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"How to choose between the Business Plan and the Lean Start-up approaches when developing a business model depending on the context governing the project development?"

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Academic year 2019-2020

LOUVAIN-LA-NEUVE | BRUXELLES | MONS | TOURNAI | CHARLEROI | NAMUR
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Acknowledgements

First of all, I would like to express my very great appreciation to Mrs. Hermans, my primary research supervisor, for her patient guidance and the open discussions we had over the past few months, during which she consistently provided leads for further improvements.

Then, I am particularly grateful for the insight and open-mindedness of Mr. Lejeune, who made valuable suggestions from a structure standpoint while granting consequent room for maneuver.

Finally, I would like to extend my thanks to all the interviewees who took their own time to answer the questions as part of the practical part of the dissertation.

Executive Summary

Over the past decades, concern about entrepreneurship has exponentially risen. At the core of this topic, the search for a sustainable business model has led practitioners to develop approaches to help entrepreneurs within this sustainable business model development. The two main ones being the Business Plan and the Lean Start-up approaches, which have often been opposed. This dissertation led to another conclusion.

Through a literature review revolving around the understanding of the two approaches, several variables depicting the context of the project were identified, amongst which the Business Lifecycle was retained, to identify needs and challenges faced through each stage. In conclusion, it came out that the two approaches could instead be described as complementary, the Lean Startup answering the needs and challenges faced in the early stage, within a highly dynamic and ever-changing environment, while the Business Plan is fitting the growth stages, where optimization and market share maximization are central.

However, these approaches say little about the idea generation itself. And while customer feedback is at the heart of the Lean Startup, its relevance within a radical innovation project was challenged. Based on the assumption that most of the time, the customer does not even know what he or she wants, the hypothesis of the Lean Startup as a drag to innovation was discussed. To do so, semi-directive interviews were conducted on eight founders or current CEOs of Smart City and IoT related companies, which sector was described as highly innovative.

Concretely, it seems that yes, the Lean Startup might also apply radical innovation. However, it led to several limits identification. Indeed, those offers usually are associated with high initial capital requirements, leaving the entrepreneurs with another choice than turning to external investors, who see the Business Plan as mandatory. Such a case does impact the previous recommendations. Additionally, it came out of the field that one of the critical success factors relied upon the team, which topic is not included in the LS, coupled with the BMC approach. Finally, the lack of vision and mission notions as part of this approach, which was mentioned by the interviewees, led the author to review his entrepreneurial recommendations.

In conclusion, the author advocates a complementary LS-BP approach, moving to the latter when transitioning to the growth stages. However, addressing the vision, mission, and team topics as part of the first approach is highly recommended. Finally, the author has to acknowledge that

these recommendations would appear as less relevant in case of high initial capital requirements. Nevertheless, the writer suggests considering a crowdfunding campaign as an alternative funding source, which fits the Lean Startup approach by creating the market, getting first customer validation, and ambassadors.

Résumé exécutif

Au cours des dernières années, l'engouement autour du concept d'entrepreneuriat s'est accru de manière exponentielle. Au centre de ce sujet, la recherche d'un business model soutenable a conduit les praticiens à développer des approches dans le but d'aider les entrepreneurs dans le développement de ce business model soutenable. Les deux approches principales sont le Business Plan et le Lean Start-up, et ont souvent été opposées. Cette thèse a conduit à une autre conclusion.

En effet, à travers la revue de littérature axée autour de la compréhension de ces deux approches, plusieurs variables caractérisant le contexte du projet ont été identifiées, parmi lesquelles le Business Lifecycle a été retenu, avec pour objectif l'identification des besoins et challenges auxquels a dû faire face l'entreprise à travers chaque étape. En conclusion, il en est ressorti que les deux approches pourraient en fait être considérées complémentaires, le Lean Startup répondant aux besoins et challenges rencontrés lors des premières étapes de vie du projet, dans un environnement hautement dynamique et mouvant, alors que le Business Plan correspond plutôt aux étapes de croissance, où l'optimisation et la maximisation des parts de marché sont centrales.

Cependant, ces approches ne disent que très peu quant à la génération de l'idée en tant que telle. Et alors que le Lean Startup prône la collection de feedback-client, sa pertinence dans le cadre d'un projet d'innovation radicale mérite d'être débattue. Sur base de l'hypothèse que, la plupart du temps, le consommateur ne sait pas réellement ce qu'il désire, l'hypothèse du Lean Startup comme un frein à l'innovation a été discutée. Pour cela, des entretiens semi-directifs ont été menés auprès de 8 fondateurs ou CEO d'entreprises liées au domaine de la Smart City et de l'IoT, secteur étant décrit comme hautement innovant.

Concrètement, il semble que oui, le Lean Start-up s'applique également à l'innovation radicale. Cependant, cette recherche pratique a mené à l'identification de plusieurs limites. En effet, ces innovations sont généralement associées à de grands besoins en capitaux initiaux, ne laissant aux entrepreneurs d'autre choix que de se tourner vers des investisseurs externes, qui considèrent le Business Plan comme obligatoire. Un tel cas impacte bien entendu les recommandations de l'auteur. De plus, il est ressorti de l'étude de terrain que l'un des facteurs clés de succès reposait sur l'équipe, quel sujet n'est pas inclus dans une approche Lean Startup, même couplée au Business Model Canvas. Finalement, l'absence des notions de vision et mission dans le cadre

d’une approche Lean Startup a également mené l’auteur a réévalué ses recommandations entrepreneuriales.

En conclusion, l’auteur promeut une approche complémentaire LS-BP, passant au second lors de la transition vers les étapes de croissance de l’entreprise. Cependant, aborder les sujets de la vision, de la mission ainsi que de l’équipe dans le cadre du premier est également recommandé. Finalement l’auteur doit reconnaître que ses recommandations semblent moins pertinentes en cas de besoins en capitaux initiaux élevés. Néanmoins, l’écrivain identifie et suggère une campagne de crowdfunding comme source alternative de financement, méthode complémentaire au Lean Startup en créant un marché, en acquérant une première validation des consommateurs ainsi que des ambassadeurs.

Samenvatting

Deze laatste jaren is het enthousiasme voor het concept van ondernemerschap exponentieel verhoogd. Het vinden van een duurzame business model leidde de beoefenaars, in de kern van ditonderwerp, tot het ontwikkelen van nieuwe benaderingen, met als doel de ondernemers te helpen.De twee voornaamste benaderingen zijn de Business Plan en de Lean Start-Up, vaak tegenovergestelde. Deze hypothese oproept een andere conclusie.

De literaire tijdschrift rond het begrijpen van die twee benaderingen leidde immers tot hetidentificeren van meerdere variabelen, o.a. Business Lifecycle, met als doel het identificeren vannoden en uitdagingen waarmee de maatschappij moest bij elke stap omgaan. Tot slot leren wij dat deze twee benaderingen zouden als aanvullend beschouwd moeten worden,aangezien de Lean Startup aan de noden en uitdagingen van de eerste fasen van de looptijd vanhet project beantwoordt (in een zeer dynamische en veranderende context) terwijl de Business Plan meer geschikt is voor groeiperioden, wanneer optimalisatie en maximalisatie van marktaandelen belangrijker zijn.

Toch zeggen deze benaderingen weinig rond het genereren van ideeën. Terwijl de Lean Startup pleit voor het verzamelen van klant-feedback, moet haar relevantie in het kader van radicale innovatie ter discussie komen. Als meestal weet de consument niet precies wat hij wilt, werd er besproken over de hypothese van de Lean Startup als een rem voor innovaties. Daarvoor warden er semi-directieve interviews gevoerd met 8 stichters of CEO's van ondernemingen in verband met Smart City and IoT, aangezien deze sector als zeer innoverende beschouwd is.

Concreet schijnt dat Lean Startup ook toepasbaar is in geval van radicale innovatie. Toch leidde deze praktisch onderzoek naar enkele grenzen. Inderdaad zijn deze innovaties vaak gelinkt naar grote behoeften in aanvangskapitaal. De aannemers zijn dus verplicht zich tot externe investeerders – die het businessplan als een verplichting beschouwen – te wenden. Zo een geval heeft een impact op de aanbevelingen van de auteur. Bovendien toont de studie dat de ploeg een sleutel tot succes is, een dit onderwerp is niet in een Lean Startup benadering opgenomen, zelf gekoppeld aan Business Model Canvas. Eindelijk het ontbreken van visie- en missie-begrippen in het kader van een Lean Startup benadering leidde de auteur tot de herziening van zijn aanbevelingen.

Tot slot adviseert de auteur een bijkomende LS-BP benadering. De overgang naar de tweede benadering moet gebeuren op moment van de transitie naar groeifasen. Toch is het ook aanbevolen de visie- en missie-onderwerpen, net als de ploeg, in het kader van de eerste benadering te beschouwen. Eindelijk erkent de auteur dat zijn aanbevelingen minder relevant schijnen in geval van grote behoeften in aanvangskapitaal. Toch stelt de auteur een crowfundingscampagne voor, als alternatieve financieringsbron, wat is grotendeels vergelijkbaar met en Lean Startup door een markt te creëren, een eerste bevestiging van de consumenten te krijgen en ambassadeurs te verzamelen.

Table of Contents

SECTION A. THEORETICAL PART 1

1 INTRODUCTION 1
2 METHODOLOGY 2
3 DEFINITIONS 3
3.1 THE BUSINESS MODEL 3
3.2 THE BUSINESS MODEL THROUGH THE BUSINESS MODEL CANVAS 4
3.3 RISK VS UNCERTAINTY & CAUSATION VS EFFECTUATION 6
4 THE BUSINESS PLAN APPROACH 9
4.1 INTRODUCTION AND MEANINGS 9
4.2 CLASSICAL STRUCTURE 10
4.3 ADVANTAGES AND DISADVANTAGES 14
4.4 CONCLUSION 16
5 THE LEAN START-UP APPROACH 18
5.1 ORIGIN AND PURPOSES 18
5.2 KEY CONCEPTS AND CONTENTS 19
5.3 ADVANTAGES AND DISADVANTAGES 21
5.4 CONCLUSION 23
6 LITERATURE REVIEW SUMMARY 24
7 ANALYSIS GRID: THE BUSINESS LIFECYCLE 28
7.1 PRE-VENTURE 28
7.2 EXISTENCE OR INFANCY 30
7.3 EARLY GROWTH 31
7.4 EXPANSION OR SUSTAINED GROWTH 32
7.5 MATURITY 33
7.6 DECLINE 34
8 ANALYSIS 36
8.1 THE PRE-VENTURE 36
8.2 EXISTENCE OR INFANCY 37
8.3 EARLY GROWTH & SUSTAINED GROWTH 37
8.4 MATURITY & DECLINE 38
9 DISCUSSIONS 40

SECTION B. PRACTICAL PART 45

1 INTRODUCTION 45
2 CONCEPTS DEFINITION 45
2.1 RADICAL INNOVATION 46
2.2 SMART CITY 47
3 METHODOLOGY 48
3.1 RESEARCH QUESTIONS, APPROACH AND COLLECTION METHOD 48
3.2 THE SAMPLE 50
3.3 THE ANALYSIS 51
4 DESCRIPTIVE RESULTS PRESENTATION 167
4.1 THE ENTREPRENEURS' BACKGROUND 167
4.2 THE OPPORTUNITY 168
4.3 THE FIRST OFFER DEVELOPMENT 169
4.4 SCALE 176
4.5 THE KEY SUCCESS FACTORS & MAIN CHALLENGES 180
5 DISCUSSIONS 184
6 GENERAL CONCLUSION 190

SECTION C. BIBLIOGRAPHY 192

SECTION D. APPENDICES 88

1 INTERVIEW GUIDE 88
2 RESPONDENTS' INFORMATION (CONFIDENTIAL) 90
3 TRANSCRIPT (CONFIDENTIAL) 91
3.1 MICHAEL JANSSEN 91
3.2 GIANNI MINETTI 101
3.3 CHRISTOPHE ORCEAU 108
3.4 MARC BOHER 116
3.5 YANNICK DELIBIE 125
3.6 WILL GIBSON 133
3.7 ROBERT GLATZ 142
3.8 JEAN BEKA 149
4 CODEBOOK WITH RESULTS (CONFIDENTIAL) 167

Section A. Theoretical Part

1 Introduction

Entrepreneurship. What a broad term usually referring to a wide range of different topics. While it has been defined *"as the scholarly examination of how, by whom, and with what effects opportunities to create future goods and services are discovered, evaluated, and exploited"* by Venkataraman (as cited in Shane & Venkataraman, 2000), we can confidently say that no matter the definition, the concern about the topic has risen through the last century and especially during the last decades (Bosetti, 2018). Given this huge concern, several approaches and concepts were born, with the purpose of helping people willing to develop a sustainable business model, amongst which the business plan has been considered as essential since 1960 (Ananou, Filion & Schmitt, 2012; Osterwalder, 2004; Witmeur, 2016). However, over the past years, some have argued that this later "had to be burned", that it was not relevant anymore (Cohen, 2008). Over the last decade, it has often been confronted with another alternative approach: the Lean Start-up (Ries, 2011). Nevertheless, rather than trying to determine whether one approach unconditionally outperforms the other, the reader might wonder whether conditions governing the project development influence the relevance of the Business Plan and the Lean Start-up. And instead of seeing those as the opposite, could we consider them as complementary? This thinking led to the following research question,

"How to choose between the business plan and the lean startup approaches when developing a business model depending on the context governing the project development?".

Through this paper, the first section will be dedicated to key concepts definition, such as a business model, which is central to the research question. Then, the two approaches will be tackled, starting with the business plan. While it has sometimes been used without even knowing why (Cohen, 2008), replacing its purpose, as well as its structure into the context, will be interesting in order to identify its potential advantages and drawbacks. Thereafter, the same rationale will be applied to the Lean Start-Up approach, understanding its structure before identifying its perks and downsides. Through this literature review, the author aims to, first, provide a deep understanding of the two approaches, and then to identify potential variables, such as the sector, for example, that could impact the relevance of approaches' usage as well as

identifying potential restricting conditions, based on the said assumption that depending on the context of the project, one method might be a better fit.

At the end of this literature review and analysis, the reader should be able to identify the divergences between the different approaches as well as understanding the theoretical concepts and rationales behind. Additionally, the identified variables will serve as a basis intending to guide an entrepreneur in his/her project development, before identifying the next steps that would support the discussion.

2 Methodology

While the structure of the paper has briefly been introduced, the author intends to, first, clearly establish the methodology that will be followed through this literature review and analysis. Globally, this dissertation is part of an exploratory logic, characterized by uncertainty, to a certain extent. Indeed, when adopting such an approach, the researcher does not precisely know yet what he is looking for: he only has emitted leads for answering the research question (de Moerloose, 2019). As a reminder, the question the author intends to address is

"How to choose between the business plan and the lean startup approaches when developing a business model depending on the context governing the project development?".

In this case, the leads the research question relies upon are the potential complementarity of the two approaches as well as key variables impacting the relevance of the BP and the LS, or even a cyclical approach to the selection, switching from one approach to another. While the global approach of this master thesis consists of an explanatory process, the first section belongs to the descriptive approach. Indeed, key terms as well as the two approaches will be defined based on existing literature. To find so, research engines such as *GOOGLE SCHOLAR* and *DISCOVERY* will serve as a solid basis, complemented with scientific engines such as *CAIRN* and *RESEARCHGATE*. As for books, notice that those will serve as references in the case where it would be one of the first historical sources mentioning the concerned topic, or a complementary version redacted by the same author. For example, given that Eric Ries was the one initially introducing the Lean Startup topic, his book will be used as a reference.

Through this first literature review, the author intends to identify the said impact variables, representing the first analysis round. Then, a second round of literature review will be conducted

in order to support the discussion based the identified variables. For example, one of the leads the author has emitted at this point is that the capital requirements of a project might have an impact on the relevance of each approach. If identified as relevant through the first section, the author will give a deeper look at the existing discussions on the topic. This section will be described as the analysis grid, determining the variables to be used in order to analyze the two approaches.

Finally, the said analysis will be conducted, assessing the potential impact of one or several variables on the approaches' relevance and determining when to use the business plan or the lean start-up, but also identifying the limiting conditions of each usage. In conclusion, the key findings will be wrapped up before suggesting leads for further discussions.

3 Definitions

As previously mentioned, clear definitions have to be set up before developing and addressing the two approaches. Indeed, defining some key should facilitate the reader's understanding of the paper, starting with a "business model", which concept is central to the research question, and for which the business model canvas concept introduction might help the reader in understanding the concept.

On top of that, while business plan and lean startup mostly are confronted nowadays, there is a small portion of the existing literature suggesting that the distinction between risk and uncertainty might be the key variable guiding the project carrier when choosing between the two approaches. Therefore, risk and uncertainty will here be defined in order to understand the rationale behind this suggestion afterward.

Additionally, it is interesting to notice that risk and uncertainty have been associated with the concepts of causation and effectuation into the existing literature. Consequently, the author will also introduce those terms, which should help the reader understand how the relation to opportunity might influence the said choice afterward.

3.1 The Business Model

According to several papers, authors have reached a consensus: the one that no consensus about the business model definition had been reached yet (Da Silva & Trknam, 2013; Jouison-Laffite, Krémer, & Verstraete, 2012). Indeed, those peers tend to believe that the business model concept

is often misinterpreted and misused, regularly confused with other terms such as strategy, business concept, or even economic model (Da Silva & Trknam, 2013; Jouison-Laffite et al., 2012). Nevertheless, more and more papers tend to move towards similar and common concepts to be included under the business model umbrella. Therefore, for the sake of this paper, a business model will be considered as according to Teece, representing the way *"a company creates, delivers, and captures value"* (2010, p. 173).

However, one might argue that this definition is broad concerning what those three categories involved. Therefore, introducing the Business Model Canvas should help the reader understanding the practical implications of this business model definition.

3.2 The Business Model through the Business Model Canvas

The Business Model Canvas, also known as the BMC, has been created by Alexander Osterwalder in collaboration with Yves Pigneur, who together published *"Business Model New Generation"* in 2010, an entrepreneurial booked reaching the one million threshold sales in 2014 (Stenn, 2017).

Their work was based on the idea that every single business was different, and that new ones constantly were created (Osterwalder & Pigneur, 2011). Therefore, their final purpose consisted in the creation of a general canvas to be used, which might be applied to every single business, allowing this "new business model creation" by focusing on its key aspects (Coes, 2014; Murray & Scuotto, 2015; Osterwalder & Pigneur, 2010; Stenn, 2017). In other words, the BMC might be described as a roadmap for every entrepreneurial journey, depicting the general features or categories of a business model and trying to explain it as a whole (Coes, 2014; Murray & Scuotto, 2015).

By creating the Business Model Canvas, which is presented here below (see Fig. 1), Alexander Osterwalder and Yves Pigneur have therefore provided a holistic communication tool based on nine dimensions considered as the cornerstones and referring to Teece's definition of a business model (Ching & Fauvel, 2013; Osterwalder & Pigneur, 2010).

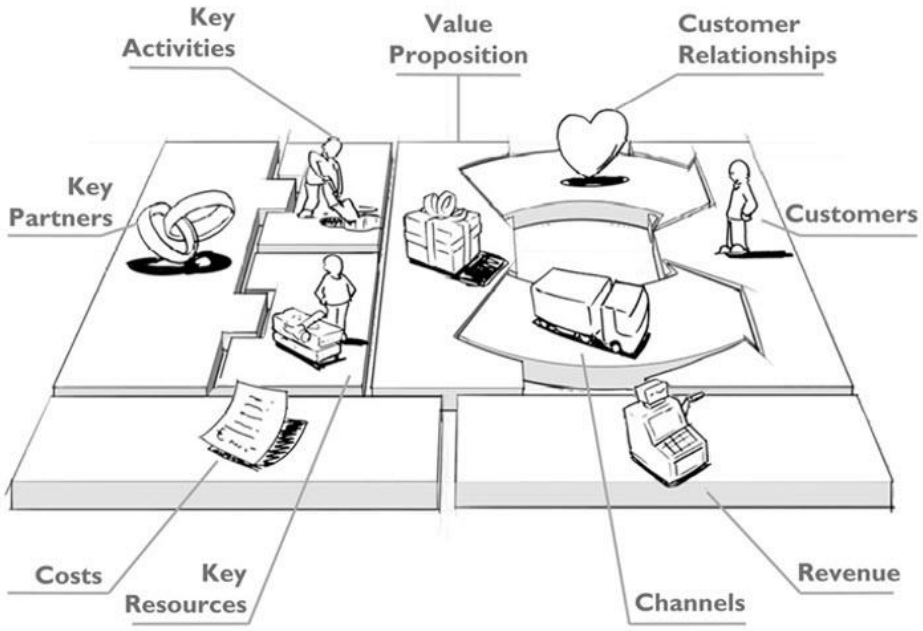

Fig. 1: The Business Model Canvas' dimensions (Osterwalder & Pigneur, 2011, pp. 18-19).

