



UNIVERSIDADE CATOLICA PORTUGUESA

Intentionality toward internationalization through digital platforms

Reinaldo Passos Bessa

Católica Porto Business School

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by

Reinaldo Passos Bessa

under the supervision of
Assistant Professor Dr. Božidar Vlačić

Católica Porto Business School
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Abstract

This Thesis delves into the decision-making processes of aspiring entrepreneurs when it comes to international business ventures using digital platforms. By employing a blend of Structural Equation Modeling-Partial Least Squares (SEM-PLS) and Fuzzy-Set Qualitative Comparative Analysis (fsQCA), the goal was to uncover how rational and intuitive thinking, attitudes, perceived norms, and behavioral control influence their entrepreneurial intentions in the realm of internationalization through digital platforms.

Upon the analysis of a sample consisting of 79 participants, ranging between the ages of 20 and 32 years old, that we can classify as future entrepreneurs, it became evident that both rational and intuitive thinking significantly shape entrepreneurial aspirations, with intuitive cognition proving particularly influential. Furthermore, fsqca analysis revealed distinct entrepreneurial types based on their cognitive approaches, shedding light on their unique strategies in digital internationalization investment.

The theoretical implications of this study emphasize the integration of cognitive decision-making theories into entrepreneurial research, providing valuable insights into how future entrepreneurs navigate global markets using digital platforms. Finally, this study enriches our understanding of entrepreneurial behavior in today's digital landscape, offering stakeholders a framework to foster innovation and drive growth in international digital entrepreneurship.

Keywords: Internationalization, Digital Platforms, Cognition, Behavioural Traits, Aspiring Entrepreneurs

Resumo

Esta tese explora os processos de tomada de decisão de aspirantes a empreendedores no que diz respeito a empreendimentos internacionais utilizando plataformas digitais. Empregando uma combinação de Modelagem de Equações Estruturais-Partial Least Squares (SEM-PLS) e Análise Comparativa Qualitativa de Conjuntos Fuzzy (fsQCA), o objetivo foi descobrir como o pensamento racional e intuitivo, atitudes, normas percebidas e controlo comportamental influenciam as suas intenções empreendedoras no âmbito da internacionalização através de plataformas digitais.

Após a análise de uma amostra composta por 79 participantes, com idades entre os 20 e 32 anos, que podemos classificar como futuros empreendedores, tornou-se evidente que tanto o pensamento racional quanto o intuitivo moldam significativamente as aspirações empreendedoras, sendo a cognição intuitiva particularmente influente. Além disso, a análise fsQCA revelou distintos tipos de empreendedores baseados nas suas abordagens cognitivas, elucidando as suas estratégias únicas no investimento em internacionalização digital.

As implicações teóricas deste estudo enfatizam a integração das teorias de tomada de decisão cognitiva na pesquisa empreendedora, fornecendo insights valiosos sobre como os futuros empreendedores navegam nos mercados globais utilizando plataformas digitais. Finalmente, este estudo enriquece a nossa compreensão do comportamento empreendedor no cenário digital atual, oferecendo aos stakeholders um quadro para fomentar a inovação e impulsionar o crescimento no empreendedorismo digital internacional.

Palavras-chave: Internacionalização, Plataformas Digitais, Cognição, Traços Comportamentais, Aspirantes a Empreendedores

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List of Abbreviations:

RC	Rational Cognition
IC	Intuitive Cognition
ATB	Attitude Towards Behavior
PSN	Perceived Social Norms
PBC	Perceived Behavioral Control
IEI	International Entrepreneurship Intention

1 Introduction

In today's fast-paced business landscape, the process of firm internationalization has transformed significantly, driven by the rapid march of technology and the rise of digital platforms (Etemad, 2023). Platforms such as Facebook, LinkedIn, and Instagram have reshaped international new ventures, characterized by "digital flows of communication, searches, videos, communication, and intracompany traffic" (Lou, 2021). The Internet is now seen as a cost-effective medium for internationalization, offering multiple benefits for entrepreneurs.

Despite the advancements in digital internationalization, there is a limited understanding of the cognitive processes future entrepreneurs undergo when considering international expansion through digital platforms. Previous research, such as the work by Vlačić (2018), analyzed the relationship between entrepreneurial cognitive reasoning and internationalization decision-making. However, there is a gap in exploring how potential entrepreneurs filter information from the business environment to make strategic decisions for international expansion using digital platforms.

Understanding the cognitive reasoning of future entrepreneurs is crucial as it plays a significant role in developing intentionality towards internationalization. This is particularly relevant in the context of digital platforms, which offer unique opportunities and challenges. Insights into this cognitive process can help in formulating strategies that support entrepreneurs in leveraging digital tools for global market expansion.

This thesis will shed light on potential entrepreneurs' reason to enter foreign markets through virtual presence entry mode (e.g., social media platforms) by answering the questions of "How does cognitive reasoning influence future entrepreneurs' intentions to internationalize through digital platforms?" & "What are the key factors affecting this cognitive reasoning process?"

To address these questions, this thesis will employ partial least square structural equation modeling (SEM-PLS) and fuzzy-set qualitative comparative analysis (fsQCA) to analyze data collected from final-year (soon-to graduate) university students. Several factors will be considered in this study, focusing on potential entrepreneurs' traits, such as cognitive flexibility, risk tolerance, and innovation capability (Grover & Saeed, 2007; Mithas et al., 2008). Other factors include the intensity of foreign market competition (Li et al., 2008), the presence of domestic institutional voids (Doh et al., 2017), and the volatility and unpredictability of foreign markets (Li et al., 2008). Additionally, various entry modes will be examined, with a focus on non-traditional ones such as virtual presence and managed ecosystems (Brouthers et al., 2022). These elements are crucial for understanding how future entrepreneurs utilize cognitive reasoning to navigate and succeed in international markets through digital platforms.

