



Polytechnic of Coimbra
Institute of Accounting and Administration

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Disrupt!Canvas: A template for sketching and assessing
potentially disruptive businesses

Coimbra, outubro de 2021



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Trabalho de projeto submetido ao Instituto Superior de Contabilidade e Administração de Coimbra para cumprimento dos requisitos necessários à obtenção do grau de Mestre em Marketing e Negócios Internacionais, realizado sob a orientação das Professoras Madalena Abreu e Belém Barbosa e supervisão do Dr. Alexandre Silva.

Coimbra, outubro de 2021

TERMO DE RESPONSABILIDADE

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“The future has arrived — it’s just not evenly distributed yet.”

William Gibson

Disrupt!Canvas: A template for sketching and assessing potentially disruptive businesses

Dedicated to all famous or anonymous inventors, artists, and entrepreneurs who have created the connected, engaged and creative world we live in today.

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RESUMO

A capacidade de antever e explorar as oportunidades do mercado é crítica para a criação e monitorização das startups. Na Europa, este fator é ainda mais relevante, devido à distância entre a produção científica e a aplicação económica das inovações. O Programa Horizonte 2020 é a principal iniciativa para se combater essa lacuna. O critério central adotado pelo programa para selecionar as startups de alto potencial é a capacidade de explorar as oportunidades de mercado por meio de modelos de negócios potencialmente disruptivos. O presente estudo abrange os aspetos do potencial disruptivo, a partir da revisão de literatura e análise de casos existentes, seguidas de criação coletiva apoiada por uma sequência de ciclos de feedback. Foram identificados os fatores centrais, e organizados na forma de um modelo de análise, o Disrupt!Canvas. O modelo é baseado nos principais fatores para a disrupção: a relevância do problema a ser abordado; características do mercado existente, nomeadamente a dispersão dos provedores existentes e as conexões entre eles; a ineficiência das soluções existentes e as barreiras contra a entrada de novos competidores; a viabilidade e a escalabilidade de uma possível nova solução; competências da equipa para criar conectividade entre produtores e utilizadores, gerando valor e capturando porções do valor gerado; as necessidades de investimentos para o crescimento do novo negócio, e a relevância que o mercado poderia alcançar em decorrência da entrada de novos produtores e utilizadores. O Disrupt!Canvas foi criado para ajudar a esboçar e avaliar modelos de negócio com base no seu potencial disruptivo, e a abordar problemas importantes de maneiras mais eficientes, inclusivas e sustentáveis.

Palavras-chave: start-ups, inovação, disrupção, empreendedorismo, modelos de negócio

ABSTRACT

The capacity to predict and explore market demands is critical for the creation and surveillance of startups. In Europe, this factor is even more relevant: due to the gap between scientific production and the economic application of innovations. The main criteria adopted by Program Horizon 2020, an initiative to fight that gap, to select high potential startups, is the capacity of the new business to gain scale in demand by originating market opportunities through technology and innovative business models, creating uncontested market spaces. There is a set of business design tools available for entrepreneurs. The new design tool this project delivers has a specific value proposition: the focus on a startup potential for disruption. By studying the aspects of the disruptive potential, through literature review and analysis of existing cases, followed by collective creation, and supported by a sequence of feedback loops, this project has identified the core factors and organized them in the form of a new management tool. The Disrupt!Canvas is a template created to be used to sketch and assess new startups or startup ideas. The template is based on the core factors for disrupt potential, as follows. The relevance of the problem to be addressed; characteristics of the existing market (dispersion of the incumbents and connections between them, the inefficiency of existing solutions, and entry barriers); feasibility and scalability of a new solution (competencies of the team, potential to create value by connecting actors, and to capture portions of this value, and investment needs); and the relevance the market could achieve, thanks to the entrance of new users and producers. These are the factors to make the offer-based entry barriers irrelevant; and to address relevant problems in more efficient, inclusive, and sustainable ways.

Keywords: start-ups, innovation, disruption, entrepreneurship, business models

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List of abbreviations and acronyms

BCG	Boston Consulting Groups
DAPP	Decentralized Application
DI	Disruptive Innovations
EU	European Union
GDP	Gross domestic product
H2020	Program Horizon 2020
HEIs	Higher Education Institutions
MCPI	Market Creation Potential Indicator
MTC	Market Transformation Canvas
MVP	Minimum Viable Product
OECD	Organization for Economic Co-operation and Development
PDBI	Potentially Disruptive Business Idea
R&D	Research and Development
TR	Technological Revolution
UX	User Experience
VC	Venture Capital

INTRODUCTION

The propensity for market disruption is a fundamental characteristic of a high-potential startup. While traditional businesses explore proven business models and approaches to existing markets, innovation-driven startups, even in small numbers, have transformative potential (Botelho et al., 2021), generate relevant benefits, and facilitate the growth of an economy (Rossetti et al., 2018).

This project aims to propose a method to help future and existing entrepreneurs to develop potentially disruptive business models.

The creation of breakthrough businesses is a critical factor in Europe; due to the phenomena known as The European Paradox. In the first writing about this Paradox, European Commission used this concept to illustrate the gap between intellectual production and the actual economic value added to the economy from research (European Commission, 1995a).

Passed two decades from that study, the success of the European Continent in indicators like “number of citable articles” is still unquestionable. The Continent has a consolidated position among the most relevant players in this field (*Scimago Journal & Country Rank*, 2021).

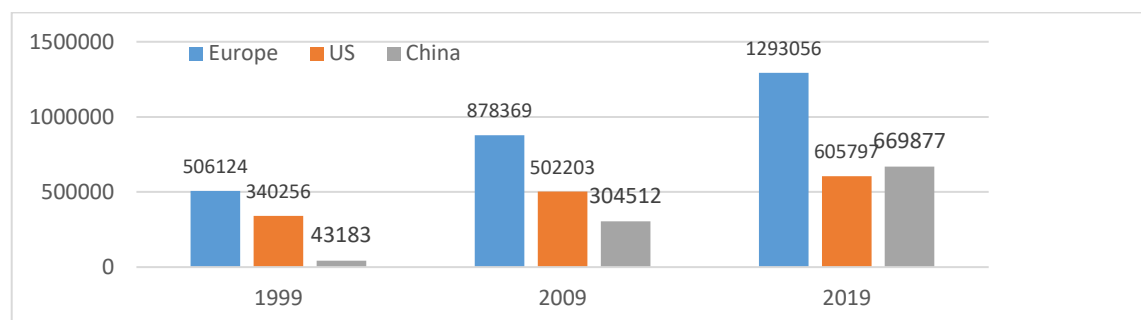


Figure 1 Number of citable articles - *Scimago Journal & Country Rank*, 2021

On the other hand, indicators related to the economic application of innovations, like the number of startups by country (*Countries - With the Top Startups Worldwide | Startup Ranking*, 2021), indicate that, despite all of the efforts and advances, the gap persists.

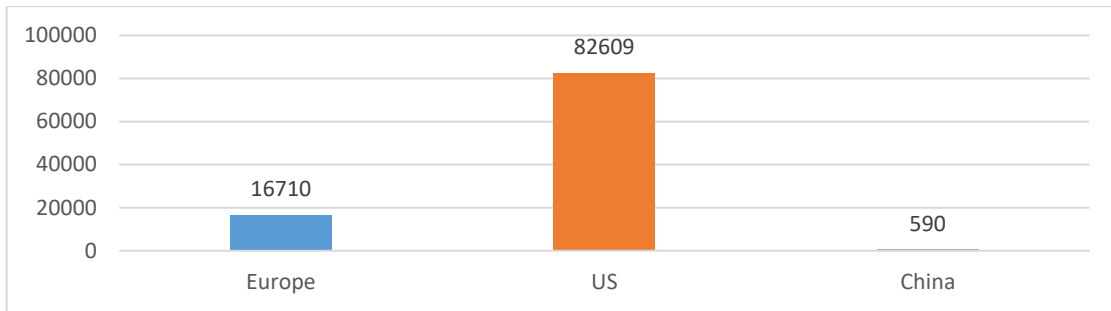


Figure 2 Top Startups by Country - Startup Ranking, 2021

At that time, according to the European Commission analysis, there was a combination of factors in the origin of the gap, namely: 1) the regulatory obstacles for startups; 2) the private sector's aversion from risk - and the consequent lack of risk capital; 3) the weak capacity of researches to predict and explore market demands, and 4) the lack of coordination and links between businesses and universities to promote innovation (European Commission, 1995b).

