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# Entrepreneurs' Decisions in Perceived Environmental Uncertainty

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**This research advances the understanding of entrepreneurial decisions in the context of perceived uncertainty related to regional political instability. Using qualitative data from a sample of 29 entrepreneurs, we captured the entrepreneurs' perceptions of uncertainty and how these perceptions informed their judgement and led to confidence in their decisions. The perceptions of uncertainty that influenced the entrepreneurs' decision-making were grouped into three main categories: efforts to understand changes in regional markets; efforts to understand changes in local markets; and identifying multiple and compounded layers of uncertainty. The entrepreneurs' decisions were informed by the interactions between their perceptions of a dynamic and changing environment and their judgements about mobilizing resources in response to that environment. The findings of this research extend the current understanding of how entrepreneurs use judgement to arrive at decisions in contexts of uncertainty and highlight the dynamic relationship between individuals and context. The research has theoretical and practical implications for developing and leveraging entrepreneurial decision-making in uncertain environments.**

## Introduction

Environment uncertainty presents a key challenge for entrepreneurs, and it plays a fundamental role in their decision-making (de Vasconcelos Gomes *et al.*, 2018; Townsend *et al.*, 2018). While entrepreneurs perceive high levels of uncertainty as part of their activity in relation to market and industry, their perceptions change dynamically in response to factors in their environment (Schmitt *et al.*, 2018). However, how the entrepreneurial context of high uncertainty, ambiguity, time pressure and emotional intensity affects decision-making is still under-theorized (e.g. Hodgkinson *et al.*, 1999; Shepherd and Patzelt, 2017). In addition, the research on how uncertainty affects entrepreneurial behaviour and efficacy has

primarily been concerned with the effects on markets and industries (Brinckmann, Grichnik and Kapsa, 2010; Schmitt *et al.*, 2018). The precise function of uncertainty in entrepreneurial decision-making is still contested (Magnani and Zucchella, 2018; McMullen and Shepherd, 2006). Furthermore, any investigation of how entrepreneurs deal with uncertainty requires an understanding of their ability to adapt their behaviour according to their changing perceptions of self-efficacy (Markowska and Wiklund, 2020).

Previous research has applied Milliken's (1987) multi-dimensional constructs of state, effect and response uncertainty, arguing that entrepreneurial action depends more on response and effect uncertainty than on state (environmental) uncertainty (McKelvie, Haynie and Gustavson, 2011).

Milliken (1987, p. 135) proposes that conceptualizations that treat uncertainty as an objective and externally measurable construct are problematic, because there is 'no clear evidence of a relationship between objective characteristics of the environment and perceptions of uncertainty'. Therefore, treating uncertainty as something that exists 'outside' the perceiver's cognitions has led to inconsistencies in the literature (McKelvie, Haynie and Gustavson, 2011).

This raises critical questions about how entrepreneurs perceive uncertainty in the environment and how confident they are about reaching decisions in environments perceived as uncertain. These questions remain unanswered, despite the continuing academic debate on entrepreneurs' abilities to control uncertainty in their environment (Sarasvathy, 2001; Shane and Venkataraman, 2000). Some researchers have suggested that perceived uncertainty may increase risk-taking by forming an opportunity through a locus of control (Sarasvathy, 2001). Others have presented uncertainty as a starting point from which opportunities can be identified (Shane and Venkataraman, 2000). Furthermore, the literature in the field of psychology and entrepreneurship has presented conflicting results about the relationship between uncertainty and behavioural processes (Schmitt *et al.*, 2018), including about how individuals' judgements about uncertainty influence their decisions to act (McMullen and Shepherd, 2006).

In this research, we address the above gaps in knowledge by conceptualizing the judgement-based approach (Foss and Klein, 2012) as a cognitive approach that can capture variations in individuals' ability and skill to use judgement to support their decision-making in environments perceived as uncertain. In our application of the judgement-based approach, we adopt the idea that uncertainty is situated within the individual (Milliken, 1987) to examine different perceptions of the types of uncertainty experienced by entrepreneurs.

To understand the conditions in which entrepreneurs make decisions, we include the broader context of regional instability as a key driver of environmental uncertainty. This allows us to explore the dynamic relationship among perceived uncertainty, entrepreneurial efficacy, and decision-making. Our empirical research was conducted with 29 entrepreneurs who were operating

during a time of regional political instability in the Middle East. The underpinning research questions were as follows: How do entrepreneurs perceive environmental uncertainty? How confident are they in reaching decisions under conditions of uncertainty?

