

Critical success factors for technology start-ups: an exploratory qualitative study of experts' views

Les facteurs de succès des start-ups technologiques : Une étude qualitative exploratoire de point de vue des experts

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Abstract :

Technology start-ups are high-growth projects that generate rapid traction and very high returns. However, with this high return potential comes a low success rate. According to Start-up Genome, less than ten percent (10%) of start-ups worldwide succeed with a failure rate of over ninety percent (90%). This study aims to investigate the critical success factors of technology start-ups according to Moroccan experts with a qualitative approach. A review of the literature on the critical success factors of start-ups allowed us to highlight the themes to be addressed through semi-structured interviews conducted with 12 experts and through the analysis of the netnography conducted on the speeches of 8 Moroccan experts. After analyzing the content of our corpus, the results of our study highlight the important role of the *characteristics of the start-up ecosystem*, the *business model innovation*, *financing*, the *complementarity of the teams* and the *entrepreneurial mindset of the founder's profile* as factors favoring the success of start-ups. The objective of this scientific article is to study the perception of Moroccan experts on success factors in order to adapt and refine the conceptual model of success factors to the Moroccan context.

Keywords: start-up; business model innovation; start-up ecosystem; critical success factors; lean start-up; entrepreneurial mindset.

Résumé :

Les start-ups technologiques sont des projets à fort potentiel de croissance qui génèrent une traction rapide et des rendements très élevés. Toutefois, ce potentiel de rendement élevé s'accompagne d'un faible taux de réussite. Selon Start-up Genome, moins de dix pour cent (10 %) des start-ups dans le monde entier réussissent avec un taux d'échec de plus de quatre-vingt-dix pour cent (90 %). La présente étude vise à étudier les facteurs de succès des start-ups technologiques selon les experts marocains avec une approche qualitative. Une revue de la littérature sur les facteurs de succès des start-ups nous a permis de mettre en évidence les thèmes à aborder à travers les entretiens semi-structurés réalisés avec 12 experts et par l'analyse de la netnographie réalisée sur les discours de 8 experts marocains. Après analyse du contenu de notre corpus, les résultats de notre étude mettent en évidence le rôle important *des caractéristiques de l'écosystème des start-ups*, de *business modèle d'innovation*, du *financement*, de la *complémentarité des équipes* et de *l'état d'esprit entrepreneurial des fondateurs* comme facteurs favorisant le succès des start-ups. L'objectif de cet article scientifique est d'étudier la perception des experts marocains sur les facteurs de succès afin d'adapter et d'affiner le modèle conceptuel des facteurs de succès au contexte marocain.

Mots clés : Start-up ; business modèle d'innovation ; écosystème start-up ; facteur de succès ; lean start-up ; état d'esprit entrepreneurial.

Introduction

The massive creation of start-ups has undergone an important evolution since the beginning of the 90s, especially since the bursting of the internet bubble. This period is marked by the rise in power and massive development of the use of the Internet and has given rise to the emergence of many successful start-ups before this American success story became a model for the success of start-ups in other countries like Morocco.

The start-up is an emerging approach to entrepreneurship based on the use of a mode of operation called Lean start-ups, agility or effectuation in order to seek an innovative business model generating a high risk of entrepreneurial failure. Due to this peculiarity, many start-ups fail during the start-up phase and few of them succeed. These characteristics have made the survival and development of start-ups an exception (Hansen, 1995; Lasch, and al., 2005; Seeger, 1997; Solmossy, 2000). The objective of our study is to identify and study the perception of Moroccan experts on the critical success factors that led to the minority of start-ups to succeed during their embryonic phase. To address this mission, we adopted an interpretative paradigm insofar as the critical success factors we study is the result of the interaction of these experts with their environments and their willingness to make sense of it through their interpretations of events and the meanings they draw from them (Thietart, and al., 2014).

Our research has its origins in the theory of agile management and lean start-ups. Other theories considered in our study include organization theory, project management, development project management and entrepreneurship management. Most research in start-up management has focused on the study of the factors of entrepreneurial failure. The study of the “critical success factor” dimension in our study is explained by the fact that success is an exception, on the one hand, and on the other hand, not taking into account the critical success factors automatically means the failure factors. The field of the application of this study is interested in studying the life of a start-up during its embryonic phase. Particularly, from the birth of the start-up to the maturity of the created organization (creation of the company). This maturity is explained in practice by the capacity of the founders to validate a business model innovation. Thus, the purpose of our study is to study the critical success factors that allowed these startups to successfully pass through their embryonic phase and more particularly the triggers of validation of the business model innovation in the Moroccan context in order to better analyze and control them.

The central mission consisted of identifying the most cited and relevant critical success factors of the start-up according to the literature review. These critical success factors will be tested

with the Moroccan context by conducting a qualitative study to validate the conceptual framework of start-up success. To this end, our assignment aims to answer the following question: **What are the critical success factors of technology start-ups in the Moroccan context according to Moroccan experts?** To answer this question, this article is presented along three axes: the conceptual framework of critical success factors according to the literature review, the method used and the presentation and discussion of the results obtained.

1. LITERATURE REVIEW

To frame our research, we refer to the role of the founder's profile of success. Second, other factors are thought to contribute or not to success. These include the role played by the founding team, financing and start-up strategy, and marketing performance. There are other exogenous factors that can influence the success of start-ups, notably the characteristics of the start-up ecosystem and the entourage.