An update of data related to the regulatory obstacles shows that, while the gap is still there, the barriers to opening a business don't appear as one of the main reasons for its persistence.

The "Ease of Doing Business Score" is an indicator composed of the average cost, the necessary number of days, and the access to capital to start a business. Among the OECD High Incomes, European Countries are not above average. Starting a business in Europe is almost as easy as in the United States (The World Bank, 2020).

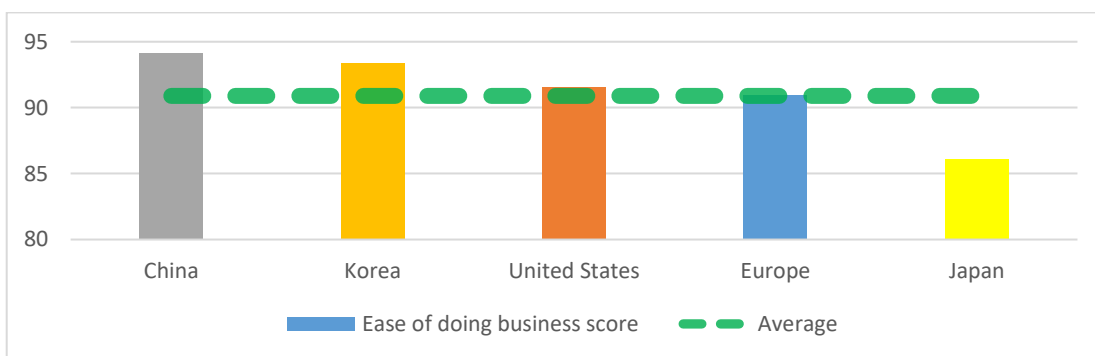


Figure 3 Ease of Doing Business Score - The World Bank, 2020

Risky capital is another factor that has changed in this period. The OECD Entrepreneurship Financing Database venture capital summarizes early and later-stage investments, which is the fundamental factor for young companies with untested high potential business models. The report shows Europe in a strong position, among the benchmarks, while compared in terms of proportion of GDP (OECD, 2019b).

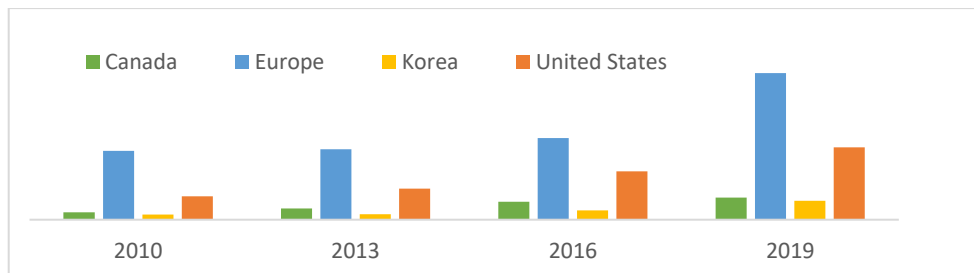


Figure 4 Early and later-stage venture capital - OECD Entrepreneurship Financing Database, 2019

The third factor, the weak capacity of research to predict and explore market demands, still being an issue. The top-ranking of Higher Education Institutions (HEIs) that produce more entrepreneurs shows an under-capacity of European Undergraduate and MBA programs to generate new businesses.

While the scientific production of Europe is at a higher level than the USA in absolute numbers, North American HEIs produce much more entrepreneurs.

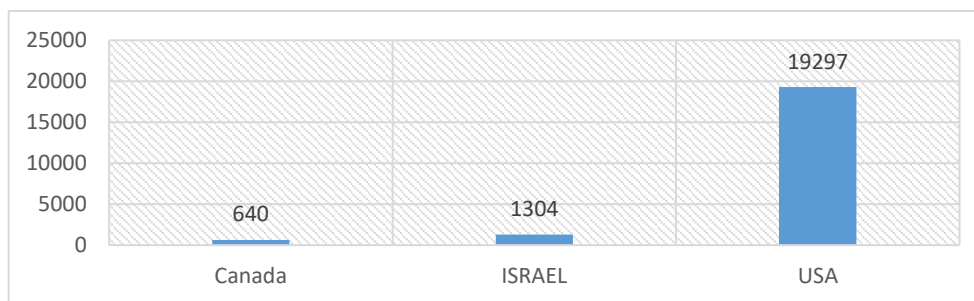


Figure 5 Top 50 Undergraduate Programs that produce the most entrepreneurs – Pitchbook 2020

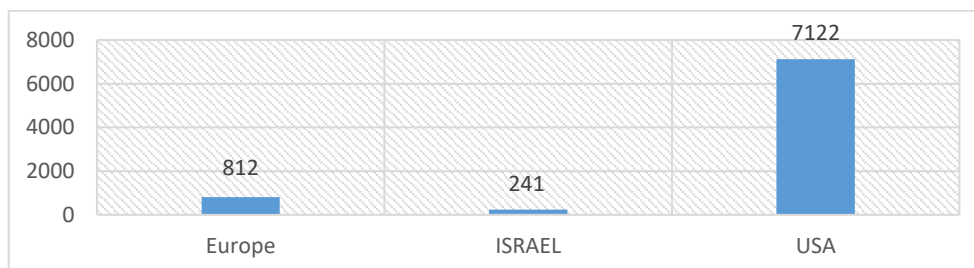


Figure 6 Top 50 MBA Programs that produce the most entrepreneurs – Pitchbook 2020

Regarding the fourth factor, the co-operation between higher education and industry, there is a prominence on North America and the United Kingdom. The policy instruments of collaborative research and innovation with HEIs as a target group illustrate this situation (OCDE, 2019). The four policies, present in European Union (EU), are in the scope of the Program Horizon 2020 (H2020).

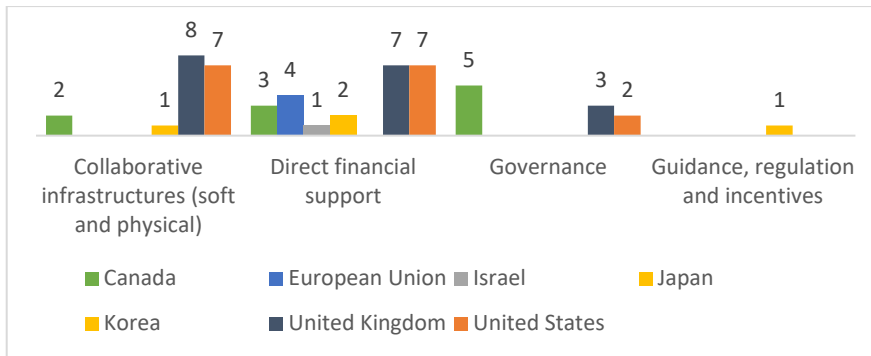


Figure 7 Policy instruments of Collaborative Research and Innovation – OECD - 2021

The H2020 is in the aim of the collaborative research efforts in the EU, providing equity financing, fellowships and postgraduate loans and scholarships, grants for business R&D, and innovation grants for public research as public instruments to boost innovation in the EU (OCDE, 2019).

There are some emerging approaches for knowledge transfer policies, including knowledge co-creation between science and industry, new demands supplied with the help of intermediate organizations, new forms of open digital innovation based on platforms, and support programs for spin-offs (OECD, 2019a).