By attempting to answer these research questions, our research makes several contributions to the literature on entrepreneurial decision-making in the context of perceived uncertainty and the role of self-efficacy in that process. First, we conceptualize the judgement-based approach through an in-depth qualitative study of entrepreneurs and incorporate self-efficacy into the context of uncertainty. The resulting theorization of perceived uncertainty, judgement patterns and changing perceptions of efficacy extends the current understanding of differences among entrepreneurs and of how different entrepreneurs arrive at decisions under conditions of perceived uncertainty (Foss, Klein and Bjornskov, 2019). Ultimately, this highlights the continuous interplay between individuals and their contexts. Second, we extend the current theorization on entrepreneurs' decision-making. Although previous research has found that in environments perceived as uncertain, entrepreneurs may reach decisions of avoidance (Hirsh, Mar and Peterson, 2012; McMullen and Shepherd, 2006), our findings show that the interaction between entrepreneurs' judgement, the goals they wish to achieve, and the perceived uncertainty in the environment leads to several decision scenarios towards market and client strategies. Third, the literature has reported that high self-efficacy is linked to confidence in achieving a goal, while low self-efficacy is linked to the inability to pursue a goal (Markowska and Wiklund, 2020; Schmitt *et al.*, 2018). Our findings go beyond 'high versus low' self-efficacy to demonstrate that self-efficacy influences entrepreneurs' confidence in staying in the market and that confidence underpins a variety of decision scenarios aimed at achieving objectives, particularly in light of changes in clients' enthusiasm and engagement with entrepreneurs.

Our model therefore provides a nuanced picture of entrepreneurs' decision-making under conditions of perceived uncertainty. This model can be applied in rapidly changing contexts and opens avenues for future research on entrepreneurial decision-making and perceived uncertainty.

## Theoretical background

### *Uncertainty and entrepreneurial decision-making*

According to Knight (1921), a situation is 'uncertain' when is characterized by (a) the impossibility of assigning objective probabilities to each potential outcome; and (b) the inability to know the likelihood of events occurring. Uncertainty is especially relevant to entrepreneurs 'because business decisions practically never concern calculable probabilities' (Van Praag, 1999, p. 322). However, uncertainty means different things to different people (Wazed, Ahmed and Nukman, 2009), because it consists of subjective individual interpretations of events and resources (Packard, 2017). As explained by Milliken (1987, p. 133), the 'cognitive state' of uncertainty results from 'an individual's assessment of the number of alternative predictions available for a stranger's future behaviour or alternative explanations available for past behaviour'.

Milliken (1987) proposes three categories of uncertainty: state, effect and response. State uncertainty refers to the external environment and results from an individual's inability to predict how environmental factors will evolve; examples include demographic changes, political shifts and socio-cultural trends. Effect uncertainty refers to an individual's inability to predict how such changes in the environment will affect their activity. Finally, response uncertainty is created when an individual lacks the ability and insight needed to decide how to respond to changes in their environment. Dealing with uncertainty requires the ability to make a judgement on the use of resources that encompasses entrepreneurial activity and serves as the antecedent for entrepreneurial action (Foss, Klein and Bjornskov, 2019). Entrepreneurs use judgement to make decisions, and they use resources to achieve objectives (Foss and Klein, 2012). Given that decision-making is critical for entrepreneurial success, it is vital to understand how entrepreneurs make decisions and why some of their decisions result in failure (Ilonen, Heinonen and Stenholm, 2018). Decision-making is a complex mechanism that entrepreneurs draw upon while starting a business and when operating in volatile and uncertain environments.

### *The judgement-based approach*

The judgement-based approach relates to 'specific acts of entrepreneurial judgement in acquiring,

combining, reconfiguring, and taking responsibility for productive resources in an uncertain world – (it) must be understood in a particular context' (Foss, Klein and Bjornskov, 2019, p. 1205). In this context, entrepreneurs articulate their plans based on their knowledge and beliefs about their current situation and their forecasts of future results. While the judgement-based approach is linked to Knight's (1921) work in that it focuses on the flexibility of combining and recombining entrepreneurial resources. The flexibility of resources is connected to institutional variables: the more flexible the resources, the higher their value in the processes of combining and recombining those resources, as noted by Klump and de la Grandville (2000).

Most of the existing research on entrepreneurship has been decoupled from its institutional, social and political macro context, focusing instead on relatively abstracted opportunities as key conceptual units of entrepreneurial activity (Bjornskov and Foss, 2016; Bradley and Klein, 2016). The judgement-based approach treats entrepreneurship as an investigational process of combining various resources from different sources in a context that is fundamentally uncertain and considered cognitively limited; thus, it theorizes entrepreneurship as an action-based activity (Foss, Klein and Bjornskov, 2019). Through the judgement-based approach, entrepreneurship is treated as an act of alertness to resources to execute a project; hence, entrepreneurial alertness is an antecedent to the action of entrepreneurship itself (Foss, Klein and Bjornskov, 2019).

