 10 - Descriptive statistics on Startup's sector	53
Figure 11 - Cronbach's Reliability Alpha	53
Figure 12 - Descriptive statistics on usage of Social Media in the three new product development stages.....	54
Figure 13 - Correlation Matrix between the three new product development stages and control variables	54
Figure 14 - Distribution of Social Media usage in the Ideation stage.....	55
Figure 15 - Number of Social Media platforms used in the Ideation stage	55
Figure 16 - Distribution of Social Media usage in the Development stage	56
Figure 17 - Number of Social Media platforms used in the Development stage	56
Figure 18 - Distribution of Social Media usage in the Launch stage.....	57
Figure 19 - Number of Social Media platforms used in the Launch stage	57

1) Introduction

1.1) Problem Definition and Relevance

In today's fast-paced business environment, innovation is a key driver of success for startups. The ability to develop and bring new products to market quickly and efficiently can mean the difference between success and failure in highly competitive markets (Madhavan Ramanujam & Georg Tacke, 2016). Social media has emerged as a powerful tool for businesses to reach out to their customers, build brand awareness, and gather feedback on their products (Boyd & Ellison, 2007). However, despite the potential benefits of social media for new product development, there is a lack of research on how social media usage impacts the different stages of the new product development process in startups.

This study aims to fill this gap by investigating the impact of social media usage on the new product development process in Portuguese startups. By exploring how social media can be leveraged to improve each stage of the new product development process, this study seeks to provide insights into how startups can use social media effectively to develop and launch new products.

The importance of startups for the economy is growing rapidly, and innovation is key to their success (Roberts et al., 2016). Therefore, understanding the factors that influence innovation and new product development is essential for startups to remain competitive in today's dynamic business environment. By investigating this relationship, this study aims to provide valuable insights into how startups can use social media to drive innovation and new product development. Furthermore, given Portugal's reputation as an innovation hub (Caroline Hyde, 2015), this study will contribute to a better understanding of the role of social media in the Portuguese startup ecosystem. The findings of this study can be used to inform startup managers, policymakers, and researchers, and can serve as a foundation for further research in this field.

1.2) Objectives

The objectives of this master thesis are twofold. First, to assess the innovation intentions of Portuguese startups over the next 12 months and understand the extent to which they plan to engage in new product development. Second, to investigate the impact of social media usage on the new product development process in these startups by analyzing the patterns between

the three different stages of NPD (Ideation, Development, and Launch) and the three types of social media usage (Company-built, Company-licensed, and Public).

Specifically, the research aims to identify whether social media usage has a significant impact on the likelihood of startups engaging in new product development and the degree of success achieved at each stage of the NPD process. Additionally, the study seeks to understand how different types of social media usage affect the NPD process, and whether there are any significant differences in the outcomes achieved by startups using different types of social media.

This master thesis begins with a comprehensive literature review to explore prior research on the impact of social media usage in the new product development process. It then proceeds to an empirical study focused on Portuguese startups, examining their innovation intentions, and analyzing the relationship between social media usage and the three stages of new product development. The study employs appropriate research methods and statistical analyses to uncover patterns and significance. The subsequent analysis of the results integrates the empirical findings with existing literature, highlighting implications for theory and practice. Managerial implications are derived to guide startup managers in leveraging social media effectively. The thesis acknowledges limitations, including the focus on Portuguese startups and the challenges in measuring innovation, while indicating avenues for future research.

Overall, this study seeks to provide insights into the role of social media in promoting innovation and new product development in Portuguese startups. The results of this research will not only enhance our understanding of the factors that drive NPD in the startup ecosystem but also provide practical recommendations for startups looking to leverage social media to foster innovation and growth in this dynamic sector.

2) Literature Review

2.1) Social Media

Since their inception, Social Network Sites, also commonly referred to as social media platforms, have garnered billions of users worldwide and have significantly impacted their daily lives (Boyd & Ellison, 2007). These platforms facilitate interaction among participants, allowing them to maintain existing social ties and form new connections, both with people they already know offline and with those they meet online (Ellison et al., 2007). The first iteration of a Social Network Site was launched in 1997 on the internet domain of Six Degrees.com (Boyd & Ellison, 2007), and since then, the number of platforms has grown exponentially.

Per definition, social media can be classified differently dependent on the author and the direction of the investigation in place. It is the “group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content”, that can then be divided into six other categories present in Figure 1, Collaborative Projects, Blogs, Content Communities, Social Networking Sites, Virtual Game Worlds and Virtual Social Worlds. (Kaplan & Haenlein, 2010).

		Social presence/ Media richness		
		Low	Medium	High
Self-presentation/ Self-disclosure	High	Blogs	Social networking sites (e.g., Facebook)	Virtual social worlds (e.g., Second Life)
	Low	Collaborative projects (e.g., Wikipedia)	Content communities (e.g., YouTube)	Virtual game worlds (e.g., World of Warcraft)

Figure 1 - Classification of Social Media (Kaplan & Haenlein, 2010)

Others have idealized a framework comprised of seven core blocks that show how differently social media channels can be, while showcasing the interactions between them as portrayed in Figure 2. These are “identity, conversations, sharing, presence, relationships, reputation, and groups” (Kietzmann et al., 2011).

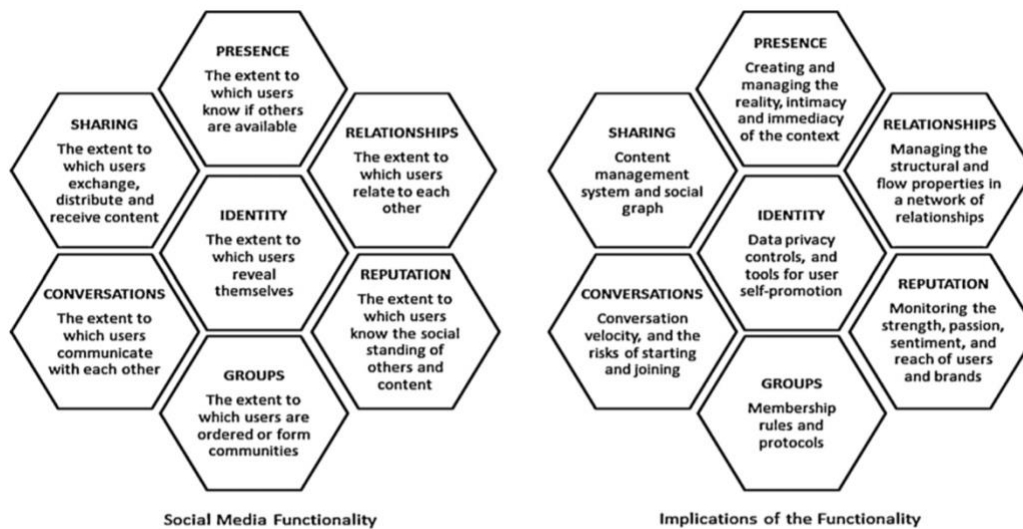


Figure 2 - Honeycomb of Social Media (Kietzmann et al., 2011)

To consider any content as UGC (User Generated Content) there is a set of three requirements that must be checked. First, the given content must be made available on a website that is accessible to the public it is aimed at, meaning that any direct messaging or email content is not included. Second, it should not be a copy of an existing piece of content or a replication, but instead display creativity. Finally, it excludes any commercial content and demands that it has been created outside of the professional dimension. (Kaplan & Haenlein, 2010)

Most recently, and for the purpose of this paper, social media has been categorized in four different clusters that start with the so-called “Public SM”, leveraged by companies to interact with the end user and customer, used with the purpose of creating spaces where all parts can engage in discussions and product feedback extraction for further improvements, and include channels like “Facebook, Twitter, YouTube, LinkedIn, etc”. Moving on to “Company-built SM”, platforms that have been developed by the organizations themselves, and that stimulate the interactions within the company “(IBM Beehive)”and externally “(My Starbucks Idea, Amex Open Forum, P&G Connect and Develop and Lego Ideas)”, leveraging on all stakeholder’s opinions and ideas for new product developments. Often, these online communities are formed through the introduction of challenges and interactive games. Thirdly, we are faced with “Company-licensed SM”, SM solutions that provide easier means of communication and collaboration within a firm. Usually, they are developed by external service firms and have features such as, video sharing, content aggregator, project libraries, and other collaborative tools. “(IdeasProject, MS 365 Yammer, etc.)”. Lastly, we have “Innovation intermediary SM”, a category that helps organizations to develop the referred ideation contests, performed both in the company or outside with other stakeholders.” (Innocentive, Get

Satisfaction, etc.)” (Bhimani et al., 2019).

The last decade has seen an increase in popularity over social media, turning it from a personal use tool to being adopted by the business and commercial sector, in private and governmental institutions (Lam et al., 2016; Ngai et al., 2015).

While a vast majority of business executives today deal regularly with social media, trying to uncover the most profitable ways of leveraging it, there are still a great number of companies lacking the know-how and confidence to manage a world where all stakeholders can freely express their opinions (Kaplan & Haenlein, 2010). The advantages of using social media platforms as a source of competitive advantage are being recognized and acknowledged more frequently. Particularly startups and SMEs have used these platforms more and more to cut costs in their sales and marketing. The social media platforms, however, have also been embraced by big businesses as a crucial tool to support their marketing and sales operations (Shahat Basri & A Siam, 2018).

Whereas before, firms controlled all the information concerning them, with a strategic approach, by only communicating and reacting through press conferences and press releases, now they act as mere observers, while the customers and the public in general can use the social media channels as tools to disseminate their opinions (Kaplan & Haenlein, 2010).

2.2) Innovation

Innovation can be viewed as a key strategy for both new and established businesses to gain and keep a competitive advantage (Xiao et al., 2022). It is a crucial driver of growth, competitiveness, and long-term sustainability for organizations (Ethiraj & Levinthal, 2004). As such, extensive research has been conducted to understand the factors that enable or hinder innovation (Baker et al., 2005). Scholars have explored various theoretical perspectives, including resource-based (Arend et al., 2014), dynamic capabilities (Eisenhardt & Martin, 2000), and knowledge-based perspectives (Grant, 1996), to identify the key drivers of innovation in different contexts.

Resource-based theory suggests that organizations can gain a competitive advantage by leveraging their unique resources and capabilities to create value for their customers (Anderson & Tushman, 1934). Dynamic capabilities theory emphasizes the importance of an organization's ability to adapt and respond to changing market conditions and customer needs (Eisenhardt & Martin, 2000). Knowledge-based perspectives highlight the role of knowledge

creation, transfer, and application in fostering innovation within organizations (Grant, 1996).

Despite the vast literature on innovation, the impact of certain tools on innovation outcomes remains unknown (Eisenhardt & Martin, 2000). While companies are increasingly aware of the benefits of innovation, they may not have a clear understanding of which tools or strategies are most effective for fostering innovation within their specific contexts.

Innovation as a concept can be viewed as the process that englobes three different stages, being the Ideation, where a concept is created, the Development and finally the Launch and implementation (Barlatier & Mention, 2020). Even though this process can be accompanied by many struggles, assuring technical advantage, budget compliance and a customer needs meet, the launch of new products or services can be the winning move for any company, strategically speaking (Tzokas et al., 2004).