On the left side of the previous figure, we have the key partners, the key activities, and the key resources, which together represent the feasibility of the project, or the process through which the value is **created** (Hermans, 2019; Stenn, 2017). On the right side, the customer relationships, the customer segments and the distribution channels relate to the project desirability, referring to the **delivery** of the value (Hermans, 2019). Finally, the two lower parts represent the viability of the project, based on the costs structure and the revenue streams, assessing the amount of value **captured** by the project carriers (Hermans, 2019; Stenn, 2017). Notice that, on top of those three dimensions, the BMC includes the value proposition, usually considered as the central dimension (Coes, 2014). This one identifies what truly makes your offer different than your competitors' ones, and why consumers would buy your product instead of another (Janssen, 2019). Notice that when developing a business model considered as feasible, desirable and viable, the intersection of the three categories characterizes it as sustainable (Hermans, 2019).

Before going any further, the author would like to point out that the usage of this tool as an entrepreneurial one, alone, might be associated with several limits. Indeed, according to Coes (2014), who redacted a master thesis entitled "Critically assessing the strengths and weaknesses of the business model canvas", it came out of his researches that, amongst other things, the BMC was leading to an ignorance of external factors (competition, imitation, …), not taking the human and team interaction into consideration, without even addressing the strategic part of the company, such as the mission, the vision and the values of a company. This might also imply focusing on money generation, consequently excluding other types of purposes such as non-

profit ones (Coes, 2014). Additionally, the 9 blocks are seen as independent while they actually interact together, and some are much more developed into their book (key resources and key activities) than others (costs structure). On top of that, one could claim that this tool does not include any measurement of risk and uncertainty (Brillinger, Els, Schafer, & Bender, 2020), which concepts have sometimes been described as the key variable guiding the project carrier when choosing between the Lean Startup and the Business Plan approaches, as previously mentioned. To better grasp this limit and its importance as part of the two approaches, we will now turn to the risk and uncertainty concepts.

3.3 Risk vs Uncertainty & Causation vs Effectuation

We often hear that entrepreneurs are risk-takers. Well, it seems that the word does not fully describe every situation in which entrepreneurs may act. Indeed, according to Frank Knight (1921), an American economist, risk and uncertainty are not necessarily the same things, both describing different aspects of a situation. While the definitions of those terms have often been debated, the purpose here is not to re-discuss it, but well informing the reader that a distinction can be done.

In order to align with the entrepreneurship literature, we will use Knight's definition as a reference, which one has been summarized by Chitita, Sarpe, & Toma as follows: "*Risk refers to situations in which probabilities targets can be identified for possible results. In other words, it can be quantified. Instead, uncertainty refers to situations or events about which there is no sufficient information to identify objective probabilities" (2012, p.976).* In summary, the probability concept is at the heart of the opposition between risk and uncertainty, as defined by Knight. Can we determine or estimate occurrence probabilities for an event? If yes, we are facing a risk context. Otherwise, in *"situations where we cannot know all the information we need in order to set accurate odds in the first place" (Dizikes, 2010),* the context will be considered as belonging to the uncertainty area. Through the Business Plan and Lean Start-up introduction, will we try to understand why some may have suggested one's usage within a risk or uncertainty context (Ghezzi, 2019).

Interestingly, Ghezzi (2019) also suggested that, in situation of uncertainty (risk) and while using LS (BP), the main decision-making logic is the so-called effectual (causal) thinking, concept introduced by Sarasvathy.

Indeed, a few years ago, Saras Sarasvathy introduced the two complementary concepts of causation and effectuation. Those characterize different "philosophies" to elaborate a business model or idea development. While causation mainly relates to the material taught in business schools, a sequential progression going from an idea to market research, business plan redaction, forecasts, and so on (Sarasvathy, 2008), there is no denying that the concept of effectuation has widespread over the past two decades, as proven by the special issues of Small Business Economics: "Effectuation and entrepreneurship theory", in 2019 (Alsos & al., 2019). Globally, those two rationales are opposite in the sense that an idea development might follow different paths with different beginning points (Sarasvathy, 2008).

As for causal reasoning, *"it begins with a predetermined goal and a given set of means, and seeks to identify the optimal alternative* [...] *to achieve the given goal*" (Sarasvathy, 2008, p.2). According to Drucker *(cited in Hermes, 2016, p.3),* entrepreneurs here seek to maximize their expected returns, while minimizing or at least managing the risk, based on a clear path and analysis (Sarasvathy, 2011).

Regarding effectuation, the process is reversed: it begins with a set of means and *"allows goals to emerge contingently over time from the varied imagination and diverse aspirations of the founders and the people they interact with (Sarasvathy, 2008, p.2),* which process, or path, has been summarized here below (see Fig. 2).

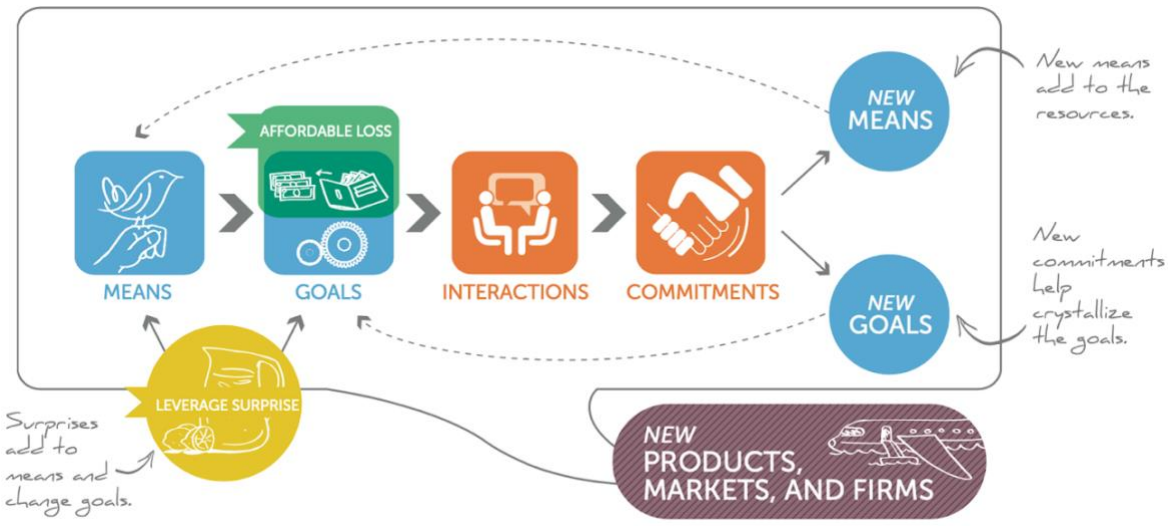

Fig. 2: The effectual cycle (Sarasvathy, 2011, p.3)

Into the previous figure, we notice that an effectual process includes several concepts, starting with the means, also known as the **bird-in-hand step**, as opposed to pre-set goals: who am I, what do I know and who do I know? (Sarasvathy, 2011) Thereafter, rather than trying to identify the expected returns, an effectual process relies upon the concept of **affordable loss**: what can I

afford to lose at each step? Then, and only then, the entrepreneur will start identifying goals based on his/her means as well as the affordable loss (Sarasvathy, 2001). However, most of the time, the initially identified goals will change based on three variables: the "lemonade", the interactions, and the commitments (Sarasvathy, 2011). What Dr. Sarasvathy described as the **"lemonade"** consists of the surprise factor: rather than avoiding surprises, this process suggests embracing those if any, which could be perceived as potential clues to create new markets (Sarasvathy, 2011). Throughout an entrepreneurial journey, there is no denying that the project carrier will build partnerships with self-selecting partnerships, obtaining commitments in a co-creation approach, and forming a **"patchwork quilt"** (Sarasvathy, 2011). Instead of considering other companies as threats and competitors, Sarasvathy put emphasis on potential collaboration (2011). Thanks to this process, the entrepreneur will perhaps create new markets, products, and firms and is now the **"pilot-in-the-plane"** (Sarasvathy, 2001). *"An effectual worldview is rooted in the belief that the future is neither found nor predicted, but rather made"* (Sarasvathy, 2011, p.2). Globally, those two philosophies could be summarized as presented below (see Table 1).

	Causation	**Effectuation**
Goals are ...	Pre-defined	Emerging
Decision parameters include...	Maximization of expected returns	Affordable loss
Dealing with uncertain/risky future through...	Business planning and competitive analysis	Pre-commitment and alliances
Exploitation of…	Capabilities and resources	Environmental contingencies

Table 1: Causation and Effectuation features' summary (Based on Chandler, DeTienne, McKelvie & Mumford, 2009, p.377)

When combining the concepts of risk & uncertainty with the effectuation and causation approaches, we notice that effectuation particularly well fits an uncertainty context, as mentioned by multiple authors (Hermes, 2016; Sarasvathy, 2011). Therefore, as the reader perhaps understood, those variables introduction has a double-purpose: allowing the reader to understand why risk, causation and business plan have usually been associated together while uncertainty, effectuation and lean startup are often seen as a good fit, on the other hand. Then, the risk vs uncertainty distinction will be challenged as a key variable afterward.

Notice that the point here was not to determine whether or not one rationale (causation or effectuation) outperforms the other, but just understanding that different possibilities exist, and which choice will ultimately depend on the person in charge of the project and the environment, supporting the entrepreneurial objective (Sarasvathy, 2008) and which is aligned with our research question.

After having defined key terms facilitating the reading of this master thesis, the next section will be dedicated to the two identified approaches helping to develop a business model. For each of those, we will start a brief and global introduction, followed by its typical structure as well as the associated tools, before addressing the perks and disadvantages, based on which conclusions will be drawn and understanding the risk vs uncertainty suggested classification.

4 The Business Plan Approach

In 2013, during a lecture on the BP, which stand for Business Plan, given by Olivier Witmeur, this latter claimed that this approach had been used in many different situations, sometimes forgetting about the true purpose of the Business Plan. Indeed, it seems that given the fact it has been considered as a "must-have" when launching a project, some people applied it when it was not required, losing sight of the actual objective and interest linked to a business plan creation (Hoarau, Louesdon, Sol, Weymann & Witmeur, 2013). Therefore, this section aims to come back on the BP based on the existing literature by, first, clearly defining it, as a global approach, as well as its purposes. Then, its typical structure will be tackled before listing the perks and downsides of the method.

4.1 Introduction and Meanings

While definitions of the business plan have multiplied over the past decades, scientists globally agree on saying that it represents the synthesis document of a project investment or the mid-term evolution or future state of the project (Boujelbene, Chaabouni, Fayolle & Ghorbell, 2012; Colas, Laguecir & Massue, 2010; Kalousis & Leger-Jarniou, 2015; Sion, 2016).

As for the purposes or functions the business plan approach intends to fulfill, it globally seeks for a sustainable business model identification. On top of that, the most commonly known purpose probably is the attempt of convincing investors to pitch into the project. Nevertheless, restraining the purposes of the BP to the funds' research might be restrictive given that, depending on the players involved, many other goals might be at stake. Based on the work of Colas, Laguecir & Massue (2010), the author has decided to consider the purposes of the

business plan following interactions between the project carrier, the stakeholders, and the project itself, as schematized by Fig. 3.

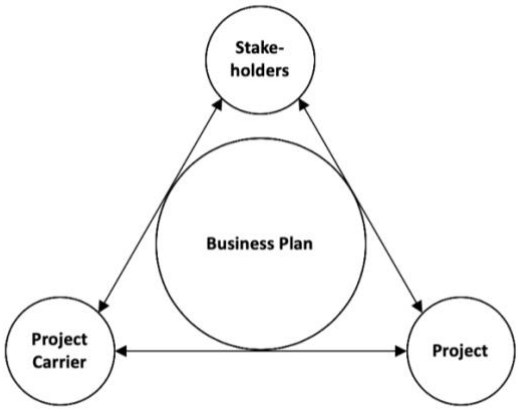

Fig. 3: Interactions between the different actors of a project development

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Regarding the relation between the project carrier and the stakeholders, the business plan acts as a communication tool (Cohen, 2008; Kalousis & Léger-Jarniou, 2015; Monod, 2003; Sion, 2016; Witmeur, 2012). Through the document, the entrepreneur tries to convince the stakeholders investing in the project, known as the most common function of the business plan (Monod, 2003). Nevertheless, it is interesting to notice that, in some cases, investors will never see the project itself, which is mainly true for bankers who do not get out of the office. Therefore, the business plan document will potentially act as a representation of the project for the stakeholders (Colas, Laguecir & Massue, 2010). Finally, the BP allows the entrepreneur to "exteriorize" the project, as described by Giraudeau (2014). Indeed, according to the same author, project carriers already have the project in mind, most of the time (Giraudeau, 2014). Nevertheless, putting it on a piece of paper should lead the project carrier to answer some of the big questions as well as structuring his/her idea, and identify key actions to be undertaken (Cohen, 2008; Colas, Laguecir & Massue, 2010; Giraudeau, 2014). To do so, the business plan usually follows a typical structure, which will be addressed in the next section.

4.2 Classical Structure

By having a look at the existing literature, the first conclusion is that there is no precise structure for a business plan, in the sense that the writer is free to add the topics he judges essential (Sion, 2016). A potential template could be the one suggested by Alyssa Gregory (2018), structured as presented below, and which globally fits the one provided by Swanson (2017). Notice that while there is, to a certain extent, granted freedom about its structure, some aspects have to be tackled no matter what, including the further mentioned sections (Monod, 2002; Sion, 2016).

4.2.1 Executive Summary

According to Kalousis and Léger-Jarniou (2015), the executive summary is the key to successfully communicate about your project, capturing the essence of the project, and being the most important part of the business plan (Haag, 2013). It consists of a strategic summary around one or two pages basically involving the key ideas of the business plan. And given the fact it initiates it, it is the first thing potential investors read. And in a few minutes, those might have a positive, mitigate, or even negative opinion. In the latter case, the reader might even sometimes decide not to carry on his reading. (Kalousis & Léger-Jarniou, 2015; Swanson, 2017).

4.2.2 Company and Product/Service Descriptions

In this section, the writer globally tackles the business itself. What are you doing? How? And why? (Haag, 2013) Actually, those elements are part of the golden circle, a concept introduced by Simon Sinek (2011) which suggests replacing the sense at the heart of a business, by *"starting with the why"*. Globally, concepts such as the vision, the mission, and the values are incorporated into this section to finally come up with the value proposition (Gregory, 2018; Swanson, 2017). In other words, the value proposition and the feasibility of the business model are supposed to be tackled into this section.

Nevertheless, according to Bangs (1995), we should keep in mind that this approach has to be adapted under different contexts so that a business plan redacted for a new business will differ from the one redacted for an existing company and seeking expansion. We here notice a **first variable** that might characterize the context in which a project is developed: the company stage. Is the new project part of an existing company, already having gone through several steps, or is it part of a totally new business? This distinction will serve as our first criterion used into the analysis grid. In case of a new business, notice that the business plan places a huge focus on the team, which is the other relevant aspect to be included in this part, and why they are the most relevant ones to make the project a success (Kalousis & Léger-jarniou, 2015; Haag, 2013).

4.2.3 Market and Competitive Analyses

Once the product or service has been introduced, a detailed overview of the industry and targeted market the writer expects to enter comes afterward (Gregory, 2018; Haag, 2013). To do so, a market analysis is usually carried out thanks to both internal and external models such as Porter's five forces, SWOT analysis, the Pestel model, segmentation, … (Cohen, 2008; Kalousis & Léger-Jarniou, 2015; Monod, 2002; Sion, 2016; Swanson, 2017). By being aware of the current trends, the direct and indirect competitors as well as the internal and external strengths and

weaknesses, the positioning will be chosen, for which three global types exist: cost domination, differentiation strategy, or niche focus (Kalousis & Léger-Jarniou, 2015; Sion, 2016). Based on this preliminary step, the positioning will be translated into a marketing plan, which represents the next section of the business plan (Swanson, 2017).

4.2.4 Operational Marketing Plan

Actually, the market and competitive analysis parts also belong to the concept of marketing but could be considered as a thinking phase, called strategic marketing. In order to make things become concrete, the time has come to move to the operational part of the marketing, based on the different P's (De Moerloose, 2018; Kalousis & Léger-Jarniou, 2015; Swanson 2017). On the one hand, if the company sells a product, four P's exist: product, price, place, and promotion. On the other hand, in the case of a service, those four are called: service offering, pricing, promotion, place, and three additional elements are added: people, process, and physical evidence (Kalousis & Léger-Jarniou, 2015). We will not detail here those 4 or 7 dimensions as they rather speak for themselves. Nevertheless, it is interesting to point out that we identified a **second variable** that could have an impact on our research: does the company sell or product, or does it offer a service? On top of that, it is interesting to notice that this section, combined with the positioning identified into the previous section, might refer to what we defined as the desirability into the BMC: whom do we sell to, how do we communicate with them, and how do we maintain our relationship?

Globally, it is fair to say that a broad range of possibilities is available in terms of marketing plan. However, the key point will be the coherence. There must be a clear guideline between the different strategic choices which need to be aligned with the positioning selected into the previous part (Haag, 2013; Kalousis & Léger-Jarniou, 2015). And by doing so, it will give a specific offer image, first, to the investors, and then, to the clients, which should increase their fidelity. According to Kalousis and Léger-Jarniou (2015), a loyal client associated cost is nine times less expensive than attracting a new prospect, so that we easily understand how important the coherence is.

4.2.5 Operational Plan

According to the existing literature, the Operational Plan part is very broad and includes many different elements which substantially differ from one business plan to another, depending on the type of business (Haag, 2013). Globally, it reflects the day-to-day life of the company, detailing the requirements and organizations in terms of facilities, utilities, raw materials,

workforce as well as potential constraints and outsourcing (Kalousis & Léger-Jarniou, 2015; Swanson, 2017), therefore providing more details about the feasibility of the project. Other elements such as the type of business from a legal point of view, a workflow diagram of the operations, and the initial costs related to the business launch usually are included (Haag, 2013; Swanson, 2017). According to L.A. Swanson (2017), it is also interesting to provide a timeline with the future steps of the project.

4.2.6 Financial Plan

The financial plan is the translation of every choice made so far, based on the surveys and information previously realized and collected, which aims to validate the profitability or viability of the project (Kalousis & Léger-Jarniou, 2015). Into the operational plan, the initial cost related to the business launch was said to be required. Thereafter, the next step consists in building the forecasted cash flow projections, which allow to fill in the different standard tools related to finance, such as an income statement and a balance sheet, for which projections are also provided (Haag, 2013; Swanson, 2017). By doing so, the writer will be able to determine the theoretical working capital requirements over the next years, allowing to have a middle-term perspective as well as anticipating the capital requirements in a longer run (Swanson, 2017), but also providing a discussion support for investors.

As a reminder, we previously claimed that the business plan was often used in order to raise money. However, we here introduced the concept of initial working capital requirements, which could let us think that, from one project to another, the requirements might widely vary. Therefore, the hypothesis of an impact of the capital requirements on the relevance of the two approaches deserves to be challenged and will consist of our **third variable**. On top of that, we here notice another link with the business model canvas, this part addressing the viability of the project. However, notice that the BMC intends to support a much lighter financial discussion, not including balance sheets forecasts and so on.

While those forecasted financial instruments already provide an interesting point of view to the potential investors for assessing the business, financial ratios are usually used in addition (Haag, 2013; Swanson, 2017). The point is here to compare the company ratios to other enterprises operating in the same sector, which gives an interesting indicator of the investment attractiveness (Swanson, 2017). Nevertheless, the writer should pay attention to always give explanations about the interpretations and meanings of such figures (Swanson, 2017). Indeed, those may be technical so that some readers or investors, if not familiar with the topic, might be lost when

facing them. And in case of complexity, and potential lack of understanding, investors might be reluctant to invest. In other words, terms have to be carefully selected and explained while trying to make it as simple as possible (Swanson, 2017).

The last part which should theoretically be involved in the financial plan is called a risk analysis. It consists in identifying the key factors of success, imagining different scenarios, being as well positive as negative, and identifying the potential risks associated to the business (Swanson, 2017). It will allow to anticipate negative events by already thinking about prevention ways, which should result in confidence gain from the investors (Swanson, 2017). The concept of risk has already been introduced, and we will discuss its relation with the business plan into the conclusion.

4.2.7 References and Appendices

The references and appendices are there to support and reinforce the business plan, especially regarding the financial projections for which a theoretical basis is usually required (Haag, 2013). A non-exhaustive list of the elements involved in the appendices has been provided by Haag (2013) and includes the key contracts, technical definitions, the letter of intent, the contracts, and so on.