1.1. Start-up Ecosystem

Start-ups need a favorable ecosystem to benefit from rapid development and quick access to international markets, venture capitalists, incubators, gas pedals, companies, coworking spaces and clusters. Several research has been conducted among Start-ups and investors to identify the characteristics of the ecosystem (size of Start-ups, entrepreneurial experiences, compositions, failure rates, etc.) on the one hand, and on the other hand, to explain their importance in the success of Start-ups (Ciumas, and al., 2017; Erika, and al., 2019; Takala, and al., 2016). Thus, we formulate the following hypotheses:

H1: the startup ecosystem is a triggering factor for the success of startups

1.2. Start-up Strategy

Start-ups shape strategies to survive in a volatile business ecosystem. According to the literature review consulted, three strategies appear to be important for the success of start-ups: the timing of the launch, market orientation and the business model innovation.

- *Timing of launch:* The influence of timing on the success of start-ups has been demonstrated in several previous literature (Sinha, and al., 2005; Schlichte, and al., 2019; Zhao, and al., 2014). Several definitions have been attributed to the concept. Timing of launch is defined by the ability of a start-up to be in the right place at the right time (Schlichte, and al., 2019). A market entry where the launch of a product at the right time is shown in previous research to be key determinants of success for a Start-up. The timing of the launch can also include the time of the first product launch for a Start-up. This is defined as the timing of the product introduction that

has been perceived as excellent from the perspective of key customers, channel partners, and direct competition (Sinha, and al., 2005; Zhao, and al., 2014).

- *Market orientation:* The precept that market orientation is associated with the success of start-ups is widely accepted. Beltman and Morgan hypothesized that market orientation would be positively related to the success and performance of start-ups (Beltman, 2020; Morgan, and al., 2020). An exploratory study conducted by Vitale, Giglierano and Miles on 89 start-ups located in Silicon Valley shows that market orientation is positively and significantly related to the performance of a start-up (Vitale, and al., 2003). Indeed, market orientation plays an important role in the growth of market share, customer portfolio, and overall performance. Market orientation includes customer orientation, competitive orientation, and cross-functional orientation (Wilson, and al., 2014). Start-up founders who know and understand the market better are able to ensure product-market fit, or are able to cut through the competition is more successful than those who do not know the rules of the market game. Start-ups that adopt an international market orientation are more successful than those that adopt a local market orientation, because the latter are very small and lack ambition. But going through a local market as a preliminary step is very important to test and experiment the idea of a start-up.
- *Business model innovation:* The development of a business model innovation is crucial for a start-up. Successful development must be developed and tested within the constraints of scarce resources and uncertain conditions that characterize the life of a start-up. So to what extent does the business model determine the success of start-ups? Several studies have attempted to answer this question (Afuah, and al., 2017; Osterwalder, and al., 2012; Zott, and al., 2019) .For example, the business model innovation enables competitive advantages when three conditions are met: 1) constant and rapid product iteration and emergence strategy; 2) ability to respond to environmental threats and changes; 3) and opportunistic behavior to extend the business model innovation (Liu, and al., 2019). Afuah and Tucci state in their studies that the business model innovation is one of the three critical success factors. Based on a dataset of 500 start-ups, two business model innovations are significantly correlated with high success rates, while four models are significantly correlated with lower success rates in the study of Weking and his co-authors (Weking, and al., 2019).

Thus, we formulate the following hypotheses and sub-hypotheses:

H2: The startup strategy affects the success of startups

- ***H2.1 : Timing of Launch is a success factor for Moroccan startups;***
- ***H2.2 : Market orientation influences the success of Moroccan startups;***
- ***H2.3: The innovation business model is a trigger for startup success.***

1.3. Founding Team

Several previous literature has demonstrated the positive contribution of the founding team to the success of Start-ups (Carpenter, and al., 2001; Hernandez, and al., 2018; Lasch, and al., 2005; Srivastava, and al., 2009; Startup Genome, 2011; Sapienza, and al., 2003; Vyakarnam, and al., 1999; Zahra, and al., 2006). For example, using administrative data consisting of millions of Startups in the United States, the research of Choi, Goldschalag, Haltivanger, and Kim showed that the founding team has a large and statistically significant impact on the success of Startups, this success was expressed in size, survival, and productivity (Choi, and al., 2021). Although the literature mentions that the contribution of the team to the success of Start-ups depends on several variables (size, age of the team members, sector of activity...), but it seems that only two variables condition the success of the Start-up by the founding team according to the majority of the research consulted, namely: the complementarity and the confidence of the founding team. Thus, we formulate the following hypotheses:

H3: Founding Team contributes to the success of the startup

1.4. Entrepreneurial Resources

Although the term entrepreneurial resource includes many types of resources needed to run a startup, the literature review emphasizes the importance of financial resources as critical success factor. The availability of venture capital and public financial support are considered determinants of success (Sapienza, and al., 2003; Dahlqvist, and al., 2000). Funding affects the intensity of growth and, in turn, the success of start-ups (Antonio, and al., 2003). Start-ups that have benefited from a bank loan to finance their start-up manages to resist during the start-up phase (Lasch, and al., 2005). Business angel financing allows the start-up to survive (Robinson, and al., 2000). Thus, we formulate the following hypotheses:

H4: Entrepreneurial resources is a factor in the success of the startup

1.5. Founder profile

According to the majority of the previous literature consulted, three major characteristics characterize the founders of start-ups and seem to contribute to the success of their projects, namely: the founders' skills, experience and mindset.