While it is crucial for most companies, it is the ability and right infrastructure to sustain it across time that presents tremendous value. To do so, managers must engage and stimulate Corporate Entrepreneurship, the process happening in any sized firm that will lead to “New Product Developments, services, technologies, administrative techniques, competitive strategies, and even new business models”, within the organization (Antoncic & Hisrich, 2001; Kuratko & Audretsch, 2013). Numerous scholars have extensively studied the various drivers of innovation and their corresponding significance. (Franco & Landini, 2022)

The breakthrough of the digital economy has been quite closely connected with the increase in popularity of other digital innovation approaches such as open innovation, having crowdsourcing, crowdfunding and co-creation as examples (Dahlander et al., 2021), through a continuous and strategic process of interaction with the stakeholders, who consume the products and engage in a collaboration effort producing valuable feedback (Adner & Kapoor, 2010; Loebbecke & Picot, 2015; Suseno et al., 2018), that in our environment represents a source of competitive advantage (Bertschek & Kesler, 2022).

Bringing back the important concept of Open Innovation, “the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and to expand the markets for external use of innovation, respectively” (Chesbrough, 2003), it is the innovation process in which managers change the focus of the company, in the search for information, to the outside, it has traditionally been done via collaborative activities and alliances with traditional methods, whereas now it is based on digital systems, ranging from “online innovation toolkits, online open innovation communities, or online crowdsourcing platforms” (Dahlander et al., 2021; Huizingh, 2011; Patroni et al., 2022).

2.3) Social Media and Innovation

While the different approaches to define social media and Innovation have been covered before, the real power of both lies in the way managers are able to leverage the former to excel on the latter (Marion et al., 2014). By using social media, organizations can establish a two-way communication channel, pushing information to the customers and external stakeholders in general, but also extracting feedback at the same time. This will ultimately contribute to the knowledge level and flow of the company (Muninger et al., 2022; Testa et al., 2020).

Historically, collecting enough data for innovation has been a time-consuming process linked with traditional human-dependent methodologies (Rocha et al., 2022). However, with the advent of data intelligence and analysis, and provided that managers have built their teams around the competencies needed, it is now a more effective task, supported by social media, and offering updates on the most recent trends, competitor's information, and even initial-stage feedback, all at a cheaper rate (Roberts & Piller, 2016).

As noted above, firms have so far realized the potential of these tools, either for collaborative tasks, creating connections with external stakeholders where they did not exist and fostering collaborative knowledge sharing. The overall set of benefits will then positively impact Corporate Entrepreneurship and the firm's performance overall (Martín-Rojas et al., 2020). Social media has a track record of generating results in a variety of areas, including brand recognition, content distribution, community engagement, lead creation, and customer acquisition (Shahat Basri & A Siam, 2018).

At the same time, social media platforms have been developing tools directed towards innovators and managers, turning them into a repository of feedback, reports, ideas, and even sentiments and perceptions of different brands (Roberts & Piller, 2016).

Although, many scholars and business consultants have realized the importance of SM as a resource when it comes to innovate and support the New Product Development process, many companies still do not know how to work with these tools to collect the valuable insights, that will later serve as input for product launches (Kaplan & Haenlein, 2010). The main reasons why this tends to happen are due to the lack of proper HRM practices (Corral de Zubielqui et al., 2019), a strategy with well-defined goals to be achieved, as well as, being faced with a plethora of inputs that they were not used to receive. Even though the use of SM to NPD can be of utmost importance, managers noted that without a vision of the goals to achieve and the right skill set, the potential rewards end up not being attained. A study conducted with European

companies realized that the drastic increase of input sources could lead to “infoglut”, a phenomenon characterized by the loss of focus from the managers regarding which opinions and feedback to consider and which not to. Furthermore, the fact that internal resources are also being made available represents a weakness point for the organization with potential confidentiality or core competencies leaks happening (Barlatier & Mention, 2020; Roberts & Piller, 2016).

We can then assume that social media is viewed as an informal source for gaining an understanding of customers' preferences, competitors' activities, market trends and product feedback (Bashir et al., 2017).

In conclusion, social media has been positively associated with innovation, as it serves as an enabler and driver of external communities, boosting the New Product Development process (Inkinen et al., 2015). Moreover, as these platforms invite users to participate, presenting low barriers for their entry, social media might be of high importance and utility for smaller organizations, typically with less resources (Bertschek & Kesler, 2022).

2.4) The role of social media for start-ups

Characterized by financial and knowledge constraints (Hsieh & Wu, 2019), startups can, theoretically, leverage and profit from the use of social media in their innovation processes (Drummond et al., 2018), given that these are usually platforms with low entry barriers, that can be introduced and mastered with relative easiness by the founding teams (Corral de Zubielqui & Jones, 2020), and represent a lower cost for the new venture (Kuhn et al., 2016). Startups, which often have fewer financial resources and less brand recognition compared to more established firms, can potentially derive significant benefits from leveraging social media platforms. However, despite the potential advantages, a limited number of companies are able to fully harness the potential of social media (Shahat Basri & A Siam, 2018). In most of the cases, these founding teams have strong personal networks through which they try to overcome the challenges that the start-up faces during the innovation and New Product Development process (Zhao et al., 2015). These digital platforms also allow for a smooth information collection from all participants (H. Li et al., 2022).

While major evidence has been collected regarding the impact, influence, and power of the interaction between social media and different Innovation Processes, both for Large established companies (Dell Computers (Gangi et al., 2010), Barilla (Martini et al., 2013),

Starbucks (Muninger et al., 2019)), Retailers (Patroni et al., 2022), and Small and Medium Enterprises (Papa et al., 2018), the few empirical research concerning startups has not focused on the interaction between the different social media types and Innovation types as we have hypothesized before but instead, under what environmental conditions does social media influence innovation in the start-up context using a moderated mediation model (Corral de Zubielqui & Jones, 2020).

2.4.1) The three main phases of the New Product Development process

As it has been proven by Mount & Garcia Martinez (n.d.), social media is an essential promotor of Open Innovation, a more efficient way of seeking knowledge in the external environment. (Scuotto et al., 2017) It was then conceptualized that the impacts could happen on the R&D and Ideation phase, by encouraging interactions with external stakeholders, on the product Development phase, while iterating continuously, and Launch phase, with the creation of brand awareness and the construction of an advertisement campaign (Ram & Liu, 2018).

While the usage of social media keeps expanding, new groups are appearing, the “online user innovation communities (OUICs)”, where stakeholders take part into all stages of innovation, on the firm-sponsored contests. (Ogink & Dong, 2019)

Ideation phase

The generation of product concepts, which is the first step in the new product development process, can be particularly daunting due to the absence of established guidelines or a defined path to follow, especially in the context of startup companies (Martínez-Lobatón & Seclen-Luna, 2023). As a result, this step can often pose significant challenges to organizations attempting to develop innovative products (Y. Li et al., 2022). Nevertheless it is an essential first step to guarantee a successful product conception, given that less than 25% of the new product ideas meet the market needs (Ma & Jin, 2019).

Firms are becoming more receptive towards the use of social media in the idea generation process, seeing it as a strategic tool (Füller & Matzler, 2007). The applicability of the social media can be directly towards the ideation phase, either through idea generation contests (Bertschek & Kesler, 2022), involvement of a specific target of end-users with an identified market need (Mount & Garcia Martinez, 2014), or even through more complex techniques such as Netnography with the example of Nivea understanding that their customers were looking for a non-stain deodorant. This culminated in the launch of their most successful

product, Nivea Black&White (Muninger et al., 2019).

These tools allow firms to have access to a pool of updated information, across different channels, concerning specific needs that have not been met by the competitors or technological solutions to existing problems, both benefiting the innovation process in general and the ideation phase (Parveen et al., 2016; Roberts et al., 2016).

It is also extremely valuable that the network effects of social media provide a given company with access to ideas from people with a diverse set of backgrounds and expertise (Mount & Garcia Martinez, 2014).

Development phase

This middle stage of the NPD Process is a combination of an array of sub steps ranging from the Concept Development and Testing and finishing with the actual product development (Tzokas et al., 2004).

The participation of external stakeholders on co-creation activities is also one of the great advantages that social media has brought to the table, benefiting the development phase, and cutting down this phase's time by allowing for real-time information (Roberts et al., 2016).

Value is also found on the improvement that firms can make to their processes through the knowledge collected on social media. (Papa et al., 2018), either by understanding what customers' preferences are or what they think about the competitors' offerings (Ram & Liu, 2018).

Finally, the way products are now designed have completely changed when we compare to the traditional approach, sustained by the idea that incorporating the users' input will most likely lead to a better design (Bashir et al., 2017).

Launch phase

Social Media has been found to boost firm performance over competencies spanning from marketing to sales (Culnan et al., 2010).

One study found that the co-creation process between organizations and their customers can lead to more innovative products that will be better suited to meet their demands and likings. On markets characterized by higher than ever customer expectations, launching new products into crowded markets carries exponential risk. That is why managers are putting more efforts on introducing them in a compelling way, using social media as a tool (Roberts & Piller, 2016).

Indeed, social media is a cheaper substitute to the traditional advertising tools, like "printing flyers, posters and adverts", benefiting from a real-time global coverage (Mention et

al., 2019).

Ultimately, fostering interaction with the stakeholders present on social media will make them more satisfied and empowered, as they are being heard and involved on the development process (Ram & Liu, 2018).

We will first look at the current habits of startups regarding the use of social media.

2.5) Problem Statement and Hypothesis

Research Question

Based on the extensive body of research exploring the concepts of social media and Innovation, and their various applications and conceptualizations, the primary objective of this paper is to examine the intersection of these two elements. Specifically, the focus will be on startups, where innovation and new product development are critical components for driving growth and maintaining a competitive edge in established markets. The analysis will center on the Portuguese startup ecosystem, which has emerged as a prominent innovation hub in Europe, attracting a significant number of ventures annually.

Therefore, the following is the main research issue that this study will attempt to answer:

Does the use of Social Media impact the New Product Development process in Startups?

The whole purpose of this paper lies on the assumption that startups have already introduced the use of social media in their NPD process. Even though the degree to which social media tools have penetrated in the corporate world in Portugal might differ immensely depending on the size and the maturity of the ventures, it is interesting to better understand how this applies in reality and to validate this question before proceeding with more in-depth studies of its impact. To verify this, our first hypothesis of the study is, therefore:

H1: Startups are currently using Social Media in their New Product Development Process

Following the knowledge acquired with the literature review, we also want to investigate the best fit connection between the three main Innovation Stages and the

correspondent social media categories looking to extract the most benefit in an Open Innovation approach (Figure 3).

Innovation Stage	Ideation	Development	Launch
Social Media Type	Company-Built	Company-Licensed	Public

Figure 3 - Proposed theoretical framework between Innovation Stages and Social Media types

The theoretical rationale behind hypothesis H2 is rooted in the understanding that different social media types align with the distinct requirements and objectives of each innovation stage. By considering the unique affordances and functionalities of each social media type, startups can strategically leverage social media platforms to enhance their innovation efforts and achieve greater success in the new product development process. This is supported by (Ram & Liu, 2018) that states that there is a specific importance of Social Media features for different innovation stages.

H2: There is a relation between the predominance of a Social Media Type and the respective Innovation Stage

The goal here is to assess whether there is indeed a relation and how strong it is, for the three phases of the NPD Process. This study will not only be looking into the different adoption throughout the phases but also taking some conclusions regarding which platforms have proven to be more used and efficient for each of the phases. Moreover, it is also interested in proving that the link exists and is beneficial for the ventures (Papa et al., 2018).

Previous research has highlighted the notion that different social media types serve distinct purposes and offer unique features that align with specific stages of the innovation process. For instance, company-built social media platforms are often designed to facilitate internal collaboration, idea generation, and knowledge sharing within the organization. This aligns with the early ideation stage where the focus is on generating and refining novel ideas. Therefore, it can be hypothesized that startups are more likely to utilize company-built social media during the ideation phase to leverage internal resources and foster creative thinking.