Through the different parts' explanation, we saw that the business plan can be described as very accurate and precise. However, while some key points have to be presented into it, we noticed that depending on the needs, its structure might vary. According to Haag (2013), *"there is actually no single way of preparing a business plan"*. Now that the reader understood what a business plan consists of and is aware of the information it intends to provide, the time has come to draw a list of its potential advantages and disadvantages.

4.3 Advantages and Disadvantages

According to scientific literature, the business plan offers several benefits that are mainly related to its initial purposes. As a reminder, this tool was said to fulfill several functions.

Regarding the steering, structural and reflexive purposes, the business plan allows the project carrier to identify the key actions (Gollwitzer & Sheeran, 2006; Gregory, 2018) as well as the key success factors (Swanson, 2017), which together provide a clear structure and a clear guideline to the project (Baker & Nelson, 2005) after a deep understanding of the market (Gregory, 2018) by answering several key questions (Cohen, 2008; Cohas, Laguecir & Massue,

2010; Monod, 2003). By adopting a middle or long-run perspective and considering the future of the project (Haag, 2013; Honig, 2004), the risk management part allows to create and test different scenarios and consists of a first prevention move (Cohen, 2008; Sion, 2016; Swanson, 2017). Additionally, there is no denying that the entrepreneur will benefit from such a reflexive process in terms of competencies, increasing his/her credibility when looking for investments and therefore considered as self-education (Cohen, 2008; Giraudeau, 2014). And according to Cohen, the more questions you try to answer, the readiest you will be (2008). In other words, understanding your environment might help in case of unexpected events.

As for the intention to convince investors, we have defined it as belonging to the communication aspect of the project (Cohen, 2008; Haag, 2013; Kalousis & Léger-Jarniou, 2015; Monod, 2002; Sion, 2016). As a matter of fact, the business plan redaction allows entrepreneurs to convince the investors by acting as proof of competencies (Cohen, 2008; Haag, 2013), proof of legitimacy, (Castrogiovanni, 1996) and is seen as essential when applying for a bank loan (Gregory, 2018). Indeed, according to Cohen (2008), when facing entrepreneurs trying to raise funds, bankers call for what they know, figures, which is an important part of the business plan and seen as a comparison tool for those investors, being used as CVs would be for a job application. On top of that, the discussion opened between the stakeholders and the project carrier through the business plan will reduce the information asymmetry (Witmeur, 2012).

While it seems that the business plan has benefits to offer, the drawbacks also need to be addressed. As it could have been expected when detailing the different parts included in the BP redaction, the main disadvantage appears to be a huge load of work and time required (Carter, Gartner & Reynolds, 1996; Cohen, 2008; Gregory, 2018). And in most cases, the time spent on the business plan redaction prevents from actually trying to make it work (Cohen, 2008). This drawback may even be reinforced by knowing that investors do not even go further than the executive summary in 90% of the cases (Cohen, 2008). Moreover, surveys show that adopting the business plan approach does not provide higher probabilities of success, raising the question of its interest (Cohen, 2008).

According to many scientists, another problem related the BP, would be the lack of flexibility, not letting room for maneuver to entrepreneurs, trying to match the plan (Carter & al., 1996; Colas, Laguecir & Massue, 2010; Honig, 2004). This last idea really is essential and might be described as counter-nature to the entrepreneurial journey (Cohen, 2008). Indeed, what entrepreneurs usually truly desire is the “go-ahead” signal, testing, and potentially pivoting

(Ries, 2011). Many products have been created mistakenly (Hermans, 2019), discovered by coincidence, which proves that predictions linked to the future might be considered as weak and potentially complicated due to insufficient knowledge (Carter & al., 1996; Sarasvathy, 2001). According to Cohen and Ries, (2008; 2011) there is even no need for answering all the big questions given the fact things keep evolving so that a project should be driven by unpredicted events, which would allow seizing unexpected opportunities. Actually, another main critic usually raised about the business plan approach, on top of the time spent on the redaction, concerns the (un)ability to accurately predict the future, directly impacting the relevance of such an approach (Boujelbene, Chaabouni, Fayolle & Ghorbell, 2012; Colas, Laguecir & Massue, 2010). Indeed, we are living in an ever-changing world, where we constantly face events drastically changing our perception of the future. How could we value middle-run predictions then? (Cohen, 2008) Now, we precisely understand why the business plan were said to fit a risky context by certain scientists. While this approach advocates for planification, we easily understand that it only makes sense, from a predictive point of view, if the predictions relies upon events of which occurrence can be predicted, which precisely refers to the notion of risk.

4.4 Conclusion

In conclusion, even though the business plan has heavily been criticized, it seems it still has benefits to offer, in theory. Indeed, as previously mentioned, the business plan intends to develop a sustainable business model. When comparing the business model canvas with the BP, we indeed noticed that the business plan does raise questions related to the feasibility, desirability and viability of the business model, which could be describe as a reflexive purpose. Additionally, the Mission and Vision topics serve the general steering purpose of the BP, which acts as a guideline. Nevertheless, it is fair to say that there is a clear gap between the functions the BP theoretically intends to fulfill and the perception of its users. Indeed, nowadays, the main *perceived function* played by this approach consists of convincing investors when raising money (Sion, 2016). According to several authors, the redaction of the document is considered as so painful by entrepreneurs that business plans usually are “placed in a drawer” after they have been granted a loan or they have raised money (Cohen, 2008; Sion, 2016).

In such a case, what we have called the steering, structural and reflexive purposes would barely exist. While the business plan represents a picture of a company’s business model and its plan at a precise moment (Hermans, 2019), it does not mean at all that it represents a one-shot process. On the contrary, the business plan approach should be iterative, constantly modifying previous sections and comparing forecasts with achieved returns over the years (Cohen, 2008; Kalousis

& Léger-Jarniou, 2015), otherwise losing most value of the business plan approach. On this basis, the question of the business plan's importance appears as relevant. Is it still as important as it was used to be, knowing that bankers mainly look after the financial forecasts? Would a financial plan be sufficient? It is up to the reader to make his/her own opinion for now, which the following story might influence.

> *"Jerry Greenfield and Ben Cohen once wanted to launch an ice cream business, located in Vermont. In order to do so, they asked for a loan worth $4000 to the bank. As an assessment criteria, the banker required a business plan, which topic the entrepreneurs barely knew about. Consequently, they asked for help from a friend, who appeared to be a consultant and had just redacted a business plan for a pizzeria in New York. Practically, they just replaced the word pizza with the words ice cream and gave it back to the bank. As feedback, the institution made the suggestion to include seasonality given that ice cream business would suffer from cold winter, and then granted the $4000 loan. The trick was worth a shot: the said company is now called Ben & Jerry's"*. (Translated from Cohen, 2008, p. 27)

Actually, the point was not here to answer the above-mentioned question, which partially represents the ultimate goal of the dissertation and will, therefore, be assessed at the end of the paper. The point the author is here trying to make is related to the variables identification. As a reminder, we already have identified 3 variables so far: the company stage, product or service, and capital requirements. In the previous story, Ben & Jerry have been facing a banker when raising funds. Consequently, it seems that the type of investor might have an impact on the business plan's relevance. This variable will, therefore, be selected as our **fourth assessment criteria** into the analysis grid. Additionally, the literature review has brought other criteria to the fore. When supporting that the business plan plays a self-educational role, the prior education, as well as the expertise of the entrepreneur, appear as our **fifth variable.**

So far, we identified five variables serving as a basis for the analysis grid. We have understood that the business plan had multiple functions, such as the reflexive and steering ones, to fulfill in theory, while mainly focusing on the investment and communication roles in practice. Nevertheless, this approach was heavily criticized for its irrelevance in terms of predictions when living in an ever-changing world.

However, another question the reader might raise is: does it make sense to talk about The Business Plan, as a single document? Indeed, based on a process and iterative approach, it seems that the document is going through plenty of different versions, which formats and contents potentially are impacted by the criteria previously identified. Given that the Business Model Canvas tackles most questions raised by the business plan, could this practical tool help

reshaping the Business Plan approach? This thinking will also guide our analysis carried later on.

Nevertheless, even when understanding the concept of the business plan as a whole and under its current format, what if it were actually dead, as suggested by Cohen (2008). At this point, we do not intend to answer the question yet. However, if yes were the answer, the assumption of another approach to be used has to be challenged. Over the past few years, the business plan has often been opposed to Lean Startup approach, which will now be tackled.

5 The Lean Start-Up Approach

As previously mentioned, one of the concerns related to the BP approach relies upon to the fact that it is said to be going against the entrepreneurial mind which seeks to launch, test, and learn (Cohen, 2008). On the contrary, it seems that the Lean Startup approach better fits the entrepreneurial spirit (Hermans, 2019), which is probably one of the reasons for which business plan and lean startup have often been opposed. As Dan Heath, the co-author of "*Switch and Made to Stick",* said it when commenting the book *"The Lean Start-up"* from Eric Ries (2011), *"this book should be mandatory reading for entrepreneurs, and the same goes for managers who want better entrepreneurial instincts".* Through this section, the Lean Start-Up approach will first globally be introduced, explaining why and how this methodology has emerged, before addressing the composition of this method, and finally identifying the advantages and disadvantages related to it.

5.1 Origin and purposes

The Lean Start-up approach derives its name from the Lean Manufacturing revolution initiated by Taiichi Ohno and Shigeo Shingo with developing Toyota (Ries, 2011). Eric Ries, who is considered as one of the deans of the Lean Start-up approach, with Steve Blank, decided to adapt those ideas to entrepreneurship and completed it based on other fields such as design thinking, customer development and agile development, finally coming up with a new approach to create continuous innovation (Ries, 2011).

Regarding the Lean Manufacturing influence, the idea behind which has been integrated into the Lean Start-up relies upon the improvement of the production process efficiency by reducing waste. Applied to innovation, the biggest potential waste remains the creation of a product that nobody wants (Bortolini, Cortimiglia, Danilevicz & Ghezzi, 2018; Mueller & Thoring, 2012).

Therefore, the reader first notices that this approach replaces the customer at the heart of the process by putting emphasis on what he truly desires (Hermans, 2019). To do so, and as opposed to the business plan approach, it is commonly agreed that the lean startup advocates for experimentation over planning in order to avoid the said waste.

5.2 Key concepts and contents

Into his book, Eric Ries (2011) advocates for what he calls *"fast failures"* (Hermans, 2019). According to Blank, the most valuable input nowadays consists of customer feedback, as claimed into one of his papers (2013). Consequently, the Lean Start-up approach suggests following a Build-Measure-Learn pattern as shown below (see Fig. 4), called the Learning Cycle, which will lead to constant and iterative customer insight collection (Mueller & Thoring, 2012; Ries, 2011).

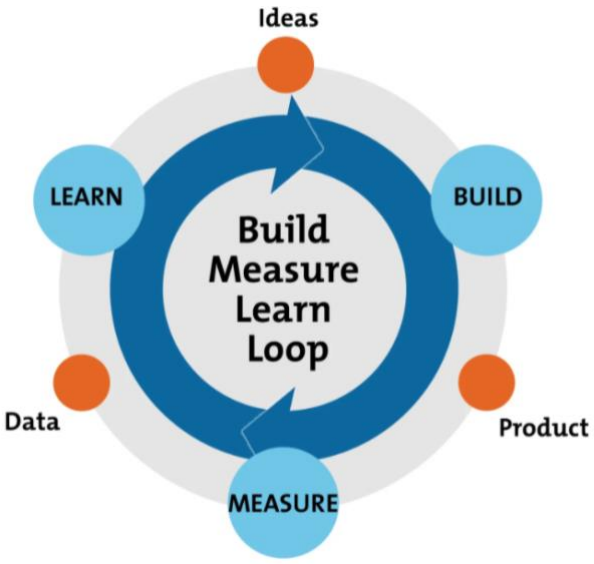

Fig. 4: The Build-Measure-Learn Cycle (Ries, 2011, p.75)

Instead of planning complex projects based on several strong assumptions, constant slight adjustments based on the input collected through this feedback loop happen (Mueller & Thoring, 2012; Ries, 2011). Thanks to this high level of interaction with the consumers, entrepreneurs have the possibility to determine whether or not they are on the right path and should persevere or if a sharp turn, called pivot, is required (Ries, 2011).

Regarding the **Building** part of the cycle, the goal of the Lean Start-up is to create a sustainable model allowing to generate value for customers while capturing value for the company (Bortolini, Davilevicz & Ghezzi, 2018). Even though this key aspect also applies to the business plan, there is one main difference with the Lean Start-up approach. Indeed, while the BP usually

comes up with an elaborate offering, this new methodology is based on the so-called Minimum Viable Product, the basic product or service the company has to offer, usually relying upon several hypotheses challenged shortly afterward (Hermans, 2019; Ries, 2013). As mentioned by Ries, *"too many business plans look like they are planning to launch a rocket ship rather than drive a car"* (2011, p.21).

The next step consists of data collection in order to challenge the different established assumptions. To do so, there is obviously a need for **Measuring** tools, such as market studies involving both qualitative and quantitative data collections, the empathic user experience, or other experimentations (Bortolini, Davilevicz & Ghezzi, 2018; Hermans, 2019). In other words, the Lean Start-up approach is said to be "a get out of the garage", which clearly contrasts with the business plan option (Blank, 2013).

Based on those data, the entrepreneur is therefore able to **Learn** about what the customer truly desires, which represents the ultimate purpose of this cycle (Ries, 2011). In other words, the hypotheses previously formulated are here validated or invalidated through experimentations (Bortolini, Davilevicz & Ghezzi, 2018). There are four potential outcomes, as shown below by the flow diagram (see Fig. 5): giving up, escalating, iterating, or pivoting (Bortolini, Davilevicz & Ghezzi, 2018; Ries, 2011).

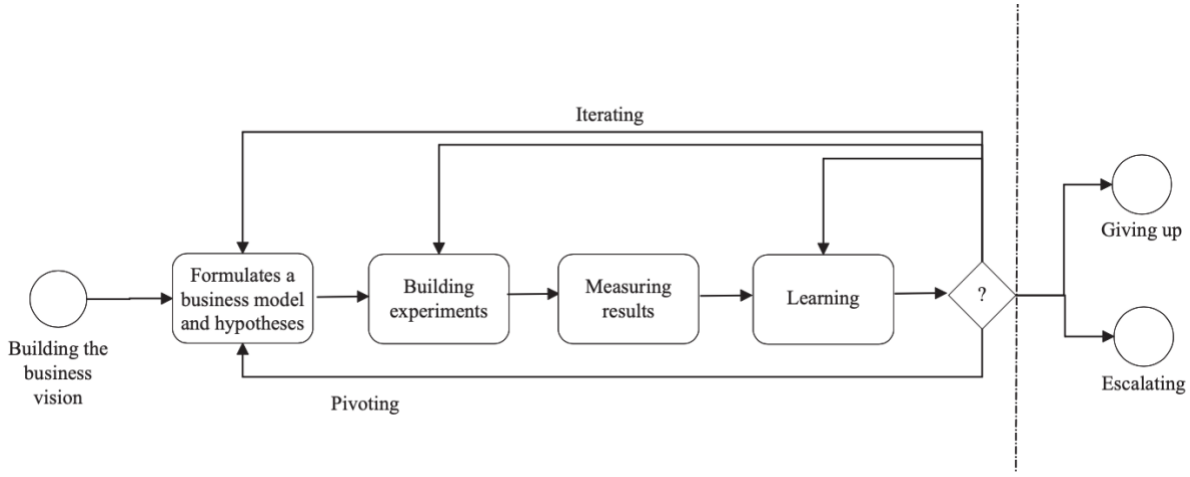

Fig. 5: The Lean Startup cycle (Bortolini, Davilevicz & Ghezzi, 2018)

The first outcome, giving up, appears when the experimentations have led to totally negative results, relating the fact that the business vision is theoretically not able to generate a sustainable business model. However, in case of negative results which have shown a potential demand for another offer though, a radical change, called pivot, might be realized. This will lead to totally new hypotheses requiring new tests leading, again, to validation or invalidation. Another

possibility is called the iteration: it consists in a less radical change than a pivot, usually modifying a few dimensions of the project, which means that the experimentations have led to positive results regarding its viability. Obviously, changes are linked to new hypotheses so that those will need to be challenged, once more. Finally, the last option, escalating, occurs when the project carriers believe that they have already found a sustainable business model. Consequently, they decide to invest more in the business, try to improve the business organization, and aim to reach economies of scale (Bortolini, Davilevicz & Ghezzi, 2018; Ries, 2011).

And once a cycle has been completed, the process starts over until the project carrier opts for the escalating or the giving up option. Now that the reader has incorporated the philosophy behind the Lean Start-up approach, the potential advantages and disadvantages of this method will be identified.

5.3 Advantages and Disadvantages

First of all, it was previously said that one of the problems related to the business plan concerned the fact that it did not fit the entrepreneurial mind. By having a look at the learning process, which cyclically follows the Build-Measure-Learn sequence, the similarity with the entrepreneurial mindset, which has been defined by Cohen (2008) as launching, testing and learning, is apparent (Kullman & Lallerstedt, 2017; Ries, 2011).

Thereafter, the potential main advantage is linked to the user-centered aspect of the method. By replacing the customer at the heart of the process, Liedtka (2014) claims that it allows reducing the cognitive bias. Indeed, the high interaction degree happening through the Measure phase (Lackeus & Mansoori, 2019) leads to a better knowledge of the audience as well as a deeper understanding of its desire (Lackeus & Mansoori, 2019; Ladd, 2016; Martinez, 2016). In other words, the Lean Start-Up approach brings customer validation to the process (Lackeus & Mansoori; Martinez, 2016; Ries, 2011) translated into a better market fit and an increase in terms of process speed and accuracy (Martinez, 2016; Ries, 2011).

To do so, there is no denying that the Minimum Viable Product concept plays a central role. Indeed, rather than creating a final product which could potentially be rejected by the market, the MVP allows to theoretically pivot faster, resulting, as previously said, in a faster and more accurate process, but also in a cheaper one. Globally, we could say that the Lean Start-Up approach leads to resources efficiency in terms of time and money (Kullman & Lallerstedt, 2017;

Martinez, 2016). Moreover, the MVP enables a customer baseline establishment, which could eventually be translated into higher user acceptance of the product when entering the mass market (Martinez, 2016; Ries, 2011).

So far, advantages related to the market and to the process have been identified. However, some additional ones focusing on the project carrier may be pointed out. First of all, according to Kullman and Lallerstedt (2017), the Lean Start-up methodology forces to deeply reflect upon the business, which could improve the entrepreneur's analytical skills, a feature valued by investors. Moreover, according to Ladd (2016), it appeared through surveys that LS teams are better at pitching their ideas, resulting in higher credibility from potential investors ready to pour money in the business.

Regarding the disadvantages, the first ones we could mention touch upon the modern aspect of the methodology and the lack of performance evidence. Even though the Lean Start-Up approach benefits from huge street credit and validation from entrepreneurs (Hermans, 2019), it appears that there is no linear relation between the number of validated hypotheses and the success rate (Ladd, 2016). Moreover, the LS, which has emerged for almost a decade, is still unknown by many people, so that insufficient knowledge and understanding of the approach could have the opposite effect: slowing down the process (Kullman & Lallerstedt, 2017; Martinez, 2016). According to field study conducted by Martinez (2016), this lack of knowledge has even led to reluctance coming from the employees when trying to implement the method. In such companies, it came out that another aspect had potentially been reducing the speed of the process: teams working in different locations (Kullman & Lallerstedt, 2017; Martinez, 2016). Indeed, the information flow may lead to delays in the development of the product. Here, even though not directly related to teams working in different locations, this idea has brought the multinational aspect of the question to the fore. Does the country in which the project has been launched impact the relevance of the choice between the lean startup and the business plan approaches? This will consist in our **sixth variable.**

Coming back to the disadvantages, it appears, by having a look at the content of the methodology, that the cyclical approach could hold some downsides. First of all, the whole process potentially has a decreasing marginal return, and there is no clear rule about when to stop iterations (Ladd, 2016). Then, while customer feedbacks are essential and guide the project development, there is no rule about the required amount of information, which could widely vary under circumstances (Kullman & Lallerstedt, 2017; Martinez, 2016). While a low level of data would block the

process, a heavy wealth of information could create a learning bottleneck or provide inconsistent learnings (Kullman & Lallerstedt, 2017; Ladd, 2016). Here, it seems that the cost of an iteration might have an impact on the feasibility of the Lean Startup approach, so that it will be used as our **seventh variable.**

Regarding this said Learning phase, Kullman, Lallerstedt and Ladd (2017; 2016) pointed out another limit related to the vision. Based on the field surveys, it appeared that the *"build measure and learn cycle may lead to loss of track regarding the vision",* reducing the ability to think from a long-run perspective, which is crucial according to Joel Larsson: "*You cannot iterate the whole way, you have to have a vision, you have to dare to take a couple of bigger steps in a certain direction*". Actually, the number of iterations repetition is subject to a *false negative,* which represents the situation where a pivot is realized while persevering could have worked (Ladd, 2016).