- *Founders' skills:* founders' skills are individual qualities that differentiate them. Several definitions have been attributed to founders' skills and we retain the following one: “*skills are a set of knowledge, action capacities and behaviors structured according to a goal, in a given type of situation*” (Parlier, and al., 1992). The main results of the study have empirically confirmed the significant influence of founders' skills on the success of start-ups on several Levels (Castrogiovanni, 1996 ; Dahlqvist, and al., 2000 ; Hansen, 1995 ; Lasch, and al., 2005 ; Littée, 2013 ; Robert, 2015 ; Nyman, 2020).
- *Founder experience:* several studies have shown that founder experience, especially entrepreneurial experience, influences the success of Start-ups (Frese, and al., 2019; Nyman, 2020; Wiklund, and al., 2001). This influence is accentuated especially when the founder has created a Start-up in the same field as his or her previous experience (Brüderl, and al., 1996; Cooper, and al., 1994). Work experience in a previous corporate job helps to develop cognitive skills to intellectually evaluate the opportunities of the new start-up to be created. In this perspective, the cohort study conducted by Fabre and Kerjosse concludes that the success of start-ups is related to the importance of the founder's experience (Fabre, and al., 2006).
- *Entrepreneurial Mindset:* On a theoretical level, entrepreneurial mindset is recognized as a personal attribute of founders that contributes to the success of start-ups according to several previous literature (Belousova, and al., 2000; Wijaya, and al., 2020; Wardana, and al., 2020; Wijaya, and al., 2020). The conceptual origin of mindset comes from the field of cognitive psychology where it is defined as the founder's attitude to feel, act, and motivate themselves despite highly uncertain situations uncertain (Mcgrath, and al., 2000). The entrepreneurial mindset is also defined as the founder's attitude towards the lack of resources and visibility and towards the obstacles to the creation of a start-up. In addition, the mindset includes the founder's attitude to take the risk and challenge of starting a start-up. Thus, we formulate the following hypotheses and sub-hypotheses:

H5: Founder profile is considered a central factor of startup success

- ***H5.1: The skills of founders act on the success of startups;***
- ***H5.2: the experiences of the founders help the success of the startup;***
- ***H5.3: the entrepreneurial Mindset is a determining factor of the startup's success.***

1.6. Entourage

Previous studies have shown that the support of the entourage (family, friends) contributes to the success of the start-up (Sokol, and al., 1982). The entourage supports Start-ups through financial capital, social capital, or physical capital and cohesion (Ferina, and al., 2018). Network and social capital (family and friends) theory suggests that in addition to strong ties, the success of a start-up also requires the development of reliable connections (Sequeira, and al., 2006). The entourage includes family social capital, family financial capital, family cohesion that can impact the success of a Start-up (Edelman, and al., 2016). The entourage exerts a positive or negative influence on the success of a Start-up according to two sub-factors: ***the entourage's mindset on entrepreneurial perception and perceived social norms***. The first is defined by the mindset of the entourage on the creation of the Start-up and its influence on the success of this one and the second, consists in studying the way the founders perceive the social pressures (family, friends and close relations) on the launching of a Start-up to adopt or not an entrepreneurial behavior and consequently, to succeed the project of the Start-up. Thus, we formulate the following hypotheses:

H6: the entourage is a variable that influences the success of startup.

1.7. Marketing Performance

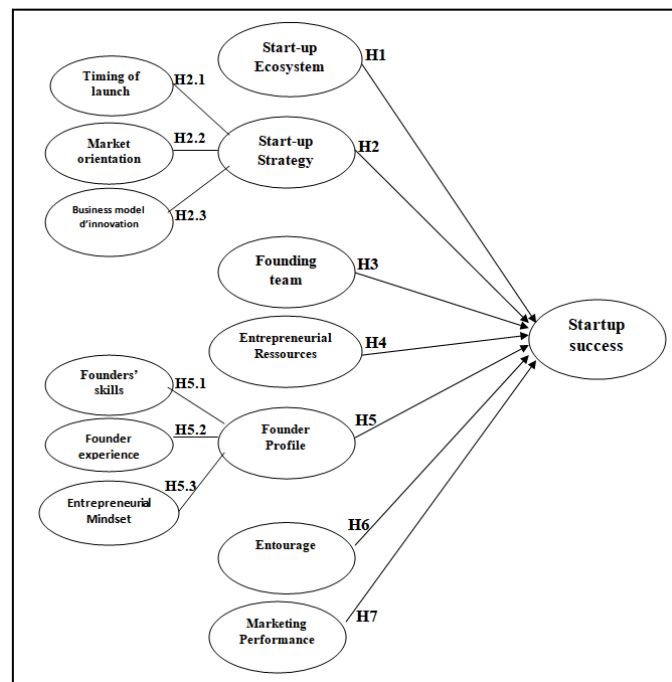
Marketing theorists recognize that marketing performance is an essential driver of the process by which a start-up develops its competitive advantages. In other words, marketing performance is defined by the Start-up's ability to create a competitive advantage. The main objective of a Start-up is to develop and maintain a competitive advantage by creating customer value (value proposition) (Arikan, and al., 2001; Zhao, and al., 2014). Marketing performance is conditioned in Davcik and Sharma's research by three conditions: the relationship to the environment/brand, marketing as an organizational function, and the deployment of marketing resources (Davcik, and al., 2016). Marketing performance in Seo, Kim, and Lee's research was studied by the effectiveness of the sales strategies of Founder-Director and Sales Managers. The result of their dyadic questionnaire survey finds that good marketing performance enables the startup to survive and grow (Seo, and al., 2018). Marketing resource effectiveness is critical

for Start-ups in developing their product (Song, and al., 2010). By definition, marketing resource effectiveness consists of the effectiveness of marketing research, sales force, advertising, promotion, resources, and distribution skills (Zhao, and al., 2014). Thus, we formulate the following hypotheses:

H7: performance marketing contributes to the success of startup.

Thus, the conceptual model of our research problem can be illustrated as follows (figure 1):

Figure 1: Conceptual model of research



Source: self-elaboration

2. THE METHOD USED

2.1. Research steps

The purpose of qualitative research is to appreciate the importance of our research themes in discourse rather than to measure it (Thietart, and al., 2014). We conducted an exploratory qualitative study to validate the theoretical framing mentioned in the literature review. This exploratory approach consists of assessing experts' perceptions of the different critical success factors of start-ups. To do so, we relied mainly on two main sources of information: the first is the raw data from semi-structured interviews with 12 experts in the field of start-ups. The second source is the speeches of the 08 Moroccan start-up experts who participated in television programs on start-up topics. These data were collected and transcribed faithfully and manually.