The remainder of this thesis is structured as follows: The Literature Review provides an overview of research on cognitive reasoning, digital internationalization, and entry modes. The Methodology section details the research design, data collection, and analysis techniques. The Results section presents and analyses the survey findings. The Discussion interprets the results, discusses theoretical and practical implications, and addresses study limitations. The Conclusion summarizes the findings, outlines contributions to the field, and suggests future research directions. This structure aims to comprehensively understand the cognitive processes influencing future entrepreneurs' decisions to internationalize through digital platforms.

2 Literature Review

2.1 Entrepreneurial Perspectives on Internationalization: Decision-Making Frameworks and Digital Realms

Internationalization is the process through which a firm increases its involvement in foreign markets (Bingham & Eisenhardt, 2011; Welch & Luostarinen, 1988). It encompasses various paths, including gradual resource commitment as outlined in the Uppsala model (Johanson & Vahlne, 1977, 2009) and the rapid strategies of International New Ventures (INVs) and Born Globals (BGs). Vlačić et al. (2022) emphasize that entrepreneurial cognitive strategies significantly influence the pace of internationalization. INVs and BGs capitalize on agility and limited historical constraints, enabling swift internationalization compared to established firms (Autio et al., 2000). Understanding these paths is crucial for entrepreneurs, as the chosen strategy can significantly impact the success of new ventures.

Decision-making in internationalization is complex, shaped by an entrepreneur's experience, cognitive strategies, environmental factors, and industry dynamics (Johanson & Vahlne, 1977; Hagen & Zucchella, 2014). Various theoretical frameworks, including the transaction cost view (Williamson, 1975) and network perspective (Coviello & Munro, 1997; Blomstermo et al., 2004), highlight the importance of relationships in global economic networks. Furthermore, factors such as product specificity, foreign market competition, and domestic institutional voids are critical when evaluating international opportunities (Grover & Saeed, 2007; Mithas et al., 2008; Doh et al., 2017; Li et al., 2008; Jean et al., 2020).

In the digital realm, attitudes toward behavior, perceived social norms, and perceived behavioral control play significant roles in internationalization decisions (Ajzen, 1991[BV1] [rb2]). These psychological factors influence how entrepreneurs perceive and respond to international opportunities and challenges (Kautonen et al., 2010). Additionally, digital platforms facilitate non-traditional entry modes such as

virtual presence and managed ecosystems, leveraging firm-specific digital infrastructure and localized operations (Brouthers et al., 2022). This integration of digital tools and psychological insights, as seen in the application of TPB to digital environments (Hsu et al., 2007), is essential for informed entrepreneurial decision-making.

In summary, the internationalization process for entrepreneurs involves strategic decision-making influenced by attitudes toward behavior, perceived social norms, perceived behavioral control, and the digital realm. This framework helps entrepreneurs navigate the complexities of entering and succeeding in foreign markets.

2.2 Digital platform's role in modern internationalization

In an increasingly digitalized world, internationalization has become remarkably accessible. While direct investment and resource acquisition in the home country remains crucial, businesses can now establish a presence across multiple countries with a mere 'click of a button.' This digital phenomenon presents a unique opportunity for aspiring entrepreneurs, often constrained by resources, to expand globally.

Despite the ease of digital expansion, networks, and knowledge exchange remain vital. Each market possesses distinct characteristics that must be carefully considered, even when leveraging digital platforms. Entrepreneurs must tailor their messaging and brand image meticulously to align with the specific preferences of target markets, as a uniform approach risks failing to resonate effectively.

Digital platforms like Facebook, LinkedIn, and Instagram play a significant role in enabling international ventures to reach global audiences cost-effectively compared to traditional physical expansion (Banalieva & Dhanaraj, 2019; Denicolai et al., 2014). Technology startups, particularly those internationalizing early, leverage intangible knowledge-based assets to create value through localized knowledge sources (Lou, 2021). The landscape of digital globalization has transformed international venture

activities, emphasizing digital communication flows over physical goods and financial transactions (Lou, 2021).

In today's digital age, the trend towards digitalization extends to brand expansion and creation, offering entrepreneurs diverse avenues to enter new markets. However, strategic adaptation and a nuanced understanding of each market are indispensable for successfully navigating the complexities of global entrepreneurship.

2.3 Cognitive reasoning supplement to the decision of Internationalization

Cognition encompasses knowledge accumulation, reasoning, decision-making, and the demonstration of expertise in specific contexts (Vlačić, 2018). Kozhevnikov's integrated framework (2007) defines cognition as the process by which individuals organize internal and external information to make decisions and solve problems. Cognition evolves dynamically in response to social, academic, and professional environments, shaping an individual's performance (Gavetti, 2012). It integrates cognitive psychology's information processing with functional psychology's focus on behavioral responses, providing a holistic understanding of mental processes (De Houwer et al., 2018).

The dual-process theory (DPT) distinguishes between heuristic, intuitive System 1 and analytical, deliberate System 2, which impact decision speed and depth (Vlačić et al., 2022). For example, intuition and insight are critical in decision-making. Intuition, developed through exposure to complex problems, contrasts with insight, which requires deliberate contemplation (Khatri & Ng, 2000; Hodgkinson et al., 2009). System 2, on the other hand, is characterized by slow, deliberate, and effortful processing, engaging in detailed analysis, logical reasoning, and critical thinking (Kahneman, 2011). It is crucial for solving complex problems, making long-term plans, and learning new information. In entrepreneurial contexts, System 2 overrides initial impulses from System 1, allowing for rational decision-making by meticulously evaluating market conditions, financial projections, and potential risks (Evans &

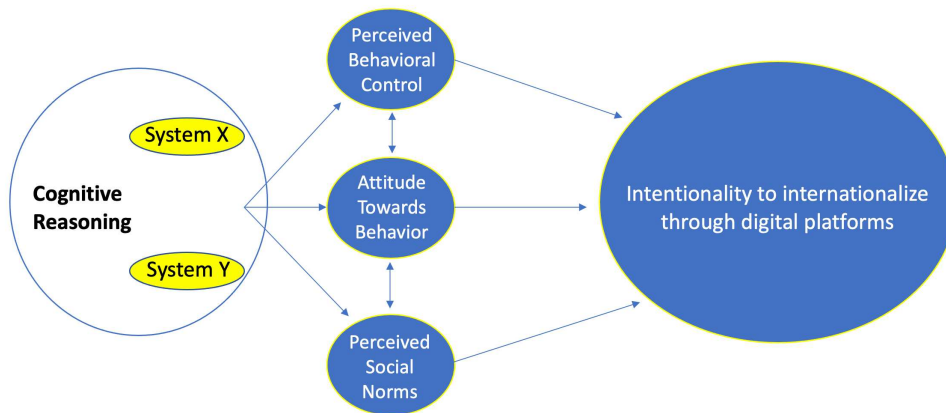
Stanovich, 2013). This system is vital for strategic shifts and market entries in the digital era (Vlačić et al., 2022).