In the context of H2020, to identify projects with high innovative potential, The European Commission applies a methodology called Innovation Radar, structured upon two indicators: Innovation Capacity and Innovation Potential. Innovation Capacity measures the ability of organizations to generate innovations and the composition and activity of partner organizations (the eco-system). Innovation Potential is related to innovation maturity, the market potential, and the capability of management teams to transform research results into marketable products (De Prato et al., 2015).

That methodology classifies innovations, according to their level of maturity, into four categories: Exploration (developed technologies waiting for market preparation, or business ideas that wait for technological developments); Commitment (structured business plans or market studies that need to be technologically developed); Creation (prototypes or pilots); and Optimization (innovations technologically mature and ready to go to the market). Exploration is the level of maturity that concentrates on the higher number of mapped ideas (O'Neill, 2015).

The market potential of an innovation, in the context of H2020, is related to the capacity of the innovation to attend to new groups of consumers, measured by the application of the Market Creation Potential Indicator (MCPI) (Nepelski et al., 2020). The MCPI has its

basis on the concepts of Disruptive Innovations (Christensen, 1997), Unserved Market Niches (Abernathy & Clark, 1985), and the Blue Ocean Strategy (Kim & Mauborgne, 2004).

According to Savoia (2019), the fail of new businesses can happen due to launch issues, operation issues, or wrong premises. Establishing premises with less chance to fail means understanding WHY a product is worth to be built before thinking about HOW to create it. By assessing the market potential of a new startup, a founder can produce insights about possible issues and uncontested market spaces; a future entrepreneur can, by sketching a business idea with this same focus, decide where to invest time and effort, and begin with an end in mind: create an impactful business that contributes to the development of economy and society.

This project has its basis on the principles of Agile Methodology, based on an iterative and incremental construction process. Following this introduction, the Thesis brings a Literature Review of these fundamentals and other concepts used as inputs for the construction process: Startup Assessment, Disruptive Innovations, The Blue Ocean Strategy (Kim & Mauborgne, 2004), Network Effects, The Platform Strategy, The Business Model Canvas (Osterwalder et al., 2010) and Focus Groups. Then are presented a brief description of the artefact and its construction methodology; the validation and improvement processes; key findings, discussions and a description of the improvements implemented from this finding; and a Conclusion that presents the building blocks and respective measures in a concise form.

1 Literature Review

1.1 The theoretical framework of the construction process

1.1.1 The Lean approach

When Toyota Company decided to change the method for cars assembly, abandoning the former Mass Production and fund the Lean Production Era, the Engineer Taiichi Ohno inaugurated a new way of thinking. Instead of removing a car to be repaired apart and avoiding stopping the production line above everything and letting a team responsible for that line segment work isolated to fix the problem, Ohno adopted a different approach. Following Ohno's ideas, every time some problem occurred, the whole line stopped, and the entire team worked together to analyze the issue and address it..

In the first days after the changes, Toyota's productivity dropped, just to grow again and then even more. In the first days after the changes, Toyota's productivity dropped, only to grow again and then even more. Since the decade of 1980, Toyota has been producing with an error incidence close to zero (Womack et al., 2007). It's probably one of the most impactful insights into economics history. According to this new mindset, errors are not something a company should work on as if they did not exist. Errors must be expected as a part of any process and serve as a source of knowledge.

This new approach inspired another change of mindset, 70 years later, when seventeen people were sympathetic to the need for an alternative to the traditional way for product development. This document-driven method puts requisites, documents, tests, and deployment in a fixed and one-way sequence known as Waterfall. The alternative method is known as Agile and is based on principles like simplicity, self-organized teams, and welcoming changing requirements (Beck et al., 2001).

This new approach originated a bunch of frameworks and tools broadly applied to the development of software and more recently, the design of services and physical products. And also to the design of a business, thanks to the advance of Lean Startup (Blank, 2007).

1.1.2 The Lean Startup

By producing and commercializing one simplified product, instead of mounting a product line based on spreadsheets full of answers for a questionnaire, a company changes prediction for an experiment; documented business plans for validation of its hypothesis based on the experiences of actual customers (Ries, 2011).

When applied to the product design process, the fundamentals of Lean Startups are called Lean UX. It is a new approach to the design, based on the cycle of experimentation, rapid iteration of ideas, and evolutionary process. Rapid prototyping and measurement are applied to learn quickly how much a design idea fits the actual use or demand.

Lean UX has three pillars: Design Thinking, which gives the liberty to designers to create across their functions in the organization; the principles of Agile Development, which puts customer collaboration, individuals and interactions over process, contract, and documentation; and Lean Startup, with the Minimum Viable Product (MVP) in the centre of the iterative and incremental development (Gothelf & Seiden, 2016).

1.1.3 Focus Groups

Three features of Focus Groups (Wilkinson, 1998) have influenced the option for this methodology: the possibility to listen to participants in their language and concepts and even adapt themes and ideas to the innovation eco-system jargon; the interactive nature of focus groups encourages the production of accounts in more fully articulated ways and the insights from collective sense-making processes.

1.2 Existing tools

1.2.1 Startups Assessment

The most accurate way to estimate the probability of startup growth is the capital previously raised. Research by Universidade Nova de Lisboa has predicted - with a precision of 92.4% - that being venture-backed is a success factor of a startup (Bento, 2018). The prediction of success of an early-stage company is much harder; an assessment framework like Venture Evaluation Matrix (Figure 10) aims to facilitate analysis of a venture capital investment opportunity by scoring variables related to Industry, Strategy, Value Proposition, Customer, Company and Entrepreneur, synthesized in terms of Attractiveness and Competitive Advantage (Da Rin & Hellmann, 2020).

Venture Evaluation Matrix	Customer	Company	Entrepreneur	Attractiveness
Value Proposition	Need	Solution	Team	Value
Industry	Market	Competition	Network	Scale
Strategy	Sales	Production	Organization	Growth
Competitive Advantage	Access	Entry Barriers	Competencies	Decision

Figure 8 Venture Evaluation Matrix – Adapted from (Da Rin & Hellmann, 2020)

1.2.2 The Business Model Canvas

The Business Model Canvas is a strategic management template used to sketch business ideas, map existing business models, and create new strategic alternatives (Osterwalder et al., 2010).

That That tool has nine building blocks that cover the main areas of business: Customer Segments, whom the company serves; Value Propositions, how to solve customers' problems; Channels, how value propositions are delivered; Customer Relationship, that can differ from each customer segment; Revenue Streams, that result from successfully offered value propositions; Key Resources, the assets required to offering and delivering value propositions; Key Activities, which is necessary to perform this delivery; Key Partnerships, activities and resources acquired outside of the enterprise; and Cost Structure, that results from each activity.

1.3 The concepts behind the building blocks

1.3.1 The “S” Curve Framework

The “S” curve shows a pattern of successive points, representing the path of new products and processes. This path considers the time and effort necessary for innovate, and the consequent gains of performance. Every industry follows the same pattern, in different periods. The beginning of the curve represents a moment where massive effort is necessary to add some value (Foster, 1987). Once the learning is done, the impact of efforts increases, until the limits of technology force a deceleration on the productivity gains, due to the increase of scale and complexity, which make progress more difficult (Sahal & Nelson, 1981).

The moment in which one technology replaces another in some industries is represented by a gap between the curves. The gap between the curves represents The moment in which one technology replaces another in some industries. Foster (1987) describes the gap as a “discontinuity”; with the technological advance accelerated by digital technologies, that pattern gained even more attention.

1.3.2 Disruptive Innovations and Technological Revolution

Technology innovations exist in two categories: Component Innovations and Architecture Innovations, and the second category creates a competitive advantage in the industry (Christensen, 1992a) and (Christensen, 1992b). In further research on this theory,

(Christensen, 1997) renamed the second category as “Disruptive Technology”, and forged the “Principles of Disruptive Innovation”: Disruptive Innovations (DI) can seem to be useless at the time they are launched, and become actual solutions for customers problems later.