- **The interview survey:** The choice of a form of interview is based on several criteria: the number of people to be interviewed (is it an individual or a group?), the need to explain or not

the purpose of the research (displayed or hidden), the purpose of the research and the more or less guided nature of the conversation (GavardPerret, and al., 2008). Based on the criteria listed below, it seems that the semi-structured and individual interviews correspond well to the objective of our study.

Table-1: Interview guide questions

Questions	Research topic	Types of questions
Q 1: Can you introduce us and present your experiences in Start-up?	-	Open question
Q 2: Generally, what are <i>the critical success factors</i> that contribute to the success of start-ups?	Critical success factors	Open question
Q 3: In your opinion, to what extent can the <i>characteristics of the founder's profiles</i> contribute to the success of the technology startup?	Characteristics of the founder's profiles	Question of revival
Q 5: In your opinion, to what extent can the <i>entrepreneurial resources</i> contribute to the success of the technology startup?	Entrepreneurial resources	Question of revival
Q 6: In your opinion, to what extent can the <i>startup ecosystem</i> contribute to the success of the technology startup?	Startup ecosystem	Question of revival
Q 7: How do you see the contribution of the <i>marketing performance</i> to the success of the technology startup?	Marketing performance	Question of revival
Q 8: In your opinion, to what extent can the <i>start-up strategy</i> contribute to the success of the technology startup?	Start-up strategy	Question of revival
Q 9: In your opinion, to what extent can the <i>founding team</i> contribute to the success of the technology startup?	Founding team	Question of revival
Q 10: In your opinion, to what extent can the <i>entourage</i> contribute to the success of the technology startup?	Entourage	Question of revival

Source: self-establishment

In our study, the qualitative research strategy is based on the use of individual interviews which is defined as a face-to-face situation between a researcher and a subject (Thietart, and al., 2014). The semi-structured interview is conducted using an interview guide illustrating a list of research topics or themes to be addressed with the surveys. The interview guide (Table-1) we designed is based on the principle of non-directiveness. The latter is based on the fact that the subject can say anything and each answer of his speech has a certain value, because it refers directly or indirectly to analytical elements of the object of our research.

After identifying the topics of our research, interviewees were researched. We canvassed their professional experiences and academic backgrounds to ensure that they have a deep understanding of the start-up context. We considered years of experience since in-depth knowledge in a given field can only be gained when the interviewee has at least two years of experience (Saunders, 2019).

Table-2 : List of experts interviewed by interview guide

Code	Profile and reference school	Expertise field	Years of experiences
AA01	Engineer (IAV)	Mentors; Program manager in start-ups	20 years old
CN02	Engineer (INPT)	Ex-founder start-up; Mentors; Event organizer on start-up	17 years old
JM03	Management (ENCG)	Start-up program Director; manager; event organizer; influencer	19 years old
LM04	Engineer (ENSIAS)	Serial entrepreneur and founder; Professor; ICT and digital consultant; keynote speaker; Mentor and Coach.	24 years old
EY06	Management (HEC Paris)	Ex-founders of start-ups; Director of entrepreneurship programs; Consultant	7 years old
EM07	Management (Jean-Monney University)	Program Director in Start-up: Mentor and Coach; ex-founder of Start-up.	14 years old
HL08	Management (HEC)	University Incubator; Start-up program Director; Mentor and Coach; University Researcher	18 years old
BK09	Management (ISCAE)	Incubator; Consultant	3 years old
LA10	Management and engineer (Montpellier University)	Lean Start-up Coach and Mentor; Program manager; actor in NTIC Association	27 years old
ZM11	Management (ESSEC Business School)	Manager of an innovative start-up investment fund; Consultants in start-ups at Moroccan CGEM.	17 years old
BR12	Engineer (École des Mines d’Alès)	Founder and entrepreneur; specialists in setting up a start-up program; Professor university	17 years old
YM13	Management (ENCG)	Incubator; project manager; Coach and mentor	12 Years old

Source: *self-establishment*

We adopted a non-probability sampling to select the experts to be interviewed and analyzed. The process of recruiting experts to be interviewed was selected to ensure diversity of fields and therefore generate information-rich cases (Table-2). For confidentiality reasons and at the request of the interviewees, the first and last names of the interviewees were coded.

- **Netnographic study:** The netnographic method is a qualitative investigation approach that mobilizes the Internet as a data source by relying on virtual communities. It consists in qualitatively studying the acts of communication of the virtual community in order to give meaning. This technique borrows certain techniques from the observation method which constitutes a field-oriented investigation strategy. In contrast to the strategy of active observation, we opted for passive observation, which consists of not participating in the activity of those being observed (Gavard-Perret, and al., 2008). In our study, the netnographic method was mobilized to complement the qualitative interviews we conducted with 12 experts. In the first step, our netnographic study focuses on a community of experts belonging to the Start-up’s fields of expertise. The questions we addressed are mainly about the critical success factors of

start-ups. **Table-3** below represents the characteristics of the people we selected to transcribe and collect the words using the netnographic method. For confidentiality reasons, we had to code the 08 selected experts.