Entrepreneurial cognition moderates how environmental signals are interpreted and transformed into international opportunities. Both cognitive systems play pivotal roles: System 1 for rapid responses and System 2 for meticulous analyses (Vlačić et al., 2022). In the digital era, System 1 dominates for swift decisions requiring less analysis, while System 2 is crucial for strategic shifts and market entries (Vlačić et al., 2022).

3 Problem and Hypothesis

This study aims to examine how future entrepreneurs' cognitive reasoning influences their intention to internationalize via digital platforms. The study will answer this question among soon-to-graduate university students, using Ajzen's (1991) Theory of Planned Behavior (TPB) and adapting Liñán and Chen's (2009) metric to assess international entrepreneurial intention (IEI).

Figure 1 - Graphical representation of the research model



3.1 Cognitive reasoning and the decision of Internationalizing through digital platforms

To better understand this topic, we should analyze the variables of the Theory of Planned Behavior as factors influencing international entrepreneurial intention

(IEI). Specifically, the components of this theory—attitude toward the behavior (ATB), perceived social norms (PSN), and perceived behavioral control (PBC)—play a crucial role in shaping how cognitive systems affect entrepreneurial decision-making. Namely, it's essential to explore the interplay among digital platforms and cognitive systems. Digital platforms operate in a fast-paced environment, demanding rapid decision-making and continual adaptation. This agility can benefit entrepreneurs by enabling quick decisions, but it may also trap them in a cycle of short-term success without long-term progress.

Attitude toward behavior (ATB) is "the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question" (Ajzen, 1991, p. 188). It involves an individual's preference for certain actions and expectations of outcomes (Krueger et al., 2000). Kickul et al. (2009) showed that individuals relying on System-X (experiential) are confident in recognizing new opportunities but unsure about subsequent processes. In contrast, those relying on System-C are comfortable with assessment, evaluation, planning, and resource marshaling.

Castellano et al. (2014) found that intuitive individuals have higher entrepreneurial intention and increased ATB. Dutta & Thornhill (2008) noted that intuitive entrepreneurs experience more significant growth intention changes compared to analytical ones. Molaei et al. (2014) showed that university students with a higher intuitive system generate richer business ideas, as System-X is more creative than System-C. Hayashi (2001) indicated that System-X individuals trust spontaneous ideas, while System-C individuals rely on deeper analysis, leading to slower decision-making for international business ventures.

In the dynamic digital platform world, ATB significantly influences responses and actions. Those with a positive attitude (System-X) are more likely to embrace innovation and adapt to rapid changes, capitalizing on fleeting opportunities. They approach challenges enthusiastically, experimenting with new strategies and technologies. Conversely, individuals with a negative or cautious attitude (System-C) may resist change, preferring traditional internationalization methods.

Hypothesis 1a: the higher the reliance on System-X, the more favorable attitude to start an international venture through digital platforms

Hypothesis 1b: the higher the reliance on System-C, the lesser favorable attitude to start an international venture through digital platforms

Perceived social norms refer to behaviors approved or disapproved by influential individuals or groups, shaping what is deemed acceptable (Ajzen, 1991). Key societal figures influence these norms, motivating future entrepreneurs to follow them if perceived positively (Krueger et al., 2000).

Social norms vary for future international entrepreneurs, with models ranging from family and friends to the local community. The perceived support from these groups impacts the intention to internationalize; higher perceived support correlates with stronger intentions. Perception is crucial, as it shapes how individuals interpret and react to their environment.

Dutta and Thornhill (2008) found that analytically inclined individuals are more risk-averse and adhere more to prevailing norms compared to intuitive individuals. Rational decision-makers are more likely to evaluate social norms critically, particularly in less supportive contexts, leading to avoidance of certain behaviors.

Krueger (2009) suggests that rational individuals consciously assess the feasibility and desirability of new ventures, evaluating social norms. Castellano et al. (2014) discovered that cultural context significantly influences entrepreneurial mindset, with French individuals displaying higher entrepreneurial intentions and positive attitudes compared to Americans. This underscores the impact of culture on perceptions of entrepreneurship.

Individuals relying on System-C may perceive social norms more negatively, especially in international ventures where risk assessment heightens negative perceptions. In contrast, those using System-X anticipate social interactions better due to social intuition, viewing norms more favorably and confidently interacting with others.

In the context of internationalization via digital platforms, future entrepreneurs rely heavily on these perceived social norms. Technologically advanced cultures motivate entrepreneurs to follow digital routes, while traditional cultures may deter them from relying on digital platforms.

Hypothesis 2a: the higher the reliance on System-X, the more positive perception of social norms to starting an international venture through digital platforms

Hypothesis 2b: the higher the reliance on System-C, the more negative perception of social norms to starting an international venture through digital platforms

Thirdly, we address perceived behavioral control, which involves whether individuals believe they have sufficient resources and capabilities to maintain control over their behavior (Ajzen, 1991).

Analytical individuals (System-C) desire control and require more information to make decisions, often delaying action when faced with uncertainty, particularly in the fast-paced digital world (Dutta and Thornhill, 2008; Allinson and Hayes, 1996). This hesitation can lead to missed opportunities, resulting in lower intentions to pursue international ventures compared to those who rely on System-X.

System-X decision-makers, characterized by intuition and versatility, feel more confident in undertaking intended behaviors. They attribute positive outcomes to their internal locus of control and negative outcomes to external factors, showcasing a bias towards System-X (Dutta and Thornhill, 2008). This intuitive confidence enables quick decision-making and adaptability, fostering a belief in their capability to control behavior even under uncertain conditions.

