

Predicting Students' Digital Entrepreneurial intention

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Abstract - The current advancement of digital technologies has attracted the interest of many entrepreneurs providing exceptional business opportunities and digital business models which resulted in the emergence of digital entrepreneurship. In response, many researchers have conducted studies to identify the factors that impact the intention of students to become digital entrepreneurs. This paper presents a comprehensive literature review of the main factors that shape digital entrepreneurship intention among university students. The review synthesizes the findings from previous studies and highlights the importance of factors such as prior knowledge and experience in information and communication technologies (ICTs), social context, entrepreneurial training programs, and attitude towards entrepreneurship. The review concludes with implications for policy and practice to foster digital entrepreneurship among university students.

Keywords : Digital Entrepreneurship, entrepreneurial intention, ICT (Information and Communication Technologies), technical knowledge, student's attitude

I. INTRODUCTION

Entrepreneurial activity is frequently considered a major catalyzer of socioeconomic development around the globe [1] as well as a viable career option, considering the fact that it allows entrepreneurs to gain more independence and substantial financial profits [2]. In the last decade, the progress of digital technologies and the massive adoption of internet have provided digital entrepreneurs with further opportunities [3]. Therefore, new digital start-ups emerged to compete and even threaten the existence of already established multinational companies operating in several industries. For example, digital companies such as AirBnb and Über, have succeeded considerably at intimidating long

standing players, in the lodging and transportation sectors.

There is interesting evidence regarding the expectancy of a digital business to create employment opportunities; more specifically for marginalized people encountering financial challenges to start a business [4]. Hence, in Morocco for example, the government has demonstrated its commitment to enhance entrepreneurial activities coupled with digital technologies, seeking the benefits of digital entrepreneurship, such as employment and growth. Therefore, and especially considering the aftermath of the Covid19 pandemic and the higher prices for imported energy, the Moroccan government has introduced measures to mitigate the impact of the inflation (that had increased to 8% by August 2022) on households and specific sectors, substantially increasing pre-existing subsidies. New initiatives included FORSA (opportunity in Arabic), combining support and funding with regional and gender equity.

The 2022/2023 Global Entrepreneurship Monitor report [5] indicates that Morocco has made progress in the areas of entrepreneurial finance and education between 2021 and 2022. However, despite an initial increase in business intentions at the start of the Covid 19 pandemic, the percentage has steadily declined, dropping to 37% in 2022 from 48% in 2020. Moreover, there has been a significant decrease in the percentage of adults who have actually started or run a new business during the pandemic years, plummeting from over 11% in 2019 to slightly more than 4% in 2022.

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In this paper, we are going to try to predict Moroccan student's intention to start a digital business to become digital entrepreneurs by identifying factors that, according to the literature review, can influence their intention. Based on the behavioral theory, we are attempting to address the research need, related to digital entrepreneurship [6] and submit our contribution to the issue of students' digital entrepreneurial intention.

More specifically, the study aims to:

- ⇒ Review the existing literature on digital entrepreneurship, entrepreneurial intention, and the factors that affect entrepreneurial intention among university students.
- ⇒ Develop a conceptual model that predicts the relationships among the identified factors and the digital entrepreneurial intention of Moroccan university students.
- ⇒ Provide recommendations for policy and practice to promote digital entrepreneurship among university students in Morocco.

Therefore, the article will start with an introduction followed by a general review of digital entrepreneurship as well as the entrepreneurial intention. Next, we will identify the main factors affecting students' digital entrepreneurial intention according to the literature. Then we are going to propose a conceptual model for the study and finally suggest some implications for policy and practice to foster digital entrepreneurship among university students.

II. METHODOLOGY:

To achieve the research objectives, this study conducted a literature review of the relevant articles published in peer-reviewed journals, conference proceedings, and other reputable sources. The search will be conducted using a set of relevant keywords, such as "digital entrepreneurship", "entrepreneurial intention", "ICT", "students' entrepreneurial intention", "factors", "social context", "entrepreneurial training programs", and "attitude towards entrepreneurship". The search will be limited to articles published between 2010 and 2023.