It’s difficult for a big company to allocate resources in DI; the chance of success is higher when the company begins with a market that is smaller and more suitable to the early characteristics of the new products, to later expand the target to the mainstream; investments in DI are risky, so failure and iterative learning are intrinsically a better approach.

While Christensen (1997) illustrates disruptive innovations a double S curve (while a consolidated solution needs more effort to obtain shrinking gains of performance, a new solution gets growing performance with less effort), digital technology is transforming the market in a new way.

The interconnectivity among technologies creates a set of radical breakthroughs and complex eco-systems of technologies, networks of networks that open a vast space of innovation opportunities, a phenomenon called Technological Revolution (TR) (Perez, 2010). The organizational changes made available by TR increase productivity gains; rather than the technology itself (Askenazy & Gianella, 2000).

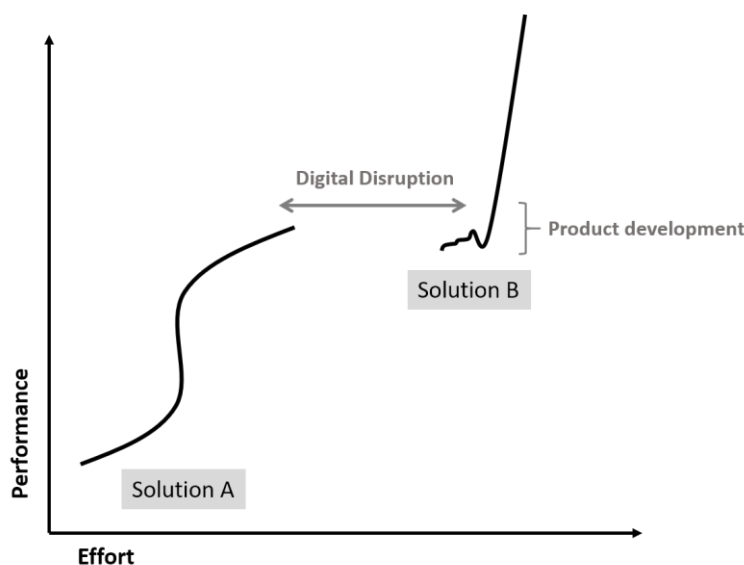


Figure 9 Digital Disruption Curves - Freely adapted from (Christensen, 1997)

1.3.3 Different kinds of innovations: the Transilience Map

Innovation affects the value and the applicability of established competencies, and the technology or systems of production, in quite different ways. Understanding the combination pattern of technology and market transilience is crucial to evaluate the potential impact of an innovation. These are the variables that form the Transilience Map. (Abernathy & Clark, 1985).

The Transilience Map is a matrix of four quadrants that represent the different kinds of innovations: Architectural, innovations that disrupt existing linkages and create new ones, giving origin to new industries. Niche Creation, innovations that create new market opportunities using existing technology; The Transilience Map is a matrix of four quadrants representing the different kinds of innovations. Architectural are innovations that disrupt existing linkages and create new ones, giving origin to new industries. Niche Creation is the quadrant where innovations generate new market opportunities by using existing technology. Regular are incremental improvements built upon established technical and production competence, that once accumulated, impacts products cost, reliability, and performance; Revolutionary is the group of innovations that disrupt existing technical competencies, applied to existing markets and customers.

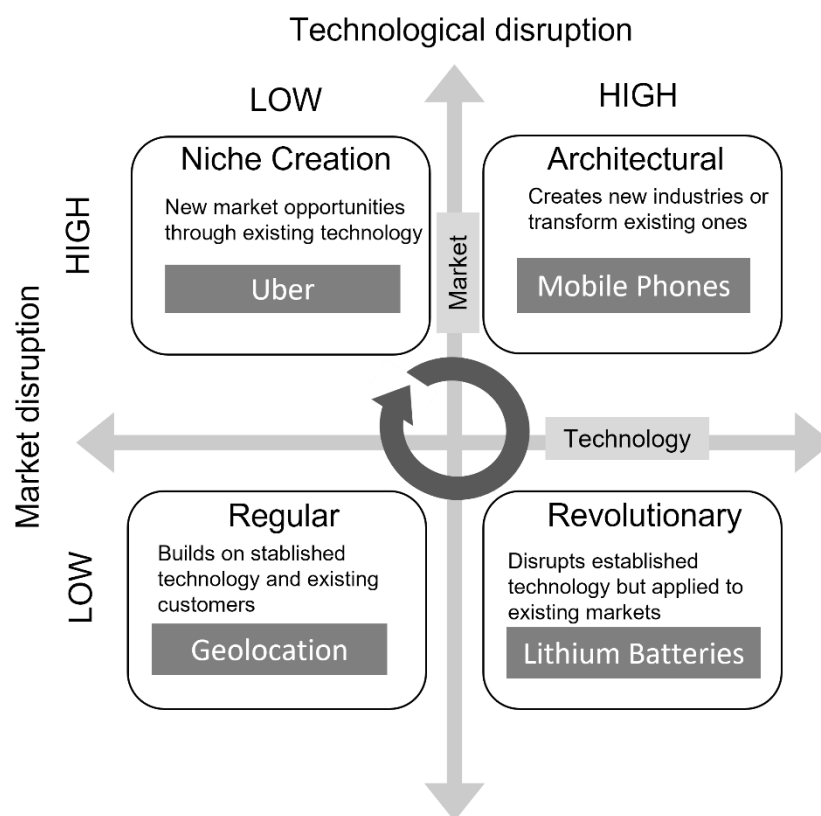


Figure 8 The Transilience Map – Freely adapted from Abernathy & Clark, 1985

1.3.4 Uncontested market spaces: The Blue Ocean Strategy

Blue Ocean Strategy is about creating and capturing uncontested market space and creating new demand. It makes competition irrelevant. (Kim & Mauborgne, 2004). The application of the Blue Ocean Strategy implies a change of mindset, far beyond the tradeoff “Differentiation VS Low Cost”, and involves to focus non-customers, which means looking to the outside of the current market instead of trying to make existing customers happy. “Desegmentation”, to identify commonalities across buyer groups instead of separate groups by their differences (segmentation); search for value innovation, by using technology not as an end itself, but as a way to deliver leaps of productivity, simplicity, ease of use, convenience, fun or fashion or environmental friendliness; and aligning the activities of a company to pursuit the differentiation allied to low cost, by reducing, creating, raising and eliminating factors of competition.

RED OCEAN STRATEGY	VS	BLUE OCEAN STRATEGY
Compete in existing market space		Create uncontested market space
Beat the competition		Make the competition irrelevant
Exploit existing demand		Create and capture new demand
Make the value-cost trade-off		Break the value-cost trade-off
Align the whole system of a firm's activities with its strategic choice of differentiation or low cost		Align the whole system of a firm's activities in pursuit of differentiation and low cost

Figure 9 Red Ocean Strategy VC Blue Ocean Strategy – Adapted from Kim & Mauborgne, 2004

1.3.5 The new entry barriers: network effects

After a digital business has disrupted a market, replacing physical assets for digital solutions as a source of control over demand, the entry barriers become much weaker. A new incumbent is easier to be disrupted than the former ones, once a digital platform itself cannot be considered a sustainable competitive advantage (Barney, 1991) due to being easy to imitate (Elbanna & Newman, 2016). Physical assets are replaced, as barriers to entry against newcomers, by the eco-system created around a digital business, the user's database, and other network effects (Gawer, 2020)..

1.3.6 The Platform Strategy

A platform creates value for its participants by consummating core interactions - matches among users and facilitating the exchange of value (goods, services, or social contact) and capturing a portion of that value. The fast growth of platform businesses is due to the creation of value by using resources that platform owners don't control – much of that value derives from the communities' platforms serve. It makes platform companies have their boundaries blurred, with a clear focus on the external environment and creating network effects as the goal. The Network effects enable the growth of a Platform Business by creating demand economies of scale at the demand level. That is the economic basis of this strategy. In the growth stage of the platform, complementary interactions run at the top of the core interaction. (Parker & Alstyne, 2016).