System-X entrepreneurs, relying on intuition and experience, are more confident in starting businesses and making swift decisions. In contrast, System-C

entrepreneurs take a more rational and methodical approach, showing less perceived behavioral control and limiting riskier behaviors.

Hypothesis 3a: the higher the reliance on System-X, the more positive perception of behavioral control to internationalize through digital platforms

Hypothesis 3b: the higher the reliance on System-C, the more negative perception of behavioral control to internationalize through digital platforms

4 Methodology

The methodology that will be applied in the Master's Final Assignment will consist of quantitative methods. Where a primary data survey will be employed among potential (future) entrepreneurs (i.e., final year university students at bachelor and master level), the collected data will be analyzed using Structural Equation Modelling Partial Least Square (SEM-PLS) and fuzzy-set methods.

The data will be collected through an online questionnaire. The measures will consist of a Likert scale range where we will have (1) for strongly disagree and (7) to strongly agree. The research model will first be assessed using the SEM-PLS method (Hair et al., 2014; Henseler et al., 2016) Then the fsQCA method mainly investigates various cases that enact a specific phenomenon in complex situations (Fiss, 2011; Ragin, 2008)

This research will use a structural equation model to assess the relationship between the components of decision-maker cognitive reasoning and the internationalization intentions of future entrepreneurs. It will examine how these cognitive components serve as explanatory variables in the decision-making process. This involves analyzing perception, options, evaluation, and choice to make the final decision of internationalizing their business.

The steps of the analysis will be to first investigate the importance of CR among "future entrepreneurs" international intention through digital platforms. Second, investigate the importance of cognitive reasoning regarding the

internationalization process through the Dual-Process theory. Third, build the final specification of the structural equation system and grounding approach to the finally proposed internationalization decision-making framework. Finally, detailed step-by-step statistical tests performed, including a discussion of results obtained in the process of internationalization regarding the cognitive predominance among future entrepreneurs.

5 Results

Responses from future entrepreneurs were gathered using questionnaires ([available online](#) as an appendix). The data from the questionnaires was analysed with SPSS 29.0. Before analyzing the data, we identified and corrected potential tabulation errors to ensure data quality. For empirical analysis, modeling was employed through a PLS-SEM approach.

The rationale for using the PLS-SEM v4.1.0.4 statistical software lies in its focus on the variances of the output variable. PLS-SEM is a statistical technique focused more on parameter estimation than prediction (Barroso Castro et al., 2007). Unlike multiple regression techniques, SEM is unique in its ability to simultaneously examine a series of dependency relationships and analyze multiple dependent variables (Jöreskog and Sörbom, 1999; Shook et al., 2004: 397). According to Barroso Castro et al. (2007: 1), their detailed study on the differences in application and results of SEM and PLS concluded that SEM aims to minimize discrepancies between the initial empirical covariance matrix and the covariance matrix derived from the model and estimated parameters. In contrast, PLS aims to maximize the explained variance (R^2) of the dependent variables, leading to parameter estimates based on minimizing the residual variances of the endogenous variables.

To determine which items are relevant for creating the construct, factor loadings were performed in our simple model. A low loading for an indicator suggests that the variable may not strongly contribute to the measurement of the underlying construct, as according to the methodology, anything below 0.4 should be removed.

Consequently, we removed the indicators PCB1, PSN4, PSN6, IEI2, and IEI7 retaining only the variables presented in the graphic above (see Table 1).

Table 1 - Items and Loadings

Rational Cognition (RC)		Loadings
RC1	I double-check my information sources to be sure I have the right facts before making decisions.	0,735
RC2	I make decisions in a logical and systematic way	0,712
RC3	My decision making requires careful thought.	0,800
RC4	When making decisions, I rely upon my instincts. When making a decision, I consider various options in terms of a specific goal.	0,797
Intuitive Cognition (IC)		
IC1	When I make decisions, I tend to rely on my intuition.	0,786
IC2	When I make a decision, it is more important for me to feel the decision is right than to have a rational reason for it.	0,582
IC3	I generally make decisions that feel right to me.	0,876
IC4	When making decisions, I rely upon my instincts.	0,859
IC5	When I make a decision, I trust my inner feelings and reactions.	0,865
Perceived Behavioral Control (PCB)		
PCB2	Creating my own internet business with an international vocation is too risky.	0,467
PCB3	I'm sure that I could keep up with the fundamental aspects of my own internet based international business.	0,663
PCB4	If I had the opportunity and the necessary resources, I would create my own internet company with an international orientation.	0,528
PCB5	I am developing the necessary skills to successfully operate my own internet business with an international orientation.	0,832
PCB6	Creating a company with an international vocation and keeping it running through internet presence would be an easy task for me.	0,717
PCB7	I'm ready to start a viable international business through digital platforms.	0,787

PCB8	I can control the process of creating a new digital international company.	0,825
PCB9	I have the necessary practical knowledge to create a company with an international vocation by using digital platforms.	0,873
PCB10	I know how to develop an international business project.	0,772
PCB11	If I tried to start a digital international firm, I would have a high probability of succeeding.	0,873
PCB12	I think that I could operate successfully a small international business through digital platforms.	0,833
Attitude Towards Behavior (ATB)		
ATB1	Creating my own internet business with international orientation is an opportunity to achieve success.	0,672
ATB2	I would prefer to operate a small internet international business instead of being a mid-level manager in a company	0,810
ATB3	A career as entrepreneur with an international vocation is attractive to me	0,948
ATB4	Being an entrepreneur with an international vocation would entail great satisfaction for me	0,920
Perceived Social Norms (PSN)		
PSN1	Owners of small international internet companies can succeed in the current economic situation.	0,702
PSN2	Digital platforms provide an easier and more appealing mean of internationalization to young entrepreneurs	0,706
PSN3	I have great respect towards the owners of small international companies.	0,540
PSN5	The role of the entrepreneur with an international vocation in our economy should be more recognized.	0,551
PSN7	It is commonly believed that the international entrepreneur has advantages over other entrepreneurs when operating by the means of digital platforms.	0,465