III. LITERATURE REVIEW

1) Digital entrepreneurship:

Information and communication technologies have become a source of innovation and competitiveness, and the font of a new form of entrepreneurship known as digital entrepreneurship. However, the concept and types of companies included is largely ambiguous. For their attempt to introduce the term of digital entrepreneurship, scholars have offered different definitions. Kollmann et al. define it as the process of using digital technologies to create and grow businesses, products, and services [7]. Nambisan et al. view it as the pursuit of opportunities through digital technologies and platforms [6]. However, all authors agree on the critical role of the entrepreneur in identifying opportunities and driving industry disruption [8]. In parallel, the European Commission suggests in 2015 a global definition of the concept [9], distinguishing

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companies that use information technologies to progress and increase their turnover, and those entirely based on digital technologies. Hence, they proposed the following definition:

“Digital entrepreneurship embraces all new ventures and the transformation of existing businesses that drive economic and/or social value by creating and using novel digital technologies. Digital enterprises are characterized by a high intensity of utilization of novel digital technologies (particularly social, big data, mobile and cloud solutions) to improve business operations, invent new business models, sharpen business intelligence, and engage with customers and stakeholders. They create the jobs and growth opportunities of the future”

However, other authors are suggesting that digital entrepreneurship goes beyond using digital technologies in the organization processes. For instance, Teece argues that digital entrepreneurship involves the use of digital technologies to create new business models and to disrupt existing ones, rather than simply using digital technologies in organizational processes [10].

Some authors also consider digital technologies as an input factor [11], because without these technologies we will not encounter the emergence of digital enterprises. For the rest of the article, we will adopt this perspective as we are studying students' intention to take risk and start a digital company on the internet while referring to digital technologies as an input and offering products and services that requires digital engagement [4].

2) Entrepreneurial intention:

The study of the entrepreneurial process is not limited to the launch of the project but also to different phases prior to the business creation process [12], like for instance the intention to start a business. According to Fatoki and Chindoga, entrepreneurial intention refers to the individual's conscious and deliberate decision to pursue an entrepreneurial opportunity which is considered as the first and one of the most important phases of the entrepreneurial process, as it initiates subsequent actions towards the creation and development of a new venture [13]. The entrepreneurial intention is of particular importance given its positive effect on the manifestation of entrepreneurial behavior [14]. Indeed, the authors analyzed the tendency of individuals to become entrepreneurs through various models, including Ajzen's theory of Planned Behavior (1991) which emphasizes the link between individual behaviors and actions referring to three main factors: attitude towards entrepreneurship, subjective norms and perceived behavior or entrepreneurial control. Furthermore, other models have been developed within the digital sphere, including models that explain the intention of companies to adopt information technologies, such as, the TUAUT theories (Unified Theory of Acceptance and Use of Technology) [15]. According to the authors, there are four major factors that impact the intention to adopt or use information technologies: expected performance, expected effort, social influence and facilitating conditions. This theory was widely adopted by several authors. For instance, Oumlil and Bennani [16] adopted this theory to analyze the digital entrepreneurial intention and

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added trust in these technologies as another factor that significantly influences the acceptance of information technologies. Drawing from these previous studies and by considering the characteristics of digital start-ups, Batool and al., underline the relevance of the entrepreneurial intention regarding the context of digital entrepreneurship [17]. In particular, they confirmed that self-esteem, personal control and creativity through self-efficacy stimulates the intention of students to create online businesses.

In our study, we will focus on the concept of the enterprises that create, transform or disrupt markets or business models by exploiting digital technologies as an input factors [17], and not only on those who adopt the technologies of communication and internet in the organizational processes only. Based on the previously mentioned models and theories, we will now study the factors affecting students' entrepreneurial intention to create online companies.

3) Factors affecting students' digital entrepreneurial intention:

We have been able to identify several articles regarding the study of entrepreneurial intention and digital entrepreneurship. Based on that, we tried to address a set of the main factors associated with the intention of creating digital enterprises among students. As a result, we have grouped the factors into five categories:

- General attitudes.
- Entrepreneurial self-efficacy.
- Influence of the social environment.
- Knowledge in information technologies.