H2a: In the Ideation Phase startups are more likely to use Company-Built Social Media

Several conceptual and theoretical perspectives provide support for the hypothesis that startups are more inclined to utilize company-built social media platforms during the Ideation Phase. Resource Dependence Theory emphasizes the startups' reliance on internal resources for idea generation, making these platforms an attractive choice for leveraging their knowledge and expertise. Social Interaction Theory underscores the significance of collaboration and real-time communication during the ideation process, which can be facilitated effectively through dedicated company-built platforms. Additionally, Innovation Adoption Theory highlights the startups' need to safeguard their intellectual property, rendering the secure and controlled environment of company-built platforms particularly appealing. Moreover, Technological Affordances Theory suggests that the customizable features offered by these platforms align with the unique innovation requirements of startups. Collectively, these conceptual and theoretical arguments provide a cohesive rationale for the hypothesis that startups are more inclined to favor the use of company-built social media platforms during the Ideation Phase of their new product development endeavors.

Secondly, the literature emphasizes the importance of external collaboration and knowledge acquisition during the development stage of innovation. Company-licensed social media platforms, which provide access to external networks, industry experts, and potential partners, are perceived as valuable tools for sourcing external knowledge, feedback, and resources. Consequently, it can be hypothesized that startups are more likely to utilize company-licensed social media during the development stage to tap into external expertise and enhance their product development process.

H2b: In the Development Phase startups are more likely to use Company-Licensed Social Media

The hypothesis that startups are more inclined to use Company-Licensed Social Media platforms during the Development Phase is supported by various conceptual and theoretical arguments. Resource Dependence Theory highlights the startups' reliance on external resources and expertise during this phase, which can be facilitated through licensing agreements.

Technology Acceptance Model suggests that startups are more likely to adopt user-friendly technologies that offer specific functionalities for the development process. Network Theory emphasizes the importance of networking and collaboration, which can be facilitated by company-licensed platforms. Institutional Theory suggests that startups may adopt these platforms to conform to industry norms and gain legitimacy. These conceptual and theoretical perspectives provide a solid basis for understanding why startups are more likely to use company-licensed social media during the Development Phase.

Lastly, during the launch stage, startups aim to create awareness, generate buzz, and reach a wider audience. Public social media platforms, with their extensive user base and broad reach, offer an ideal platform for startups to promote their newly developed products and engage with potential customers. Hence, it can be hypothesized that startups are more likely to utilize public social media during the launch stage to increase product visibility, attract customers, and facilitate market entry.

H2c: In the Launch Phase startups are more likely to use Public Social Media

The hypothesis that startups are more inclined to use public social media platforms during the Launch Phase is supported by several conceptual and theoretical arguments.

Firstly, according to Diffusion of Innovation theory, startups seek to create awareness and attract a wider audience during the launch phase. Public social media platforms offer broad user bases and extensive reach, allowing startups to promote their products to a larger audience and generate interest.

Secondly, Social Capital theory suggests that startups can benefit from leveraging their social networks during the launch phase. Public social media platforms provide opportunities for startups to engage with potential customers, influencers, and industry experts, facilitating the expansion of social networks crucial for gaining market traction and word-of-mouth promotion.

Furthermore, the Social Influence theory posits that individuals are influenced by the actions of others. Public social media platforms allow startups to showcase social proof, testimonials, and user-generated content, which can positively influence potential customers' perceptions and encourage adoption during the launch phase.

Additionally, the Reach and Exposure perspective emphasizes startups' desire to

maximize visibility and market penetration during the launch phase. Public social media platforms, with their large user bases and sharing capabilities, enable startups to amplify their brand messages, product features, and launch announcements to a wide range of users, leading to increased brand recognition and market reach.

In summary, these conceptual and theoretical arguments support the hypothesis that startups are more likely to utilize public social media platforms during the Launch Phase. The broad reach, social capital benefits, social influence, and increased exposure offered by public social media align with the objectives and strategies typically associated with the launch phase of startups.

Finally, I will be looking at the impact that using social media might have on the New Product Development Process of a start-up. Based on (McKelvie et al., 2018) it will also be used a set of four sentences, measured on a 5-point scale ranging from “no new products or services” to “very many new products or services,” based on the coming 12 months, intending to measure Innovation.

H3: There is a relation between use of Social Media and New Product Development Process

With this third hypothesis the main goal is to understand the individual and group impact while measuring which phase can benefit the most through the usage of these social media platforms. The goal is to provide with a more complete overview of its power on the NPD and to infer on any suggestions that could be passed onto to the ventures in Portugal, aiming at increasing their chances of achieving a stronger competitive advantage over those players who choose not to use these tools.

3) Research Methodology

3.1) Sample

In order to support the findings of this paper, a robust methodology was employed to gather data from a range of start-up companies. The data collection process comprised of two distinct stages, which were designed to obtain a comprehensive understanding of the role of social media and the new product development process in startups.

In the first stage, three in-depth interviews were conducted with managers of startups. The interviews aimed to explore the managers' perceptions and attitudes towards the usage of social media and the new product development process. The discussions were looking at gaining an in-depth understanding of the factors influencing these aspects of the start-up's operations and the interviews were later analyzed to identify key themes and insights.

Following the interviews, an online survey was distributed across Portugal, which is a highly active country in Europe for innovation. The survey aimed to obtain a broader view of the role of social media and the new product development process in startups operating in different contexts. The survey questions were designed to identify patterns and trends in startups' social media usage, their approach to new product development, and their awareness of the significance of these aspects of their business.

Overall, the data collection process employed in this study was designed to provide a robust and diverse range of perspectives on the role of social media and new product development in startups.

The process of selecting a pool of possible startups for the survey involved several steps to ensure a representative and appropriate sample. Firstly, I used a search query in Crunchbase, which is a widely used database of startups and other companies.

The referred query was based on the selection of startups with an active operating status, headquarters located in Portugal, that had already gone through a funding round, either Seed, Early stage, Late Stage (considered and Venture Capital in this paper) or Private Equity. Finally, only ventures with less than 1000 employees were considered on this initial selecting process.

This query was designed to narrow down the possible ventures to those based in Portugal, with a specific range of funding status, and active operational status. This initial search returned a total of 534 possible observations.

However, to further refine the sample, an exclusion criterion was applied. In this case,

any venture with fewer than three employees, including founders, was excluded from the study. This was done to ensure that the included ventures were more likely to be established and stable enough to provide useful data.

Small businesses and one-person startups may have quite different objectives than those that hire outside help. This reduced unobserved heterogeneity by removing many hobby or non-growth oriented ventures from our sample. Our sampling frame thus represents a population that is theoretically pertinent for researching new venture innovation and perceptions of dynamism within sectors.

After applying this exclusion criterion, the final universe of startups for the survey was 318. These ventures were then contacted and invited to participate in the study. By carefully selecting and refining the sample in this way, it is hoped that the survey results will provide valuable insights into the use of social media in the NPD process of Portuguese startups.

To gather data for the study, a survey was constructed using the Qualtrics platform. The survey was subsequently distributed to all the startups included in the database resulting from the aforementioned search query performed on the Crunchbase platform.

3.2) Results

Based on the results obtained, it is important to note that a follow-up contact was established, when possible, through LinkedIn, to increase the response rate of the survey. This strategy helped to foster the number of respondents and in the end, an answer rate of 25% was achieved. It is worth noting that this response rate is considered reasonable in the context of surveys conducted in the start-up ecosystem, where entrepreneurs are often busy and time constrained. Despite the limitations imposed by the response rate, the obtained results provide valuable insights into the use of social media in the NPD process of startups.

Out of the 79 responses obtained from the survey, 3 responses lacked any indication of incorporating social media into their daily activities and processes. Due to the crucial significance of these variables, these responses were subsequently eliminated from the analysis, resulting in a final sample size of 76 observations.

The control variables provide a useful overview of the sample of startups that will be analyzed in this study. The founding year of the companies analyzed spans a period of 23 years, ranging from 1999 to 2022. It is noteworthy that the majority of the observations, 51.3%, were founded between 2016 and 2022.

The number of employees is an important indicator of a company's size and organizational structure. In line with the typical distribution within Portuguese companies, the majority of the observations, 61.8%, report having less than 50 employees. Conversely, only 3.9% of the companies have more than 250 employees, which suggests that the sample is largely composed of small and medium-sized enterprises.

The funding stage provides insight into the level of financial support that these startups have received. The data shows that more than half of the startups, 59.2%, are currently VC or PE backed, which may be due to their older founding year or larger number of employees. This finding highlights the important role that external funding plays in the growth and development of startups.

The diversity of the areas in which these startups operate is notable, with a range of industries represented in the sample. The most represented area is 8, although there is a great distribution of areas in which these startups operate. This suggests that the sample is not biased towards any particular industry or sector.

Finally, of the 76 observations, only two startups have not yet launched any products or services. These two cases correspond to startups that were created in 2022 and are still in the New Product Development process. Although they have not yet launched any product, they are included in the sample as they are expected to launch products in the near future.

3.3) Variables and Measures

Dependent variable (Innovation):

Innovation is a crucial concept to be considered in any study that aims to understand and evaluate the success of a venture. It can be defined as the process of developing new ideas, products, or services that bring value to customers and the market. However, measuring innovation is a challenging task as it involves multiple dimensions, such as the novelty of the product or service, the degree of change in the market, and the impact on the industry.

Despite the complexity of measuring innovation, it is essential to assess and quantify the extent to which a venture is committed to innovating and developing new products or services. This is particularly important in the context of startups, as they often face a highly competitive and dynamic market that requires constant innovation to survive and grow.

We utilized three sets of questions (Figure 4) to evaluate innovation and both external and internal knowledge provenience based on the work of (McKelvie et al., 2018). Additionally,

we created a summated index by combining multiple individual items or indicators into a single score. The purpose of a summated index is to produce a more reliable and valid measure of a concept than can be achieved by analyzing each item or indicator individually.

Category		Factor Analysis
Innovation	Offer customers new products/services that are extensions or modifications of existing products/services?	1 (0.822)
	Offer customers new products/services that are new breakthroughs and can have a high impact on the market?	1 (0.807)
	Develop new products/services that are extensions or modifications of existing products/services?	1 (0.672)
	Develop new products/services that are new breakthroughs and can have a high impact on the market?	1 (0.637)
External Knowledge Acquisition	Conversations with clients to determine what goods or services they will require in the future.	2 (0.604)
	Predicting sales and client preferences.	2 (0.590)
	Explicit monitoring of rivals' strategies, performance, and policies.	2 (0.562)
	Regular communication with clients to gauge the quality of goods and services.	2 (0.522)
Internal Knowledge Generation	Enrolling in technologically oriented courses at nearby colleges or universities.	3 (0.664)
	Providing technology instruction on-site.	3 (0.656)
	Participating at conferences with a knowledge or technology focus.	3 (0.768)
	Official R&D initiatives.	3 (0.522)
	Employing technical experts.	3 (0.521)
	Predicting upcoming technologies and technical trends.	3 (0.648)

Figure 4 - Set of sentences to measure Innovation, External Knowledge Acquisition, and Internal Knowledge Generation

We then proceeded to examine the internal consistency and reliability of this scale using the Cronbach's alpha statistic, which indicates how closely related a set of items or indicators are as a group. For innovation, the alpha value was 0.851, which is considered high and indicates good internal consistency and reliability. For External Knowledge Generation and Internal Knowledge Generation it was 0.704 and 0.793 respectively. A high value of Cronbach's alpha indicates that the items in the scale are highly correlated and consistently measure the underlying concept. This means that our innovation scale is reliable and consistent in measuring the construct of interest.