Through this section, several advantages have been highlighted, enlightening the accelerative and customer validation aspects of the method regarding the business model development. However, if the approach allows, as a matter of fact, to improve the process speed and accuracy, it does not say, under its initial form developed by Ries, anything about what to be included into the business model. Nevertheless, it is interesting to notice that the Business Model Canvas is a tool often used as part of the Lean Start-up approach. Consequently, from now on, the LS approach mention will implicitly involve the BMC usage. Notice that the reader should keep in mind that the LS seeks for a sustainable business model identification, a goal shared with the BP approach. However, while the Business Plan would, in practice, rather use the BMC as a static tool, describing the state of the project at a specific moment, the BMC usage as part of the Lean Startup approach would tend to be more dynamic, constantly iterating on the hypotheses.

5.4 Conclusion

In conclusion, being influenced by the Lean Manufacturing, the Lean Startup methodology seeks for waste reduction by replacing the customer at the heart of the process and creating an offer for which there is an actual demand. To do so, hypotheses are built, tested, and conclusions are drawn through the Learning Cycle, allowing to come up with a Minimum Viable Product. Through time, the process is repeated and slight improvements or pivots are realized in order to better fit the demand or a pivot is even operated.

While this method really fits the entrepreneurial mind, the main perk it has to offer consists of a better understanding of the market, a more relevant offer and customer validation. This results in a cheaper, more accurate, and faster process. As a reminder, we have previously stated that the Lean Start-up approach was said to fit an uncertain context, as opposed to a risky one. The reason behind actually relies upon its ability to 'eliminate' or at least manage this uncertainty by collecting feedback validating or invalidating the hypotheses (Ries, 2011; Ghezzi, 2019).

As for the acceleration aspect of the method, while the literature considers the speed of improvement as essential, some field studies have revealed that the process may be slowed by several factors, such as the lack of knowledge about the method, or the reluctance to change coming from the employees in existing companies.

Talking about existing companies, even though the LS includes the word Start-Up, Eric Ries (2011) claims in his book that the method can be applied "*in any size company, even a very large enterprise, in any sector or industry*". Based on this idea, we have been able to identify **an eighth variable**: the sector or the industry. Indeed, the author here assumes that some sectors might be associated with very long lifecycle. Therefore, the hypothesis of the LS approach applicable to each industry deserves to be challenged. As for the stage of the company, this variable had already been identified.

6 Literature Review Summary

Concretely, the reader should now be aware of what the Business Plan and the Lean Start-up approaches both stand for, as well as the associated key concepts, perks and downsides, which have all been summarized into the table presented below (see Table 2).

	The Business Plan Approach	The Lean Startup Approach
Definition	Approach based on a synthesis document of a project investment or the mid-term evolution or the future state of the project	Approach based on waste avoidance through quick feedback collection, replacing the customer at the heart of the business development
Goals	- Sustainable business model identification - Communication tool between the investors and the project carrier - Representation value of the project - Self-educating - Reflexive approach - Structuring the project - Steering purpose	- Sustainable business model identification - Avoiding developing a product that nobody wants (waste) - On-field validation - Self-educative tool
Key Concepts	- Planification - Team presentation - Elaborate Service or product description - Market and Competitive Analyses (SWOT, Pestel, …) - Operational and Marketing Plan - Financial Plan (predictions, balance sheets, …) - Risk Analysis	- Experimentation - Hypotheses - Learning cycle (build, measure, learn) - “Get out of the garage” - Iteration and pivot - Minimum Viable Product - Customer Validation - Uncertainty elimination or management
Pros	- provides guidelines and key actions to be undertaken in order to achieve mid-term evolution (steering purpose) - usually considered as a must-have when trying to raise capital - communication tool between stakeholders and the project carrier - acts as the representation of the project - allows the entrepreneur to structure its project - questioning tool, pushing the entrepreneur to answer key questions - leads to a better understanding of the environment	- better fits the entrepreneurial mindset - waste reduction (or unwanted products and services) - replaces the customer at the heart of the process - better knowledge of the audience - quickly get the customer (in)validation - determines whether or not the entrepreneur is on the right path before huge investments have been realized - cognitive bias reduction

	- risk assessment by considering different scenarios, therefore representing a first prevention move - self-educational purpose for the entrepreneur - a well redacted BP is a proof of competencies	- first customer basis - process speed and accuracy - higher market acceptance - resources efficiency in terms of money and time - analytical and entrepreneurial skills improvement - pushes the entrepreneur to answer several key questions - roadmap for the journey - visualization and communication tool (employees, internal) - rather than secrecy, constant improvement is considered as the best prevention move - new business models discovery
Cons	- too often applied without understanding its true purpose - huge load of work associated with the business plan redaction - costly in terms of resources - time spent on planning prevents from actually making it work - 90% of the business plans are not even read - no evidence of a higher success rate - lack of flexibility - counter-intuitive for entrepreneurs - pain associated with the redaction - irrelevance of trying to predict the future in an uncertain environment - no solid basis for data selection - often misused	- lack of performance evidence - no linear relation between the number of hypotheses and the success rate - still unknown by many people, slowing down the process - decreasing marginal return - potential lack of vigilance from the entrepreneur - may lead to a loss of track regarding the vision - distracts from several key variables (external forces) - lack of mission, strategic purpose - no information about the team - lack of clarity between the sections of the BMC: 9 dimensions are seen as distinct while actually interacting

Table 2. Business Plan & Lean Start-up approaches: synthesis comparative table

On top of the Business Plan and Lean Start-up approaches understanding, the literature review has allowed us to point out several key variables that might influence the relevance of each approach depending on the context governing the project development. Concretely, the variables we identified so far include the stage of the company, the distinction between a product and a service offer, the initial capital requirements, the type of investors, the experience of the entrepreneur, the country in which the project is happening, the cost of an iteration, and the sector or the industry.

However, attempting to address all those variables at first might be complex and unclear so that there is a need for starting with one targeted aspect. Talking about 'needs', it is precisely the word that has guided the author into this key variable selection. Indeed, based on the identified purposes, perks and downsides, one might argue that rather than opposing the Lean Start-up and the Business Plan approaches, we should consider them as serving different purposes, which are associated with different needs. As a reminder, this exploratory dissertation assumed that the context could influence the relevance of each approach. However, what if they word the author had initially been looking for was 'needs' instead of 'context'? On the basis of this reflection, could we find one key variable that would include the concept of business needs? Well, in the author's opinion, the most suitable identified criterion probably is related to the business lifecycle concept, itself including the notion of process, which has recurrently been showing up through the literature review.

Concretely, the business lifecycle will first be introduced, acting as our key variable into the analysis grid, and intending to determine when to adopt the business plan approach or the lean startup one. As for the other variables, we will come back to it later on. However, the author here already assumes that some of the previously identified variables might be subject the high correlations. For example, the cost of an iteration would potentially be correlated with the type of industry, so we will clear that out and introduce those variables as limiting conditions or leads for improvement to the findings coming out of the business lifecycle variable analysis.

7 Analysis Grid: The business lifecycle

As for business lifecycle models, those have often been considered as powerful when coming to the needs' assessment of a business, by understanding organizational dynamics, the evolution of structures as well as financial decisions. Indeed, according to Brandon Dempsey (2018), understanding in which phase you are can be really helpful in terms of strategic planning, as each stage is unique. Therefore, by precisely understanding what typically happens at each stage, the author intends to suggest which tool appears as the most relevant one. Ultimately, the built suggestions should help to solve a problem mentioned by Lichtenstein and Lyons (2008), who claimed to find *"literature in general to be insightful but very limited in its ability to guide practice"*. However, before going any further, the author would like to point out that business lifecycle approaches tend to be very generic, sometimes even suggesting a linear and stereotypical model of growth, while each company actually follows its own trajectory. Indeed it came out of a study conducted by Diambeioud and Gailly (2011, p. 210) that most growth trajectories *"were neither continuous (or life-cycle based) nor idiosyncratic (or completely random process), at least if ones considers the first years of existence of a firm"*. Nevertheless, such an approach still appears as valuable in order to understand what most businesses potentially go through without claiming each company will face exactly the same needs and trajectory.

Regarding the business life-cycle that will be used here below, notice that many models exist, each of those offering pros and cons. However, most of them tend to provide blurred guidelines when it comes to clearly identifying in which stage the company really is (Kuzmin, 2017). Therefore, the next section of this paper will mainly be based on a review written by Lichtenstein and Lyons (2008), called "Revisiting the business life-cycle". In their paper, they have been reviewing 26 different models and ultimately came up with their own suggestion, based on their observations, as well as clear criteria determining in which stage a company might be. Six different stages will be tackled, for each of which the key challenges or needs will be identified, relying upon the assumption that *"Managers need to craft [...] strategies that reflect the unique needs of each phase"* (Weissman, 2018).

7.1 Pre-venture

This phase usually is included into most lifecycle models, and is characterized by the idea generation. Indeed,

"This phase begins with either an interest or desire on the part of an entrepreneur to start a business, or an idea for a business, and it ends with the emergence/birth of an organization with an economic offering (i.e. a product or a service) ready to be sold to a potential client and generate revenue" (Lichtenstein & Lyons, 2008, p.226).

Typically, the activities to be performed consist in assessing the eventuality of owning a business, the idea development, exploring different business possibilities, assuming risk and making resource investments (mostly of time), challenging the feasibility of the project, developing the economic offering as well as the strategy, and, finally, gathering the right people if required (Lichtenstein & Lyons, 2008, p.226). In other words, this stage is mainly characterized by uncertainty and questioning, as the project carrier intends to turn an idea, a vision, into a business model which has not been validated by the customer yet (Appelo, 2019). Indeed, products or services have not been sold yet. Consequently, the company does not have any existing client base and only has an idea of whom their customers will be and the marketing activities are still uncertain. As mentioned by McIntyre (2016), *"*[at this stage] *it can be difficult to narrow down which marketing mediums will produce the best results for your products or services",* so that it will be reviewed once confronted with targeted customers. Globally, Jablonski & Jablonski (2016), claim that the business focuses much more on the short-term perspective at this point.

At the end of this stage, the project is associated with a concrete offer, that has been developed without generating any revenue nor being confirmed by an actual client. However, notice that Appelo (2019) claims that capital needs are very limited at this stage of the process, the company mostly being self-funded. Indeed, bootstrapping financing directly comes from the business owner: credit cards and savings used to develop prototypes… *"Every big company started with a few people working in their garage"* (Grégoire, 2018).

As for the business model itself, at this point, it does not exist yet in practice, and its conception is at the heart of this stage. According to Appelo (2019), *"young, immature businesses should mainly focus on experimentation and exploration of customer needs".* And even though, this stage ends up with a determined offer, what the core business and value proposition will be remains unclear, knowing that repeatability and scalability have not been confirmed yet (Appelo, 2019). Concretely, this stage could be described as very dynamic, each aspect of the business model being subject to change and characterized by innovation (Jablonski & Jablonski, 2016).

7.2 Existence or infancy

After refining the offer as part of the pre-venture stage, actually starting selling it makes the company move onto the next stage. Existence, or infancy, will last until reaching the breakeven point, defined by Longenecker et al. as the precise moment *"when sales equal total costs at a given volume of sales"* (as cited in Lichtenstein & Lyons, 2008, p.226). Concretely, the company is going through what other studies might describe as the survival stage: a certain set of customers starts showing interest in the business' offering even though not widely deployed yet, starting to validate the well-known product/market fit (Appelo, 2019; Lichtenstein & Lyons, 2008, p.226).

Once starting to sell the product or service to customers, the supply chain, which is part of the feasibility of the project initially imagined is highly subject to changes in design or operating characteristics until the end of this stage as the offer itself might change. Therefore, flexibility is often expected from suppliers, including reactive response to potential increase in market demands and uneven schedule (Weissman, 2018). Concretely, the process is not standardized yet and subject to refinement, and suppliers specialized in small batches and quick turnaround in prototyping are usually seen as a good fit (Weissman, 2018). As for the cost, it is still considered as secondary compared to responsiveness, based upon the assumption that scale economies will be achieved during next stages (Weissman, 2018). Nevertheless, notice that the facts previously mentioned rather describe the supply chain for a product business, which reinforces the relevance of secondary variables' introduction or limiting conditions afterward, such as the distinction between a product and a service offer.

Regarding the customers, there might initially be a very small or even undetermined market, associated with low sales, according to Dan Blacharski (2017). For this specific reason, marketing activities will play a crucial role in determining the market or even creating a market where none exists, requiring (heavy) deployment in terms of brand awareness creation through public relations and consumer testing (Blacharski, 2017). Consequently, the associated costs usually exceed the achieved revenues and by far, so that there might be a need for financing, for both offer development and marketing activities.

Typically, friends, family and fools' investments will start lacking and will not be sufficient anymore. Therefore, entrepreneurs often start contacting business angels and typically look for an amount of money ranging from 25.000 to 250.000 euros (Grégoire, 2018). This type of

investor usually bears extremely high risks, given that the company is not profitable yet. In counterparty, they seek for high returns, potentially multiplying their investment by ten within 5 years (Funhoff, 2018). Nevertheless, more than financial expectations, the assessment of the entrepreneur's ability to carry out the project will drive the business angel investment decision, putting a huge emphasis on the relation they intend to develop together (Debarsy, 2019). Alternatively, entrepreneurs may try to convince banks to grant a loan. However, bankers and business angels present many discrepancies in term of investor profile. Indeed, while the entrepreneur himself is central into the business angel decision, the bankers mainly pay attention to figures with one key question: how am I going to recover the loan based on the cash flows, margins, assets, … Such are the variables the bankers will look at (Debarsy, 2019). Additionally, we invite the reader keeping in mind that while bankers only bring capital, angel investors act as a partner, providing experience and helping in the project guidance, with company's shares as counterparty (Funhoff, 2018; Grégoire, 2018). Notice that the point of this dissertation is not to determine whether one option might outperform the other one or not.

7.3 Early growth

Once the product/market fit validated and the break-even reached, the business will be described as into another stage depending on the generated financial profits (Appelo, 2019; Lichtenstein & Lyons, 2008). Indeed, by securing an important mass of customers, the business will, at some point, generate enough cash-flow *"at least to repair and replace the capital assets necessary to continue the business as they wear out"* (Lichtenstein & Lyons, 2008, p,227).

The company is now generating profits, thanks to an increasing demand, which variable is directly correlated to the production process. Consequently, the emphasis will slightly move from responsiveness to cost cut (Weissman, 2018). With an established and stable offer, companies will look for manufacturers meeting target goals at aggressive prices for a given quality. In other words, emphasis is now put on scaling as well as managing bottlenecks, while the production process is relatively stable (Weissman, 2018).

As for the desirability of the project, the company has already secured an important mass of customers, knowing who they are, and therefore keeps building upon this established demand (Blacharski, 2017). However, it is interesting to notice that, according to the same author, marketing campaign significantly changes towards a focus on competitive analysis and aggressive marketing, with the ultimate purpose of maximizing market share, which could still

include feedback collection, new features introduction or offer's improvement (Blackarski, 2017).

Regarding the financial aspect, growth has mainly be achieved until here thanks to first business angels' contribution and self-financing. However, even though the company has reached the break-even point, the project carrier might still need additional investments to further expand. In such a case, entrepreneurs will either have the choice to seek for other business angels or to reach out to another type of investors: ventures capitalists (Funhoff, 2018). Even though highly similar to a business angel profile, venture capitalists put much more emphasis on the return they expect to capture from the investment, potentially exiting the company through an IPO, given that the invested amount might range from 3 to 10 million euros (Debarsy, 2019; Funhoff, 2018). Nevertheless, the entrepreneur's ability to carry the project still remains a decisive variable driving the investor's decision (Debarsy, 2019). On the other side, the bank option still is available to entrepreneurs in case they are not eager to cease company's shares.

7.4 Expansion or sustained growth

When starting generating healthy profits, the question of potential reinvestment often comes around. Therefore, this question of profits allocation will determine whether or not the company is moving to the expansion or sustained growth phase, as defined by Lichtenstein & Lyons (2008). Indeed, *"by risking the established borrowing or equity power of the business to finance growth"*, a company is going into the fourth stage (Lichtenstein & Lyons, 2008, p.227). Concretely, this stage

> *"Ends up when the company has emerged as a growth business, has demonstrated the capability to serve many customers, [...] has grown quickly, has operated profitably, has captured market share, has defended against competitors and has expanded operations and sustained increases in growth and profitability over time"* (Lichtenstein & Lyons, 2008, p.227).

In terms of supply chain and feasibility, those are highly similar to the ones mentioned for the previous stage. As a reminder, the ability the suppliers have to scale as well as managing the bottle necks with an emphasis on cost reductions represent the central supply chain need at this stage (Weissman, 2018). According to Appelo (2019), while early stages were focusing on

experimentation and exploration of customer needs, more mature businesses' matter tend to lean towards execution and optimization of the proven value streams.

Regarding the targeted customers and the associated marketing activities, this part of the business model has not changed much compared to the previous step and the company keeps seeking for market share maximization. As for the financial aspect of the business model, sales now exceed costs by far and the company now has access to the capital coming from its operations and has to decide whether or not to reinvest it and, if so, how to. Therefore, unless the company is planning for a major acquisition or market expansion, most of them do not need additional capital (Appelo, 2019). Nevertheless, in case they do, entrepreneurs will often look for private equity investors, still including venture capitalists (Funhoff, 2018). At this stage, managing the increasing competition, each actor having a well know market share, probably is the main challenge, which is related to the market share maximization, and could be done through new features introduction or new markets introduction (Appelo, 2019; Sheen, 2014).

7.5 Maturity

Nevertheless, growth is not eternal. Even though the business might be characterized by advantages of size and stability, a strong market position, high profitability and positive cash flows, and an effective system in place, there is no denying that the annual growth (rate) itself will start slowing down at some point. Combined to an ever-increasing market saturation, those represent the signal that the maturity stage has been reached (Appelo, 2019; Lichtenstein & Lyons, 2008, p.227).

The need the company will be facing will consist in *"avoiding ossification and decline by resisting complacency and preserving or re-establishing its entrepreneurial spirit"* (Lichtenstein & Lyons, 2008, p.227). To keep existing and thriving, the company will have to find an equilibrium between conserving existing assets and pursuing new market opportunities.

Given that sales are not growing anymore, the company is now mainly facing a stable phase in terms of logistics and production process, highly similar to the expansion activities (Weissman, 2018). Suppliers most often are the same ones than during the rapid growth stage. The time will then come for diversification or a new wave of creativity, in order to avoid the decline step that will be tackled afterwards, which could be achieved through new products' development (Appelo, 2019).

As for the targeted customers and the marketing activities, a shift might be operated, given that the company has already acquired a certain market share. Therefore, instead of trying to attract new customers, the marketing might be dedicated to pleasing the existing ones, ensuring recurring revenues thanks to new features or products' update (Blacharski, 2017).

7.6 Decline

In case the company does not properly manage the previous step, and, due to complacency, intends to avoid risk: market share, profitability and cash flows will start declining, as the business model is not validated and scalable anymore (Appelo, 2019). Ultimately, the company will be sold or even closed, consisting in a potential end of the process (Lichtenstein & Lyons, 2008, p.227; Weissman, 2018).

In case the company is eager to keep existing, drastic changes will be required, starting with the product or service, if not anticipated previously. Indeed, the current offer is not attractive anymore and the company keeps losing customers from their existing clients base. (Weissman, 2018). With lower volumes, the suppliers' cost has increased, and the situation is not sustainable anymore, leading to products discontinuation. In some cases, the manufacturer himself might discontinue several parts of the end-good due to the lower margins and volumes, entailing complications for the buyer (Weissman, 2018).

By addressing the typical business lifecycle, the author here intended to understand which were the main challenges faced by the company, seen from a business model perspective. Those will be summarized afterward, but the author would first like to remind that this is a typical business lifecycle, each project facing its own and different issues though, as previously mentioned. Similarly, notice that all businesses do not especially go through each stage.

Regarding the different stages, we have understood that those were mainly associated with different challenges, as suggested by Lichtenstein and Lyons (2008, p. 228):

> *"It is a whole new ball game at each stage in the life-cycle, as many entrepreneurs are quite surprised to discover - because they are not familiar with the different phases of the journey and how the terrain changes"*

And the behavior that has led the project carrier to one stage might furtherly be the cause of his/her failure, due to widely different contexts, needs and challenges over time, which have been summarized here below (see Table 3).