2 A template for sketching and assessing disruptive businesses

As shown in the literature review, a sketch and assessment tool based on the factors of disruptive potential could help the creation of successful startups, and an iterative and incremental approach could be applied to the construction of this new tool. Once universities are a suitable environment for innovations, time and effort spent on research could be an important source of ideas and talent, and the Business School where this project was developed, and the scientific production from its students could be a good starting point.

The team started the project with a question: does the weak link between scientific production and market necessities is due to the absence of innovative ideas on academic works, or the potential ideas are there, but with a purely technical perspective and the lack of a market approach? The first step of the project intended to get a better understanding of this subject. The project team has dedicated the first hours to reviewing all the Open Access scientific contents published in Portugal between 2019 and 2020 and available on the repository RCAAP (<https://rcaap.pt>).

Among the scientific papers analyzed, less than 6% were about business ideas or technical solutions. The other 94% are dedicated to reporting internship experiences, reviewing the literature, and using case studies of existing solutions. Research could not generate new businesses without a problem-solving approach.

This project should propose an instrument to help future entrepreneurs to sketch new businesses. That includes students that could use that tool to drive their scientific production to the problem-solving mindset, stimulating the creation of university startups with a propensity to disrupt markets. The next chapter describes the construction process of this instrument.

3 Methodology

The methodology of the project consisted of identifying the factors that characterize the potentially disruptive business; analyzing business ideas according to these factors to validate and prioritize them; organizing the variables in a logic sequence; submitting these sequences of variables to rounds of iterations to validate the applicability of the new tool and get incremental improvement ideas.. This iterative and incremental process is based on the statements of the Lean and Agile Methodologies (Beck et al., 2001), (Blank, 2007), (Ries, 2011), (Gothelf & Seiden, 2016) and (Caroli, 2019). The details of each step of the methodology are detailed below.

3.1 Characteristics of a potentially disruptive business

The starting point of the selection of intern and extern variables that characterize was the concepts behind MCPI (Nepelski et al., 2020), as detailed below.

3.1.1 Disruptive innovations

Architectural Innovations are responsible for creating competitive advantages of the Industrial Age. In the Digital Era, a new business doesn't depend on development efforts to win. That is expensive, hard, and risky (Christensen, 1992b), once disruptive business models can be based on two factors: the search for productivity gains from organization changes, leveraged by the technology advance (Askenazy & Gianella, 2000); and the exploration of innovation opportunities created by the technology ecosystem (Perez, 2010).

3.1.2 Underserved market niches

Understanding the concepts of the Transilience Map is very important to delimitate the applicability of business design tools and methods to the creation of new businesses. While Architectural, Revolutionary, and Regular innovations are usually products of long-term efforts of development and innovation departments of enterprises, Niche Creation is the quadrant of The Transilience Map where most startup businesses are: new market opportunities through existing technology.

This delimitation allows a more accurate analysis of the potentials and limits of a business model sketch or assessment and has a clear vision of what it is about: use technology in better and creative ways to solve real-world problems, capture part of the value created

Disrupt!Canvas: A template for sketching and assessing potentially disruptive businesses through consistent revenue models, and search for the exponential growth by attending emergent or hardly unserved markets, by putting the walls of entry barriers down.

3.1.3 Blue Ocean Strategy

The paradigm of the Blue Strategy (Kim & Mauborgne, 2004) has a strong fit with the Lean Startup (Ries, 2011) concepts. For a startup, time and resources investment to develop products improvements to fight competitors can be unviable. Guided by the mantra “Think big, start small, learn fast”, an early-stage business has the low-cost AND differentiation and the search for uncontested markets in this core.

3.2 Analysis of businesses ideas

A set of variables was defined from the characteristics of disruptive businesses listed above. Remote polls were organized to test and analyze the applicability of the variables to business ideas. The ideas were assessed and ranked according to these variables. The insights gave origin to the first feedback loop, the improvement of the set of variables.

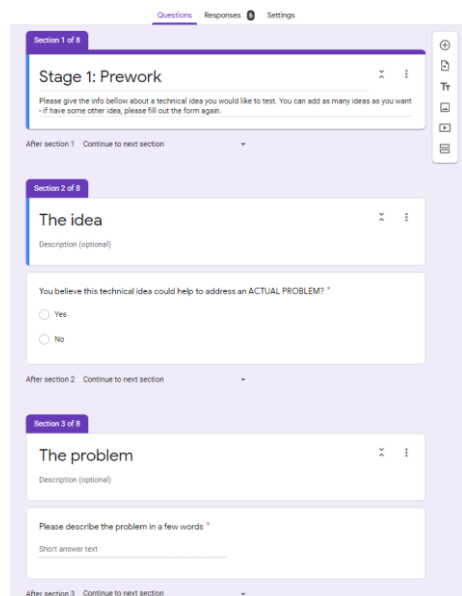
The screenshot shows a web-based poll interface with a light purple background. At the top, there are tabs for 'Questions', 'Responses' (with a count of 0), and 'Settings'. The poll is divided into three sections, each with a title and a description. Section 1 is titled 'Stage 1: Prework' and asks for technical ideas. Section 2 is titled 'The idea' and asks for a description and a yes/no answer to whether the idea addresses an actual problem. Section 3 is titled 'The problem' and asks for a description and a short answer text. Each section has a 'Continue to next section' button. A sidebar on the right contains icons for various functions like adding questions, deleting, and viewing responses.

Figure 10 The screenshot of an online poll

3.3 A logic sequence of variables

The iterations show that a pre-defined sequence could make the application of the framework easier and more intuitive. By studying the relations between variables, the team has proposed and tested different options of sequences, until get to the first version of Disrupt!Canvas, former Market Transformation Canvas.

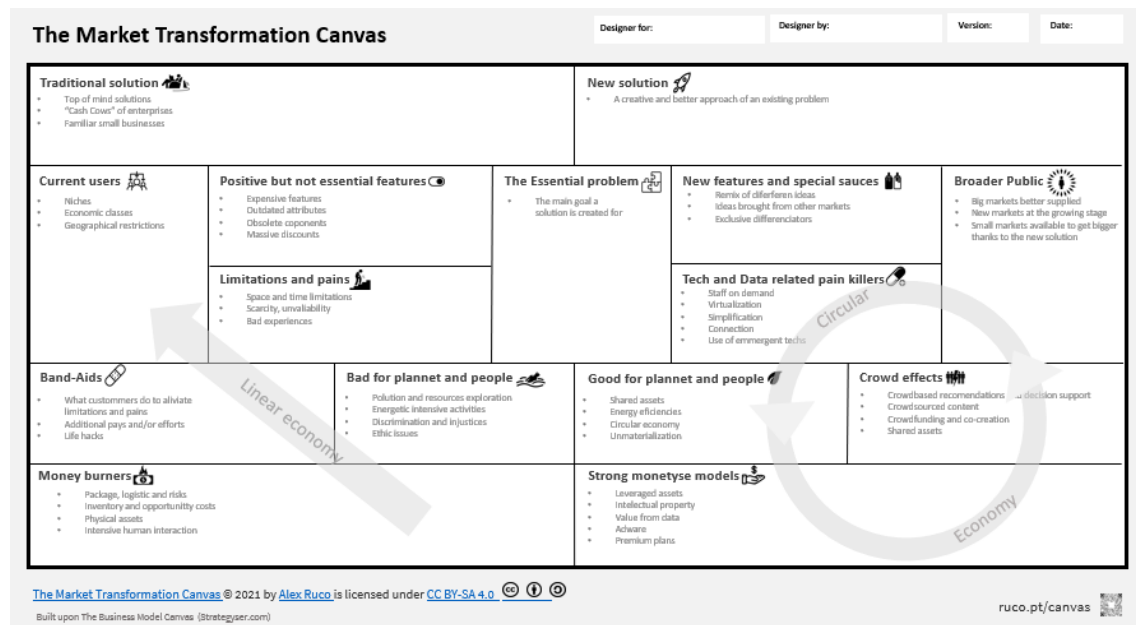


Figure 11 The version zero of the Disrupt!Canvas, former Market Transformation Canvas

4 Validation and incremental improvements: Focus Groups

The Focus Groups aim to validate the use of the Framework as a tool to support the development and pitch of new business ideas, and to validate these ideas as a potentially disruptive business hypothesis, vacationed to positively transform the economy and the society.