Table-3: *List of netnographic study subjects.*

Code	Profile and reference school	Expertise field	Years of experiences
KZ14	Management (HEC Montreal)	Founder; manager	16 years old
SL15	Law and management (Paris Dauphine University–PSL)	Founder; Manager of a venture capital fund dedicated to start up through Outlizr; Associative	12 years old
KS16	Management (London School of Economics and Political Science)	Mentors; In charge of startup programs; Innovation and startup gas pedal	16 years old
BO17	Ingénieur (Centrale School Of Lyon)	Venture capitalist; incubator and coach; politician	18 years old
SN18	Management (HEC Paris)	Founder; manager; consultant; project manager	10 years old
FA19	Management (ENPC School of International Management)	Founder; manager	20 years old
LM20	Management (CPA Toulouse)	Entrepreneur; manager; consultant	11 years old
HR21	Engineer (New York University)	Founder; manager; Consultant	14 years old

Source: *self-establishment*

Table-4: *Source of data for the netnographic analysis.*

TV Channel	Program	Program subject	Duration
Medi1TV	60 minutes pour comprendre	<i>Start-up au Maroc : une dynamique prometteuse ?</i>	59 minutes
Medi1TV	EBDO ÉCO	<i>La Start-up au Maroc : des hauts et des bas</i>	48 minutes
Medi1TV	Éco Débat	<i>Start-up au Maroc : plan d’action déclenché</i>	52 minutes
Medi1TV	Éco Débat	<i>Maroc : vers un « Start-up act »</i>	50 minutes
Medi1TV	Invited	<i>Maroc-Start-ups: les Business angels à la rescousse.</i>	11 minutes

Source: *self-establishment*

Note that the use of television video elements constitutes a source of data to apprehend certain phenomena (Hartley, and al., 1985; Van Dijk, 1985). According to Putman and his co-auteur, the *netnographic* data from the video recording “allows a direct account of the object of interest to the researcher and integrates the situational character of the discourse” (Putman, and al., 2004). Thus, the use of his type of data can envisage when the phenomenon studied does occur rarely or when it is possible to record speeches (Thietart, and al., 2014).

One of the conditions for using the netnographic method is the respect of ethical rules (GavardPerret, and al., 2008). This consists of having prior authorizations from the interviewees in order to be able to use their discourse in the framework of our exploratory qualitative study. With the exception of one person we contacted, all of the experts gave their permission to use their shared discourses while participating in television shows about the Start-up. The sources of the data subject to the netnographic study consisted of the content produced by a television program (table-4). The programs were devoted exclusively to the subject of the Start-up, in particular to the model of development and success of Start-ups in Morocco. The average duration of the program is 44 minutes covering a recent period from 2016 to 2019?

2.2. Methods used to analyze the qualitative results

In order to examine the raw data collected, a content analysis was used to identify the most relevant information. This approach constitutes a research technique for an objective, systematic and quantitative description of the manifest content of communications, with the aim of interpreting them (GavardPerret, and al., 2008). Content analysis explains that repeating units of discourse analysis (words, phrases) reveals the focus of the discourse (Thietart, and al., 2014). The analysis results of this approach which is the most usual for qualitative data depend heavily on the researchers' skills and the interpretations given to it. After taking the permission of the interviewed experts, the collected data consisted of the interview transcripts that we recorded in the form of audio. We then used the latest version of Nvivo 12 to analyze this data. The data were grouped together in a corpus which is divided and ordered according to the units of analysis that we chose to study. The different units of analysis are then ordered by categories that are related to the objectives of our research and on which the analyses will focus. In order to analyze the qualitative data, we followed three rules: triangulation, iteration and saturation. The process of collecting information stops once it is clear that there is no more new information.

3. RESEARCH RESULTS AND DISCUSSION

This section is devoted to the presentation and discussion of the results of our study. Referring to the criterion of concrete iteration and abstract iteration, three groups of start-up success factors emerged from our studies and was grouped by degree of importance discussed and cited by our experts. In the context of content analysis, the repetition of the discourse analysis unit reflects the items important to the discourse author (Thietart, and al., 2014).

The first group of critical success factors that seem to be more important for the success of start-ups is composed of *the characteristics of the start-up ecosystem, the business model innovation, the financing, the complementarity of the teams* and *the entrepreneurial mindset of the founders*. The second group includes the critical success factors that are related to *the market orientation, the mindset of the entourage on the entrepreneurial* and the *perceived social norms by an entourage*. Finally, the third group that brings together the less important, but these critical factors are contributing to the success of the start-up, namely *the confidence of the founding team, the timing of the launch, the skills of the founders, the experience of the founder*, and *the performance of the commercial actions*.

In order to classify the critical success factors according to the three levels (table-5), concrete and abstract iteration were mobilized to the extent that the repetition of words, phrases, sentences, paragraphs reveals the interests and concerns of the interviewed and studied experts.

Table-5: *Categorization of critical success factors for technology startups by level of importance.*

Level of importance	Critical success factors: the main categories (research topics)	Critical success factors: subcategories (identified in the exploratory study)
Level 1	Start-up ecosystem	Characteristics of Start-up ecosystem
	Start-up strategy	Business model Innovation
	Entrepreneurial resources	Financing
	Founding team	Complimentarity of the team
	Characteristics of the founder’s profiles	Entrepreneurial mindset
Level 2	Entourage	Mindset of entourage
	Entourage	Perceived social norms
	Start-up strategy	Market orientation
Level 3	Characteristics of the founder’s profiles	Skills of founder
	Characteristics of the founder’s profiles	Experiences of founder
	Founding team	Team confidence
	Start-up strategy	Timing
	Marketing performance	Marketing performance

Source: *self-establishment*

Thus, we performed a word count and frequency calculations of the discourse analysis units to be able to classify the critical success factors according to the degree of importance of the experts' point of view. The breakdown of critical success factors by level was done on the basis of scores obtained in terms of citations by experts and the number of repetitions. Level 1 includes critical success factors with a score of 80 to 100%, Level 2 includes critical success factors with a score of 60 to 79% and Level 3 includes critical success factors with a score of 1 to 59%.

3.1. 1st Group of Startup Critical Success Factors: Level 1.