A summated index is a common method used in social science research to combine multiple items or indicators that measure the same concept into a single score. This method can be used to create a more reliable and valid measure of the concept being studied. In our case, we used a summated index to measure innovation and knowledge provenience, which involved combining multiple questions related to these concepts into a single score.

Overall, the use of a summated index and Cronbach's alpha allowed us to create a reliable and valid measure of innovation and knowledge provenience in our study.

In order to analyze the data collected on the usage of social media platforms in the different stages of the New Product Development process, the options provided to the participants were randomly ordered to prevent bias. However, a previous categorization of the options had been made based on their respective social media category (Figure 5). The purpose of categorizing the social media options in this way was to determine if there is a relationship between the predominance of a certain social media category and the respective innovation stage, as stated in hypothesis H2. This involved creating three sets of three variables each, corresponding to the summated index of the number of platforms used in each stage and respective to their social media category.

The social media usage data collected in this study was categorized into three distinct categories: Company Built, Company-Licensed, and Public. The Company Built category consisted of options 8, 9, 10, and 14, representing social media platforms developed and maintained by the companies themselves. The Company-Licensed category included options 6, 11, 12, 13, 15, 16, 20, 22, 24, 25, 26, and 27, representing social media platforms that were licensed or acquired by the companies from external sources. Lastly, the Public category encompassed options 1, 2, 3, 4, 5, 7, 17, 18, 19, 21, and 23, representing widely accessible and publicly available social media platforms.

1-Facebook	8-Quora	15-Zoom	22-Google Drive
2-Instagram	9-Reddit	16-Loom	23-LinkedIn
3-Twitter	10-Blogs	17-Snapchat	24-NapoleonCat
4-Whatsapp	11-Miro	18-Pinterest	25-Dropbox
5-Youtube	12-Google Meet	19-SocialBee	26-Canva
6-Notion	13-Microsoft Teams	20-Evernote	27-Slack
7-Tiktok	14-Company-built	21-Planable	28-Asana

Figure 5 - Set of Social Media Platforms

In order to ensure a comprehensive analysis and account for potential confounding factors, several control variables have been included in the study. These control variables serve to address specific contextual factors that may influence the relationship between social media usage and new product development in Portuguese startups.

Firstly, the variable "Founding Year" is included as a control variable. The founding year of a startup can provide insights into its stage of development, market experience, and level of maturity. By considering the founding year, the study can control for the potential impact of time-related factors on the relationship between social media usage and new product development.

Secondly, the variable "Funding Stage" is incorporated as a control variable. Different funding stages, such as pre-seed, seed, VC-backed, PE-backed, and IPO, reflect varying levels of financial resources, support, and strategic direction for startups. By including funding stage as a control variable, the study can account for the influence of different funding environments and their potential effects on the relationship between social media usage and new product development.

Furthermore, the control variable "Company Size" is included to address the potential impact of organizational size on the relationship between social media usage and new product development. Micro-companies (<10 employees), small companies (<50 employees), medium companies (<250 employees), and large companies (≥ 250 employees) represent different levels of resources, capabilities, and organizational structures. Considering company size as a control variable allows for a more nuanced analysis of how social media usage relates to new product development across different organizational contexts.

4) Analyses and Discussion

4.1) Relation between Funding Stage/Company Size/Founding Year

To assess the validity of the variables in our study, we conducted a correlation matrix to examine the relationship between the independent variables, including Funding Stage, Company Size, and Founding Year, and to analyze their interdependence. Although some of the correlations were relatively high, they remained below the critical levels. Therefore, we concluded that multicollinearity is not a significant concern in this study (Fidell & Tabachnick, 1989).

Firstly, we found a negative correlation (-0.413) between Founding Year and Funding Stage, which was significant at the 0.01 level. This indicates that as the founding year of the startup increases, the Funding Stage tends to decrease, with older startups being more likely to be backed by Venture Capital (VC) or Private Equity (PE). It suggests that startups founded more recently are less likely to have received VC or PE funding and are therefore likely to have a lower Funding Stage. This may be due to a number of factors, such as increased competition for funding as the number of startups in the market grows, or increased caution among investors as a result of economic uncertainty. It is important to note, however, that correlation does not imply causation, and further research would be needed to fully understand the factors driving this relationship.

Secondly, we found a positive correlation between Funding Stage and Number of Employees, which was also significant at the 0.01 level. The correlation coefficient for this relationship was 0.352 suggesting that as startups receive more funding, they tend to increase their workforce. This could be due to a number of reasons, such as increased demand for the startup's product or service, or a need to scale up operations in order to meet the demands of investors or customers. It is important to note that this correlation does not necessarily imply causation, and there may be other factors at play. Nonetheless, this finding highlights the importance of funding in driving the growth and success of startups.

Our findings highlight the importance of funding in determining the growth and success of startups, with significant correlations between Funding Stage, Company Size, and Founding Year. By understanding these relationships, we can gain insight into the factors that drive the growth of startups and develop strategies to support their development.

4.2) Startups' usage of Social Media Platforms

The analysis conducted suggests that new ventures in Portugal, as represented in this sample, have a greater preference towards acquiring knowledge externally, rather than relying solely on internal knowledge generation. Based on the results of the analysis, it can be concluded that the standardized mean for the summated index of external knowledge acquisition ($M = 3.91$) is significantly higher than the standardized mean for the summated index of internal knowledge generation ($M = 3.12$). This indicates that, on average, the respondents in the sample demonstrated a higher level of external knowledge acquisition compared to internal knowledge generation. This finding has important implications for the way that new ventures in Portugal approach knowledge acquisition and development, as well as for the tools and platforms that they use to facilitate this process.

The prevalence of external knowledge acquisition can be seen as a strategic move by new ventures to leverage the knowledge and resources available outside their own organizations. By looking beyond their own borders, these ventures can gain access to a broader range of expertise, knowledge, and experience that they can use to inform their product development efforts. This approach can help them to develop more innovative and competitive products, which can be a key factor in achieving success in today's fast-paced and rapidly evolving business landscape.

One of the most promising platforms for facilitating this external knowledge acquisition are social media that can be used to connect with experts and thought leaders in various fields, as well as to access information and insights related to emerging trends, technologies, and markets. These platforms can be extremely useful during the ideation, development and launch stages of new product development, where access to external knowledge can be especially valuable in shaping the direction and focus of the product.

Use of Social Media

The objective of Hypothesis 1 was to examine whether startups are currently utilizing social media in their new product development process. To address this hypothesis, the research analyzed the frequency of social media usage by the participating ventures in each of the three different new product development stages, which were Ideation, Development, and Launch.

The results of this analysis showed a growing trend towards using social media in new product development. Specifically, the findings indicated that only 14.5% of the participating

companies reported not using social media for any ideation-related activities, 7.9% of the companies reported not using social media for any development-related activities, and a mere 2.6% of the companies reported not using social media for any launch-related activities.

Based on these low percentages of non-usage, the research is able to validate the hypothesis that ventures are indeed using social media in the new product development process. Therefore, the study suggests that social media is an important tool for startups to consider particularly when developing and launching new products.

Based on the data collected for the study, I conducted a correlation analysis to examine the relationship between the number of social media platforms used in the different stages of the New Product Development process and the control variables, namely founding date, company size, and funding stage. The results indicated a significant correlation between the number of platforms used and the founding date of the company, with a p-value less than 0.01. Specifically, the analysis showed that the younger the company is, the more social media platforms it is likely to use throughout the NPD process (0.431 for Ideation, 0.469 for Development and 0.333 for Launch). However, no significant correlations were found between the number of social media platforms used and the company size or funding stage. These findings suggest that the use of social media in NPD may be more prevalent among younger companies, possibly due to a greater emphasis on innovation and a more digitally oriented culture. Furthermore, it appears that there is no significant relationship between the number of employees or company size and the number of social media platforms used in the different stages of NPD.

As mentioned beforehand, through the analysis conducted in this study, it suggests that external knowledge acquisition is more prevalent than internal knowledge generation among new ventures in Portugal.

This finding has important implications for new ventures in Portugal, as it suggests that they are actively seeking knowledge and resources beyond their own organizations. By doing so, these ventures can access a broader range of expertise, knowledge, and experience that they can use to inform their product development efforts. This approach can help them to develop more innovative and competitive products, which can be a key factor in achieving success in today's fast-paced and rapidly evolving business landscape.

The study also found that social media is an important tool for startups to consider when developing and launching new products. The analysis showed a growing trend towards using social media in new product development, with low percentages of companies reporting non-

usage in each of the three different new product development stages (Ideation, Development, and Launch).

In conclusion, the correlation analysis revealed a significant relationship between the number of social media platforms used in the different stages of the New Product Development process and the founding date of the company, with a p-value less than 0.01. This suggests that younger companies may be more inclined to use social media throughout the NPD process. Overall, the findings of this study provide valuable insights for new ventures in Portugal, suggesting that they should consider external knowledge acquisition and the use of social media as important strategic tools in their product development efforts. By doing so, they can access a broader range of resources and knowledge, and potentially develop more innovative and competitive products, which can be crucial for achieving success in today's dynamic business environment.

4.3) The connection between the prevalence of a Social Media type and the respective Innovation Stage

Firstly, through the survey that was administered to the venture managers, who were asked about their usage of social media in the ideation, development, and launch stages of NPD. If they indicated that they did use social media in any of these stages, they were then asked which social media platforms they used for each stage. The three social media categories used in this study are defined as follows: Company Built, Company-licensed, and Public. Company Built refers to platforms that are created and maintained by the company itself, such as proprietary social networking software. Company-licensed platforms are those that the company has contracted or paid to use, such as enterprise social media tools. Finally, Public platforms are those that are publicly available to anyone, such as Facebook, Twitter, and LinkedIn.

4.3.1) Ideation Phase and the usage of Company-Built Social Media

Based on the data collected, it was found that out of 76 ventures, 11 did not incorporate social media in their ideation stage. This means that there was a total of 65 ventures that did use social media in the ideation stage. Among these 65 ventures, the mean usage was found to be the highest for company-built platforms, which had a mean of 2.18. In contrast, the mean

usage for company-licensed and public social media platforms were found to be 0 and 0.35, respectively.

Furthermore, looking at the frequencies within the company-built social media category in the ideation stage, it was found that 98.5% of the ventures are using at least one platform, with 95.4% using at least 2 platforms. This suggests that ventures are more likely to use company-built social media platforms in the ideation stage of their new product development process.

Overall, these findings reject the null hypothesis and support the alternative hypothesis that ventures are more likely to use company-built social media platforms in the ideation stage of their new product development process.

To further elaborate, the results of the analysis indicate that startups in the ideation stage are more likely to use company-built social media platforms, with Quora, Reddit, and Specialty Blogs being the most commonly used platforms. This finding suggests that new ventures are taking advantage of the benefits that company-built social media platforms offer, such as the ability to control and customize the platform to meet their specific needs.

One possible explanation for this preference for company-built platforms is that they provide a more secure and confidential environment for discussing new product ideas and sensitive information. Additionally, company-built platforms may offer features and functionalities that are specifically tailored to the needs of startups, making them more effective and efficient in the ideation process.

Another interesting finding is that the usage of public social media platforms, such as Twitter and LinkedIn, is relatively low in the ideation stage. This could be due to the fact that public social media platforms are more focused on sharing information and networking, rather than on ideation and innovation. Therefore, entrepreneurs may prefer to use more specialized platforms, such as Quora and Reddit, which are designed for more focused and targeted discussions.

Overall, the findings suggest that startups in the ideation stage are leveraging company-built social media platforms to gather information, seek advice, and explore new ideas, and that these platforms are an important tool for supporting the ideation process.