	Key features, needs and challenges
1- Pre-venture	- Idea generation - Business idea desirability assessment - First offer iteration and development - Initial low cash requirements for product or service development - Questioning phase - No Customer validation nor customer base - Highly dynamic stage
2- Existence	- First sales, bringing customer validation - Raising brand awareness - Unknown market base - High cash requirements (mainly for marketing: consumer testing and feedback collection) - Offer refinement - Still a dynamic phase from a business model point of view
3- Early growth	- Secured mass of customers - Break-even point reached - Increasing demand - Established and stable offer - Maximizing market share for current offer - Optimization of the current business model - Managing the competition - Considerable cash requirements, especially for marketing
4- Sustained growth	- Managing ever-increasing Market competition - Keep building upon the established demand - High cash requirements to sustain the expansion - Maximizing market share for current offer - Optimization of the business model including cost reduction
5- Maturity	- Need for differentiator due to fierce competition - Stable logistics, strong market position and positive cashflows - Pleasing existing customers rather than trying to attract new ones - reduced annual growth rate - Moving into new markets in order to diversify - Adding new products or services to diversify - Anticipating decline or considering an exit strategy - New wave of creativity, re-establishing the entrepreneurial spirit - Both dynamic and stable stage

	- Equilibrium between conserving existing assets and pursuing new market opportunities
6- Decline	- Reduced market share - BM is not sustainable anymore - Moving into new markets - Adding new products or services - Dynamic stage: drastic changes (structure, offer, positioning) - Exiting or closing

Table 3. Business lifecycle stages: key features, needs and challenges.

Now the we understood how most companies grow through the business lifecycle even though recognizing that each project follows its own path, the author intends to determine whether or not the two core approaches, business plan and lean startup, would fit such a context.

8 Analysis

In order to assess whether or not the business plan and lean start-up approaches fit the different stages of the business lifecycle, the needs of those will be compared to the purposes, perks and downsides of the said two approaches.

8.1 The pre-venture

As mentioned into the previous section, we notice that at this stage, the project is highly subject to multiple refinements, constantly being challenged, especially in terms of feasibility. Indeed, this stage ends with the emergence of a commercial offer, which relates to feasibility. Therefore, within a context that might be qualified as highly-changing, the value of the Lean Start-up approach appears as straightforward, using a more dynamic approach, as opposed to the "static business plan". On top of that, one may discuss the questioning value of the business plan, which has been described as a self-educative and reflexive approach. However, we would like to remind that even though the LS itself does not include the "questions to be answered", it has often been associated with the business model canvas, which provides leads to do so. Given that at this point, the main questions are related to the feasibility and desirability, there is no need to tackle a detailed business plan, so that a BMC & LS combined approach would perfectly match the needs of a pre-venture stage. Additionally, given that the company does not even have any customer base nor offer validation, using a business plan approach at this stage would justify the negative critics that were raised into the theoretical section. Indeed, as mentioned by Jablonski & Jablonski' (2016), the company put emphasis on short-term perspective, as they

actually are lacking data that would make any prediction relevant, rendering the business plan approach even less relevant given that it has been defined as the mid-term evolution of the project. Nevertheless, it is interesting to point out that a business model starts with the idea generation. And for this specific aspect, neither the business plan nor the Lean Start-up approach helps generating one.

8.2 Existence or Infancy

As we move towards the next stage of the business lifecycle, we notice that needs tend to lean towards the desirability aspect of the business model. Indeed, understand who your client is, collecting feedback and raising brand awareness are typical activities carried out at this stage in order to get the first sales that would represent customer validation or help refining the offering. Once again, we notice the Lean Start-up answers those needs. As a reminder, the LS approach intends to get customer validation or invalidation through feedback collection, which helps building upon a first customer basis and getting to know your audience. Also, given the context in which the company starts operating, with growing capital needs, avoiding waste might help the company reaching the next step, but also increase the speed of the offering development.

In conclusion, it appears that the LS approach better fits this stage of the business lifecycle in order to develop a business model. However, there is still one key aspect that has not been tackled into the section: the capital requirements. At this stage, the internal capital will start lacking so that the project carrier might seek for external investors, typically business angels or venture capitalists at this stage. However, no matter the type of investor, Debarsy (2019) has shown through several interviews that a business plan was still required, with a special focus on the team. Nevertheless, it is interesting no notice that the business angels do not especially focus on the financial forecasts themselves but rather consider this exercise as an assessment of the team in charge (Debarsy, 2019), so that another format of the business plan might be accepted.

8.3 Early Growth & Sustained Growth

From now on, the current offer is relatively stable and the key challenge will consist in scaling and maximizing market share for the current offer. Indeed, the company has secured a mass of customers upon which they intend to keep building. However, more globally, we could argue that the key purpose here is to optimize the entire business model, including the production process and therefore seeking for cost reduction. To do so, adopting the business plan approach

will reveal to be valuable due to its reflexive and strategic purposes. Indeed, one of the strengths of the business plan relies upon its ability to provide guidelines or at least structure where the company intends to go, and therefore acts as a vision tool, which purpose is not fulfilled by the Lean Start-up at all. Additionally, marketing activities or resources' acquisition will require massive investments, so that most companies will need to raise capital. To do so, there is no denying the business plan still is considered as a must-have, especially for banks and venture capitalists. However, keep in mind that its format might be subject to slight adaptation depending on who you are trying to convince. Nevertheless, some may still raise the lack of rationale behind the market projections and predictions of the business plan. Well, this is mainly true when redacted during the first stages of the company. Indeed, the company has collected data and feedback about their offer but also the customers through the first two stages. Yes, the world is still unpredictable. But the assumptions used as a basis for the projections would now have a strong rationale, based on sold offers and actual customer basis, and the specific risk of the company, as opposed to systemic risk, has been reduced. In summary, we here noticed a switch from the lean start-up to the business plan approach in terms of relevance, the BP representing a good fit to the early growth stage.

As for the sustained growth phase, the analysis realized here above also applies to this stage, with two differences. Competition has been increasing over time and there is now a stronger need for competition management, which task the business plan actually has the ability to realize. Then, this stage is characterized by reinvestment, reducing the need for external financing. Consequently, it is fair to say that the business plan does not fulfil its communication purpose anymore. However, its ability to structure and guide still appears as valuable. Globally, based on the analysis, it is fair to stay that the business plan is relevant when the company comes to growth, in terms of business lifecycle.

8.4 Maturity & Decline

When becoming mature, the needs of the company drastically change, again, and are mainly characterized by its offer diversification. Depending on the meaning or extent of this word, however, one approach or another might appear as more relevant. Indeed, in case diversification has to be understood as subsequent generations of a product, or new features development, retaining and pleasing the existing client base, the business plan could potentially still bring value given that the company would remain in a business unit maximization approach, which seems to be relatively stable. However, in case the company decides to diversify its offer based

on a totally new or radically new one, for which existing clients base would potentially not be the targeted segment, the team would come back to a creativity and dynamic context, re-establishing its entrepreneurial spirit, and therefore bringing the Lean Start-up relevance back to the fore. Notice that such a move would actually consists of a prevention one against the decline stage. Nevertheless, the author would like to point that maximizing the existing business units and pursuing totally new market opportunities actually are compatible in practice, and probably depend on the access to resources the team disposes of, so that using both Business Plan and Lean Start-up approaches would be relevant, each one serving a different purpose. So concretely, at this stage, it seems that the innovation strategy might impact the relevance of both approaches.

As for the decline stage, the identified key challenges faced by the company were highly similar to the ones faced through the maturity phase with one key difference: the existing business unit are not sustainable anymore at all so that staying alive will probably require more than a few additional features, calling for the said new wave of creativity, through totally new offer development bringing the company back to a more dynamic environment and to which the Lean Start-up appears as the best fit based on the analysis carried previously.

Globally, we understood that the Lean Start-up approach rather matches the pre-venture and early existence stages of the business lifecycle, while the Business Plan appears as more relevant during the growth. As for the maturity phase, both approaches seem to be relevant, depending on the business development strategy of the company while, if the enterprise strives to survive during the decline, the Lean Startup could help with embracing a new wave of creativity. However, some limits could be identified. Into the next section, all the results will now be recap and discussed.

9 Discussions

As a reminder, the starting point of this dissertation emerged when one claimed the business plan was dead (Cohen, 2008), supporting the Lean Startup emergence, while others still believed in the Business Plan interest, and which two approaches were mainly seen as opposite. Regarding the LS approach, it is also interesting to notice that Ries (2011) also suggested that the approach could apply to any company, no matter the size nor the sector. From there, the author emitted the lead that the context of the project might influence the relevance of these approaches, and consequently came up with the following research question,

"How to choose between the business plan and the lean startup approaches when developing a business model depending on the context governing the project development?".

After a deep understanding of the two approaches, which allowed to identify the purposes, advantages and disadvantages of both LS and BP, we decided to investigate their relevance through the lens of the business lifecycle.

While it seems that, no, the business plan is not dead, and while the Lean Startup does not particularly fit every stage of the company, the main conclusion that came out of this analysis probably relies upon the potential complementarity of the approaches, while they were mainly seen as opposite by the existing literature. We will now discuss and debate this key takeaway.

First of all, it is interesting to notice that the two approaches seek for a common goal: a sustainable business model development. Additionally, both approaches, therefore including the Business Plan, should follow an iterative process in order to fully meet their potential. However, it is true that the methods used actually differ, answering different needs. In order to assess these needs, we used the Business Lifecycle as a key variable, as previously mentioned, and it came out that the Lean Start-up actually fits the Pre-Venture and Existence Stages, characterized by a highly dynamic and ever-changing environment where the market is mainly unknown.

On the other hand, it seems that the Business Plan does not answer the needs emerging in the early stage of the company, while it could actually bring value when growing. During such a phase, the business lifecycle models tend to predict a much more stable environment, the offer

does not changing much and the company already having an existing customer base. At this moment, companies usually tend to maximize and scale their processes. On top of that, such activities usually require huge investments, for which external investors are needed most of time, and the business plan still perceived as essential to raise capital. Moreover, the Business Plan pushes the project carrier to rethink each of his/her costs and production process, which is aligned with the process optimization intention. Therefore, the BP would complement the LS in the sense that it follows it, in a second instance.

Regarding the Maturity stage, we noticed that the LS and BP approaches could be useful, depending on the context, once again. Indeed, in case the company would still act within a maximization purpose, satisfying the existing customer base by releasing subsequent generations of the offer, then the business plan would make sense. In case the company intends to diversify its offer and innovate by developing a totally new product or service, the process would actually start over, and the LS would become relevant back. Notice that those two approaches could actually happen at the same time, which supports the complementary idea regarding the two methods.

Concretely, the analysis and work led to the conclusion that the Lean Startup and Business Plan approaches are relevant at different moments based on the needs and challenges of a company through the business life cycle. The business plan supersedes the LS approach when moving to the growth stages. However, the reader should keep in mind that, as mentioned into the Business Lifecycle section, this type of model could be considered as a stereotypical model of growth, while companies actually go through a perhaps more sinusoidal journey. This idea actually touches to one of the limits, which will tackled afterward. However, based on this sinusoidal aspect, the author found relevant to compare the BP and LS complementary to DNA, where both branches are connected to each other, and simultaneously go up and down, as shown below (see Fig. 6)

Fig. 6: DNA Sequence Picture (Medicover, n.d.)

While the DNA itself would represent the business model, its shape represents this LS-BP connection and complementary notion, as well as the alternation aspect, companies constantly going from dynamic and creative stages to more stable and optimized moments and inversely.

Regarding the complementary of the two approaches, which was addressed from a business needs' standpoint, we could also raise the sensitive questions of the predictions relevance within a complementary approach. Indeed, one of the main critics raised against the Business Plan relies upon its inability to precisely predict the future, which is unknown, or uncertain. While the reader may wonder whether the critics raised against the business plan were actually targeting the approach itself, or rather belong to a much more global topic, which is the planification debate in general, it is interesting to notice that a situation does not either belong the uncertainty or risk topic. A situation is associated with a certain level of both. And, by adopting a Lean Startup approach and getting to know your customer and your market, one might argue that it allows to transform a portion of the uncertainty into risk, associated with known probabilities. Actually, this idea was suggested by Ghezzi (2019), who redacted a paper about Lean Startup Approaches a few months ago and also suggested a LS-BP subsequent and complementary approach. However, notice that the reasons why Ghezzi and this dissertation tend to suggest a complementary approach totally differ. Indeed, the Italian searcher uses the uncertainty-to-risk conversion as a justification, while the analyses carried into this paper focuses on the business needs through the business lifecycle and instead sees the uncertainty-risk conversion as a potential supportive assertion. Coming back to this point, predictions

would, therefore, theoretically make sense when realized in association with prior LS usage. This then tends to further support the relation between the two main approaches. However, this thinking actually is more complex and sensitive than it appears. Is it really possible to transform all the uncertainty into risk, or is there a certain portion of our world that inherently belongs to the uncertainty aspect? And could we say that this occurrence probability estimation quest pollute the Lean Startup approach by moving the project carrier away from the end-purpose, developing a sustainable business model? The author does not intend to debate this idea here, but assumed it was mandatory to bring this questioning nuance to the fore. However, we could relate this thinking to the systemic versus individual risk distinction. Within the financial world, systemic risk, or market risk, relates to a type of risk that is both unpredictable and impossible to completely avoid, (understand uncertainty?) as opposed to individual risk, which is associated with one specific stock and which traders minimize through diversification (Patel, 2019). However, even though accepting this distinction, it does not prohibit financial analysts and investors to use financial models for what they truly are: tools at the disposal of the project carrier supposed to help and guide him/her within his/her choices, but which usage ultimately depends on the project carrier.

Regarding the previous paragraph, the author easily acknowledges that the financial analysts/entrepreneurs comparison might comprise more intricacies, but wanted to point out that recognizing the existence of a certain level of (inconvertible) uncertainty probably does not make the Business Plan approach completely useless. Globally, the author would like to remind that Business Plan and Lean Startup both belong to a more generic and common approach, which we could call the “Entrepreneur Toolbox”. Perhaps people have tend to forget that those tools, approaches do not exist with the purpose to force the entrepreneur adopting an approach or another (even though investors tend to lean towards the business plan). Those methods, approaches and tools exist in order to help entrepreneur, but which relevance assessment and usage ultimately depend on the entrepreneur’s appreciation. Through this dissertation, we intended to provide leads to guide such appreciation, with a focus on the business lifecycle. However, the author acknowledges that there are many other variables that could influence the assessment of the two approaches.

For example, the access to resources might influence the relevance of the Business Plan approach or at least impact its format. In case the entrepreneur does have access to resources, not having to redact the document and using the approach as it actually intended to be: as a

reflexive and steering approach, pushing the entrepreneur to answer at least some questions as well as providing a clear guideline.

Then, the experience of the entrepreneur could also be a variable to take into account. Indeed, one might argue that to fully assess the relevance of both approaches, it must be done through the lens of the project carrier, who might be more or less experienced, having faced different situations.

Another one could be the sector. Does the LS, which suggests short iterative cycles, fit a sector where research and development activities inherently last several years? We here notice that suggestions we initially brought to the fore might face several limits. However, the point was not here to bring one final answer, which potentially is not even possible as it seems difficult to develop one equation of entrepreneurial success, but rather contribute to discussion.

Additionally, the author acknowledges three limits to the conclusions of this dissertation.

The first one actually is related to the available data. The business model through the Business Lifecyle lens has not often been tackled by the existing literature, so that several needs or challenges might miss as part of our analysis grid.

Then, another limit relies upon the Business Lifecycle itself. As previously mentioned, it has been characterized as a stereotypical model of growth. Consequently, our conclusions and suggestions might not work for every single situation, each company facing its own challenges and following its own path.

Finally, the author would like to point out that, if the LS and BP approaches theoretically help developing a sustainable business model, it does not say anything about what comes before, and the idea generation. This observation led the author to raise another question: given that LS intends to confront the idea, through a MPV, with customers as soon as possible, and knowing that we often hear customers do not even know what they want, would our suggestions still be valid within a highly innovative context? Could we even argue that, in such a case, the Lean Startup would tend to restrain innovation? In order to complete the answer to our research question, the author has decided to conduct on-field researches in order to collect data leading to more nuanced suggestions.

Section B. Practical Part

1 Introduction

Based on the literature review, the author has identified multiple leads for completing the previous researches, amongst which three have been retained. The first one is related to the potential limitation the Lean Startup might have when applied to a highly innovative project. Secondly, and as a reminder, one of the limit of the lifecycle approach relies upon the fact the each company actually follows its own trajectory. And given, the business model evolution through the business lifecycle has not often been tackled by the existing literature, we intend to support or partially invalidate this part of the discussion by making sure that, in general, companies do seem to follow the mentioned business lifecycle. Finally, even though we identified eight variables as potential influential factors regarding the two approaches' relevance, there is no denying that additional ones might be identified. Consequently, the author here decided to further address those three topics by conducting on-field researches.

As for the highly innovation aspect of the question, the author decided to focus on the Smart City topic, which choice will first be justified. Then, the data collection methodology will be discussed before presenting the collected information in a descriptive manner. Thereafter, those will be analyzed and compared to the discussions raised after the theoretical part of the dissertation, before drawing general conclusions about this entire paper as well as identifying leads for further improvements.

Concretely, at the end of this practical discussion, the reader should be aware of the specificities of the Smart City sector, which is considered as an innovative one, therefore understanding whether or not Lean Start-up and Business Plan approaches appear as relevant within this specific context. Additionally, the initial suggestions made for choosing the right approach should be more accurate, as new variables will be identified, and theoretical take-aways supported, or not, by on-field data collection.

2 Concepts Definition

As previously mentioned, several concepts deserver further clarification, such as what a radical innovation is, as well as the concept of Smart City, ultimately justifying the decision of choosing this sector as field research afterward.

2.1 Radical Innovation

Regarding the general innovation topic, there is no denying that classification models abound. However, after a first round of research, the author came to the conclusion the type of innovation that would better fit the limit raised into the previous discussions was the radical one, which takes this newness, or *"extent to change"* into consideration (Littunen & Varis, 2015, p.130). Indeed, Jung Young Lee (2011), who realized his PhD on incremental and radical innovations, realized a literature review and came to the conclusion that radical innovation happens when

> *"Organizations attempt to disrupt the prevailing technological trajectory and create new designs, technologies, and distribution channels for new markets*. […] *Put differently, the success of a radical innovation project depends on the ability to make prevailing technologies obsolete by transforming the old knowledge into new knowledge, thereby producing fundamental changes in an organization"* (Lee, 2011, p.18)

Similarly, Newman (2018) suggests that radical innovation deeply impacts the industry, for the better, by using technology as a core aspect while focusing on long-term goals. Notice that radical innovation differs from disruptive innovation, which latter relies upon the fact that it begins operating in the low-end market, targeting the overlooked segments (Christensen, McDonald & Raynord, 2015). Then, and only then, the disruptor tends to improve the quality of its offer, which is initially considered as inferior by most of an incumbent's customers, finally catches up or even outperforms the standards and starts catching on with mainstream customers (Christensen, McDonald & Raynor, 2015). Additionally, an innovation must be understood as disruptive as opposed to something else. An innovation is not inherently sustaining or disruptive, it happens to be so compared to something, which suggests the idea of a comparison point, which Lee called the organization (2011). Uber for example, did not disrupt the taxi industry by definition, given that the company did not target the low-end customers at first (Christensen, McDonald & Raynor, 2015). However, Uber might be considered as disruptive to the "limousine" industry. Indeed, UberSELECT option gives access to more luxurious cars but is typically less expensive than a traditional limousine, presenting the constraint of not having access to advance bookings (Christensen, McDonald & Raynor, 2015).

Notice that the author acknowledges that the radical innovation definition, and innovation in general, might be subject to discussion, as the literature tends to provide multiple points of view, and where definitions of those terms abound. Additionally, it is fair to say that the distinction between radical and disruptive innovations sometimes is blur, and one might argue

that disruptive innovation actually is a specific application of the radical one. However, even though it might be the case, the point is not here to debate those terms, and the radical innovation here has to be understood as an innovation that *"produces fundamental changes in the organization"* (Lee, 2011), in the sense that it modifies the existing relationships between a provider and a client, within a particular context or organization. Based on the author's experience, the Smart City sector was chosen as a data collection field, and which choice will now be justified.