PSN8	In our university, there is a well-functioning support infrastructure for the start-up of new international companies.	0,519
PSN9	In my university, you get to meet lots of people with good ideas to start a new digital international business.	0,552
International Entrepreneurship Intention (IEI)		
IEI1	If I decided to create my own international company, I would preferably internationalize through digital platforms.	0,489
IEI3	I plan to operate my own digital international business immediately after I graduate.	0,737
IEI4	I plan to operate my own digital international business between 5 and 10 years after graduation.	0,888
IEI5	My professional goal is to become an entrepreneur with an international vocation	0,866
IEI6	I am determined to create an international company in the future	0,888
IEI8	After finishing the studies, I will intend to create my own international company	0,710
IEI9	Among the diversity of options for my professional future, I prefer to become an entrepreneur with an international vocation	0,809

Next, we needed to assess the validity and reliability of the constructs. To do this, we focused on the range of reliability construct indicators. Internal consistency reliability can be evaluated using several indicators, including Cronbach's Alpha, composite reliability (rhoC), reliability (rhoA), and average variance extracted (AVE). We used SmartPLS software (Ringle et al., 2005) to evaluate these indicators.

According to the literature (Ringle et al., 2005), the first three parameters need to be between 0.6 and 0.9 for the construct to be considered valid. For the average variance extracted (AVE), a validity threshold of 0.5 is typically used, indicating that constructs exceeding this value are deemed valid. This is reflected in Table 2 from the SmartPLS model.

Table 2 - Constructs Reliability and Validity

Constructs	Cronbach's Alpha	rhoC	AVE	rhoA
RC	0.760	0.847	0.581	0.768
IC	0.860	0.898	0.642	0.913
PBC	0.920	0.934	0.569	0.933
ATB	0.860	0.907	0.714	0.889
PSN	0.688	0.779	0.339	0.682
IEI	0.886	0.914	0.609	0.896

In the course of our analysis, the obtained results were cross-referenced with predefined intervals outlined Smart PLS (Hair et al., 2022, p. 9). Subsequently, it was revealed that variables such as IC and PBC fell above the designated threshold, indicating a deviation from the anticipated range, while PSN fell below the indicated threshold for the Average Variance Explained (AVE) of 0,5. This issue appeared to be correlated with factor loadings.

Subsequently, we evaluated the effects between variables to determine their significance and causality to the study. This was accomplished by analyzing the direct and indirect effect values within these mediation pathways. In our assessment, total effect values exceeding 0.1 were considered insignificant.

Our findings show that the only significant and approved path in our study is $\text{Sys X} \rightarrow \text{ATB} \rightarrow \text{IEI}$. Other paths and indirect links, including those between PSN and IEI, PCB and IC, IEI and IC, were found to be statistically insignificant. These results are summarized in Table 3, which illustrates the total paths, indirect links, their statistical significance, and their approval status.

Table 3 - Mediation between variables

Hypothesis	Path	Significance	Approved (Yes/No)
H1a	Sys X – ATB – IEI	0.084 (p<0,1)	Yes

H1b	Sys C – ATB -IEI	0,434 (n.s.)	No
H2a	Sys X – PSN – IEI	0,179 (n.s.)	No
H2b	Sys C – PSN – IEI	0,193 (n.s.)	No
H3a	Sys X – PCB – IEI	0,212 (n.s.)	No
H3b	Sys C – PCB – IEI	0,274 (n.s.)	No

With the validated constructs in place, the subsequent step involved exploring the interplay of these constructs further and their influence on willingness to invest. This transition led to the adoption of fsQCA analysis, offering insights into the extent to which specific conditions contribute or detract from the desired outcome. To facilitate this analysis, new variables were created by computing averages of item responses defining each construct. This process generated a set of 'average variables' reflecting the collective thoughts of potential entrepreneurs. As this study used multi-item scales to measure the causal conditions, the scores needed to be averaged in order to compute the measure. These 'average variables' were integrated with the subset data specifically crafted for the fsQCA analysis, resulting in refined and cleansed fsQCA subset data.

To guide fsQCA in determining the parameters of fuzziness and defining the thresholds that determine group membership, we needed to establish specific values. These values determine whether a potential entrepreneur falls within the desired group or not. To precisely identify the positions of our average potential entrepreneur values at the 5%, 50%, and 95% levels, we employed SPSS software to calculate the quantiles.

To present the results and conduct a thorough analysis of the decision-making process of the 79 potential entrepreneurs, their behavior was analyzed comprehensively. The measurement model was evaluated, showing that it met all criteria satisfactorily (Rasoolimanesh et al., 2021). A fuzzy set scale was used to adjust the initial seven-point Likert scale values. Each causal condition's membership was graded on a scale from 0 to 1, where 1 indicated "full membership" and 0 indicated

"non-membership," following Ragin (2008). Three levels of affiliation were considered to determine key qualitative points for calibrating the condition using Ragin's (2008) direct method: somewhat, moderately, and significantly. These points involved setting the thresholds for full membership, the crossover point, and non-membership (Ragin, 2008). Next, we identified specific values at the 5%, 50%, and 95% levels within our typical potential entrepreneur data. These thresholds were derived by calculating the quantiles for each construct using SPSS Software.

We then developed a truth table algorithm to identify the outcome (International Entrepreneurship Intention) and the causal conditions, focusing on the variables among these five that influence the inclination to invest. We determined the number of future entrepreneurs with specific combinations that led to the outcome. We excluded rows corresponding to combinations with fewer than 1 future entrepreneur and consistency levels below 0.8. This process produced four consistent and meaningful solutions for predicting outcomes.

Table 4 shows that 80% of the scenarios (coverage 0.8039) were explained by the total solution coverage for cases with high levels of willingness to internationalize through digital platforms. The four configurations, which demonstrated high levels of coverage and consistency, were named: The Balanced Future Entrepreneur, the Comprehensive Future Entrepreneur, the Analytical Future Entrepreneur, and the Versatile Future Entrepreneur.