4.3.2) Development Phase and the usage of Company Licensed Social Media

In sub-hypothesis H2b, the focus is on the usage of Company-Licensed social media during the Development phase of NPD. Out of the total number of observations, 6 startups reported not using any social media for their Development activities. However, 70 ventures confirmed that they do use social media during the Development stage. The analysis then focused on the distribution of the platforms used by these 70 ventures, which were categorized into three groups: Company Built, Company-licensed, and Public.

Interestingly, no startups reported using any Company-Built platforms during the Development stage. Instead, a significant proportion of startups (94.3%) selected at least two platforms that were licensed by other companies. Only 5.7% of startups used social media during the Development stage but did not select any company-licensed platforms.

Furthermore, more than half of the startups (51.4%) chose a minimum of four social media platforms that fell under the Company-Licensed category. Finally, the selection of Public social media is residual, with 48.6% not selecting any and the remainder (51.4%) selecting only one.

This finding suggests that during the Development phase of NPD, startups are more likely to use social media platforms that are licensed by other companies, rather than building their own platforms.

We can also look at the comparison of the mean values where we see that indeed the Company-licensed social media usage media is higher at 3.79. This finding supports sub-hypothesis H2b, which states that startups are more likely to use Company-Licensed social media during the Development phase of NPD.

Based on the results of the analysis, it can be concluded that the most commonly used platforms during the development stage are more diverse than those used during the ideation stage. However, the analysis reveals that Notion (productivity tool that combines notes, tasks, wikis, and databases in one app, designed to help individuals and teams manage projects and workflows), Google Meet, Whatsapp, Slack (communication and collaboration platform designed for teams to streamline messaging, share files, and organize workflows in one place), and Asana (project and task management tool that helps individuals and teams track tasks, set priorities, and collaborate on projects) are among the most frequently utilized platforms. These findings suggest that individuals involved in the development stage of a project or venture rely on a variety of digital platforms for communication, collaboration, and project management.

4.3.3) Launch Phase and the usage of Public Social Media

The sub-hypothesis H2c suggests that startups are more likely to use Public social media in the Launch Phase of their New Product Development process. Out of the 76 ventures surveyed, only 2 of them reported not incorporating any social media in their Launch activities and therefore did not select any social media platforms for this stage. On the other hand, 74 ventures affirmed that they use social media in their Launch activities. After examining the distribution of the platforms used by these 74 ventures among the three categories of social media (Company Built, Company-licensed, and Public), it was observed that no ventures used Company-built or Company-licensed platforms for the Launch Phase.

Instead, all the ventures that used social media in their Launch Phase were found to be using Public social media platforms. It is noteworthy that the number of platforms selected for the Launch Phase varied from one to nine. Therefore, this finding provides evidence that supports the sub-hypothesis H2c, which implies that startups are more likely to use Public social media in the Launch Phase of their New Product Development process. This may be attributed to the fact that Public social media platforms are more widely used and accessible to the general public, thereby providing an opportunity for startups to reach a larger audience during the Launch of their new product or service.

This means that they are using social media platforms that are open to the general public, rather than ones that are built by the company or licensed from another company.

One possible reason for this trend is that Public social media platforms have a wider reach than other types of social media. By using these platforms, startups can connect with a larger audience and potentially generate more buzz around their new product or service. Another reason could be that the general public is more likely to be interested in new products or services and share their experiences on social media platforms that they are familiar with.

It is also possible that startups are using Public social media platforms because they are more cost-effective compared to other types of social media. Building or licensing a social media platform can be expensive, and startups may not have the resources to invest in these options. Public social media platforms are usually free or low-cost to use, making them an attractive option for startups with limited budgets.

Overall, the finding that startups are more likely to use Public social media in the Launch Phase of the New Product Development process suggests that these platforms are effective tools for generating buzz and reaching a wider audience.

Based on the results of the analysis, it can be concluded that Facebook, Instagram, and LinkedIn are the most frequently used platforms during the development stage. These findings suggest that entrepreneurs and individuals involved in the development of a project or venture rely heavily on these social media platforms for networking, marketing, and promoting their products or services. It is noteworthy that the use of social media platforms is diverse and varies depending on the specific needs and goals of the project or venture. However, Facebook, Instagram, and LinkedIn appear to be the most popular and widely used platforms during the development stage.

4.4) The impact of Social Media usage on the New Product

Development process

To test hypothesis H3, which aimed at investigating the relationship between the use of social media and the New Product Development Process, the respondents were divided into five groups based on their usage of social media during different stages of the process: No Use of social media, Use on Launch, Use on Development & Launch, Use on Ideation & Development & Launch, and Use on Development only. The purpose was to compare the means of the Innovation summated index among the different groups and determine if there was any evidence to suggest that extensive use of social media during the various stages was associated with a higher mean and a higher level of innovation in the company.

To assess this hypothesis, a statistical analysis was performed on the data collected, which indicated that there was indeed a significant relationship between the use of social media and the level of innovation. The results showed that the mean Innovation score was highest for the group that used social media for all three stages of the New Product Development Process (Ideation, Development, and Launch), followed by the group that used it for both Development and Launch stages, and then the group that used it only for Launch (Figure 6). The mean scores were lowest for the group that only used it for Development.

These findings provide evidence to support the hypothesis that the use of social media is related to the New Product Development Process and can have a positive impact on the level of innovation in a company. As a result, this study has separated the sample into 5 different groups regarding their Social Media usage, starting with “No Use”, “Use in Launch”, “Use in Development and Launch”, “Use in Ideation, Development and Launch”, “Use in Development”.

The purpose of examining the ANOVA table was to investigate whether there were any statistically significant differences between the means of the groups. Based on the results, it is evident that there are significant differences between the means of the groups, as the F-value is high, and the p-value is less than 0.01. This sustains that the between-group variance is much larger than the within-group variance, suggesting that there is a significant difference between the means of the groups being compared. Consequently, the null hypothesis that there is no significant difference between the groups is rejected.

The Eta squared value of .263 indicates that the independent variable (usage of social media in different stages of New Product Development) accounts for a significant proportion of the variance in the dependent variable (Innovation summated index). This means that 26.3% of the variation in Innovation can be attributed to the different levels of social media usage in the New Product Development stages. This is a moderately large effect size and suggests that there is a meaningful relationship between social media usage and Innovation in startups.

In order to further investigate the influence of social media on the New Product Development process, specifically on innovation output, a new variable was computed. This variable was named "SM_count" and was obtained by summing all the social media used in the different stages of the NPD process. The objective was to determine if there was any relationship between the two variables, without making any predictions. To achieve this, a correlation analysis was conducted instead of a linear regression analysis. The findings demonstrated an extremely significant correlation at the 0.01 level, with a Pearson coefficient of 0.312. This positive correlation indicates that an increase in the number of social media platforms used throughout the NPD process is likely to be associated with greater innovation performance in the venture. Furthermore, the correlation matrix provided additional information regarding the relationship between the importance given by ventures to social media and their respective "SM_count" and Innovation output. The results indicated that both correlations were significant at the 0.01 level and positive, indicating that the assumed perception of higher importance of social media is associated with a higher amount of platforms used and a higher output.

Finally, Based on the simple linear regression analysis conducted to test the hypothesis, the results showed that there was a significant positive relationship between the number of social media Platforms used in the New Product Development process and the Innovation output (dependent variable). The model revealed a moderate correlation between the two variables, with an R of 0.712 and an R squared of 0.510.

The R-squared value is important because it indicates the proportion of the variation in the dependent variable (Innovation output) that can be explained by the independent variable (number of social media Platforms used). In this case, the R-squared value of 0.510 means that approximately 51% of the variance in the Innovation output can be explained by the number of social media Platforms used in the New Product Development process. This suggests that the amount of social media Platforms used is a moderately strong predictor of Innovation output.

The coefficient table indicated that the unstandardized B coefficient was 0.465, which suggests that for every 1% increase of social media Platform used in the New Product Development process, the Innovation output increased by 0.465%, holding all other variables constant. The significance level of the coefficient was lower than 0.05, indicating that the relationship was statistically significant. This finding supports the hypothesis that the amount of social media Platforms used in the New Product Development process is positively related to Innovation output.

All in all, based on the analysis of the data, it can be concluded that there is a significant positive relationship between the number of social media Platforms used in the New Product Development process and the Innovation output in startups. The ANOVA table revealed significant differences between the means of the groups, and the Eta squared value indicated that approximately 26.3% of the variation in Innovation can be attributed to the different levels of social media usage in the New Product Development stages. Furthermore, the correlation analysis indicated an extremely significant positive correlation between the number of social media Platforms used and the Innovation output, suggesting that an increase in the number of social media platforms used is likely to be associated with greater innovation performance in startups. The simple linear regression analysis supported the hypothesis that the number of social media Platforms used is positively related to Innovation output, with an R-squared value of 0.510 indicating that approximately 51% of the variation in Innovation output can be explained by the number of social media Platforms used. Therefore, it can be concluded that social media usage is an important predictor of Innovation output in startups.

Which stage has a bigger impact on innovation?

A multiple linear regression analysis was conducted with the aim of exploring the relationship between the three independent variables and a dependent variable. The results of the analysis revealed that the model had a reasonably good fit, with an R-squared value of 0.617

and an R value of 0.786. This indicates that 61.7% of the variation in the dependent variable can be explained by the three independent variables included in the model.

The standardized coefficients showed that Launch had the strongest relationship with the dependent variable, with a coefficient of 0.354. Development had the second strongest relationship with the dependent variable, with a coefficient of 0.232, while Ideation had the weakest relationship with the dependent variable, with a coefficient of 0.110. These coefficients indicate that a unit increase in Launch is associated with the largest increase in the dependent variable, followed by Development and Ideation, while holding all other variables constant.

The t-values indicated that all three independent variables were statistically significant at the 0.05 level, with Launch having the largest t-value of 2.664, followed by Development with a t-value of 2.598, and Ideation with a t-value of 2.259. These results suggest that the observed relationships between the independent variables and the dependent variable are unlikely to have occurred by chance.

In conclusion, the multiple linear regression analysis revealed that Launch, Development, and Ideation are all significant predictors of the dependent variable. However, Launch appears to be the strongest predictor of the dependent variable, followed by Development and Ideation.

5) Discussion of the results

5.1) Discussion in light of prior research

The discussion of the results chapter aims to interpret and analyze the findings of the study in relation to prior research in the field of social media usage in new product development within startups. The following section provides a comprehensive discussion of the key findings and their implications:

Firstly, the analysis conducted in this study supports prior research indicating that startups in Portugal have a strong preference for external knowledge acquisition. This finding aligns with the resource-based view and highlights the importance of accessing external resources and expertise to drive innovation. It also corroborates previous studies that emphasize the role of social media as a tool for connecting with external stakeholders and acquiring valuable knowledge as the findings from (Kaplan & Haenlein, 2010) also support.

Furthermore, the findings suggest that startups in Portugal are increasingly utilizing social media as a strategic tool for product development. This aligns with the growing recognition of social media's potential for innovation and highlights the adaptability of startups in leveraging new digital platforms. The results reinforce prior research (McKelvie et al., 2018) that emphasizes the value of social media in facilitating collaboration, idea generation, and feedback collection throughout the new product development process.

Moreover, the analysis reveals a pattern in the usage of different types of social media platforms across the three stages of new product development (ideation, development, and launch). This finding supports previous research that suggests the varying roles and functionalities of social media platforms at different stages of the innovation process. Company-built social media platforms are more commonly used during the ideation phase, company-licensed platforms during the development phase, and public platforms during the launch phase. This indicates that startups are strategically aligning their social media usage with specific stages of the new product development process.