2.2 Smart City

Indeed, based on the definition of radical innovation, the author has identified the Smart City sector as a potential research field. According to the European Commission's website itself (2018), a smart city is

> *"a place where traditional networks and services are made more efficient with the use of digital and telecommunication technologies for the benefit of its inhabitants and business. A smart city goes beyond the use of information and communication technologies (ICT) for better resource use and fewer emissions. It means smarter urban transport networks, upgraded water supply, and waste disposal facilities, and more efficient ways to light and heat buildings. It also means a more interactive and responsive city administration, safer public spaces, and meeting the needs of an aging population".*

Based on this definition, one could argue that most Smart Cities related innovation tends to relate to incremental innovation, which focuses on *"expanding and improving current products and services"* (Lee, 2011), by making the *"traditional networks and services more efficient"* (European Commission, 2018). However practical examples will here be provided in order to understand how verticals have been impacted by new Smart Cities and IoT technologies, with a special focus on the Waste Collection one. Initially, public litter bins were collected, and mostly still are, based on a fixed planning, without knowing whether bins were full or not. Haulers were therefore paid by the municipalities based on a "per collection fee". However, new IoT technologies have led to the development of new sensors, mounted at the top of each bin, and measuring, usually based on ultrasonic technology, the filling-level of each bin, ultimately reporting those data to an on-cloud platform. Based on those information, collection optimization, prediction algorithms, deployment suggestions might be realized, leading to a cost-reduction and global vertical optimization for the municipality. While it drastically changed the way collections were realized, it consequently reduced the fee perceived by the collector, due to a lower number of collections, who nowadays complain about it and fight

against those Smart Waste technologies. On top of that, such technologies lead to higher lifespan for the bins as well as carbon footprint reduction. Globally, it is therefore fair to say that those sensors have changed the current services and business models to replace existing ones, modifying relationship between customers and suppliers, which we defined as a radical innovation. Notice that, once again, the author understands that the distinction between disruptive and radical innovation might be tendentious. However, the point of focusing on the Smart City topic here is to complete our answer to the research question when operating in a highly innovative environment, challenging established commercial relationships. While the Smart Waste example was mentioned, the author could have given the Smart Streetlighting or Noise metering examples, which would lead to the same conclusion. Now that we understood the rationale behind the Smart City sector choice, the methodology of the research will be presented.

3 Methodology

3.1 Research questions, approach and collection method

As previously mentioned, this practical part intends to complete the previous researches and complete the answer we brought to the initial research question, which is

"How to choose between the business plan and the lean startup approaches when developing a business model depending on the context governing the project development?".

As a reminder, we mentioned several limiting conditions to the suggestions made at the end of the literature review, including the fact that the existing literature was saying little regarding the tools' relevance when developing a radically innovative offer. Would those approaches make sense within such a context (SRQ1)? Then, one of the limits raised in the previous section was related to the lack of existing papers addressing the topic of the business model evolution through the business lifecycle, as well as the fact that such models tend to be stereotypical while each company actually follow its own trajectory. Consequently, the data collection also intends to validate/invalidate the previously mentioned challenges faced through the business lifecycle or even raise attention about issues or needs that have not been introduced by the literature, ultimately supporting, or not, the previous suggestions to entrepreneurs (SRQ2). Finally, through the literature review, we kept identifying variables potentially impacting the research question's answer, such as the experience of the entrepreneur, or a B2C versus B2B offer. The

author intends to further extend this research by identifying additional variables, or else bringing leads for answers regarding the already identified ones (SRQ3).

Therefore, given the research question(s) and when assessing whether a quantitative or qualitative approach would better fit the research process, the latter appeared to be a better match for multiple reasons. Globally, the author would like to remind that this dissertation is part of an exploratory logic, where we aim to theoretically determine how one approach or another could help businesses within a specific context. To do so, there is no denying that we need to understand in depth the process and the challenges companies go through, from the creation to the expansion and so on. This should allow us to go further than the existing literature, and which will require to get on-field insights, meanings, and feelings about such processes. Here, we then seek to explore the phenomena, discover unexpected impacting variables, but not confirming pre-defined hypotheses. In this sense, we understand that approach's flexibility, to a certain extent, is required. For all these reasons, a qualitative approach appeared as the most suitable solution (de Moerloose, as cited in Lejeune, 2014; Guest, Mack, MacQueen, Namey & Woodsong, 2005; Sunday, N.D). Indeed, qualitative methods are known as effective regarding their ability to provide *"complex textual descriptions on how people experience a given research issue"* (Guest, Mack, MacQueen, Namey & Woodsong, 2005, p.1), leading to a better understanding of the relationships between potential variables as well as how those have individually been perceived. Even more importantly, this type of method allows to understand the "why", the meaning of the responses, as well as identifying intangible factors, such as the importance of the team relationship, within the given context.

Regarding the collection method, and based on the previously mentioned purposes, semi-directive interviews have been assessed as the method potentially bringing the most value given our needs, which are motivated by the desire to learn as much as possible, depending on what the respondent would be eager to share about the evolution of the business over time (Guest, Mack, MacQueen, Namey & Woodsong, 2005). Indeed, this method allows one to tackle pre-defined topics without being too restricted (Lejeune, 2014). Therefore, given that we intend to understand the process according to the interviewees' perception, the semi-directive form will leave enough room for maneuver to both the interviewee and the interviewer (Lejeune, 2014).

Regarding the interviews themselves, a guide has been redacted (see appendix 1), based on several concepts identified through the literature review, and consists of a rigorous protocol commonly applied to each interviewee in order to ensure reliability from a process standpoint. Globally, the author intended to follow the funnel method, starting with several generic topics in order to let the interviewee express as he/she pleases about the topics he/she wanted around the evolution of the business over time, before digging into several sub-aspects. Concretely, each interview has followed a similar path, starting with a brief introduction of the interviewee, in order to understand whether he/she had any entrepreneurial or managerial background, which has been identified as one of our variables. Then, the broad question of the business' history was raised, with the unclaimed intention of addressing several topics: the idea generation (how did it get started?) and the first commercial offer, the way the company then scale (or recessed), both including the customers and the financial aspect of the business model with a special focus on funding rounds. In case the respondent had already tackled by him or herself some of the said sub-topics, questions might have been skipped unless additional detail was required. Thereafter, and to sum up the company's history, the respondents have been asked to develop the key challenges they faced as well as the key success factors, in their opinion. Then, and only then, the concepts of business plan and lean start-up were introduced and their application ultimately discussed within the peculiar context of the company. However, notice that this interview guide has been reviewed after each discussion, potentially adding questions, or topics, that would have been raised as part of those.

3.2 The Sample

Regarding the sample, given the choice to focus on the Smart City sector and the need of understanding the different challenges faced by companies within this sector over time, the author has decided to interview founders or people having played a high managerial function, such as CEO, within a company related to the Smart City topic for more than 5 years. The respondents' information, which is confidential, is available in appendix 2. In this sense, the described sampling method was a purposive one, based on preselected criteria given the particular research question (Guest, Mack, MacQueen, Namey & Woodsong, 2005). However, due to the low number of demanded "high profiles", and those having very limited availability, we could argue that convenience sampling has been taken into account though. Also, notice that through the process, we have been paying attention to discuss with founders or CEOs of companies all around the world, as the international aspect was identified as a potential variable.

In total 8 interviews have been conducted online, with an average length of about an hour, the shortest interview having lasted around 30 minutes while we spent 100 minutes for the longest discussion. While the author would have hoped to conduct more interviews, low availability and the geographical point of attention, not interviewing more than 2 people coming from the same country, have restrained this number. However, it is interesting to notice that even though each company had a peculiar journey, the marginal return of information had drastically decreased after each discussion, so that we started noticing the influence of the saturation principle (De Moerloose, 2019).

Finally, the author would like to put emphasis on the fact he has looked for both male and female profiles. Nevertheless, (and unfortunately) it is a fact to say that many more companies have been created by men's profiles. On top of that, the contacted female entrepreneurs/managers did not respond positively.

3.3 The analysis

Once the data collected, interviews have literally been transcribed. The author has decided not to reduce the amount of data during the transcription for one reason. As previously mentioned, one of the purposes of the interviews is to identify additional variables that might impact the relevance of the business plan and the lean start-up approaches. Therefore, after months of research, the author might be biased when first selecting data so that those interviews have literally been transcribed within an objectivity seeking-purpose

Then, and only then, the amount of information has been reduced through a codifying step. Notice that the analysis has been carried manually given the relatively low quantity of interviews. The author then synthesized those information based on the codebook presented here below (see Table 4). In order to build this grid, an iterative process was followed. First, codes had been assigned to concepts which had emerged from the literature review, such as the financing needs or the first clients. However, interviews have revealed to be a huge source of innovation in terms of ideas, so that the grid has cyclically been reviewed to finally emerge as following.

THEMES	SUBCATEGORIES	CODE	DEFINITION	EXAMPLES
ENTREPRENEUR' S BACKGROUNG	Entrepreneurial experience	[exp/ent]	Any (lack of) experience including entrepreneurial actions that the project carrier may have lived	R1: By 2004, I started my first company, which was a services business that served the architecture profession and grew from 10 to 500 people in a few years
	Management experience	[exp/man]	Any experience in managing a team and a project within a professional context that the project carrier may have	R2: I took my master in program management and project management R8: I have also had business unit manager's activities, director
	Technical background	[exp/tech]	Any related technical background the project carrier may have impacting his/her relevance within the project development	R2: Then, I entered the world as an IT manager and network engineer R5: I am a telecommunication engineer, from polytech in Paris
OPPORTUNITY	Based on a market need	[opp/market]	Idea coming from a need expressed by the market or end-customers	R3: [The need was already expressed] but not at all how we developed it. And that's where you need to be smart in my opinion. […] Our idea was to do it differently, at a relevant price and that was complicated. R8: the SPI was interested in having a lighting system responsible from an economic point of view.
	Based on a created need	[opp/created]	Idea coming from the entrepreneur's mind and need unexpressed by the market or end-customers	R1: Out of that company came the idea of CityZenith. At the time we had reached 500 people, we had developed skills in many different types of software tools, because the clients were using all kinds of tools. So we began to think there should be a common integrating 3D platform for all of this technologies and began barking down that path.
FIRST OFFER DEVELOPMENT	Problem understanding	[fod/prob_und]	The importance, the process and the results of understanding the problem	R3: We really had to understand the essential needs of deployment, a portal that must have such features. R6: I ended up having a conversation with a street lighting manager: how do you manage your lights, how do you detect failures, ... This first long conversation really started the thinking that maybe there was a marketplace that the type of radio tech could serve.

FIRST OFFER DEVELOPMENT	Market understanding	[fod/market_und]	The importance, the process and the results of understanding the market	R4: at the beginning, the vision was like ""we are going to put a sensor in each parking spot in the world". There are millions of spots, demand will explode. But when cities finally understood the technology [after 2016], we realized that sometimes a sensor was required, sometimes not, or another technology was required. R6: Following which I discussed with colleague in the consulting business and then set about a proper, own program of research of about 3 to 4 months. Looking at the market, try to understand its beginning.
	Existing solutions and competition	[fod/comp]	Any competitive information that might have been collected at the time	R1: We were very new and ahead of everybody else for a long time. It took a few years to everybody to figure out what we were doing. R6: Streetline actually raised $85M and ultimately didn't work because their hardware didn't work.
	Prototypes	[fod/mvp]	The input prototypes have had on the development process	R1: So in 2009, the company was launched but we really didn't get active until 2013 with going to the market, we were really in a prototyping phase.
	Experts collaboration	[fod/expert_collab]	The (non-)impact experts have had on the offer definition and reviewing	R1: When I had the idea, I was taking it to top members of the industry and tried it on them. And my idea was something I wasn't sure it was going to work. R4: In our company, we had engineers but no parking, traffic specialists. And to develop a product you need to know the trade
	End-customers collaboration	[fod/end-cust_collab]	The (non-)impact end-customers have had on the offer definition and reviewing	R4: Very important from the customers. The voice from the customer is very important. R7: we have been listening to cities all along the way. Listen carefully to what the customer wants.
	R&D period	[fod/R&D]	The time it took to develop the first sellable offer	R1: So in 2009, the company was launched but we really didn't get active until 2013 with going to the market R7: We convinced the board we should go dark for three years, and we rebuilt the technology from the ground up. And we invested millions in it.
	First clients & references	[fod/ref]	After how long did the company get its first reference and its impact	R1: Back in 2013, the first customers were a struggle. Nobody wanted to be first. R3: We had the chance to win enough small projects in the early stage to convince our investors

FIRST OFFER DEVELOPMENT	Cost structure	[fod/cost]	Every cost and financial strategy related information	R3: We had very simple office to reduce our cost
	Funding sources	[fod/funds]	How the company did finance the early stages	R1: We raised 7 million dollars. When you have a founder who has raised money before, everybody wants to be in the next movie. I was able to go, with my reputation, to raise money much greater. I wasn't forced to go with one investor or the other.
	Relationship with investors	[fod/invest_rel]	Any detail about the relationship status between the project carrier and investors	R3: I convinced the investors I already had been working with, and whom I enjoyed working with R8: From a legal point of view, you need to be irreproachable. Otherwise, you will lose trust from investors.
	Business plan redaction	[fod/bp]	Any detail about the potential business plan redaction and predictions as well as its purposes, pros and cons	R2: [We redacted] several business plans because we had to look for investors. The purpose was having a vision, a mission we can crystallize in number in the business plan and then take a discussion paper for investors. Looking for investors and funding the company.
	Others	[fod/others]	Any other interesting information regarding the context that do not fit within previous sub-categories	R1: I think it's true to say that the company has gone through that [a dynamic stage] when they started with just an idea. In the beginning it's a core team, they are like the special forces in the military, they have unique skills, don't ever get tired and like new challenges.

SCALE	Signs of growth or downturn	[scale/signs]	Any sign of growth or downturn	R3: between 2006 and 2010, our sales doubled each year, reaching up to 800k.
	Competition	[scale/compet]	Evolution of the competition over time	R1: More recently though, the last two/three years, we began to see the emergence of competitors that have gone so far to steal our marketing language. They say plagiarism is a form of flattery. R6: Competition has grown exponentially. And I think low costs in this type of market really is important.

SCALE	Offer development and diversification	[scale/odd]	How the company did modify its offer	R6: So the offer has continued to evolve through subsequent generations of products.
	New clients and markets	[scale/clients]	How the targeted customers and markets evolved since then	R1: By 2016, we began focusing on the real estate industry R3: [after the acquisition] they gave us access to the US market, in which we were not operating due to a lack of resources
	Notoriety	[scale/noto]	Any potential sign of brand recognition acquired by the company	R3: Tenders keep coming up and we start having a certain notoriety by dint of projects, conferences, "smart city noise".
	Cost	[scale/cost]	The evolution of the company's costs	R2: You start adding people, because you realize that in your project management you need marketing, very important, and you need a proper administration, to know your numbers. And then you grow organically.
	Funding sources	[scale/funds]	How the company did finance the next stages	R6: We then chose in 2015 that the timing and the development of the market growth we were in were such that we warned and accepted a more deliberate growing in the acceleration of business [and started looking for investors].R8: we were looking for raising capital in order to go international.
	Relationship with investors	[scale/invest_rel]	Any detail about the relationship status between the project carrier and investors	R4: We could have had negative results for a while if we had kept growing, such as most IoT companies. For investors, that works. But we lost 50% of our turnover, which didn't work.
	Business plan redaction	[scale/bp]	Any detail about the potential business plan redaction and predictions as well as its purposes, pros and cons	R2: [We redacted] several business plans because we had to look for investors R3: It was wasted time because the strategy was clear and was working. We just had to write down and didn't bring me to answer questions about other strategies, which would have been great.
	Others	[scale/others]	Any other interesting information regarding the context that do not fit within previous sub-categories	R1: As you grow, you don't end up with an organization of special forces but with balanced people, they provide different types of things, not just including talent and energy. And I think we have been in that process of stabilizing. R6: When the company grows from small to medium size, the format structure and management needs to be built-in.

KEY SUCCESS FACTORS AND MAIN CHALLENGES	Type of business strategy	[KSF/strat_type]	Impact of dealing withing a B2C, B2B or B2G environment	R1: a public tender is my version of a nightmare R2: It's the case for smart cities, it's the public sector, public administration is notoriously slow.
	Team	[KSF/team]	The importance of the team	R1: It's the team, 100%. Make no mistake. The team is what you always ever have. Even with a great product, a team has to keep improving, sell. It is always the team. Honestly, great team can do anything.
	Access to resources	[KSF/acc_res]	The impact of having, or not, access to resources	R3: I was lucky having access to cash from my investors. Without them, from 2006 to 2011, it would have been hard.
	Emerging market	[KSF/emerg]	Any potential impact of acting within a relatively new market, highly volatile and unknown	R1: Sometimes the client does not even know what he or she really wants, because it's so far ahead, including the army. So there is a little bit of risk in that. But you managed this risk by having an amazing team.R8: the biggest issue is related to the fact that the Smart Cities only start being understood.
	Low adoption rate and slow process	[KSF/adopt_rate]	The evolution of the adoption rate and its speed	R4: Market wasn't ready [in 2013]. It has been much slower than what we thought. And we had over-dimensioned the team. R4: Now the demand is much more aware of the existing technologies and how to give sense to it
	Initial rejection	[KSF/reject]	Potential rejection faced by entrepreneurs at first	R3: Some people were not convinced at all [by our solution]. Others even laughed at me.
	Agility or flexibility	[KSF/agile]	The importance of staying flexible when relatively small	R3: I have seen Philipps developing new features, which was taking over 6 months, meeting after meeting. When architecting that in a different way, it could have taken around 15 days. But that was the ability we had with our small team. R5: the key element of the company's growth today is not about planification. It's the reactivity and the go-to-market. Having a time to market as short as possible, and that goes through a MVP.
	First mover	[KSF/first_mov]	The impact of being the first mover	R4: When you are the first mover, it takes a lot of time. We have been the first on smart parking and it takes a lot of time before the market adopts your idea. Being the first requires a lot of investment.

Table 4. Codebook

4 Descriptive Results Presentation

Before analyzing and drawing conclusions out of the interviews, the results will be presented in a descriptive manner, following a chronological aspect. Indeed, based on the sub-questions at the heart of this practical part, a huge emphasis was put on the first stage of the company, trying to understand how the idea initially emerged and evolved into a first commercial offer. Concretely, opinions and results are gathered and presented following the codebook themes' sequence, starting with the entrepreneurs' background, understanding where the idea came from, the process that led the project carriers to the first commercial offer, and then how the company grew or changed its business model. Notice that several issues emerged at a specific moment of the process and will be tackled when mentioned. However, others, named key success factors and key challenges were much more global, so that a specific section is dedicated to those issues. Also, the author would like to point out that, for the sake of this dissertation, we will not support each idea with every single related mention, but rather illustrate those with selected examples. In case the reader emits the desire to have a look at the entire data collection work, the author invites the reader to go to the Appendix 4, where information is gathered for each section, following the codebook, starting with the entrepreneurs' background.

4.1 The Entrepreneurs' Background

At the origin of each company usually stands a team, or at least one entrepreneur. It is more than fair to say that each person has lived different – professional – experiences through which everyone acquired different skillsets. Throughout the interviews, 3 types of experiences naturally came out, starting with any prior entrepreneurial background. Out of the 8 respondents, two had already created another company (R1, R6).

R1: "By 2004, I started my first company, which was a services business that served the architecture profession and grew from 10 to 500 people in a few years."

R6: "Four years from that, I launched my first tech biz with a colleague."

While another had frequently emitted the desire, and built plans, to create one (R3), the fifth respondent admitted having literally no entrepreneurial experience prior to this journey (R5). On top of this type of experience, the management one frequently came out, with all the interviewees already having management knowledge.

R3: "I stayed at IBM for 3 years as the director of the software unit."

R5: "I worked for 10 years as a project developer and chief of laboratory."

Such as for the managerial background, all the interviewees mentioned a technical background. Those usually were relevant within the context of their current companies. For example R5 is a telecommunication engineer and his company now provides IoT solutions, including network management software.

R2: "Then, I entered the world as an IT manager and network engineer."

R5: "I am a telecommunication engineer, from Polytech in Paris."

R8: "I am a civil engineer."

While it is interesting to understand the background entrepreneurs might have, based on an entrepreneurial-management-technical background distinction, it becomes even more interesting when relating it to the idea emergence, which leads us to the opportunity section.

4.2 The Opportunity

Indeed, when getting into the core topic of the interviews and narrating how the idea of the business emerged, all interviewees, once again, shared a common standpoint: the fact that the business idea emerged from an existing opportunity, based on a need already expressed by the market, and which mostly happen within the context of a prior professional experience.

R1: "We saw it was getting more difficult to do bigger projects and that customers were having to develop multiple skillsets and multiple tools. And customers were complaining about this, that there really was no answer to the question".

R3: "By chance, I met people working on a project in Oslo, which wanted to make their street lightings smarter".

R8: "The SPI was interested in having a lighting system responsible from an economic point of view".

On the other hand, only one respondent (R1) had a more mitigated story, claiming the idea emerged from both an already expressed need, and a created opportunity. However, notice that this business actually came out of a previous business, where they

"had reached 500, people, we had developed skills in many different types of software tools, because the clients were using all kinds of tools. So we began to think there should be a common integrating 3D platform for all of this technologies and began barking down that path" (R1).