- **The effects of *characteristics of the Start-up Ecosystem* on the success of startups:** In the framework of our qualitative study, 100% of the experts interviewed share the idea that the characteristics of the Start-up ecosystem are determining factors for the success of Start-ups. According to them, these characteristics of the Start-up ecosystem that influence success are: 1) Legal framework: special status for Start-ups, incentive tax regime; law protecting Start-ups against bankruptcy and late payment; legal regime related to exports, to the use of certain technologies (e.g. drones); 2) Foreign payment system (electronic endowment); 3) Ecosystem that promotes access to finance, market and networks; 4) Government and non-government initiatives and programs; 5) Incubation centers and incubators and accommodation; 6) Proximity services: insurance, banking, government-related services, taxes; 7) Access to early public and private purchase orders; 8) Collaboration with large companies; 9) Mentoring programs; 10) Business climate; 11) Associations and non-governmental organizations dedicated to start-ups; 12) Research and development laboratories; prototyping laboratories; 13) Access to technology and e-commerce infrastructure; 14) The institutional framework of financing companies and banks; 15) Participation in events, competitions and pitches; 16) International outreach; 17) The existence of success stories.
- **The effects of *financing* on the success of startups:** The qualitative study showed us that 100% of the experts confirm the important role of financing in the success of start-ups. Financing was defined by three criteria: the ability of start-ups to access financing and the payment time and the good cash flow situation. According to the experts interviewed, access to financing makes the difference between successful and unsuccessful start-ups. To ensure a good start and development, the start-up needs funds such as seed money, grants, competitive pricing, or loans. These financing methods are adapted to the Start-up's mode of operation, as most traditional investors fear the high risk of investing in Start-ups that do not have a sustainable

return where the risk rate is very high (Okrah, and al., 2018). Considering that the traditional and banking financing system is not adapted to the peculiarities of Start-ups, the interviewed experts call for the implementation of a financial system adapted to the Start-up context by enacting, for example, laws facilitating access to venture capital and grow funding. To overcome these problems, support from other parties, especially family support, is necessary for the development and success of Start-ups (Ferina, and al., 2018). Good cash flow contributes to the success of the Start-up, as it ensures the ability of the Start-up to cover operating and capital costs and provide working capital to fund research and, therefore, finance its expansion and growth. By definition, cash flow is defined as the ability of the start-up to finance its assets through cash on hand or in the bank as well as through short-term debt. Finally, another element that was mentioned by the experts is the delay in payment of customers, which is often long, leading Start-ups to precarious cash situations. This is particularly true for start-ups working with government agencies or local authorities subject to the law governing Moroccan public orders. Generally speaking, financing can influence the success of a start-up according to several elements mentioned by our experts: 1) Cash management and self-financing capacity; 2) Need for funds (seed capital, grants, competition prizes, growth financing); 3) Capital and initial investment offered by institutions or friends; 4) Management of payment time; 5) Power to cover expenses, ensure working capital and revenues; 6) Financing of research and development; 7) Ability to manage the financial risk.

- **The effects of *Business Model Innovation* on the success of startups:** 90% of the experts surveyed reveal that the relevance of the value proposition leads to high profitability, outperformance of the markets and, consequently, to the success of a start-up project. The design of an innovative business model allows solving a problem, to design a solution, to generate revenues and market shares that allow a start-up to survive and grow. Moreover, the validation of an innovative business model allows the Start-up to gain the confidence of investors and thus to access the sources of financing necessary for its development, and to access public and private orders. Thus, the experts interviewed affirmed that certain business model innovation allows Start-ups to generate higher returns or at least to generate sufficient returns for a Start-up to succeed.

- **The effects of *complimentarily of the team* on the success of startups:** A complementary team allows to put into practice the technical and managerial skills and competences of all the team members in order to reach the real success of a Start-up. Indeed, the complementarity of

the different profiles and skills within a team contributes to the success of Start-ups for 90% of the experts interviewed. The explanation is found in some results of previous literature: for example, the loss of a founding member of the team has deep and persistent consequences on the success of Start-ups (Choi, and al., 2021). The qualitative study that we conducted highlighted two approaches that can be distinguished as to the contribution of the complementarity of the founding team on the success of start-ups: horizontal approach, vertical approach. According to the vertical approach, the experts interviewed define the complementarity of the founding team according to two conditions: skills and profile. These two dimensions must be in line with the project idea. For example, in practice, a team with both technical (or technological) and commercial (or managerial) skills manage a start-up efficiently. For profiles, a successful complementary team is one that brings together members with introverted and extroverted personalities. As for the horizontal approach, a good team is a team composed of members who share the same values, the same convictions and who have ideas and mindsets capable of creating added value for the start-up. Some experts mention that team members belonging to the same generation or coming from the same schools or training can create value for the start-up.

- **The effects of *entrepreneurial mindset* on the success of startups:** We noticed through the content analysis of our corpus that the mindset was mentioned at least once by most of the interviewed experts (80%) as a fundamental factor in the success of a start-up. According to the experts interviewed, mindset includes the founders' attitude and ability to take risks, innovate and manage challenges and dangers and their ability to adapt to the start-up philosophy which is different from traditional entrepreneurship. Given the uncertainty and risk of failure that characterize the Start-up mode, Start-up founders use malleable strategies that evolve and change in concert with their interactions and experiences with their environment (Mathisen, and al., 2013; Neck, and al., 2006).

3.2. 2nd group of startup critical success factors: level 2.