- Impact of entrepreneurial events and programs.

a) *General Attitudes:*

Entrepreneurial attitudes have been the subject of a variety of researches. Indeed, attitude is one of the key findings of Ajzen's Theory of Planned Behavior [19]. It refers to the personal evaluation that an individual has towards a particular behavior [20]. Initially, Badaruddin et al. attest the importance of general attitudes enhancing entrepreneurial intention among students [21]. Similarly, Batool et al., emphasized the positive effect of students' attitudes, on predicting their intention to start an e-business [17]. And according to Gao et al., attitudes towards autonomy, risk-taking, and competitiveness, as well as the desire for personal achievement and financial success, are critical in shaping the decision to pursue entrepreneurship as a career path [22]. Moreover, the desire to have a personal control is positively related to career decision making and to planning to start a digital business. According to Batool et al., entrepreneurs tend to choose to work independently instead of being subject to rules [17]. Besides, these authors defined the desire to have control or personal control as "need to do and say as one likes" despite conventional expectations. In line with these findings, Solesvik emphasize the role of individual attitudes in fostering an entrepreneurial mindset [23]. Furthermore, research by Mahto and McDowell underscore the impact of cultural and gender-related attitudes on shaping entrepreneurial intentions [24]. These studies collectively indicate that fostering positive entrepreneurial attitudes significantly

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contributes to students' intentions to pursue entrepreneurship and establish successful digital businesses.

Proposition 1: Students' general attitudes have a significant positive effect on their intention to start a digital business.

b) Entrepreneurial self-efficacy:

Entrepreneurial self-efficacy is another key factor related to the entrepreneur personality, which has, according to researchers, a positive effect on entrepreneurial intention [17]. The concept, of entrepreneurial self-efficacy refers to one's perception regarding his/her ability to achieve an action in a particular field. For instance, Batool et al. assume that individuals who presume to have several competencies are more likely to trust in their ability to create and succeed at managing a digital business [17]. Early studies, in particular, Ajzen's 1991 theory call for attention on perceived controllability, which brings up the relevance of an individual perception of the difficulty related to retain certain skills and on his/her intention to adopt a certain behavior. In more recent literature, Newman et al. found that entrepreneurial self-efficacy positively influences opportunity recognition and the propensity to take risks, which in turn fosters entrepreneurial intention [25]. This suggests that higher self-efficacy enables individuals to confidently explore new ideas and pursue innovative solutions [26]. Additionally, Gutierrez et al. highlighted the mediating role of entrepreneurial self-efficacy in the relationship between contextual factors, such as supportive environments, and entrepreneurial intentions

[27]. This indicates that individuals with high self-efficacy are more likely to perceive their environment as conducive to entrepreneurship, thereby influencing their intention to start a digital business [28]. These studies lead us to suggest that the student's discernment of holding relevant skills, allowing him/her to create a digital company, will impact their intention to create a digital business.

Proposition 2: Entrepreneurial self-efficacy of students has a significant positive effect on their intention to start a digital business.

c) The influence of social context:

A number of recent studies emphasize the effect of social context on the process of shaping entrepreneurial intention. For instance, Chen et al. investigated the influence of social context on entrepreneurial intention among university students in China and found that social support from family and friends, as well as perceived social norms, significantly predict entrepreneurial intention [29]. Another recent study conducted by Bouncken et al. shows how social networks, such as business incubators, can positively impact entrepreneurial intention [30]. From another perspective, the professional status of parents or close family members may steer an individual's career choice towards entrepreneurship [31]. The entrepreneurial role models can lead to higher exposure to entrepreneurial values and behaviors, which in turn can encourage young people to follow a similar path. The theory of planned behavior (Ajzen, 1991) is also relevant in this context, as one of its key concepts is related to social norms. For example, Hsu et al. found that