Additionally, the findings provide strong evidence to support the hypothesis that there is a positive relationship between the use of social media and innovation in startups. The analysis demonstrates significant differences in innovation outcomes based on the level of social media usage, suggesting that startups that actively engage with social media platforms are more likely to achieve higher levels of innovation. This finding is consistent with prior

research that emphasizes the role of social media in facilitating knowledge sharing, collaboration, and access to diverse perspectives, ultimately enhancing the innovation potential of startups. This is in line with what other studies have realized (Gangi et al., 2010; Martini et al., 2013; Muninger et al., 2019; Patroni et al., 2022), but contributes now to the startups' literature.

In light of prior research, the present study contributes to the existing literature by providing empirical evidence of the impact of social media usage on new product development in Portuguese startups. The findings align with and reinforce previous studies that emphasize the importance of external knowledge acquisition, the increasing use of social media for innovation, the role of different social media types in different stages of the innovation process, and the positive relationship between social media usage and innovation outcomes.

This study's findings provide further evidence supporting the previous research conducted by (Drummond et al., 2018; Hsieh & Wu, 2019) and validate their conclusions regarding the willingness of startups to utilize and derive benefits from social media platforms. The results demonstrate that startups recognize the significance of incorporating social media into their new product development process as a means to enhance their chances of success in a highly competitive and rapidly evolving business landscape driven by continuous innovation.

However, it is noteworthy to observe that while our findings strongly support the overall impact and importance of social media across the three different stages of new product development, the influence appears to be comparatively smaller during the ideation phase. This finding against the study conducted by (Füller & Matzler, 2007), which emphasizes the relatively high impact of social media during the early ideation stage.

Overall, the discussion of the results highlights the significance of social media usage in driving innovation in startups and provides valuable insights for both researchers and practitioners seeking to leverage social media as a strategic tool for new product development.

5.2) Limitations

The limitations of a study are an important aspect to consider, as they can impact the generalizability and reliability of the results. The scope of the study is one of the limitations to be addressed. The sample of Portuguese startups provides a unique perspective on innovation and social media, but a larger and more diverse sample could have improved the external

validity of the study. Additionally, the study's cross-sectional design is another limitation. By collecting data at a single point in time, it is impossible to account for changes in the innovation potential of each venture over time. Despite efforts to mitigate this limitation by asking managers to consider their responses in the context of the next 12 months, longitudinal studies may be necessary to better understand how social media impacts innovation over time.

Moreover, the measurement of innovation is also a challenging task that needs to be addressed. Innovation is a multifaceted construct that can be difficult to define and operationalize. In this study, the researchers used a scale to measure innovation, which may have introduced measurement bias. Other methods of measuring innovation, such as patents, trademarks, or sales, could have been used to provide more comprehensive and reliable data on innovation. Further research could explore the use of multiple measures to capture different aspects of innovation and examine how social media impacts each of them.

Now, looking at methodological limitations, it is important to note that this study focused solely on assessing the impact of social media usage on new product development through its different stages, without taking into consideration the financial impact or performance measurement changes that may have resulted. Future research could consider these as important metrics to include in their analysis. Additionally, the generalizability of the findings may be limited due to the specific sample used in this study, which only focused on Portuguese startups. Therefore, caution must be taken when attempting to apply these findings to other contexts or populations.

In conclusion, the limitations of this study provide an opportunity for future research to build upon the findings and enhance our understanding of the relationship between social media and innovation in the context of startups. By addressing these limitations, future research can contribute to a more comprehensive and accurate understanding of the factors that drive innovation in the startup ecosystem as these limitations provide a foundation for future research to build upon and can serve as a starting point for a more comprehensive understanding of the relationship between social media and innovation in startups.

6) Conclusions

The analysis conducted in these studies suggests that startups in Portugal have a strong preference for external knowledge acquisition, and are increasingly using social media as a tool for product development. The findings indicate that external knowledge acquisition is more prevalent than internal knowledge generation, which implies that startups in Portugal actively seek knowledge and resources beyond their own organizations. Therefore, it is recommended that new ventures in Portugal consider external knowledge acquisition and the use of social media as strategic tools in their product development efforts to access a broader range of resources and knowledge, and potentially develop more innovative and competitive products.

Based on the data analysis, the use of social media is a growing trend in new product development. Startups are more likely to use different types of social media platforms in each phase of their new product development process. Specifically, in the ideation phase, startups are more likely to use company-built social media platforms, while in the development phase, they are more likely to use company-licensed social media platforms. In the launch phase, public social media platforms are more commonly used. This suggests that startups are taking advantage of the benefits that different types of social media platforms offer in each stage of the new product development process. By leveraging social media platforms, startups can access a wider range of resources, collaborate with others, and promote their products more effectively.

Furthermore, the analysis provides strong evidence to support the hypothesis that there is a positive relationship between the use of social media and the New Product Development (NPD) process. The ANOVA table showed significant differences between the means of the groups, with the Eta squared value indicating that approximately 26.3% of the variation in innovation can be attributed to the different levels of social media usage in the NPD stages. Moreover, the correlation and linear regression analyses demonstrated an extremely significant positive correlation and moderate correlation, respectively, between the number of social media platforms used and the innovation output. This suggests that an increase in the number of social media platforms used is likely to be associated with greater innovation performance in startups. Overall, the findings suggest that social media usage is an important factor that can positively impact the level of innovation in a company.

In summary, the studies suggest that startups in Portugal should consider external knowledge acquisition and the use of social media as strategic tools in their product

development efforts to access a broader range of resources and knowledge, and potentially develop more innovative and competitive products. Furthermore, the use of social media in each phase of the new product development process can provide startups with a wider range of resources, collaboration opportunities, and effective promotion channels. Finally, the findings indicate that social media usage is an important factor that can positively impact the level of innovation in a company.

6.1) Implications for managerial practice

The managerial implications derived from the conclusion of this master thesis include embracing external knowledge acquisition, meaning that startups in Portugal should actively seek external sources of knowledge and resources to support their product development efforts. The findings indicate a strong preference for external knowledge acquisition among startups. Therefore, it is recommended that new ventures consider strategic partnerships, collaborations, and networking opportunities to tap into a broader range of resources and expertise beyond their own organizations.

Furthermore, it is important that these new ventures leverage social media as a strategic tool. The use of social media platforms has emerged as a growing trend in new product development. Startups should recognize the benefits of different types of social media platforms in each phase of the product development process. Company-built platforms can be effective for idea generation, company-licensed platforms for development, and public platforms for product launch and promotion. By leveraging social media strategically, startups can access a wider range of resources, collaborate with others, and effectively promote their products.

Finally, they should recognize the impact of social media on innovation. The analysis provides evidence of a positive relationship between social media usage and the level of innovation in startups. It is crucial for startup managers to acknowledge the role of social media as a catalyst for innovation. Increasing the number of social media platforms used is likely to be associated with greater innovation performance. Therefore, startups should invest in developing a strong social media presence and actively engage with their target audience to foster innovation within their organizations.

By considering these managerial implications, startups in Portugal can enhance their product development strategies, tap into external knowledge and resources, leverage social media platforms effectively, and ultimately foster innovation to develop more competitive and

innovative products.

6.2) Future Research

The conclusion of this master thesis provides valuable insights and suggests several potential avenues for future research in the field of social media usage in new product development within startups. Firstly, longitudinal studies could be conducted to observe the long-term effects and dynamics of social media on innovation outcomes over an extended period. Such studies would provide a deeper understanding of the sustained impact of social media on the new product development process.

In addition, comparative analysis across different countries or regions could be undertaken to examine the influence of cultural and contextual factors on the effectiveness of social media in fostering innovation. This comparative approach would shed light on the variations in social media usage and its impact on new product development within diverse settings.

Furthermore, industry-specific investigations could be conducted to explore the role of social media in new product development within specific sectors or industries. Such studies would enable researchers to uncover sector-specific insights and recommendations for leveraging social media effectively.

Moreover, employing mixed-methods research designs that combine quantitative and qualitative data would allow for a more comprehensive understanding of the complex relationship between social media usage, innovation processes, and organizational dynamics in startups.

Additionally, future research could focus on investigating the relationship between social media usage, new product development outcomes, and financial performance. This line of inquiry would provide insights into the financial implications of social media usage in startups and contribute to a more holistic understanding of its value.

Another avenue for future research is exploring the role of influencers and user-generated content in the new product development process. This line of investigation would offer insights into how startups can effectively leverage these social media phenomena to drive innovation and enhance product adoption.

Lastly, the use of advanced analytics techniques and big data approaches could be employed to extract valuable insights from social media data. This would involve analyzing

large datasets from social media platforms to uncover patterns, trends, and consumer preferences that can inform and optimize the new product development process.

By pursuing these future research opportunities, scholars can advance their understanding of the role and impact of social media in new product development within startups. These studies would contribute to the existing body of knowledge and provide actionable insights for practitioners in leveraging social media as a strategic tool for innovation.

7) Bibliography

- Adner, R., & Kapoor, R. (2010). Value creation in innovation ecosystems: How the structure of technological interdependence affects firm performance in new technology generations. *Strategic Management Journal*, 31(3), 306–333. <https://doi.org/10.1002/smj.821>
- Anderson, P., & Tushman, M. L. (1984). Technological Discontinuities and Dominant Designs: A Cyclical Model of Technological Change Since the pioneering work of. In *Brittain and Freeman*. Barley.
- Antoncic, B., & Hisrich, R. D. (2001). Intrapreneurship: Construct refinement and cross-cultural validation. In *Journal of Business Venturing* (Vol. 16).
- Arend, R. J., Patel, P. C., & Park, H. D. (2014). Explaining post-IPO venture performance through a knowledge-based view typology. *Strategic Management Journal*, 35(3), 376–397. <https://doi.org/10.1002/smj.2095>
- Baker, T., Nelson, R. E., Aldrich, H., Gartner, B., George, G., Harper, A. H. D., Johanson, L., Lubatkin, M., Pollock, T., Sapienza, H., & Van De Ven, A. (2005). *Creating Something from Nothing: Resource Construction through Entrepreneurial Bricolage*.
- Barlatier, P. J., & Mention, A. L. (2020). How social media can fuel innovation in businesses: a strategic roadmap. *Journal of Business Strategy*, 41(2), 11–18. <https://doi.org/10.1108/JBS-12-2018-0197>
- Bashir, N., Papamichail, K. N., & Malik, K. (2017). Use of Social Media Applications for Supporting New Product Development Processes in Multinational Corporations. *Technological Forecasting and Social Change*, 120, 176–183. <https://doi.org/10.1016/j.techfore.2017.02.028>
- Bertschek, I., & Kesler, R. (2022). Let the user speak: Is feedback on Facebook a source of firms' innovation? *Information Economics and Policy*, 60. <https://doi.org/10.1016/j.infoecopol.2022.100991>
- Bhimani, H., Mention, A. L., & Barlatier, P. J. (2019). Social media and innovation: A systematic literature review and future research directions. *Technological Forecasting and Social Change*, 144, 251–269. <https://doi.org/10.1016/j.techfore.2018.10.007>
- Boyd, D. M., & Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication*, 13(1), 210–230. <https://doi.org/10.1111/j.1083-6101.2007.00393.x>
- Caroline Hyde. (2015). Europe's west coast tech hub Lisbon aims to follow San Francisco. *Bloomberg*.
- Chesbrough, H. (2003). *Open Innovation - The New Imperative for Creating and Profiting from Technology*. Harvard Business School Press.
- Corral de Zubielqui, G., Fryges, H., & Jones, J. (2019). Social media, open innovation & HRM: Implications for performance. *Technological Forecasting and Social Change*, 144, 334–347. <https://doi.org/10.1016/j.techfore.2017.07.014>
- Corral de Zubielqui, G., & Jones, J. (2020). How and when social media affects innovation in start-ups. A moderated mediation model. *Industrial Marketing Management*, 85, 209–220. <https://doi.org/10.1016/j.indmarman.2019.11.006>
- Culnan, M. J., Mchugh, P. J., Zubillaga, J. I., Uarterly, M. Q., & Xecutive, E. (2010). How Large U.S. Companies can use Twitter and other Social Media to gain Business Value. In *MIS Quarterly Executive* (Vol. 9, Issue 4). <http://syncapse.com/media/syncapse-value-of-a-facebook->
- Dahlander, L., Gann, D. M., & Wallin, M. W. (2021). How open is innovation? A retrospective and ideas forward. *Research Policy*, 50(4). <https://doi.org/10.1016/j.respol.2021.104218>
- Drummond, C., McGrath, H., & O'Toole, T. (2018). The impact of social media on resource mobilisation in entrepreneurial firms. *Industrial Marketing Management*, 70, 68–89. <https://doi.org/10.1016/j.indmarman.2017.05.009>
- Eisenhardt, K. M., & Martin, J. A. (2000). Special Issue: The Evolution of Firm Capabilities. In *Journal* (Vol. 21, Issue 10).
- Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of facebook "friends:" Social capital and college students' use of online social network sites. *Journal of Computer-Mediated*