- **The effects of *the mindset of the entourage* on the success of startups:** this variable has been discussed by experts as a determining factor for success even if they share the idea that this mindset is generally negative in Morocco. The entourage does not perceive the entrepreneurial adventure well and considers the creation of the start-up as a temporary alternative while finding a job in public administration or in the private company. Our in-depth analysis of the corpus reveals two ways in which the mindset of the entourage on the

entrepreneurial perception plays a determining role in the success: moral support and physical support. For moral support, the entourage's mindset on entrepreneurial perception influences success when attitudes, risk-taking culture, family entrepreneurial culture, acceptance of failure, understanding of the start-up mode different from traditional entrepreneurship, prejudices, behaviors and actions of the entourage are positive towards start-up founders. As for physical support, the entourage plays an important role in relation to financial and logistical contributions to develop the start-up. For 70% of the experts interviewed, the mindset of the entourage on the entrepreneurial perception influences the success when the entourage: 1) encourages and motivates the founders of a Start-up; 2) has an entrepreneurial culture or an entrepreneurial spirit; 3) provides investment funds; 4) provides moral, financial and psychological support during difficult moments; 5) accepts the entrepreneurial failure without stigmatizing it; 6) does not prefer salaried employment and functionalism to the detriment of the entrepreneurship.

- **The effects of *perceived social norms* on the success of startups:** The Moroccan experts consulted emphasize the importance of perceived social norms in motivating young founders to advance their start-up projects. They affect success in two ways that we propose to label: perceived social norms—positive; perceived social norms—negative. There is a consensus that young founders who perceive social norms positively are more successful than others. Young founders who embrace perceived social norms-positive are not impacted by peer prejudice. For this category of young people (called by some experts: the headstrong one), even if the justifications of the entourage on the launch of the start-up are negative, they keep the perseverance and resilience to make the project succeed. Young founders who adopt the perceived negative social norms are impacted by the prejudices of the entourage and see that the entourage does not encourage atypical and different paths. This is mainly due to socio-economic constraints marked by a high rate and duration of unemployment and a long academic career.

- **The effects of *market orientation* on the success of startups:** Our qualitative results suggest that for 75% of the experts, market orientation necessarily leads to the success of start-ups. This seems to confirm studies finding that market orientation can provide the right conditions for prospecting for customers, testing products and making sales that improve their chances of survival and success.

3.3. 3rd Group of Startup Critical Success Factors: Level 3

- **The effects of *timing* on the success of startups:** The *timing* plays a decisive role in the success of start-ups according to the 55% of experts interviewed. According to them, the *timing* leads to the success of start-ups when it: 1) Values time by executing the business model innovation quickly and in a disciplined manner, including the speed of development and delivery of products or solution developed. This includes the ability of the founders or team to spend the time necessary to validate all elements of the business model innovation; 2) Values time by ensuring perseverance to complete the start-up project despite difficulties, failures, opposition and negative mindsets; 3) Effectively manages payment delays and cash flow difficulties; 4) Develops a business model innovation that is consistent with its time and space.
- **The effects of *team confidence* in the success of startups:** In our qualitative study, 60% of the experts interviewed indicated that the variable confidence is essential to the success of the start-up. Thus, we can distinguish two types of confidence that can have an impact on the success of a start-up according to the discourse of Moroccan experts: internal confidence and external confidence. The internal type of confidence includes the self-confidence of the team members, the confidence between the founding team members, and the confidence of the founding team in a start-up idea. The external type of confidence includes the confidence of the external stakeholders in the start-up such as the confidence of the banks and investors in the team to be able to receive funding, the confidence of the Start-up ecosystem on the Start-up team and the confidence of the founding team on the Start-up ecosystem. The founding team that shows a lack of confidence in its own abilities as founding members fails to succeed in its start-up projects (Kirkwood, 2009). This is because lack of confidence is the biggest obstacle to the progress of start-ups (Hayward, and al., 2009; Fielden, and al., 2004). Internal confidence is an emotional belief of team members that generates positive emotions that enable entrepreneurial resilience (Hayward, and al., 2009). This resilience refers to four types of resources that enable the team to succeed: 1) emotional resilience which refers to the team's ability to engage in positive behavior that they can experience after adversity and loss (Tugade, and al., 2003); 2) cognitive resilience is formed by the energy and enthusiasm with which team members make positive judgments about the success of start-ups after leaving their previous ones (Klayman, and al., 1998); 3) social resilience is defined by the ability of founders to maintain, sustain, and develop relationships with team members on previous ventures who may have been damaged by this failure (Carpenter, and al., 2001); 4) financial resilience refers to

the ability of the founding team to raise capital. The issue of external confidence, for example, between the founding team and funding institutions and banks emerged during the credit crisis of 2008 and 2009. This crisis made it more difficult for the founding team to obtain funding, as the banking system became risk averse to lending money to new start-ups, and as a result, many start-ups failed (Okrah, and al., 2018).

- **The effects of *skills of founders on the success of startups*:** The qualitative analysis allowed us to identify that for the 50% of experts interviewed, one of the conditions for success is the skills of founders. Founders must have both managerial and technical skills. Managerial skills are the ability to lead a team, to make decisions, to manage projects. Technical skills are the ability, knowledge and mastery of technology and techniques mastered by the founder of a specific field. Other skills were mentioned by our experts, including: 1) technical, technological, managerial, marketing and entrepreneurial skills; 2) the ability of the founders to deal with external constraints, technological and financial constraints; 3) knowledge of products, the market and customers; 4) the ability to assume risk; 5) the ability to innovate and challenge; 6) the ability of the founders to excel in the execution of assignments.

- **The effects of *experience of founders of the success of startups*:** We have noticed through our qualitative study that according to 45% of the experts interviewed, founders who have accumulated experience are more successful than those who do not have experiences at the managerial, commercial, technical and entrepreneurial levels. The contribution of these experiences on the success of the start-ups is supported when they are in adequacy with the idea of the start-up, the knowledge of the market, the mastery of the activity and the business of the launched start-up, the previous creation of start-ups, the consultation and the advice, and in the salaried employment and entrepreneurship. In conclusion, the experiences of the founders were mentioned by our experts as follows: 1) Suitability of the accumulated experience with the idea of the Start-up; 2) Technical and commercial experiences; 3) Experiences as employee, civil servant or ex-entrepreneur ; 4) Capacity of the founders to take advantage of the youth to learn the entrepreneurial values; 5) Experience is related to the age of the founder insofar as it is related to the capacity to accumulate the necessary experiences for the success of the Start-up; 6) Suitability of the accumulated experience with the idea of the Start-up.