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subjective norms, such as societal expectations and peer influences, can significantly impact students' entrepreneurial intentions [32]. Moreover, studies of Baluku et al. demonstrate that the regional entrepreneurial culture and the prevalence of entrepreneurial role models within the community can shape students' perceptions of entrepreneurship as a viable career option [33]. In addition, Shirokova et al. highlighted the importance of university-based entrepreneurship education in nurturing a supportive social environment for entrepreneurial intentions [34]. Finally, Doern and Goss underline the role of social identity and social capital in shaping entrepreneurial intention, as the sense of belonging to a particular group or community can provide access to valuable resources and networks that facilitate entrepreneurial activities [35]. The studies show that there is an impact of social context on entrepreneurial intention. And therefore:

Proposition 3: Student's social context positively influences their intention to start a digital company.

d) Technical knowledge in information technologies:

Recent research has continued to investigate the relationship between prior knowledge and entrepreneurial intention among university students. For instance, Al Mamun et al. found that prior knowledge of entrepreneurship and digital technologies positively influences entrepreneurial intention [36]. Moreover, recent studies by Yushan et al. highlight the importance of prior knowledge of digital marketing and

digital trade in shaping the entrepreneurial intention of individuals [37]. Likewise, Hatak et al. found that students with a strong background in information technology are more likely to perceive entrepreneurial opportunities in the digital sector [38].

Having prior knowledge of these technologies can help entrepreneurs to better understand their potential benefits and outcomes, and may increase their likelihood of adoption. In this regard, a study by Kozubík and Urbánek showed that students' competencies in the digital domain positively affect their entrepreneurial intentions, emphasizing the role of technical skills in fostering entrepreneurial behavior [39]. Similarly, Wach et al. demonstrated that ICT skills play a critical role in enhancing students' self-efficacy and confidence, which in turn influences their entrepreneurial intentions [40].

These recent studies shed light on the importance of knowledge and education in the development of entrepreneurial intention among young people. To this end, Liguori et al. emphasized the role of entrepreneurship education and practical experiences in enhancing students' technical knowledge and, consequently, their entrepreneurial intentions [41]. On the same note, Giones and Brem [11] found that the integration of digital technology courses in entrepreneurship education significantly boosts students' entrepreneurial intentions. Finally, a study by Ratten and Jones highlighted the importance of incorporating digital literacy and technology-related skills in entrepreneurship education to better equip students for the challenges of the digital economy [42].

Thereby, during this study we will try to assess

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the impact of the level of our respondent knowledge in ICTs and digital technologies, such as computer science, coding, development of websites, e-commerce and digital marketing, and their tendency to become digital entrepreneurs.

Proposition 4: Having technical knowledge has a significant and positive effect on students' intention to create digital businesses

e) Entrepreneurship programs and trainings:

Recent studies have continued to investigate the impact of entrepreneurial training courses and programs on students' entrepreneurial intention. For example, Al Mamun et al. found that participating in entrepreneurship training courses positively influences entrepreneurial intention among university students in Bangladesh [43]. Additionally, another recent study by Fernandes et al. highlights the important role of attitude and subjective norms in mediating the relationship between entrepreneurship training programs and digital entrepreneurship intention among undergraduate students [31].

In a similar vein, Oosterbeek et al. demonstrated that participation in entrepreneurship education programs significantly improves students' entrepreneurial intention and self-efficacy [44]. Furthermore, Fayolle et al. found that the learning process that occurs during entrepreneurship education programs fosters students' self-confidence and motivation to engage in entrepreneurial activities [45]. Besides, Maresch et al. also observed that entrepreneurship education positively affects students' attitudes towards entrepreneurship, which in turn influences their intentions to pursue

entrepreneurial careers [46].

Referring to the Moroccan context, entrepreneurial events and programs are constantly organized in Morocco -especially those initiated by associations including Enactus and Start-Up Morocco, as well as incubators like Impact lab and accelerators like La Factory- by organizing famous Hakathons like Hack and Pitch, as well as universities trainings [47]. These have managed to inspire various young undergraduates with differing resources and social backgrounds to become entrepreneurs.