The Balanced Future Entrepreneur is characterized by possessing Intuitive Cognition, Rational Cognition, International Entrepreneurship Intention, and Perceived Social Norms. *The Comprehensive Future Entrepreneur* is characterized by possessing high levels of Attitude Towards Behavior, Perceived Social Norms, and Perceived Behavioral Control. *The Analytical Future Entrepreneur* is characterized by possessing Perceived Social Norms, Rational Cognition, and International Entrepreneurship Intention. *The Versatile Future Entrepreneur* is characterized by possessing Intuitive Cognition, Rational Cognition, high levels of Perceived Social

Norms, high levels of Attitude Towards Behavior, and International Entrepreneurship Intention.

Table 4 - Configurations leading to willingness to start an international business through digital platforms.

		Solution			
Configurations		Balanced	Comprehensive	Analytical	Versatile
		Future	Future	Future	Future
		Entrepreneur	Entrepreneur	Entrepreneur	Entrepreneur
ATB			○		○
PCB			○	●	
PSN		○	○	○	○
RAT		○		○	○
INT		○	●	○	○
Raw coverage		0.463981	0.566744	0.463981	0.303899
Unique Coverage		0.00722963	0.108185	0.00722963	0.0041312
Consistency		0.830023	0.936833	0.830023	0.823653
Overall	Solution	0.841208			
Coverage					
Overall	Solution	0.703368			
Consistency					

Note: black circles (●) indicate negation; white circles (○) indicate presence; blank spaces denote absence.

Abbreviations: RAT – Rational Cognition; ATB – Attitude Towards Behavior; PCB – Perceived Behavioral Control; PSN – Perceived Social Norms; INT – International Entrepreneurship Intention

6 Discussion and Theoretical Implications

The goal of this study was to thoroughly understand a potential entrepreneur readiness to establish international businesses that utilize digital platforms for internationalization. Additionally, it sought to examine how rational cognition influences the decision-making process of future entrepreneurs in creating an international company via digital platforms. Consequently, the purpose of this document was to develop a comprehensive framework for analyzing various factors that impact the intentionality to internationalize using digital platforms. This framework was constructed by combining insights from the literature review with data from a survey assessing five variables.

6.1 Comments on fsQCA findings

Our use of fsQCA has led to the discovery of four unique solutions, each representing a distinct managerial type's approach to internationalizing through digital platforms. These configurations, formed from various constructs, outline specific managerial behaviors and their connection to a readiness to invest in digital internationalization efforts. FsQCA has unveiled a sophisticated typology, shedding light on the diverse cognitive styles influencing decisions to utilize digital platforms for international expansion.

The Comprehensive Future Entrepreneur exhibits a significant level of Perceived Social Norms and Perceived Behavioral Control, indicating a solid adherence to societal expectations and a cautious approach to new ventures. They possess moderate coverage (Raw coverage = 0.566744), suggesting they are relatively well-represented among the managerial types identified. However, their unique coverage (0.108185) and Consistency (0.936833) indicate that while they are prevalent in the sample, they exhibit a high level of internal consistency in their cautious approach to digital internationalization. This managerial type is less likely to invest in digital platforms because they prefer traditional methods and structured settings.

The Analytical Future Entrepreneur is characterized by high Perceived Social Norms, Rational Cognition, and International Entrepreneurship Intention. They exhibit a robust intention to engage in international entrepreneurial activities through digital means. Their raw coverage (0.463981) suggests they are a prevalent type, while their Unique Coverage (0.00722963) and Consistency (0.830023) indicate that they are distinct in their rational and entrepreneurial approach to digital internationalization. These potential entrepreneurs are inclined to invest in digital platforms to expand internationally, leveraging their rational thinking to mitigate risks associated with new technologies.

The Versatile Future Entrepreneur combines Intuitive and Rational Cognition, high levels of Perceived Social Norms, Attitude Towards Behavior, and International Entrepreneurship Intention. They exhibit moderate raw coverage (0.303899), suggesting they are less prevalent than the other identified types. However, their Unique Coverage (0.0041312) and Consistency (0.823653) indicate they are internally consistent in their balanced cognitive approach to digital internationalization. These potential entrepreneurs are characterized by their adaptability and strategic foresight, making them capable of evaluating and investing in digital platforms that align with organizational goals.

The Balanced Future Entrepreneur represents a unique category with distinct characteristics facilitating digital internationalization efforts. They exhibit high raw coverage (0.463981), indicating a significant representation among the managerial types identified. Their Unique Coverage (0.00722963) and Consistency (0.830023) suggest they consistently leverage digital platforms for international expansion. These potential entrepreneurs proactively adopt new technologies and strategies to reach global markets efficiently.

Overall, the fsQCA analysis underscores the diverse cognitive styles and entrepreneurial behaviors that influence decisions to invest in digital platforms for internationalization. Potential entrepreneurs with varying levels of Perceived Social Norms, Rational or Intuitive Cognition, and Entrepreneurship Intention exhibit

distinct tendencies toward digital internationalization. Understanding these entrepreneurial types equips organizations with the knowledge to tailor strategies that foster effective investment decisions in digital internationalization initiatives, thereby empowering them to navigate the digital landscape with confidence.

6.2 Theoretical Implications

The findings of this study significantly enhance our understanding of entrepreneurial and internationalization intentionality toward internationalization in via digital platforms. Firstly, by delineating distinct profiles based on Rational Cognition and Intuitive Cognition among future entrepreneurs, analyzed through PLS-SEM methods (Ringle et al., 2005), the research highlights their role in shaping entrepreneurial intentions and behaviors. Secondly, by integrating variables like Attitude Towards Behavior (ATB), Perceived Behavioral Control, Perceived Social Norms, and International Entrepreneurship Intention (IEI), the study deepens theoretical frameworks in entrepreneurial psychology.

The hypothesis exploring the path from System X to ATB, and subsequently to IEI, reveals a significant relationship with a p-value of 0.084, indicating that intuitive cognition positively influences attitudes towards behavior, which in turn enhances international entrepreneurship intentions. This relationship highlights the nuanced role of cognitive styles in entrepreneurial intentions and provides a theoretical basis for understanding how intuitive cognition can foster a positive attitude towards entrepreneurial behavior, ultimately leading to higher international entrepreneurship intentions.