4.1.1 Methodology of Focus Groups

The structure of the sessions was planned to take the most value from the features discussed in 6.1: at first, participants were inquired to talk about their roles in the innovation ecosystem, to stimulate the use of the audience's language.

Second, it will be promoted a conversation about the criteria and references commonly used to evaluate the disruption potential of business ideas, as a way to facilitate interaction and deeper discussion.

Finally, the framework will be presented, using real cases of successful startups as samples to illustrate its possible applications; divided into subgroups, the participants will be invited to discuss and present their collectively elaborate perceptions about the Framework and its applicability to their professional activities, and give feedback about its potentialities and fragilities.

4.1.2 Illustrative case: ALAN.COM

We present next some of the examples used for the emulated pitches. We have selected some companies for this aim; the criteria for this selection was being based in Europe, and being on the list of Future Unicorns (Anand Sanwal, 2020). CBInsights have composed that list with combining traction and financial health of the companies and strength of the market (cbinsights.com, 2020).

Alan.com is a startup that is considered one of the possible next European Unicorns. The company aims to help its customers with the problem of health insurance, currently attended by corporate banking. Extremely exclusive, the incumbents keep small business and liberal professionals out of the market boundaries and protect their markets using the relation with big and profitable companies and doctors as an entry barrier.

Alan.com creates differentiation using an existing technology – online meeting tools to perform medical consultations, geolocation to map associated doctors in such areas, artificial intelligence to interact with customers in a low-cost way. Sustainable by a strong revenue model, the recurrency, the solution as created a new space on the market, since Allan.com can be used by any size of business, from 1 to n.

The case of Allan.com was selected among the next European Unicorns in a randomized way, to test the applicability of the Disrupt!Canvas as an assessment and sketch tool for new businesses. The diagram filled with information from Allan.com is illustrated in figure 14.

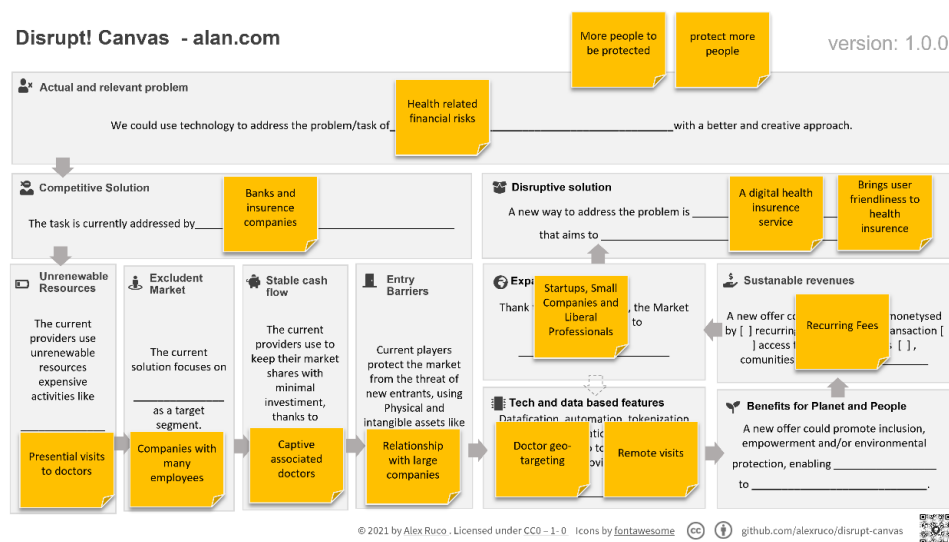


Figure 12 The Disrupt!Canvas filled with information on Alan.com

4.2 Analyzing data

The analysis of the data generated on the focus groups was performed in two stages (O.Nyumba et al., 2018): at the first stage, emerging themes and keywords were listed and organized in relationship diagrams; at the second step, codes were filtered and categorized, with attention to recurring themes and key concepts.

4.3 Composition of the Focus Groups

The focus groups were composed of representatives of four different roles on the innovation eco-system: Investors, Founders, Product Managers, Accelerators, and Researchers. These actors from three different countries gave their feedback about the applicability of Disrupt!Canvas as a business design, communication, and decision support tool, and the key findings from these studies are described in this session.

The investor's group was composed of professionals of venture capital funds. They lead with a huge volume of information from startups in different stages of maturity, and decisions on which companies and how much money to invest in an everyday activity for these professionals. The aim of investors on the focus groups is to evaluate the application of Disrupt!Canvas as a support tool for these decisions.

Founders are responsible for startups and, among a sort of activities, they have the communication of their ideas, business models, and the variables that affect their results are a key process to get investments and acceleration support. The applicability of Disrupt!Canvas as a tool to help founders to pitch their startups is what founders aim to validate in the Focus Groups.

Product Managers have as their main responsibility the ideation and development of products, and the use of business design tools to support this innovation-related activity is a routine for this public. They are familiar with the weak and strong aspects of the existing tools and aim to give feedback on the applicability of Disrupt!Canvas through the participation in the Focus Groups.

Accelerators are representatives of Public Agencies that help Founders on the development of business ideas, analysis of business plans, and other forms of support – financial, networking, management, and more. They have familiarity with the use of frameworks to design, improve and pitch business models of startups, and can validate the application of Disrupt!Canvas in all of these aspects of innovation support.

5.1.2 Key finding 2

More than a design tool, Disrupt!Canvas is a strong structure model of thinking about a business model, to be used by accelerators and founders.

Developed upon the main paradigms on disruptive businesses, Disrupt!Canvas should be positioned as a checklist, to help founders, accelerators, and investors to enhance or evaluate the disruptive potential of businesses.

5.1.3 Key finding 3

Disrupt!Canvas should be used not as a business design or ideation template, but as a rating or checklist tool.

Instead of trying to cover the whole innovation cycle – Ideation, Business Modeling, and Startup Development, Disrupt!Canvas should be the best tool to perform a more specific task: to check if a startup or business idea covers the main criteria to be considered potentially disruptive.

Further versions of Disrupt!Canvas could do more than help to check the fit between a business model and the characteristics of disruptive innovations but also serve as a rating tool to help to evaluate this fit, as detailed below.

5.2 Opportunities for the improved version

5.2.1 Key finding 4

Disrupt!Canvas brings the same usability issues as other canvases: they are not self-explainable and don't have a clear output.

For Product Managers, the potential of Disrupt!Canvas can't be confirmed, once the tools they use to design business have the same issues: usability and the lack of clear outputs; and Disrupt!Canvas is not different. To be adopted by this public, Disrupt!Canvas should offer a solution for these pains.

A possible output for the analyses made with Disrupt!Canvas could be the rating feature; an improvement suggested by numerous participants of the Focus Groups, that could allow the tool to add more value as an investment decision tool – the rating could be used to compose a general index of the disruptive potential of a business model.

5.2.2 Key finding 5

To be used as an investment decision tool, Disrupt!Canvas should have some additional variables: Team, Market Structure, and Financial Perspective.

A startup pitch covers several pieces of information about the market and the business. To be considered an investment for smart money, a startup must have the potential to grow and scale. And some variables that are not covered by Disrupt!Canvas can influence this potential to be confirmed.