In a more global context, Bae et al. found that entrepreneurship education has a significant positive impact on entrepreneurial intention [48]. A study by Sánchez also emphasized the positive relationship between entrepreneurship education and entrepreneurial intention, highlighting the importance of educational programs in fostering an entrepreneurial mindset among students [49]. Additionally, Nabi et al. underscored the importance of integrating practical experiences and real-world examples in entrepreneurship education to enhance students' entrepreneurial intention [50].

On the same note, Lackéus and Sävetun found that the inclusion of entrepreneurial projects in education programs can lead to increased entrepreneurial intention [51], while Apăvăloaiei emphasized the need for a more holistic approach to entrepreneurship education that encompasses knowledge, skills, and attitudes [52]. Finally, Karimi et al. suggested that entrepreneurship education can be more effective when tailored to the specific needs and contexts of students, which in turn can lead to higher levels of entrepreneurial intention [53].

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Therefore, we suggest that students' participation in entrepreneurial events and programs is among the main stimulants to creating a digital start-up.

Proposition 5: Students' participation in entrepreneurial programs and events has a significant and positive effect on their digital entrepreneurial intention.

From our literature review on the determinants of digital entrepreneurial intention, we were able to identify five key variables that can explain the differences in entrepreneurial intention among students. These variables include: General attitudes, entrepreneurial self-efficacy, the influence of the social environment, the level of knowledge in information technologies and the impact of entrepreneurial events and programs. Thanks to this study, we have been able to develop our propositions and construct our conceptual model shown in the figure below.

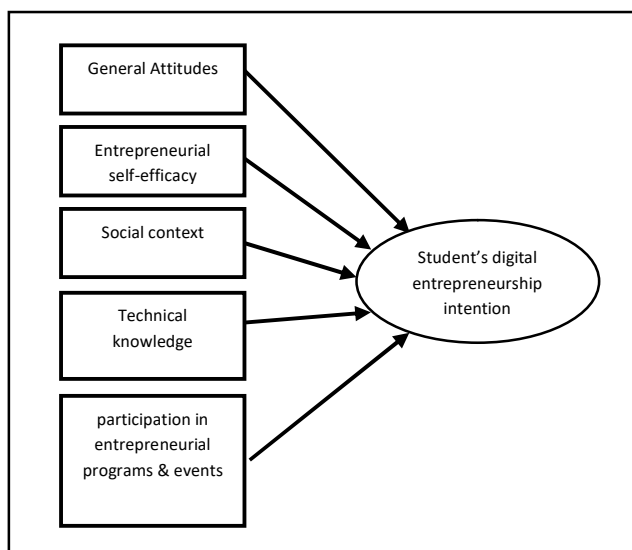


Figure 1: Proposed conceptual model

IV. CONCLUSION

The present article presents a conceptual model of the main factors that impact the intention of students towards digital entrepreneurship. Throughout the research, we have conducted a literature review that is based on quite recent scientific papers and we have included many papers that studied the Moroccan digital entrepreneurship context in particular. Through the literature review, we were able to identify five main factors that impact the student's digital entrepreneurship intention: The General Attitudes, the entrepreneurial self-efficacy, the prior knowledge and experience in information and communication technologies (ICTs), social context and the participation in entrepreneurial programs & events.

Moreover, we have come to understand that educational institutions are expected to show an effective mobilization to improve the level of students' computer knowledge, as well as to reinforce them to adopt new technologies. In addition, efforts must be directed towards the programs, events and trainings that play a huge role in impacting positively the will of students to create digital enterprises and allow them to develop the skills they need to do so. In parallel, intense communication should be designed to allow students to have more information on available and current financing opportunities devoted to innovative and digital start-ups.

Finally, we would like to point that the paper has as a main limitation that it is a theoretical study. Indeed, an empirical input from fellow researchers would be interesting by validating a

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questionnaire and quantifying the relationship between these variables. We suggest that future research also includes additional contextual variables, which may relate to the culture. Moreover, it is essential for future studies to provide relevant underpinnings on the tangible implementation of entrepreneurial intention [54]. Therefore, it will be more significant, to address the gap between intention and actual concretization.

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