- **The effects of *marketing performance on the success of startups*:** According to our content analysis, the experts discussed marketing performance in two ways: in the first way, the experts tried to describe the definition of marketing performance according to their own judgments,

while in the second way, the experts expressed their opinions on the contribution or not of marketing performance to the success of the start-up. As for the definition of marketing performance, it was defined by the following attributes: product knowledge by the customer; achievement of good sales; targeting of customers; ability to sell the product, access to local and international market, validation of a market and creation of the value proposition. As for the influence of marketing performance on the success of the start-up, the attributes mentioned in the previous paragraph allow the start-up to generate profit and to generate a margin to ensure financial balance and to support operating and investment expenses and therefore, ensure survival and success.

Conclusion

Literature and previous empirical research describe these critical success factors in a vague and general manner and several subcategories of each success factor have been identified. The qualitative study allowed us to refine the theoretical model to identify subcategories of each main category (success factor). As our exploratory qualitative analysis progressed, it was necessary to go back to the literature review to confirm the new variables that emerged in the experts' discourse, particularly with regard to: the role of the business model innovation, the timing, the characteristics of the start-up ecosystem, the entrepreneurial mindset, and confidence.

Research on the success of traditional businesses that have created models suggesting that success differs in terms of the characteristics of the people launching the business, the organization they create, the surrounding environment, and the creation process (Ayadi, and al., 2005; Bellihi, 2009; Krishna, and al., 2016) However, as the Start-up does not resemble a scale model or mock-up of a traditional company (Blank, 2013) and in order to take into account their particularity, the conceptual model of success in our research is organized around the components of the Start-up ecosystem. The critical success factors we have addressed in this research are related to the Start-up ecosystem that interacts as a system to create, evolve Start-ups to success. To develop and frame our conceptual model of start-up success, we first tried to identify the critical success factors that come from the start-up ecosystem. This research has shown that the triggers of start-up success are made up of variables that act as feedback loops within the start-up's founding team whose founders can control these factors. These are factors related to the founder's profile, entrepreneurial resources, founding team, strategy and marketing performance.

In addition, these successes also trigger consist of factors that provide services that are typically controlled by external processes and not by the founding team. These include factors related to the entourage and the business environment. Second, we have shown that the founder profile can be defined by a set of characteristics related to the founders' experiences, skills and entrepreneurial mindset. As for the financial resources, they can include several components such as: the time, money and investment needed for the start-ups to succeed. They also include the budget, the return on investment, the financing obtained, the logistics, the budget management as well as the human, logistical and informational resources and management tools.

This study has highlighted the role of the start-up strategy for the success of start-ups. This strategy can include objectives, launch timeline, project feasibility and positioning, medium and long-term targets, commitments, expected results and market analysis, market orientation, business model innovation validation process. The success of the start-up by the founding team differs according to the characteristics of the team members, the number of people and the categories of skills as well as the elements related to the complementarity and the confidence between the team members. The success of start-ups through marketing performance can include the effectiveness of sales actions, market and revenue growth targets and the efficiency of the sales team.

Success with the business environment can be explained by several roles of incubators, consulting and mentoring organizations, start-up gas pedals, coworking spaces, start-up competitions, service providers (consulting, accounting, legal...), universities and research labs. It can include networks and relationships that are formed in this case from the set of social attributes accessed through social ties. They include entrepreneurial social networks and mentors, access to funding, relationships with investors, and relationships with customers and suppliers. The entourage in this study has been used to refer to any external entity that can influence the success of start-ups. We have used the word "entourage" to refer to friends, family, business climate, legal framework, market, government policies, and infrastructure. In addition, the entourage includes my cultural attributes that are formed by the culture of entrepreneurship and stories of successful entrepreneurship.

On the theoretical level, this study contributes conceptually to the development of the field of entrepreneurship in general and more specifically to the field of start-ups. Empirically, this research is one of the few previous literature on search factors that most research has shown to be complex due to the particularities that characterize start-ups. On the methodological level,

our study constitutes a first attempt to use both the semi-structured interview method and the netnographic method as an approach to an exploratory qualitative study.

As for the managerial and scientific implications of our research, on the managerial level, this research work allows the founders and the actors of the ecosystem of the startups in Morocco and in the world to locate the factors which led the startups to validate their business model of innovation by taking into account the particularity of the technological startups compared to the other models of classic entrepreneurship insofar as the risk of failure of the startups is very high. From a scientific point of view, our study has helped to reduce the theoretical ambiguity of the success factors of startups insofar as the literature treats the success factors in a very vague way. The prospects of our research originate in the ability to facilitate the tasks of empirical studies especially quantitative studies that have not been sufficiently studied because of the lack of unanimous agreement on the model of success of startups. The conceptual model of startup success questions its empirical reliability in quantitative studies to the extent that the confirmatory study can modify or remove success factors based on the data collected in the field. Thus, the conceptual model of success factors depends heavily on the theoretical and semantic definition of two fundamental notions: the notion of "startup" and the notion of "startup success" and to what extent the definition of these two notions can impact the theoretical model of startup success empirically.

Finally, it should be noted that this research cannot be isolated from the study of the conceptual, semantic and empirical framework of the notion of a start-up and the success of start-ups. Thus, the critical success factors of start-ups are linked to the theoretical definition that experts can give to these two notions.

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