It is here interesting to notice that one key distinction, unintentionally, emerged from this reference, which is the difference between the problem and the solution. As for the problem, it seems to emerged from the market itself, which *"was complaining about this"*. On the other hand, the solution, came out of the existing business, where the team started to think the 3D platform should exist. Actually, this point of view was shared by R3, who claimed that "[The need was already expressed] *but not at all how we developed it. And that's where you need to be smart in my opinion.* [...] *Our idea was to do it differently, at a relevant price and that was complicated*". Concretely, based on those testimonies, it seems that understanding a problem, and developing a suitable solution are two different things. We will now focus on the given details for those two topics, as part of the first offer development section.

4.3 The first Offer Development

Regarding the way entrepreneurs tried to understand the problem, it seems everyone had his/her own method, going from walking into the streets to discussions with lighting managers, for the street lighting topic.

R3: "I walked into the streets of Oslo but also looked at other pilots, we thought about how we could do it and we started developing a software."

R6: "I ended up having a conversation with a street lighting manager: how do you manage your lights, how do you detect failures, ... This first long conversation really started the thinking that maybe there was a marketplace that the type of radio tech could serve."

However, no matter the method, R3 and R8 specifically mentioned the importance of understanding the core problem.

R8: "The electronical part is not important, it's the functionality, the application and the why that matter."

R3: "We really had to understand the essential needs of deployment, a portal that must have such features."

To do so, most interviewees (R1, R3, R4, R6, R7, R8) insisted on the value of involving end-customers.

R3: "I've learned a lot of things over there, including the "how to build something with a client" part."

R4: "The voice from the customer is very important."

R7: "We have been listening to cities all along the way. Listen carefully to what the customer wants."

Nevertheless, while it was already said it was important to understand the core problem, understanding it within its environment and the market also appears as important. Indeed, in some cases, it helped realizing that initial assumptions or hypotheses were perhaps biased, or even helped identified ongoing trends.

R3: "We were a software editor. But from a business model point of view, we had to sell hardware and we included the software fee there. Because most clients are hardware-oriented, they want to touch things".

R4: "At the beginning, the vision was like ""we are going to put a sensor in each parking spot in the world". […] we realized that sometimes a sensor was required, sometimes not, or another technology was required".

R6 "The climate agenda was beginning to hold, in 2004-2005".

To do so, some have conducted market researches while others relied upon prior experience or discussed the topics with field experts.

R6: "Following which I discussed with colleague in the consulting business and then set about a proper, own program of research of about 3 to 4 months. Looking at the market, try to understand its beginning."

R7: "It was more about 35 years of being heavily involved in companies, and acquiring more than 100 companies for PwC."

Once the problem and the market understood and a strategic positioning chosen, the solution part, or the first offer development came afterward. Five respondents mentioned going through a prototyping step at first (R1, R3, R4, R6, R8).

R4: "[We] *realized the first strategic choice, being product-oriented."*

R1: "We were really in a prototyping phase."

R8: "They developed a prototype."

However, even if already having a decent understanding of the problem as well as the market, some respondents have enlightened the advantage of keeping collaborating with both potential customers, one the one hand, but also experts, on the other hand.

R7: "Now, we do work with a UCLA professor, who literally did write a book on parking. They describe him as kind of the Rockstar of parking."

R4: "In our company, we had engineers but no parking, traffic specialists. And to develop a product you need to know the job."

However, as mentioned by R4, who had initially been developing the offer in collaboration with technical experts only, being away of the customer has led the team to not answer a concrete business need, which supports the suggestion of working with both.

R4: "So we collected technological feedback, but not a business one. And we suffered from this, because our product didn't always match a concrete need. So being away from our end-users has sometimes led us to develop inadequate products".

However, even though taking end-customers' opinion into consideration appears as important, two respondents pointed out the fact that the team was the ultimate decision-maker though, for several reasons, including the fact that sometimes, the customer does not really know what he or she wants, which might sometimes lead to a trial and error process.

R4: "We released them, we reviewed them, and we saw that the same request comes from most of the consumers, and then we decided that it is something we want to include in our solution as a standard, or we want to do a custom development for a specific customer, or we just drop".

R6: "They hadn't necessarily thought about what they needed. So we couldn't easily write specifications because the customers weren't so clear. So we had to make some decisions about the features ourselves".

Nevertheless, across the different testimonies, some respondents were more nuanced when discussing the importance of the end-customers, or at least more precise when defining those. Indeed, according to R1, a distinction must be done between a potential customer, such as for a pilot, and an actual customer. R1 could not learn much from the potential customers because they were not deeply involved, and claimed the offer really started evolving, becoming better, when you *"get a deep involvement of the client, when you start solving a lot of problems in details, and it's not just a pilot where people are looking at "hey how is that? ", it's someone actually relying on it"*. Similarly, R8 pointed out the value of being surrounded by a user, their first customer in this case, who helped them *"defining the product amongst other things"*. This idea, of having a first "true" customer, actually relates to the importance of having one first reference, which appeared as key to seven of the interviewees (R1, R3, R4, R5, R6, R7, R8), for multiple reasons, including the offer validation, the gain of trust from potential investors, brand awareness, and a first on-field full deployment experience. Notice that getting this first client has often been perceived as a struggle, because nobody *"wanted to be first"* (R1) and which idea was summarized by R6: *"We weren't winning anything because we hadn't won*

anything". According to this first respondent, some clients would even have bought the product in year 4, but not in year 2, because they were waiting for the company to get more experience, or on-field projects. And that's where you need to find your innovators, according to the same project carrier.

R1: "These two [references] *have been helping us a lot because they are bigger. We have done around 15 projects over the last couple of years but they were pilots, smaller. These are full deployment, and that's important from a company growth perspective."*

R3: "We had the chance to win enough small projects in the early stage to convince our investors."

R5: "The first clients, such as for most companies, have been difficult to acquire. We decided to focus on one client. It was kind of an all- in. And we convinced him. Then, the first client brought a second one, and so on."

So far, four factors came out of the interviews when it comes to the first offer development, with the importance of, first, understanding the core problem. Then understanding it within its environment seems to be key, before actually starting developing the first offer in collaboration with both experts and end-customers, which latter's value deeply depends on their implication, the higher the better, an actual user being different than a potential customer. On top of that, most respondents insisted on the importance, and struggle, of getting one first reference, where one project could change everything.

However, what has not been tackled so far was the time required before actually having this first commercial solution. On average, it is fair to say that the initial research and development stage took around 2-3 years, with the shortest time to market of about few months (R3) and the longest one which lasted about 4 to 5 years (R6).

R1: "So in 2009, the company was launched but we really didn't get active until 2013 with going to the market."

R6: "It took quite a long time [before having a sellable product]. Probably about 4 to 5 years."

R7: "We convinced the board we should go dark for three years, and we rebuilt the technology from the ground up. And we invested millions in it".

However, one question the reader might have relates to the way companies financed their operations over the first years of their journey, knowing that some have spent 3-5 years on a first offer development, without having any customer, and even *"invested millions in it"* (R7).

To do so, most companies went to external investors (R1, R3, R4, R5, R8) and raised a few million dollars. Notice that in two cases (R1, R3), such process has been facilitated by different factors. As for R1, the founder already launched a (more than successful) company, which contributed to build his reputation, so that many investors wanted to be part of the *"next movie"*. As a matter of fact, he went to 55 VCs, of which 26 asked for a second round, while 13 ended up giving term sheets, which is an incredible result. Regarding R3, he convinced investors he had previously been working and had good relationship with to invest. Finally, in R7's case, the company was 100% internally owned by a very wealthy family, and has not been restricted from a capital point of view. Regarding R6, which has not been cited yet is this section, they were quite determined doing this as best they could without turning out to outside investors, which they did during the first ten years of the company. However, notice that the founder claimed he had been able to do so because he was in position to afford not paying himself a wage for the first 4-5 years. One argument for avoiding to turn to external investors could be related to the fact that, according to R1, VCs' terms are not friendly to entrepreneurs given that those can throw the team out, have a direct impact on the management, on the company valuation, …

R1: "We raised 7 million dollars. When you have a founder who has raised money before, everybody wants to be in the next movie. I was able to go, with my reputation, to raise money much greater. I wasn't forced to go with one investor or the other."

R1: "The problem with VCs is that the terms of their deals, are usually not friendly to entrepreneurs. [They can] *throw me or throw my team out, join on the board, suddenly devaluate the company, …"*

R3: "So the investors [from R3's previous company] *reinvest in* [Name of the company 3] *because I convinced them of the market potential."*

Out of this financing sources topic also came out several ideas, the first one relying upon the fact that working with external investors actually is a true relationship where trust is central, and which trust you cannot afford to lose. Within this context, the previously mentioned first reference, as well as keeping winning projects, being irreproachable from a legal point of view, and a good cost management appear as key.

R3: "We had the chance to win enough small projects in the early stage to convince our investors."

R6: "I think the relationship with the investors is going to be very key. Investment brings money, brings results, and that is important."

R7: "The board said that's great, we probably think you are right, we agree with your assessment of both management of the company and the direction they are taking so we will implement it if YOU run it.".

Talking about those costs, R6 pointed out the advantage of being a genuine bootstrapped company, which forced them having a good discipline in terms of money spending, really focusing on what mattered. Globally, it seems cost was not a special focus at the time, while two companies (R3, R6) focused on reducing expenses though. However, it is interesting to notice that two companies have faced major issues (R4, R7). Regarding the fourth respondent, which previously claimed that being away from end-customer led them to develop solutions that did not match any business need, they actually poured money into solutions that have never been amortized, which was a huge cost. As for R7, which company was building sensors, they figured out, once the offer launched, that having a 10% failure rate was an incredible cost, so that they could not make any money from the installation, because you need to replace the sensors amongst other things. Actually, it relates to R3's point of view, who's business model was based on high-quality. For years, they only had two people managing clients' support, while having more than 500 projects.

R3: "We had very simple office to reduce our cost."

R4: "It wasn't good at all. We poured money into solutions that have never been amortized."

R7: "One other thing I figured out is if you build sensors and have a 10% failure rate, you can't make money on the installation because you are going to have to replace them and get permits to close streets."

Coming back to the investors' topic, each respondent who went to external investors had to follow the same process: redacting a business plan in order to convince them, which redaction process was considered as mandatory, the entrepreneurs not having any other choice that going through this document redaction.

R2: "[We redacted] *several business plans because we had to look for investors."*

R8: "Without business plan, you won't find any investor."

However, opinions about this Business Plan approach quite diverged amongst the said interviewees. On the one hand, some claimed the only purpose was the capital raise (R3, R5), while, on the other hand, others claimed the business plan redaction helped them figuring out a bunch of things, such as setting up a clear vision, a clear mission, how they would approach the

market and how they would use the available cash, globally acting as a guideline (R1, R2, R4, R6, R8).

R3: "It was the time of the 50-pages business plans, it was awful. If fount it useless, but we had to do it. It didn't bring anything."

R5: "The business plan is just about putting figures to raise capital."

R6: "It's valuable to think about the shape of a business."

R8: "It acts as a guideline."

However, even though used to raise capital, which event could be considered as punctual, several respondents put emphasis on the reviewing aspect of the business plan (R1, R2, R3, R8) which should change frequently. Notice that R4 considers frequently reviewing the business plan as too costly, so that the company cannot afford it even though they would like to. Also, regarding the predictions' topic, R4 and R6 stipulates it does not make sense to plan over 5 years in their opinion, but rather prone short term approach, over 1 to 3 years, as opposed to R3 who claimed not needing any business plan, as soon as you have investors. This interviewee actually confesses every good enterprise manager should have a business plan and check-up monthly but argues that, within a startup context, it is not that easy. Finally, it is interesting to notice that when talking about business plans, R6 wanted to clarify that a heavy business plan did not mean a 100-pages BP, *"because VCs won't read all of that"*, but a well-structured, well considered business planning, showing your ability to manage and being able to use cash.

R3: "As soon as you have your investors, you don't need a business plan anymore. It's harsh to say because every good enterprise manager should have a business plan a check-up monthly, but within a start-up context, it is not that easy."

R6: "Not heavy in the sense of a 100 pages BP, because venture capitalists won't read all of that. But well structured, well considered business planning. And then you know the own game discipline of forecasting, managing cash in a business, being able to use cash."

R6: "And forecasting on a time scale of 1 to 2 years or 5 to 7 years is very different."

So far, on top of the importance of the problem and environment, as well as the experts and end-customers collaboration value, we understood that most companies went through a long research and development time-lapse, on average 3 years, except for R3, which company was software-oriented. After this period, companies came up with a commercial offer, and for which attracting first customers has been considered as a struggle. Due to this long cash-burning

period, without any revenue streams, most entrepreneurs went to external investors, who required business plan in order to evaluate the potential of the business. While this approach only intended to raise capital for two of the respondents, five others claimed it acted as guidelines, giving a shape to the business.

Finally, when summarizing this first offer development step, some interviewees (R1, R4, R6, R8) called to notions associated with a dynamic definition, where everyone was involved into many different activities, and where environment was highly-changing.

R6: "For the early startup, people have to apply themselves to all the functions. So it's dynamic, unstructured. You got to do everything".

R4: "It was a bit more artistic [in the sense chaotic] *than I wanted".*

R8: "At the startup level you have surprises every day and you need to be able to adapt".

As a comparison, R1 even associated the early-stage team with seals team, or special forces in the military, where everyone has unique skills, is highly motivated and like new challenges.

R1: "I think it's true to say that the company has gone through that [a dynamic stage] *when they started with just an idea. In the beginning it's a core team, they are like the special forces in the military, they have unique skills, don't ever get tired and like new challenges."*

After having narrated the early stage of the company, with a special focus on the idea emergence and the way the first offer had been developed, respondents naturally tackled the way the company had evolved, grown, once already having a first commercial offer as well as first references, which information was gathered under the "Scale" umbrella.

4.4 Scale

Before going any further, the author would like to point out that, while each company went through this first development offer stage, some had gone much further from a scale standpoint, each company following its own trajectory, and which 8 widely differ. Consequently, it was much more difficult to analyze or identify trends. As a matter of fact, some companies met a strong growth (R1, R3, R7), while others faced some drops from a sales perspective (R4, R6, R8), while other had to realize a complete pivot to survive (R5). As for the common trends, the first one several respondents was the increasing competition (R1, R3, R4, R6). As mentioned into the introduction of the practical section, the Smart City sector was chosen specifically for its innovative and relatively new aspect. Consequently, competition was quite low in the 2000s

(R1, R3, R7). However, over the past years, we noticed the emergence of competitors, including big players such as Cisco and IBM which started getting interested in the Smart City technologies. However, it seems the market is far away from being saturated, such as for the Digital Twins vertical, which represented 4 billion dollars market in 2019 (R1).

R1: "More recently though, the last two/three years, we began to see the emergence of competitors that have gone so far to steal our marketing language. They say plagiarism is a form of flattery."

R3: "There was another phenomena in 2012, which was the Smart City one. There, all the big players such as Google, Cisco, IBM, ... started claiming they were doing smart city. That was scary, they are going to develop multiple solutions and we won't have the resources to compete."

R6: "Competition has grown exponentially."

As for the offer development itself, companies have basically followed different paths. However, their development strategies could globally be characterized with a two-steps process. The first one consists of developing subsequent generations of the first offer, developing new features, which strategy actually is called sustaining innovation, and addressing new client markets. On the other hand, several companies started looking at other verticals they could address. Given that they already were in the Smart City market, they assumed they could have a look at the other sub-markets, based on technologies the company already developed, such as communication network. While those strategies actually are distinct, it is interesting to notice that no one actually used the second without having previously adopted the first one. Consequently, we could raise the question of a potential subsequent relationship.

R1: "By 2016, we began focusing on the real estate industry."

R6: "So the offer has continued to evolve through subsequent generations of products."

R7: "I didn't understand why, if we had a gateway and sensors in the ground and then we had the ability to process data, why we were only looking at parking sensors."

R8: "[after the second generation, which was the first commercial one] *we just moved to the third one*. [after the second generation] *we had an end-product but if we want to do volume, we are going to a have to pay attention to several aspects."*

While most companies, at least partially, followed those strategies, R4 deserves a special focus though. Indeed the company initially looked into several verticals (Waste, parking, …) and developed prototypes for each of those, in *"a quite anarchic way"*. Over time, they could not amortize most of the R&D costs, and had to refocus, twice, on one of those. As a result, R4 himself confessed that the financial results were not good at all. Regarding the "more

tumultuous stories", R5's special case could also be discussed. Indeed, the company had to realize two technological pivots over the past 10 years. Once in 2010, when the founder felt a market turn, the M2M market focusing on the IoT, and then in 2018, two years after the IPO, after an unexpected market event. As a result, stock price dropped from 90% within the next 12 months. However, R5 insists on the fact that market stock price itself is not a big deal, it does not drive the day-to-day activities of the company. Nevertheless, he raises attention of such an event in the eventuality company would have to raise further capital, which really is different once on the stock market. Regarding the two mentioned pivots, R5 associated each of those with *"a come-back to zero"*.

Regarding the way companies have financed their offer development, most of them had to turn to external investors, once again (R1, R4, R6, R8). Especially when trying to get into new geographical markets, which expansion required consequent capital.

R5: "After 4 years, the Western European development has required capital."

R6: "We then chose in 2015 that the timing and the development of the market growth we were in were such that we warned and accepted a more deliberate growing in the acceleration of business."

R8: "We were looking for raising capital in order to go international."

While three out of the 4 mentioned project carriers kept looking for VCS, investors, R1 introduced the concept of crowdfunding, which emerged in the UK in 2015, and which funding source he admits appreciating. Unlike VCs, this type of funding gives you access to thousands of investors, who then become ambassadors for your brand, constantly marketing your project in *"ways that no one else could"* (R1). According to this respondent, "*What crowdfunding marketing campaigns do is not only create market for investors, but they create the market"*.

Notice that the relationship with your investors still appears as key, as you might lose their confidence in case of negative results. Combined to an increasing competition, sometimes coming from big players such as Cisco, keeping providing satisfaction seems to be essential given that those players benefit from huge credit.

R3: "Within a growing market, you start seeing a lot of people acting like experts but who have actually never seen any project. And that's complicated for your investors. Go and tell them the your word is worth more than Cisco's or IBM's one."

R4: "We could have had negative results for a while if we had kept growing, such as most IoT companies. For investors, that works. But we lost 50% of our turnover, which didn't work."

One other thing that typically happened through this scaling phase was the need for more human resources. With more and more projects to manage, you need more and more people, either to train installers, or to manage existing clients, or else for marketing activities, …

R2: "You start adding people, because you realize that in your project management you need marketing, very important, and you need a proper administration, to know your numbers."

R3: "We had many projects. So we needed more people, to train the installers."

When summarizing this offer development phase, as opposed to the first one's development, it was globally agreed that needs had changed, especially from a structure standpoint. While it seems teams initially operated within a rather dynamic or less structured environment, three respondents claimed this is not what the company needs anymore when growing, where you cannot have this "Special Force Team" anymore (R1), otherwise they will kill each other. According to R6, *"when the company grows from small to medium size, the format structure and management need to be built-in"*, which idea is shared by R1,

"As you grow you end up with an organization of balanced people, they provide different types of things, not just including talent and energy. And I think we have been in that process of stabilizing"

and R8: *"At a moment, you need to stabilize. You need volume, industrialization, maturity"*.

In R6's case, he actually admitted that, during the transition, companies start needing more than just a founder, but rather a manager. And in a very humble way, he confessed not being that person.

Concretely, regarding this "scale" section, we realized each company followed its own trajectory from an offer development standpoint, mainly focusing on providing subsequent generations of the first offer while trying to get into new markets. Some of the companies also started looking at other verticals they might address based on the technologies already available within the company. R4 seemed to be a special case though, trying to address multiple verticals at first while being forced to refocus on Smart Parking twice. Similarly, R5 explained going through two technological pivots, which brought the company back to zero each time, starting the process again. Globally, most project carriers needed further capital investment, so that respondents turned back to VCs, except for R1 who raised money through a crowdfunding

campaign. However, unless for the team expansion as well as potential drops in sales due to market events, respondents did not themselves discuss any specific challenges happening through this stage. Nevertheless, it is more than fair to say that they identified some that happened through every step of the journey, with several challenges and key success factors.

4.5 The Key Success Factors & Main Challenges

Concretely, 5 challenges and key success factors came out of the interviews. Three could be considered as generic, not depending on the Smart City sector, while two specifically apply within this context.

4.5.1 The Team

The first topic that recurrently showed up was the team. As a conclusion, when being asked to sum up the key challenges or success factors, this one was mentioned 6 times out of 8. And the way ideas were turned did not let any room for interpretation, which has been summarized by R3: "*Actually, it's like running 100m, but with everyone being tied up. You don't need to have one guy going really fast, that no one can understand. It's better toddling all synchronized. And this is, from far, the most important challenge"*.

R1: "Make no mistake. It's the team, 100%. The team is what you always ever have. […] *Honestly, great team can do anything."*

R2: "It's people. The success of a company is all about people".