- Communication*, 12(4), 1143–1168. <https://doi.org/10.1111/j.1083-6101.2007.00367.x>
- Ethiraj, S. K., & Levinthal, D. (2004). Modularity and Innovation in Complex Systems. In *Management Science* (Vol. 50, Issue 2, pp. 159–173). INFORMS Inst.for Operations Res.and the Management Sciences. <https://doi.org/10.1287/mnsc.1030.0145>
- Fidell, L. S., & Tabachnick, B. G. (1989). *Using Multivariate Statistics*. Harper & Row.
- Franco, C., & Landini, F. (2022). Organizational drivers of innovation: The role of workforce agility. *Research Policy*, 51(2). <https://doi.org/10.1016/j.respol.2021.104423>
- Füller, J., & Matzler, K. (2007). Virtual product experience and customer participation-A chance for customer-centred, really new products. *Technovation*, 27(6–7), 378–387. <https://doi.org/10.1016/j.technovation.2006.09.005>
- Gangi, P. M. Di, Wasko, M. M., Hooker, R. E., Uarterly, M. Q., & Xecutive, E. (2010). Getting Customers' ideas to Work for You: Learning from DELL how to succeed with online user innovation Communities. In *MIS Quarterly Executive* (Vol. 9, Issue 4). <http://content>.
- Grant, R. M. (1996). Toward a Knowledge-Based Theory of the Firm. In *Management Journal*, Winter (Vol. 17). Winter.
- Hsieh, Y. J., & Wu, Y. J. (2019). Entrepreneurship through the platform strategy in the digital era: Insights and research opportunities. *Computers in Human Behavior*, 95, 315–323. <https://doi.org/10.1016/j.chb.2018.03.033>
- Huizingh, E. K. R. E. (2011). Open innovation: State of the art and future perspectives. *Technovation*, 31(1), 2–9. <https://doi.org/10.1016/j.technovation.2010.10.002>
- Inkinen, H. T., Kianto, A., & Vanhala, M. (2015). Knowledge management practices and innovation performance in Finland. *Baltic Journal of Management*, 10(4), 432–455. <https://doi.org/10.1108/BJM-10-2014-0178>
- Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of Social Media. *Business Horizons*, 53(1), 59–68. <https://doi.org/10.1016/j.bushor.2009.09.003>
- Kietzmann, J. H., Hermkens, K., McCarthy, I. P., & Silvestre, B. S. (2011). Social media? Get serious! Understanding the functional building blocks of social media. *Business Horizons*, 54(3), 241–251. <https://doi.org/10.1016/j.bushor.2011.01.005>
- Kuhn, K., Galloway, T., & Collins-Williams, M. (2016). Near, far, and online: small business owners' advice-seeking from peers. *Journal of Small Business and Enterprise Development*, 23(1), 189–206. <https://doi.org/10.1108/JSBED-03-2015-0037>
- Kuratko, D. F., & Audretsch, D. B. (2013). Clarifying the domains of corporate entrepreneurship. *International Entrepreneurship and Management Journal*, 9(3), 323–335. <https://doi.org/10.1007/s11365-013-0257-4>
- Lam, H. K. S., Yeung, A. C. L., & Cheng, T. C. E. (2016). The impact of firms' social media initiatives on operational efficiency and innovativeness. *Journal of Operations Management*, 47–48, 28–43. <https://doi.org/10.1016/j.jom.2016.06.001>
- Li, H., Zhang, C., & Kettinger, W. (2022). Digital Platform Ecosystem Dynamics: The Roles of Product Scope, Innovation, and Collaborative Network Centrality. *MIS Quarterly*, 46(2), 739–770. <https://doi.org/10.25300/MISQ/2022/15444>
- Li, Y., Feng, Q., Huang, T., Wang, S., Cong, W., & Knighton, E. (2022). A new product development study using intelligent data analysis algorithm based on KE theory. *Journal of Intelligent and Fuzzy Systems*, 43(6), 7041–7055. <https://doi.org/10.3233/JIFS-212441>
- Loebbecke, C., & Picot, A. (2015). Reflections on societal and business model transformation arising from digitization and big data analytics: A research agenda. *Journal of Strategic Information Systems*, 24(3), 149–157. <https://doi.org/10.1016/j.jsis.2015.08.002>
- Ma, Z., & Jin, Q. (2019). Success Factors for Product Innovation in China's Manufacturing Sector: Strategic Choice and Environment Constraints. *International Studies of Management and Organization*, 49(2), 213–231. <https://doi.org/10.1080/00208825.2019.1608397>
- Madhavan Ramanujam, & Georg Tacke. (2016). *Monetizing Innovation : How Smart Companies Design the Product Around the Price*.
- Marion, T. J., Barczak, G., & Hultink, E. J. (2014). Do social media tools impact the development phase? An exploratory study. *Journal of Product Innovation Management*, 31(S1), 18–29. <https://doi.org/10.1111/jpim.12189>
- Martínez-Lobatón, J. I., & Seclen-Luna, J. P. (2023). Assessing the New Product Development

- Process activities in Peruvian medium-sized manufacturing companies. *Estudios Gerenciales*, 2–12. <https://doi.org/10.18046/j.estger.2023.166.4985>
- Martini, A., Massa, S., & Testa, S. (2013). The firm, the platform and the customer: A “double mangle” interpretation of social media for innovation. *Information and Organization*, 23(3), 198–213. <https://doi.org/10.1016/j.infoandorg.2013.07.001>
- Martín-Rojas, R., Garrido-Moreno, A., & García-Morales, V. J. (2020). Fostering Corporate Entrepreneurship with the use of social media tools. *Journal of Business Research*, 112, 396–412. <https://doi.org/10.1016/j.jbusres.2019.11.072>
- McKelvie, A., Wiklund, J., & Brattström, A. (2018). Externally acquired or internally generated? Knowledge development and perceived environmental dynamism in new venture innovation. *Entrepreneurship: Theory and Practice*, 42(1), 24–46. <https://doi.org/10.1177/1042258717747056>
- Mention, A. L., Barlatier, P. J., & Jossierand, E. (2019). Using social media to leverage and develop dynamic capabilities for innovation. *Technological Forecasting and Social Change*, 144, 242–250. <https://doi.org/10.1016/j.techfore.2019.03.003>
- Mount, M., & Garcia Martinez, M. (2014). *Social Media: A tool for open innovation*.
- Muninger, M. I., Hammedi, W., & Mahr, D. (2019). The value of social media for innovation: A capability perspective. *Journal of Business Research*, 95, 116–127. <https://doi.org/10.1016/j.jbusres.2018.10.012>
- Muninger, M. I., Mahr, D., & Hammedi, W. (2022). Social media use: A review of innovation management practices. *Journal of Business Research*, 143, 140–156. <https://doi.org/10.1016/j.jbusres.2022.01.039>
- Ngai, E. W. T., Moon, K. L. K., Lam, S. S., Chin, E. S. K., & Tao, S. S. C. (2015). Social media models, technologies, and applications: An academic review and case study. *Industrial Management and Data Systems*, 115(5), 769–802. <https://doi.org/10.1108/IMDS-03-2015-0075>
- Ogink, T., & Dong, J. Q. (2019). Stimulating innovation by user feedback on social media: The case of an online user innovation community. *Technological Forecasting and Social Change*, 144, 295–302. <https://doi.org/10.1016/j.techfore.2017.07.029>
- Papa, A., Santoro, G., Tirabeni, L., & Monge, F. (2018). Social media as tool for facilitating knowledge creation and innovation in small and medium enterprises. *Baltic Journal of Management*, 13(3), 329–344. <https://doi.org/10.1108/BJM-04-2017-0125>
- Parveen, F., Jaafar, N. I., & Ainin, S. (2016). Social media’s impact on organizational performance and entrepreneurial orientation in organizations. *Management Decision*, 54(9), 2208–2234. <https://doi.org/10.1108/MD-08-2015-0336>
- Patroni, J., von Briel, F., & Recker, J. (2022). Unpacking the social media–driven innovation capability: How consumer conversations turn into organizational innovations. *Information and Management*, 59(3). <https://doi.org/10.1016/j.im.2020.103267>
- Ram, J., & Liu, S. (2018). Social media driven innovations: an exploratory study in China. *Journal of Innovation Economics & Management*, n° 27(3), 123–146. <https://doi.org/10.3917/jie.027.0123>
- Roberts, D. L., & Piller, F. T. (2016). *Finding the Right Role for Social Media in Innovation* (Vol. 57, Issue 3). <http://mitsmr.com/1plutJF>
- Roberts, D. L., Piller, F. T., & Lüttgens, D. (2016). Mapping the Impact of Social Media for Innovation: The Role of Social Media in Explaining Innovation Performance in the PDMA Comparative Performance Assessment Study. *Journal of Product Innovation Management*, 33, 117–135. <https://doi.org/10.1111/jpim.12341>
- Rocha, C. F., Quandt, C. O., Deschamps, F., & Philbin, S. (2022). R&D collaboration strategies for industry 4.0 implementation: A case study in Brazil. *Journal of Engineering and Technology Management - JET-M*, 63. <https://doi.org/10.1016/j.jengtecman.2022.101675>
- Scuotto, V., Del Giudice, M., Peruta, M. R. della, & Tarba, S. (2017). The performance implications of leveraging internal innovation through social media networks: An empirical verification of the smart fashion industry. *Technological Forecasting and Social Change*, 120, 184–194. <https://doi.org/10.1016/j.techfore.2017.03.021>
- Shahat Basri, W., & A Siam, M. R. (2018). *Maximizing the Social Media Potential for Small Businesses and Startups: A Conceptual Study Culture of Fear Effect on the Organizational Performance of Higher Educational Institutions: The Moderating Role of Strategy*