The first uncovered variable is the composition of the team, founders included. Team members with complementary profiles and competencies that fit with the proposal of the startups can be even more important than the business idea. The investors use, in some cases, to put their coins, not in the project, but the team.

The second uncovered variable is the structure of the market. The template covers the existing market, but some important aspects were not considered: dispersion of competitors; level of digitalization of the market; stage of the product cycle where the market is placed. According to a Focus Group participant from Venture Capital Industry, it “doesn’t matter in which quadrant of the matrix the startup is placed; what is important is to have a strategy to grow and scale in the context of that quadrant”.

The matrix described by the participant is similar to the Growth-Share Matrix, also known as BCG Matrix, a Portfolio Management framework (Henderson, 1970). To illustrate the idea, a diagram inspired in the Growth-Share Matrix, adapted to analyses of a market instead of supporting a company’s portfolio decisions, is in figure 14.

		Dispersion	
		Low	High
Growth	High	Star	Question Mark
	Low	Cash Cow	Pet

Figure 14 The BCG Matrix, freely adapted from (Henderson, 1970)

The third uncovered variable, financial information, is important, in the vision of the Investor, to understand the potential impact of an investment in the startup’s growth; “What a startup will do after raising funds? The investment must have a clear expected impact, can’t be an end itself; the main source of money of a startup has to come not from investors, but costumers”.

5.2.3 Key finding 6

Technology and data are means, so the product or process should be the core of the respective block

While technology allows most of the innovative business models of startups, the innovation character of the business model itself, the feasibility of the idea - that for its turn, is impacted by the competencies of founders and teams – and the fit between startup's offer and market needs are often more important than the technology base. Access to middle-end technology is getting easier, and the business models that depend on high-end technology are exceptions.

What the block “Tech and Data-based Features” aims to stimulate is not an analysis of how a huge investment in high-end tech could transform a market, but a reflection on how a problem could be framed differently, considering the possibilities created by technology. It includes consolidated technology that is not applied to the business models of incumbent firms – mostly due to the entry barriers, that allows incumbents to keep their market share without investments in innovation.

In the improved version, this block is going to be renamed in a way that makes clearer the role of technology, to avoid the misconception mentioned above.

6 Discussion and improvements on the template

Based on the opportunities identified on the Focus Groups, a series of improvements was implemented on the template, to increase its relevance and applicability. The features that have resulted from these improvements are detailed below.

6.1.1 A Clear Value Proposition

To be adopted to the innovation ecosystem, Disrupt!Canvas must have a clear value proposition. Once is developed upon the study of disruptive businesses, Disrupt!Canvas can be a valuable tool to check and evaluate the link of a startup or business and the characteristics shared by the unicorns. Among several other canvases and other kinds of templates, Disrupt!Canvas proposes something very specific: to serve as a reference for Disruption-Focused Analysis.

6.1.2 Self-explainable blocks

The usability issues are an item to be considered; in the words of a Product Manager that have contributed to the Focus Groups, “the templates in general, especially canvases, are not suitable to be used in a workshop without the presence of a facilitator; Disrupt!Canvas is not different on this aspect” And according to a Founder, from other Focus Group sessions: “by just reading the words on the template, is not possible to understand what information is supposed to add to the framework.”

Despite being largely used in product development workshops, startup conception meetings, and strategic management college classes, the canvases, in general, share a usability problem: the titles are not self-explainable, and the sequence of blocks is not intuitive, making the presence of a facilitator mandatory. The validation version of Disrupt!Canvas has the same issue, pointed in the Focus Groups.

To fix this problem, the presentation was all modified: the titles and gapped sentences were replaced by questions to be answered, making the process of filling the template more direct and clearer.

The content of some blocks was also modified, to include the aspects that lack in the former version, as found in the content analysis of the focus groups. The literature research was expanded, to fundament the addition of these concepts (Team Composition, Market Structure, and Impact of possible new investments). The perspective of the “Features” block was also revisited.

6.1.3 Aspect to be considered: Team’s competences

A startup doesn’t have actual competitive advantages; instead, what makes difference through the investor’s eyes is what advantages a startup intends to develop, and how (Da Rin & Hellmann, 2020); skills, attitudes, and competencies of founders are considered key factors for startups success (Richter et al., 2016). The Da Rin & Hellmann’s Venture Evaluation Matrix (fig 10) has Competencies as one of its three bases, a potential competitive advantage that results from Organization, Network, and Skills. In the improved version of Disrupt!Canvas this aspect is represented by two different questions, related to Startup’s core capacities and its fit with a new solution to the problem to be addressed – the probability of achieving “Team-Problem Fit” (Mannes, 2021).

6.1.4 Aspect to be considered: Structure of the market

Market structure, team, and financial needs are aspects to be added to the improved version of the tool. “I can’t perform a complete analysis without more information on the competition,” a founder said. A base of the Venture Evaluation Matrix (fig 10) is the Entry Barriers; the more saturated the market and mature the technology, the redder is the ocean – the more competitive is the market (Da Rin & Hellmann, 2020).

This bloody competition is typical of “Regular” and “Revolutionary” quadrants of the Transilience Map (Fig 10); while “Architectural” innovations emerge from research efforts and not from market needs, the typical territory for market disruptive business is naturally the quadrant one. This information was added to the Disrupt!Canvas in two different blocks, with relations to the dispersion and the obsolescence of the market. Once a new solution is positioned in any other quadrant, it is supposed to exist a strategy or strong potential advantage to play in a different field.

6.1.5 Perspective change on the “Features” block

To make clearer the aim of this building block, as seen in 4.2.3, a new perspective was adopted. Technology is not an end itself but a mean, and it’s not the central focus of most startup businesses – with exception of the deep tech startups placed in the second quadrant of the Transilience Map (Fig 10). This new perspective considers the hole of Niche Creation startups in the market: they work as platforms. The platform can be the core of the business model, like Netflix or Canva, or be used to connect users, providers to extend the use of physical or digital products, as so as Nike Run Club or Kindle Store.

A disruptive business based on the platform strategy should focus not in offer value to users in the market as is, but on understanding the value co-creation in the multi-sided ecosystem (Korhonen et al., 2017). This co-creation of value enabled and enhanced by digital platforms was included in the template in three different questions.

The first question is related to connections and interactions: a platform matches users and producers and enables iterations between them. The second question is related to competencies: creating and maintaining a digital platform requires a set of competencies; the question is about the presence of these competencies in the startup’s skillset. The term “feasibility” was used several times in Focus Groups. To raise money a startup’s aim must be feasible, and competence is a core factor for this. The third question is related to monetization: how could a new platform capture a portion of the value created by the

interactions? Recurring fees, fees for transactions, fees for access to communities are the most common monetization strategies.

6.1.6 New aspect: Impact of possible investments

c. Pre-seed Startups can apply funds to listen to potential customers and define the pain points to be fixed. Seed Stage Startups need resources to build an MVP and validate the idea. Early Stage startups can establish a road map with milestones (Da Rin & Hellmann, 2020) of relationships with customers, to have a better understanding of the business model, test the terrain, and expand the audiences. Growth Stage Startups can focus on hiring people and sustaining growth and achieving new audiences to occupy spaces on the market (Medlin, 2016).

The demand of a startup must grow faster than its costs, by design. New money should be used not to do what a startup does – design, test, iterate, acquire customers, improve, sell, and grow – but to do it in a faster, smarter, and more sustainable way (Kepler, 2021).

6.1.7 Rating outputs

As found from Focus Groups, a quantitative approach could make the template more useful, by delivering for investors started to serve as a filter for an initial selection of business to be analyzed, a pre-pitch analysis. And for Startups, the qualitative approach could be for Disrupt!Canvas is an important feature, allowing startups to better understand their strengths and challenges, and give them insights for improvements or pivots.