R3: "The first one clearly is the team. And today, as an investor, that's the first thing I am looking for".

R7: "I am convinced about a number of things: one, you can take a bad idea and a really good team and then frankly can probably make something out of it. Two, you can take a really good idea, and a really bad team and it will blow it".

4.5.2 Access to resources

The second key success factor regularly mentioned by interviewees was related to a topic previously tackled, with the funding sources and access to financial resources. Most respondents (R1, R2, R3, R4, R7) easily acknowledge the importance of having access to those, which are required through all stages, whether it is for the initial offer development, subsequent generation development or new market development. And in case the business does not generate a sufficient amount of cash, which was mainly the case in companies where we collected data, project carriers had to turn to investors.

R2:"We moved from the first to the second generation. And you need to have some availability of resources, I mean cash."

R3: "I was lucky having access to cash from my investors. Without them, from 2006 to 2011, it would have been hard."

R7: "I mean having capital also [is key]. *We have not been limited with respect to the use of capital."*

4.5.3 Agility and Reactivity

On top of the previously mentioned key success factors, the ability the company has to quickly react was identified as key by three respondents (R3, R4, R5). R3 even compared it to software development within larger corporations, such as Philipps, where new features development could have taken up to 6 months, meeting after meeting, while their team was able to develop it within 15 days thanks to their highly agile structure. According to R3 and R4, this key success factor especially applies when being a small structure, which represents a competitive advantage compared to large ones.

R3: "That was the ability we had with our small team".

R4: "The smaller you are, the more agile you must be because that's your only weapon against big companies where taking a decision is going through a long process."

R5: "The key element of the company's growth today is not about planification. It's the reactivity and the go-to-market."

4.5.4 A business-to-government marketing strategy

While the three first key success factors were generic, in some way, one of the main challenges, according to 7 respondents (R1, R2, R3, R4, R6, R7, R8), was related to the market they were operate in: the public one, where transactions mainly happen with governments, and which seems to be particularly slow. Even companies which were not adopting a B2G marketing strategy indicated the slowness of this market to justify their choice.

R1:"A public tender is my version of a nightmare."

R3: "I definitely didn't want to go through cities, because we would have crashed from a commercial cost standpoint but also from a purchase process point of view, which is crazy."

Coming back to the slowness of the public market, the main factor influencing it seems to be the decision-making process, where everyone has to talk to someone, who actually relies upon someone else, … In summary, "*it's a very complex and not such transparent process"* (R1).

R2: "It's the case for smart cities, it's the public sector, public administration is notoriously slow."

R4: "We are doing B2G,where processes are very, very long. It's complicated to make small development cycles."

R8: "Public markets are not the fastest ones. But time is money, and as a small structure I cannot raise capital every 5 minutes."

4.5.5 A new topic

Finally, the last key challenge relates to the novelty aspect associated with the Smart Cities concept. The concept itself only emerged recently, and only starts being understood (R8). Additionally, the associated IoT technologies themselves only emerged recently, so that customers sometimes do not know how to use it (R7). Concretely, sub-challenges related to the newness aspect of the topic could be classified under three categories.

First of all, and as previously mentioned, it seems that the client does not always know we he/she wants, and sometimes do not realize the need they have, or the value those solutions could bring (R1, R2, R5, R6, R7), which might have led to initial rejection coming from potential end-customers.

R1: "Sometimes the client does not even know what he or she really wants, because it's so far ahead."

R3: "Some people were not convinced at all [by our solution]. *Others even laughed at me."*

R8: "Sometimes a bit of skepticism. Do we really need this? We have always been operating without it."

And that is exactly why, when bringing an innovative solution, you have to find your said innovators and early adopters, those people ready to embrace new technologies and change their habits, according to R1 and R4.

R1: "They [the innovators] *make you better, they help you prove that you are right. And they are so important because without them, you don't have the next stage."*

R4: "When you do a parking sensor, people were reluctant, because it means changing their habits, and people don't like that. But that's why you have to find your early adopters."

Actually, the innovators and early adopters notions brought the adoption lifecycle to the fore, which partially explains the previous challenge. Nevertheless, over the past 10 years, respondents confessed having noticed an evolution in terms of adoption rate. While the market

was not ready at all in the early 2010s, more and more projects came to life recently. However, adoption process has globally been slow. Slower than expected by project carriers.

R4: "Market wasn't ready [in 2013]. It has been much slower than what we thought."

R4: "[in 2016] *the market was more mature, with more projects and more tenders."*

R7: "[the key challenge] *is the adoption curve. It takes just as long to get from 0 to 10% as it does from 10 to 90. And we are still in that educational period but we are about to slide into high growth."*

R8: "However, our "friends", the GRD, they weren't ready so we had to push and lobby at the communal level to make things evolve."

The last challenge associated to the novelty aspect of the topic actually is a consequence of the two first ones. Indeed, given that end-customers do not exactly know what they want nor understand the value those solutions could bring, and coupled with a still low adoption rate, some respondents claim there actually is a lack of the solutions' understanding, the technology being misused by clients. Such a fact does not help making the technologies adopted, and some customers even stopped using the solution.

R4: "Many projects stopped due to cities' inter problems. They didn't use the technology properly or even corruption. Actually, they weren't sure about how to use the data."

R7: "You know, I think they still don't fully understand [the need they have]. We have multiple projects implemented into different cities and none of them uses it the way it is designed to be."

Concretely, regarding the main challenges and key success factors mentioned through the interviews, three generic ones came out, with the importance of the team, which is what you will always ever have (R1), the easiness of access to resources, which allow you to actually build the said team as well as developing your offer or getting into new markets, combined with the importance of staying agile, especially when being a small company. Regarding the Smart City industry itself, a potential B2G marketing strategy would severely impact operations, operating within a slow market, where the purchase process goes through public tenders, which usually last several months, sometimes even years. Finally, the last key challenge is related to the innovative aspect of the technologies, those still being poorly understood by most customers, who do not understand fully understand their needs yet, so that the adoption rate is still low even though we started to see more projects emerging over the past years. As for the innovative aspect mention, it actually brings us back to our research questions, which will now be reminded and discussed.

5 Discussions

Based on the previous results, we will now try to answer the three sub-research questions, and determine whether or not suggestions coming out of the literature review should be adapted within the special case of the Smart City.

As a reminder, the author conducted those interviews with a triple-objective. The first one relates to the application of our recommendations, using the Lean Start-up at first, within the context of a radical innovation. Is this approach still relevant in such a case?

Based on the interviews it seems that yes, the Lean Start-up may indeed help the project carrier developing a business model within the early stages of the project. Indeed, as mentioned by all interviewees, the idea validation is at the heart of this stage, for which involving the end-customers seemed to be key. Globally, it was commonly agreed that teams were, at this stage, operating within a highly dynamic environment, where everyone applied to every function and during which things were changing really fast. Those conclusions actually are aligned with the Business Lifecycle ones, so that the Lean Start-up does indeed fit the early stage in both theory and practice. However, practical research has revealed a certain number of limits, or points of attention to this recommendation.

First of all, respondents raised attention regarding the difference between a potential end-customer and an actual client. Indeed, when developing a radical innovation, entrepreneurs might face rejection when bringing those new solutions to the market, given that “customers do not even know what they want”. Concretely, finding your innovators and, then, early adopters, people actually relying on your solution, is essential, and entrepreneurs should, therefore, be careful when taking feedback into consideration. Relating to this feedback, it globally came out of the interviews that it mainly was important to understand *the need*, which differs from *the solution.* To develop the latter, respondents suggested also being surrounded by experts. The innovation, the solution must come from the entrepreneurs, as suggested by R3 and R5.

Similarly, the relatively new aspect of the Smart City and IoT technologies are associated with a very slow process and adoption rate. Therefore, while the Lean Start-up advocates for fast iterative cycles, it might actually not be that simple to collect a sufficient amount of relevant data.

Still related to this slow process, the specific B2G aspect of the Smart City sector has even been described as "*a nightmare"* (R1). Indeed, purchase processes typically work based on public tenders have proven to be very slow and quite unclear. Consequently, collecting feedback as fast as possible could be complex given that collecting on-field feedback happens through pilots, which processes usually take months … or even years.

Regarding those slow and long cycles, we might even mention the research and development one. Indeed, according to respondents, it took 3 years, on average, to develop a first commercial solution. Would an iterative approach based on quick cycles make sense then? Well, one could argue that we could divide the 3-years process into shorter stages. However, the point the author here tries to make relies upon the fact that most entrepreneurs could not afford to self-finance R&D for this entire period, so that they to turn to investors, who require a mandatory business plan. While the previous limits did not deeply impact the relevance of our suggestions, using the LS at first, but instead reduced its value by slowing down the process, this section does impact the suggestions based on the fact that the project carrier *must* adopt a BP approach sooner than we would recommend. Unless? Given that the problem directly comes from the external investors, what if we could find some that would not require any business plan? Yes, the 3Fs answer this request, but have limited access to capital. However, the crowdfunding, which was mentioned by two respondents (R1, R8), also meets this expectation and seems to be promising. Notice that the author will not tackle the topic in here, but emits the lead that a crowdfunding campaign in the early stage would give sense to our recommendations. Additionally, R1 claimed that crowdfunding not only creates the market for investors, but creates the market in general. And you then get customer validation as well as hundreds, or even thousands, of ambassadors. Customer validation and brand awareness, two concepts at the heart of the Lean Startup approach.

Finally, the author would like to mention that, on top of the capital raising, five respondents redacted a business plan within a steering-purpose, which clearly lacks into the LS (with BMC) approach, while the vision and the mission clearly are at the heart of each company. Notice that this drawback emerged into the theoretical review. On top of this vision aspect, which belongs to the BP approach but is not included into the LS one, a huge emphasis was put on the team, which several respondents described as THE key success factor.

In conclusion, does the Lean Startup indeed fit the early stage in practice when developing a radical solution? (SRQ1) Concretely, it seems that yes, the LS approach also is relevant when developing a radical solution, given that the needs and challenges mentioned by the interviewees were similar to the ones identified as part of the Business Lifecycle. However, several limitations came out of the interviews (B2G, development time-lapse, slow adoption process), not especially impacting the relevance of the approach, but potentially its performance or speed. However, it is interesting to notice that such a huge emphasis was put on the team as well as the vision, which are not tackled within a typical LS approach, that the author suggests completing the LS approach with those terms definition. On the other side, the capital requirements seemed to severely impact the moment when a business plan should be redacted, as most businesses had to turn to investors who require a business plan. Nevertheless, the emergence of the crowdfunding could help to overcome this constraint, and even shares common concepts with the Lean Start-up.

Then, the second sub-research question the author intended to answer was related to the reliability of the Business Lifecycle as a lens. Does the practice confirm what the theory on Business Lifecycle say, especially within this Smart City context?

As for the early stages of the company, we actually discussed this topic when answering the SRQ1. And indeed, respondents commonly mentioned challenges and dynamics that were mentioned into the literature. Nevertheless, when discussing the scale or growth part of the company, we claimed into the data presentation that we could not identify many common trends amongst the testimonies. Indeed, each company, after the first offer development, has followed its own growth trajectory, which have been summarized here below (see Fig. 7). Notice that proportions of growth or drop perhaps do not exactly reflect the actual trajectory and we therefore invite the reader to focus on the shapes. While the seven trajectories (R2 has been excluded due to several blurs) indeed followed similar paths at first, and experienced decent growth recently, with the emergence and recognition of the Smart City and IoT technologies, it is fair to say that what happened in between does not follow any trend, often moving up and down.

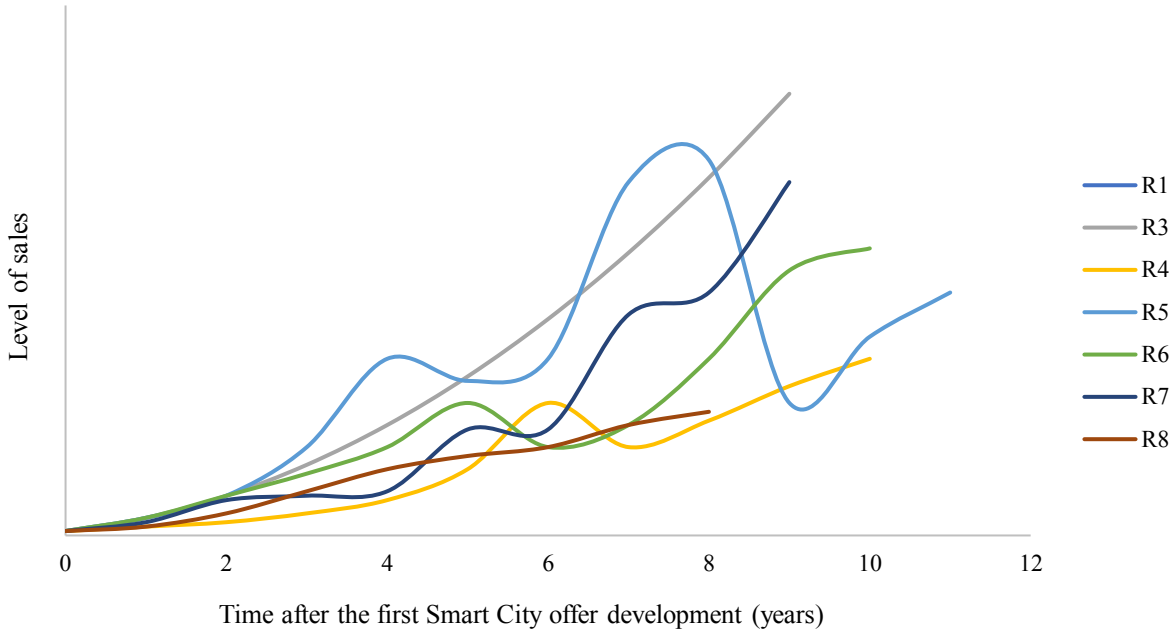

Fig. 7: Growth trajectories of the interviewed companies

In conclusion, while the Business Lifecycles indeed appeared as valuable at first, when globally understanding the key challenges faced through each stage, practice tends to support Diambeidou and Gailly's point of view (2011), suggesting that those models might depict a stereotypical growth while widely varying in practice. R5's history probably is the most particular one, with two pivots, perceived as *"coming back to zero"*. "*In theory there is no difference between theory and practice. In practice there is"* (Berra, n.d.).

However, even though growth trajectories revealed to be less straightforward than what the Business Lifecycle models suggest, one key conclusion came out of the testimonies. Indeed, several respondents identified that, when growing, the needs of the company evolved towards more structured ones, requiring built-in management and moving from a more dynamic environment to a more structure one. Based on this finding, the Business Plan approach globally appears as relevant. Nevertheless, it is mandatory to understand that each trajectory indeed is specific, so that this conclusion might not apply to every single case.

Actually, the words project carrier and entrepreneur were used interchangeably until here. However, R6's testimony, who claimed that through the transition, management skills of the entrepreneur have to be assessed. Based on the entrepreneurial/managerial skills distinction, could we argue that the Lean Startup approach actually targets entrepreneur while the Business

Plan actually is destined to managers? Based on our analysis, the answer probably tends to lean towards the positive side of the question.

Finally, the last sub-topic of the methodology consists of new influential variables' identification. As a reminder, the eight initially identified variables were the stage of the company, the distinction between a product and a service offer, the initial capital requirements, the type of investors, the experience of the entrepreneur, the country in which the project is happening, the cost of an iteration, and the sector or the industry.

As for the product versus service offer, the practice did not allow to assess the potential impact of this variable on the relevance of both approaches. However, it did lead to another classification, which is a software versus hardware offer. Indeed, based on R3, which was a software-oriented company, the founder claims one of their strengths consisted of their ability to develop new features in less than 15 days, constantly working based on small incremental cycles. On the other hand, we noticed that the hardware-oriented company had much longer product development cycles, even up to 5 years. Consequently, it seems that the LS applies in a more natural way to software company. However, this finding probably is not surprising, as it relates to Agile Development.

On top of this new variable, it seems that the easiness of access to resources, associated with the capital requirements, may influence our recommendations. Actually, it does not change our recommendations, which suggest adopting a Lean Start-up approach at first. However, on-field reality tends to prove that, in an environment such as the Smart City one, offer development usually burns a lot of cash before generating any revenue. Consequently pushing project carriers to rely on external financing, for which the BP still is mandatory. Practically, it is not too hard to recognize that cash requirements probably influence the moment of the Business Plan Approach adoption.

Concretely, regarding the new variables identification, we were able to identify two new ones, with the hardware versus software offer and the importance of the access to resources. However, notice that those concepts actually seem to be closely related to already identified ones, which together form a whole. Well, this holistic notion brought the author to rethink the very first criterion identified as potentially guiding the decision between the LS and BP approaches, which was the risk versus uncertainty distinction. Based on a purely factual

observation, it is more than fair to say that those terms frequently guided the discussion and recurrently showed up. Consequently, could we say that this distinction indeed was the most relevant one for distinguishing Business Plan and Lean Startup's relevance? We will not deeply debate the question, but based on our analysis, the answer would probably be positive. However, in such a case, the author emits a lead for further discussions. Indeed, through this paper, we identified many variables potentially impacting the research question. Could we therefore argue that each variable is associated with a certain level of risk? Would this lead to a redefinition of the risk notion, therefore perceived as the sum of the risk associated with each variable? How would this apply to uncertainty, which cannot be measured, by definition?

That is one of the leads, amongst others, the author identified as valuable to dig into. Before suggesting the others, we will recap what we learned through this dissertation.

6 General Conclusion

Over the past two decades, concern about entrepreneurship has exponentially risen. At the core of this topic, relies the concept of business model. Indeed, identifying a sustainable one is key when launching a project. In order to help entrepreneurs in their quest, two main approach exist: the Lean Startup and the Business Plan. While the literature has tend to oppose those concepts, the author intended to bring a more nuanced answer, assuming that, depending on the context, one might consist of a better fit. Practically, this idea translated into the following research question

"How to choose between the business plan and the lean startup approaches when developing a business model depending on the context governing the project development?".

Based on a theoretical review, the author identified eight variables potentially impacting the said context, amongst which the Business Lifecycle was retained as central. Concretely it came out of the analysis that, from this point of view, Business Plan and Lean Start-up approaches actually are complementary. Practically, we suggest to entrepreneurs adopting a LS approach at first, when operating within a dynamic environment, while moving to the BP when transitioning into a growth and more structured phase.

However, this suggestion was associated with certain limits, including the fact the literature says little about the business model through the business lifecycle lens. Consequently, some key challenges or needs might miss into the analysis. Additionally, while the two approaches both have their own perks and downsides, none of those actually address the idea generation part. Also, the relevance of the LS approach within a radical innovation context was challenged, with the purpose of providing a more complete answer to the research question.

Based on the Smart City sector, it seemed that yes, the previously mentioned recommendations would indeed apply to radical innovations. However, several limits were identified. Indeed, in practice, heavy capital requirements tend to push project carriers to turn to external investors, rendering the recommendations less relevant. Nevertheless, the crowdfunding, as an alternative and LS-complementary emerging funding source was identified. Also, aspects such as a B2G marketing strategy, long development cycle and the said radical innovation tend to slow the LS process down while initially relying upon fast iterative cycles. Finally, the author would like to complement the subsequent LS-BP approach suggestion by putting emphasis on vision, the

mission, and the team. The LS, with the BMC, tends to move the attention of the entrepreneur away from those aspects while they actually are central to any company.

The last suggestion could actually lead to a reformatting of the BMC, modifying or adding the existing nine dimensions, which is one of the future leads emerging from this dissertation. However, before going any further, the author would like to point out that recommendations emerging from the practical part should be taken in a very cautious away for two reasons. First, the low number of interviews does not allow to generalize the conclusions. Then, the Smart City sector was associated with radical innovation. Once again, general conclusions based on the Smart City sector might not apply to every single radical innovation. Indeed, we noticed that even within this sector, each company followed its own growth trajectory. Concretely, we invite the reader to stay objective about the outcomes, but more importantly, to deeply consider and assess the specific situation in case he or she would, one day, implement the recommendations.

On top of the first mentioned lead for further improvement (BMC modification), the author identified two other lines of research. First of all, it was suggested at the end of the previous discussions' section that the we could perhaps redefine the notion of risk as the sum of the different risk levels associated with the variables characterizing the context. While this dissertation led to the identification of about 10 variables, additional researches as well as correlation studies perhaps deserve further attention. Additionally, such a lead raises the question of the uncertainty definition. Could we similarly define an equation of uncertainty while unknown and unmeasurable by definition?

Finally, the last line of research still is related to the risk and uncertainty distinction. Indeed, in order to fully understand those notions, one might argue that it should be done through the lens of the entrepreneur. Based on his or her experience, a situation might either be perceived as risky or uncertain, and which practical definitions might actually vary depending on the said experiences of the person at the heart often the project emergence, named the entrepreneur.

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