- Communication View project Perceived Organizational Support (Pos), Organizational Commitment and Turnover Intentions Amongst Employees in Malaysian Banking Industry View project.* <https://www.researchgate.net/publication/321058367>
- Suseno, Y., Laurell, C., & Sick, N. (2018). Assessing value creation in digital innovation ecosystems: A Social Media Analytics approach. *Journal of Strategic Information Systems*, 27(4), 335–349. <https://doi.org/10.1016/j.jsis.2018.09.004>
- Testa, S., Massa, S., Martini, A., & Appio, F. P. (2020). Social media-based innovation: A review of trends and a research agenda. *Information and Management*, 57(3). <https://doi.org/10.1016/j.im.2019.103196>
- Tzokas, N., Hultink, E. J., & Hart, S. (2004). Navigating the new product development process. *Industrial Marketing Management*, 33(7), 619–626. <https://doi.org/10.1016/j.indmarman.2003.09.004>
- Xiao, T., Makhija, M., & Karim, S. (2022). A Knowledge Recombination Perspective of Innovation: Review and New Research Directions. *Journal of Management*, 48(6), 1724–1777. <https://doi.org/10.1177/01492063211055982>
- Zhao, Y. L., Libaers, D., & Song, M. (2015). First product success: A mediated moderating model of resources, founding team startup experience, and product-positioning strategy. *Journal of Product Innovation Management*, 32(3), 441–458. <https://doi.org/10.1111/jpim.12236>

8) Appendix

8.1) A - Sample

Founding					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1999	1	1.3	1.3	1.3
	2005	1	1.3	1.3	2.6
	2010	6	7.9	7.9	10.5
	2011	9	11.8	11.8	22.4
	2012	9	11.8	11.8	34.2
	2013	3	3.9	3.9	38.2
	2014	4	5.3	5.3	43.4
	2015	4	5.3	5.3	48.7
	2016	8	10.5	10.5	59.2
	2017	8	10.5	10.5	69.7
	2018	3	3.9	3.9	73.7
	2019	6	7.9	7.9	81.6
	2020	6	7.9	7.9	89.5
	2021	4	5.3	5.3	94.7
	2022	4	5.3	5.3	100.0
	Total		76	100.0	100.0

Figure 6 - Descriptive statistics on Founding Year

Number of Employees					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	17	22.4	22.4	22.4
	2	30	39.5	39.5	61.8
	3	26	34.2	34.2	96.1
	4	3	3.9	3.9	100.0
	Total		76	100.0	100.0

Figure 7 - Descriptive statistics on Number of Employees

Funding Stage					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	18	23.7	23.7	23.7
	2	13	17.1	17.1	40.8
	3	29	38.2	38.2	78.9
	4	16	21.1	21.1	100.0
	Total		76	100.0	100.0

Figure 8 - Descriptive statistics on Funding Stage

Products/Services					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	2	2.6	2.6	2.6
	Yes	74	97.4	97.4	100.0
	Total	76	100.0	100.0	

Figure 9 - Descriptive statistics on Products/Services launched

Area					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	6	7.9	7.9	7.9
	2	3	3.9	3.9	11.8
	3	4	5.3	5.3	17.1
	4	5	6.6	6.6	23.7
	5	7	9.2	9.2	32.9
	6	8	10.5	10.5	43.4
	7	5	6.6	6.6	50.0
	8	10	13.2	13.2	63.2
	9	6	7.9	7.9	71.1
	10	7	9.2	9.2	80.3
	11	5	6.6	6.6	86.8
	12	5	6.6	6.6	93.4
	13	5	6.6	6.6	100.0
Total		76	100.0	100.0	

Figure 10 - Descriptive statistics on Startup's sector

8.2) B – Variables and Measures

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.851	.851	4

Reliability Statistics

Cronbach's Alpha	N of Items
.704	4

Reliability Statistics

Cronbach's Alpha ^a	N of Items
.793	6

a. T

Figure 11 - Cronbach's Reliability Alpha

8.3) C – H1 - Startups’ usage of Social Media Platforms

		Report	
		Mean_External	Mean_Internal
Mean		3.91	3.14
N		76	76
Std. Deviation		.461	.412

Ideation					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	11	14.5	14.5	14.5
	1	65	85.5	85.5	100.0
Total		76	100.0	100.0	

Development					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	6	7.9	7.9	7.9
	1	70	92.1	92.1	100.0
Total		76	100.0	100.0	

Launch					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	2.6	2.6	2.6
	1	74	97.4	97.4	100.0
Total		76	100.0	100.0	

Figure 12 - Descriptive statistics on usage of Social Media in the three new product development stages

		Ideation_choice	Development_choice	Launch_choice	Founding	Number of Employees	Funding Stage
Ideation_choice	Pearson Correlation	1	.439**	.484**	.431**	.001	-.172
	Sig. (2-tailed)		<.001	<.001	<.001	.996	.137
	N	76	76	76	76	76	76
Development_choice	Pearson Correlation	.439**	1	.466**	.469**	.009	-.098
	Sig. (2-tailed)	<.001		<.001	<.001	.941	.398
	N	76	76	76	76	76	76
Launch_choice	Pearson Correlation	.484**	.466**	1	.333**	.064	-.068
	Sig. (2-tailed)	<.001	<.001		.003	.580	.560
	N	76	76	76	76	76	76
Founding	Pearson Correlation	.431**	.469**	.333**	1	-.152	-.413**
	Sig. (2-tailed)	<.001	<.001	.003		.190	<.001
	N	76	76	76	76	76	76
Number of Employees	Pearson Correlation	.001	.009	.064	-.152	1	.352**
	Sig. (2-tailed)	.996	.941	.580	.190		<.001
	N	76	76	76	76	76	76
Funding Stage	Pearson Correlation	-.172	-.098	-.068	-.413**	.352**	1
	Sig. (2-tailed)	.137	.398	.560	<.001	<.001	
	N	76	76	76	76	76	76

** . Correlation is significant at the 0.01 level (2-tailed).

Figure 13 - Correlation Matrix between the three new product development stages and control variables

8.4) D - H2a - Ideation Phase and the usage of Company-Built Social Media

Statistics^a

		Company_Built_1	Company_Licensed_1	Public_1
N	Valid	11	11	11
	Missing	0	0	0
Mean		.00	.00	.00
Median		.00	.00	.00
Mode		0	0	0
Variance		.000	.000	.000

a. Ideation = 0

Statistics^a

		Company_Built_1	Company_Licensed_1	Public_1
N	Valid	65	65	65
	Missing	0	0	0
Mean		2.18	.00	.35
Median		2.00	.00	.00
Mode		2	0	0
Variance		.309	.000	.232

a. Ideation = 1

Figure 14 - Distribution of Social Media usage in the Ideation stage

Company_Built_1^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	1.5	1.5	1.5
	1	2	3.1	3.1	4.6
	2	46	70.8	70.8	75.4
	3	16	24.6	24.6	100.0
Total		65	100.0	100.0	

a. Ideation = 1

Company_Licensed_1^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	65	100.0	100.0	100.0

a. Ideation = 1

Public_1^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	42	64.6	64.6	64.6
	1	23	35.4	35.4	100.0
Total		65	100.0	100.0	

a. Ideation = 1

Figure 15 - Number of Social Media platforms used in the Ideation stage

8.5) E – H2b - Development Phase and the usage of Company Licensed Social Media

Statistics^a

		Company_Built_2	Company_Licensed_2	Public_2
N	Valid	6	6	6
	Missing	0	0	0
Mean		.00	.00	.00
Median		.00	.00	.00
Mode		0	0	0
Variance		.000	.000	.000

a. Development = 0

Statistics^a

		Company_Built_2	Company_Licensed_2	Public_2
N	Valid	70	70	70
	Missing	0	0	0
Mean		.00	3.79	.51
Median		.00	3.00	1.00
Mode		0	2	1
Variance		.000	6.432	.253

a. Development = 1

Figure 16 - Distribution of Social Media usage in the Development stage

Company_Built_2^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	70	100.0	100.0	100.0

a. Development = 1

Company_Licensed_2^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	4	5.7	5.7	5.7
	2	24	34.3	34.3	40.0
	3	8	11.4	11.4	51.4
	4	21	30.0	30.0	81.4
	7	7	10.0	10.0	91.4
	10	6	8.6	8.6	100.0
	Total	70	100.0	100.0	

a. Development = 1

Public_2^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	34	48.6	48.6	48.6
	1	36	51.4	51.4	100.0
Total		70	100.0	100.0	

a. Development = 1

Figure 17 - Number of Social Media platforms used in the Development stage

8.6) F – H2c - Launch Phase and the usage of Public Social Media

Statistics^a

		Company_Built_3	Company_Licensed_3	Public_3
N	Valid	2	2	2
	Missing	0	0	0
Mean		.00	.00	.00
Median		.00	.00	.00
Mode		0	0	0
Variance		.000	.000	.000

a. Launch = 0

Statistics^a

		Company_Built_3	Company_Licensed_3	Public_3
N	Valid	74	74	74
	Missing	0	0	0
Mean		.00	.00	5.41
Median		.00	.00	5.00
Mode		0	0	4
Variance		.000	.000	4.409

a. Launch = 1

Figure 18 - Distribution of Social Media usage in the Launch stage

Company_Built_3^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	74	100.0	100.0	100.0

a. Launch = 1

Company_Licensed_3^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	74	100.0	100.0	100.0

a. Launch = 1

Public_3^a

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	2	2.7	2.7	2.7
	2	1	1.4	1.4	4.1
	3	6	8.1	8.1	12.2
	4	24	32.4	32.4	44.6
	5	6	8.1	8.1	52.7
	6	21	28.4	28.4	81.1
	9	14	18.9	18.9	100.0
	Total	74	100.0	100.0	

a. Launch = 1

Figure 19 - Number of Social Media platforms used in the Launch stage

8.7) G – H3 - The impact of Social Media usage on the New Product Development process

Report

Innovation			
usage	Mean	N	Std. Deviation
Launch	11.67	6	2.160
Development & Launch	13.33	3	1.155
Ideation & Development & Launch	15.65	65	2.570
Development	9.50	2	2.121
Total	15.08	76	2.865

ANOVA Table

		Sum of Squares	df	Mean Square	F	Sig.
Innovation * usage	Between Groups (Combined)	162.165	3	54.055	8.585	<.001
	Within Groups	453.362	72	6.297		
	Total	615.526	75			

Measures of Association

	Eta	Eta Squared
Innovation * usage	.513	.263

Correlations

		SM_importance	Innovation	SM_count
SM_importance	Pearson Correlation	1	.403**	.430**
	Sig. (2-tailed)		<.001	<.001
	N	76	76	76
Innovation	Pearson Correlation	.403**	1	.312**
	Sig. (2-tailed)	<.001		.006
	N	76	76	76
SM_count	Pearson Correlation	.430**	.312**	1
	Sig. (2-tailed)	<.001	.006	
	N	76	76	76

** . Correlation is significant at the 0.01 level (2-tailed).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.712 ^a	.507	.501	.740

a. Predictors: (Constant), SM_count

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	13.163	.748		17.591	<.001		
	SM_count	.465	.089	.432	2.822	.002	1.000	1.000

a. Dependent Variable: Innovation

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Launch_choice, Development_choice, Ideation_choice ^b	.	Enter

a. Dependent Variable: Innovation

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.786 ^a	.617	.602	2.698

a. Predictors: (Constant), Launch_choice, Development_choice, Ideation_choice

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	91.494	3	30.498	4.190	<.001 ^b
	Residual	524.032	72	7.278		
	Total	615.526	75			

a. Dependent Variable: Innovation

b. Predictors: (Constant), Launch_choice, Development_choice, Ideation_choice

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	13.624	.834		16.336	<.001		
	Ideation_choice	.140	.163	.110	2.259	.002	.547	1.827
	Development_choice	.226	.142	.232	2.598	.001	.560	1.786
	Launch_choice	.589	.354	.245	2.664	.001	.724	1.381

a. Dependent Variable: Innovation


Affidavit

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..... Diogo Miguel Ervilha da Silva (Print name)

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