While Business Model Canvas (Osterwalder et al., 2010) represents the dimensions of a business model and the relations between them, serving as a sketch and communication tool, the Venture Valuation Matrix (Da Rin & Hellmann, 2020) show the critical aspects of a startup for potentially disruptive business, in a quantitative, though estimated way, and serves as a checklist or self-assessment tool. The rating graphics and self-assessment quantitative questions added to Disrupt!Canvas has transformed the tool into a merge of these two diagrams: a visual composition of elements and their inter-relations, with a set of measures of each factor for market disruption. By limiting the variables to the core disruption factors, the template forces founders to focus the analysis of the critical aspects; as so as Balanced Scorecard was created to put strategy and vision, instead of control, in the centre (Kaplan & Norton, 1992). Disrupt!Canvas can help founders to centre the analysis on the potential impact of a new venture: the disruption of markets.

7 CONCLUSION

7.1 Main contributions

This research project provides a framed perspective of the propensity for market disruption by startups. By an incremental process, based on feedback loops based on literature about existing tools and the main factors of disruptive potential, analysis of data from an existing successful business, and iterations with key people from the innovation ecosystem, disruption propensity factors were put together in the form of a sketch and assessment template, named Disrupt!Canvas.

The strategic analysis of a startup, through the eyes of disruption, should consider the variables that are on the fundamentals of Disrupt!Canvas: A problem to be addressed, and its relevance; an existing competitive environment, and the respective level of concentration; the inefficiency of existing solutions, and how much it is painful for users; the potential producers and potential users that are kept out of the arena, and the size of the potential consumer market; the barriers to entry, and how much the market is obsolete due to these barriers; possible connections between actual and potential users and producers, and the feasibility of a platform to leverage these connections; the financial sustainability of the startup, translated into the revenue model, investment needs and proportion of value to be captured; the feasibility and scalability of the business model, and speediness of the potential demand growth; the level of this potential growth of the target consumer market.

Although the inherent subjectivity of the assessment process, the template can make this analysis more structured through the rating features. This structure can also serve as a protocol, by facilitating the communication and feedback process among the actors of the ecosystem, by standardizing the variables to be considered for the assessment of new businesses. The rating features can be translated to spreadsheets, web applications, or dashboards, serving as a decision-making tool. The current version of the template is illustrated in figure 16.

Disrupt! Canvas

The Problem What is the core problem to be addressed? What are the evidences of the problem's existence?

How much relevant is the problem? From the lack of a vitamin (1) to the need for an antidote for poison (5).

☐ ☐ ☐ ☐ ☐

The competitors Who are currently providing a solution for this problem? How producers connect with existing users?

There are few(1) or several (5) providers for the existing solution?

☐ ☐ ☐ ☐ ☐

version: 3.0.0

The inefficiencies What resources are not being explored by this market, or are being explored inefficiently?

How Much inefficient is the existing solution? From to be improved(1) to almost painful than the problem itself(5).

☐ ☐ ☐ ☐ ☐

Potential producers Who could be a producer on the existing market, but is out of the game? What potential consumers are kept out as well?

How big is the underserved market?

From a specific niche(1) to a considerable portion of human race(5).

☐ ☐ ☐ ☐ ☐

Barriers to entry Why is the market hard to enter for these potential users and/or providers?

Due to be hard for new entrants, is the market being kept obsolete? How much? From full analogic (1) to almost full digital(5).

☐ ☐ ☐ ☐ ☐

The connection How could the users and producers connect and interact to address the problem, creating a fast and broad network?

To create and maintain a platform that supports these interactions, some competences are necessary. How much are they present in the team? From need to hire them all (1) to it's all up to us (5).

☐ ☐ ☐ ☐ ☐

The growth How could the new approach make the market bigger?

The entrance of new users and providers can make some consumer markets bigger. How much money could be attracted by this market? From a comfortable retirement of an individual (1) to the GDP of a country (5).

☐ ☐ ☐ ☐ ☐

The sustainability How could a new solution capture a portion of the value created by these interactions? How an injection of capital could allow a faster and smarter growth?

How large is the proportion of value that can be captured? From 1%(1) to 30%(5).

☐ ☐ ☐ ☐ ☐

Feasibility and Scale What does the team do best? How could them create a fast-growing demand with no proportional growth in costs?

How strong could be the growth of demand, compared to the growth of costs? From 10% faster (1) to 10.000% faster (5).

☐ ☐ ☐ ☐ ☐

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Icons by fontawesome

github.com/alexruco/disrupt-canvas

Figure 15 The current version of Disrupt!Canvas – created for this project

7.2 Managerial implications

For accelerators, the template can serve as an assessment tool to rank, select, and support the development of new startups. New businesses that are not mature to be accelerated, though be focused on markets that are ready to be disrupted, can have structured feedback about their issues related to network effects, monetize model, team, or necessity for investments. Startups with important gaps in these aspects can be selected for learning opportunities in a more objective way.

Public accelerators with the regional focus can create dashboards to identify possible structural gaps in its ecosystems, generating insights for developing efforts and even outputs for public management decisions.

For investors, Disrupt!Canvas can serve as a structure for the analysis of the propensity for market disruption, by organizing the variables into a framework. Despite more detail being needed to fundament an investment decision, a previous selection of the high-potential business can be performed by using the template. For example, a spreadsheet based on the template can be used to show average and individual rating levels of each block, and to restrict the qualitative analysis and presential pitches to the highly ranked business, increasing the productivity of the prospection process.

For founders of startups, the template can be used as a sketching or self-assessment tool. The propensity of the target market to be disrupted, and of the startup to be an inductor of this disruption, can be analyzed objectively. Once the result of the analysis confirms this propensity, this information can be used to communicate to the ecosystem as an argument in the search for investment and support.

Possible gaps identified in the analysis of internal factors of the startup can drive people, marketing, technology, or financial management decisions; and monitor the results of these actions, like a propensity for disruption scorecard. In cases where the propensity is not confirmed, the template can be used to search for more disrupt ready markets, or to sketch new business models, to promote a possible pivot – an input-driven adaptation (Eisenmann et al., 2017).

As so as future entrepreneurs can use Disrupt!Canvas to sketch new businesses, and students can use the tool as a framework to define the subject of research projects. Creating solutions for problems related to disruption-ready markets can be the aim of market-focused research, with the potential to originate economic-impactful businesses.

7.3 Limitations and suggestions for future research

This research work has limitations. The feedback loops are limited to a reduced number of startups, accelerators, and investors. For practical reasons, all the participants are Portuguese Speakers, which brings limitations related to cultural aspects. Future research with a quantitative approach on the perception of the actors can produce new insights by covering a representative sample from the innovation ecosystem.

Another limitation is related to the time horizon of the study. It was not possible to estimate the assertiveness of the rating graphics. Long-term research can, in the future, include a follow-up on the studied startup's level of growth, measuring the precision of the template as a prediction tool for disruption.

The rating of the aspects for disruptions can vary from market to market. The measures can be used to establish minimal scores, but under a standard scale, the comparison among startups is limited. Future research can be dedicated to implementing lengths for each block, and even identifying typical lengths for each variable in different market segments. This improvement can allow Disrupt!Canvas to generating an outcome driver, an index of market disruption propensity.

The advance in technology has a deep impact on business models, and future research can update the template to adapt the tool to be used in transformed environments. For example, digital platform business can be transformed by blockchain technology, due to the emergence of Decentralized Finance, based on Decentralized Platforms (Chen & Bellavitis, 2020).

Decentralized Platforms, also called Dapps, are platforms that are pre-programmed to execute finance functionalities in an immutable, distributed way, validated by the blockchains (Chohan, 2021). Furthermore, this technology can be used to validate access to immaterial assets like music, games, movies or books or personal data. The automated and secure blockchain-based transactions allow platforms to operate with scalability and transparency, once are based in auditable and indelible computer programs. These transparent and distributed platforms must be considered in future studies about market disruption: they have the potential to make the trustfulness provided by reputation, brand, or the ownership of computing infrastructure irrelevant, putting the walls of entry barriers down again. Even disruptors can be about to be disrupted.

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