Next, through Fuzzy-Set Qualitative Comparative Analysis (fsQCA), the study introduces a typology of entrepreneurial approaches to digital internationalization, identifying distinct types like *Balanced Future Entrepreneur*, *Comprehensive Future Entrepreneur*, *Analytical Future Entrepreneur*, and *Versatile Future Entrepreneur* based on their cognitive orientations and attitudes toward digital platforms. *The Balanced Future Entrepreneur*, possessing both Intuitive and Rational Cognition, IEI, and Perceived

Social Norms, exemplifies how the presence of Intuitive Cognition aligns with high international entrepreneurship intentions. *The Comprehensive Future Entrepreneur*, characterized by high levels of ATB, Perceived Social Norms, and Perceived Behavioral Control, underscores the mediating role of ATB in enhancing IEI. *The Analytical Future Entrepreneur*, with Perceived Social Norms, Rational Cognition, and IEI, further supports the hypothesis by showing how Rational Cognition can similarly lead to high IEI when mediated by positive attitudes. *The Versatile Future Entrepreneur*, encompassing high levels of Intuitive Cognition, Rational Cognition, Perceived Social Norms, ATB, and IEI, illustrates the combined effect of these variables, demonstrating how diverse cognitive styles and attitudes synergize to elevate IEI.

Interestingly, the fsQCA results indicate that all profiles exhibit traces of IEI, either in negation or presence, underscoring the pervasive influence of international entrepreneurship intention across different cognitive and attitudinal configurations. This finding aligns with the hypothesis by showing that regardless of the specific cognitive style or attitudinal factors, the intention to engage in international entrepreneurship remains a common thread among future entrepreneurs.

In conclusion, this study advances theoretical knowledge in entrepreneurship by integrating diverse methodologies, validating theoretical constructs, and providing practical insights into cognitive decision-making processes and strategies for digital internationalization. The acceptance of the hypothesis, combined with the fuzzy set results, elaborates on the crucial role of IEI, both directly and as mediated by ATB, in shaping entrepreneurial intentions and behaviors in the context of digital internationalization.

6.3 Practical implications

The study's practical implications provide actionable insights for businesses, policymakers, and educators fostering entrepreneurship via digital platforms. Organizations can tailor programs and support by recognizing decision-making

profiles among future entrepreneurs. Understanding cognitive and behavioral tendencies aids skill development, preparing graduates for global digital business. Development of digital tools should integrate rational and intuitive approaches identified here, enhancing usability. Businesses can use insights on risk aversion, ambiguity intolerance, and digital literacy to craft targeted strategies promoting innovation in international digital ventures. Policymakers can design supportive policies for entrepreneurial ecosystems, ensuring graduates succeed in the global digital marketplace. These implications bridge theory with practice, optimizing support for future entrepreneurs using digital platforms.

7 Conclusion

This study explored the cognitive decision-making processes influencing future entrepreneurs' readiness to internationalize through digital platforms. The research has provided valuable insights into how rational and intuitive cognitive styles shape entrepreneurial intentions by employing PLS-SEM and fsQCA. The findings underscore the pivotal roles of factors such as attitude toward behavior, perceived behavioral control, and perceived social norms in driving decisions to utilize digital tools for international expansion.

Through PLS-SEM analysis, this study confirmed that future entrepreneurs' cognitive reasoning significantly influences their inclination to engage in international entrepreneurship via digital platforms. It validated the importance of strategic cognitive orientations in navigating complexities associated with global business ventures. Moreover, fsQCA revealed distinct entrepreneurial types characterized by varying cognitive styles and attitudes toward digital internationalization, contributing to a nuanced understanding of decision-making behaviors in entrepreneurial contexts.

This research's theoretical contributions are notable in advancing our understanding of entrepreneurial psychology and digital internationalization strategies. This study has expanded theoretical frameworks by integrating rigorous methodologies, emphasizing the interplay between cognitive factors and

entrepreneurial intentions. It provides a foundation for future studies to delve deeper into how cognitive orientations evolve and their implications for international business strategies.

Practically, the findings offer actionable insights for educators, policymakers, and business stakeholders aiming to foster digital entrepreneurship. Educational programs tailored to enhance cognitive decision-making skills can better prepare graduates for navigating global markets through digital means. Policymakers can leverage these insights to craft supportive policies that create a conducive digital innovation and entrepreneurship environment, thereby translating theoretical knowledge into practical applications.

In conclusion, this thesis significantly contributes to both academic literature and practical knowledge by elucidating the intricate connections between cognitive reasoning, digital tools, and international entrepreneurship. By addressing these complexities and opportunities for future research, scholars and practitioners can foster a more robust understanding of how cognitive factors influence entrepreneurial behaviors in a globalized digital economy. This reiteration of the research's significance is intended to reinforce the value of the audience's time and attention, and to underscore the importance of the findings in advancing the field of entrepreneurial psychology and digital internationalization strategies.

7.1 Limitations and opportunities for future research

While this study provides valuable insights, it acknowledges several limitations. Firstly, its focus on last-year university students may restrict generalizability across diverse entrepreneur populations in various career stages and industries. Future research should diversify samples to include entrepreneurs at different career phases, from early-stage to established professionals, capturing a broader understanding of cognitive decision-making in digital internationalization.

Additionally, the cross-sectional nature of questionnaire data, although analyzed using robust frameworks like PLS-SEM and fsQCA, suggests the need for

longitudinal studies. Longitudinal designs would offer deeper insights into how cognitive orientations evolve over time, enhancing the temporal validity of findings.

Moreover, reliance on self-reported measures for Rational Cognition and Intuitive Cognition introduces potential biases. Future studies could adopt mixed-method approaches, integrating qualitative interviews and observational data, to complement quantitative insights and enrich understanding of decision-making processes among entrepreneurs using digital platforms.

Future research opportunities lie in exploring career trajectories and entrepreneurial intentions, particularly how professionals transition into entrepreneurship via digital internationalization. Understanding triggers for entrepreneurial shifts—whether early career, post-career, or during transitions—can reveal critical factors influencing decision-making and digital adoption strategies.

Furthermore, as digital technologies advance rapidly, investigating emerging platforms like AI, blockchain, or augmented reality in cross-border ventures could offer actionable insights for entrepreneurs and policymakers. Such research would illuminate innovative strategies and best practices for leveraging digital tools to navigate global market opportunities.

In conclusion, while this study lays a foundation for understanding cognitive decision-making in digital internationalization among university students, addressing these limitations and exploring new research avenues will advance theoretical insights and practical applications in global entrepreneurship.

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Appendix:

Quantitative Study - Questionnaire

E -mail address: _____

Age (years):	Gender (mark with X)	Male ☐	Female ☐
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Choose the response which best defines your level of agreement with the statement. Work quickly, giving your first reaction in each case, and make sure that you respond to every statement. A set of expressions related to international entrepreneurial orientation are presented. Rate these expressions according to your degree of agreement (i.e. how well statements reflect reality)

1=totally disagree; 4=neither agree nor disagree, uncertain; 7=totally agree

Cognitive Style Index								
RC1	I double-check my information sources to be sure I have the right facts before making decisions.	1	2	3	4	5	6	7
IC1	When I make decisions, I tend to rely on my intuition.	1	2	3	4	5	6	7
RC2	I make decisions in a logical and systematic way	1	2	3	4	5	6	7
IC2	When I make a decision, it is more important for me to feel the decision is right than to have a rational reason for it.	1	2	3	4	5	6	7
RC3	My decision making requires careful thought.	1	2	3	4	5	6	7
IC4	When making decisions, I rely upon my instincts.	1	2	3	4	5	6	7
IC3	I generally make decisions that feel right to me.	1	2	3	4	5	6	7
RC4	When making decisions, I rely upon my instincts. When making a decision, I consider various options in terms of a specific goal.	1	2	3	4	5	6	7
IC5	When I make a decision, I trust my inner feelings and reactions.	1	2	3	4	5	6	7
Perceived Behavioral Control								
PCB1	If I decide to start my own internet business with an international orientation, I will not know where to start.	1	2	3	4	5	6	7
PCB2	Creating my own internet business with an international vocation is too risky.	1	2	3	4	5	6	7
PCB3	I'm sure that I could keep up with the fundamental aspects of my own internet based international business.	1	2	3	4	5	6	7
PCB4	If I had the opportunity and the necessary resources, I would create my own internet company with an international orientation.	1	2	3	4	5	6	7
PCB5	I am developing the necessary skills to successfully operate my own internet business with an international orientation.	1	2	3	4	5	6	7
PCB6	Creating a company with an international vocation and keeping it running through internet presence would be an easy task for me.	1	2	3	4	5	6	7

PCB7	I'm ready to start a viable international business through digital platforms.	1	2	3	4	5	6	7
PCB8	I can control the process of creating a new digital international company.	1	2	3	4	5	6	7
PCB9	I have the necessary practical knowledge to create a company with an international vocation by using digital platforms.	1	2	3	4	5	6	7
PCB10	I know how to develop an international business project.	1	2	3	4	5	6	7
PCB11	If I tried to start a digital international firm, I would have a high probability of succeeding.	1	2	3	4	5	6	7
PCB12	I think that I could operate successfully a small international business through digital platforms.	1	2	3	4	5	6	7
Attitude Towards The Behavior								
ATB1	Creating my own internet business with international orientation is an opportunity to achieve success.	1	2	3	4	5	6	7
ATB2	I would prefer to operate a small internet international business instead of being a mid-level manager in a company	1	2	3	4	5	6	7
ATB3	A career as entrepreneur with an international vocation is attractive to me	1	2	3	4	5	6	7
ATB4	Being an entrepreneur with an international vocation would entail great satisfaction for me	1	2	3	4	5	6	7
Perceived Social Norms								
PSN1	Owners of small international internet companies can succeed in the current economic situation.	1	2	3	4	5	6	7
PSN2	Digital platforms provide an easier and more appealing mean of internationalization to young entrepreneurs	1	2	3	4	5	6	7
PSN3	I have great respect towards the owners of small international companies.	1	2	3	4	5	6	7
PSN4	I believe the internationalization by the means of digital platforms increases reach and diminishes the need for intellectual and monetary investment	1	2	3	4	5	6	7
PSN5	The role of the entrepreneur with an international vocation in our economy should be more recognized.	1	2	3	4	5	6	7
PSN6	The society, in general, considers that the digital international entrepreneurial activity is too risky for the value that contributes.	1	2	3	4	5	6	7
PSN7	It is commonly believed that the international entrepreneur has advantages over other entrepreneurs when operating by the means of digital platforms.	1	2	3	4	5	6	7
PSN8	In our university, there is a well-functioning support infrastructure for the start-up of new international companies.	1	2	3	4	5	6	7
PSN9	In my university, you get to meet lots of people with good ideas to start a new digital international business.	1	2	3	4	5	6	7
International Entrepreneurship Intention								

IEI1	If I decided to create my own international company, I would preferably internationalize through digital platforms.	1	2	3	4	5	6	7
IEI2	I believe the lack of physical systems is compensated by the possible reach and lower spending when internationalizing by digital platforms	1	2	3	4	5	6	7
IEI3	I plan to operate my own digital international business immediately after I graduate.	1	2	3	4	5	6	7
IEI4	I plan to operate my own digital international business between 5 and 10 years after graduation.	1	2	3	4	5	6	7
IEI5	My professional goal is to become an entrepreneur with an international vocation	1	2	3	4	5	6	7
IEI6	I am determined to create an international company in the future	1	2	3	4	5	6	7
IEI7	After finishing the studies, I will intend to work as an employee	1	2	3	4	5	6	7
IEI8	After finishing the studies, I will intend to create my own international company	1	2	3	4	5	6	7
IEI9	Among the diversity of options for my professional future, I prefer to become an entrepreneur with an international vocation	1	2	3	4	5	6	7