Decision-making has been examined as a process of choosing a course of action by evaluating and predicting event outcomes (Hastie, 2001). Therefore, for entrepreneurs, allocating resources is a cognitive process that is based on dynamic perceptions of uncertainty and associated behavioural responses to events (McMullen and Shepherd, 2006; Townsend *et al.*, 2018). We considered the judgement-based approach to be the most suitable theoretical approach for this research, because it starts by viewing the context of entrepreneurship with a focus on the 'heterogeneity–uncertainty nexus'. Entrepreneurs seek to combine heterogeneous resources to achieve a goal under uncertainty. In the context of a heterogeneity–uncertainty nexus, they manifest what Foss, Klein and Bjornskov (2017, 2019) refer to as 'judgemental action' based on their

insights into and experiments with how they use their assets. Thus, the process of entrepreneurial judgement begins with the entrepreneur taking ownership of certain assets in the environment in a way that informs their decisions (Foss, Klein and Bjornskov, 2019). Therefore, the judgement-based approach builds on the underpinning assumption that entrepreneurs' actions stem from their beliefs about how to reach their goals and their ability to produce business plans and projects in the conditions that prevail (Casson and Wadeson, 2007).

### *Self-efficacy and uncertainty*

In contexts with high levels of uncertainty, an entrepreneur's psychological capital plays a significant role in reducing the stress associated with environmental factors that inform individual cognitions and the ability to cope. Psychological capital is the combination of skills and capacities that individuals use in adverse circumstances to achieve their goals by overcoming and mitigating stress in their environment (Baron, Franklin and Hmieleski, 2016). There are four underlying components of psychological capital: self-efficacy, optimism, hope and resilience (Luthans *et al.*, 2005). This study focuses on self-efficacy as it influences behaviour and shapes routes of action (Bandura, 1999); people with a high level of self-efficacy are more motivated and respond more effectively to feedback, which strengthens their endurance in the face of adversity (Bandura, 1991, 2012). By contrast, entrepreneurs believe they have the ability to achieve an intended (but uncertain) outcome they are unlikely to engage in actions to achieve it (Bandura, 1997). Similarly, if entrepreneurs do not believe in their ability to influence their surroundings and change perceptions, which requires self-efficacy, they will not embark on activities (Engel *et al.*, 2014).

These perceptions are influenced by context, and they influence judgement (Foss and Klein, 2012). We argue that entrepreneurs' ability to use judgement and engage with an economic activity is contingent on their perceptions of – and beliefs about – what they can do (Engel *et al.*, 2014; Markowska and Wiklund, 2020). Previous research has investigated the role of self-efficacy in regulating entrepreneurial behaviour and motivations, which are important personal resources for success in new ventures (Drnovšek, Wincent and Cardon, 2010; Tumasjan and Braun, 2012). Con-

firms that a minimum level of entrepreneurial self-efficacy is needed for entrepreneurial action to take place (Townsend, Busenitz and Arthurs, 2010).

The complex interplay among perceptions of environmental uncertainty, entrepreneurial self-efficacy and judgement requires an in-depth investigation, from a contextually embedded perspective, in a region characterized by high levels of instability. Therefore, this research responds to calls for contextualizing entrepreneurship research (Welter, 2011) and diversifying the contexts of analysis to under-researched regions such as the Middle East and North Africa (MENA).

## **Research context and methodology**

### *Research context*

We selected Jordan as the research context, for several reasons. Despite having a young, well-educated population, Jordan is experiencing rising levels of unemployment: according to a report published by the United Nations Research Institute for Social Development (UNRISD, 2018), Jordan has the highest level of graduate unemployment in the MENA region, at 37% (compared with 27.2% for the region as a whole). Following the expansion of the information and communications technology (ICT) industry in the country, Jordan has moved to accelerate its transition to a knowledge-based economy. The government has launched a series of major reform programmes that emphasize the development of entrepreneurial activity as a way of reducing the high rate of unemployment among young people (Mehtap *et al.*, 2016), has moved promoting entrepreneurship to the top of the national agenda, and has strongly encouraged entrepreneurial activity by the ruling Hashemite royal family (Caputo *et al.*, 2016; Mehtap *et al.*, 2016). Despite these efforts, the Global Entrepreneurship Monitor (GEM 2020) report shows that in Jordan, rates of entrepreneurship are in decline and there are concerns about business discontinuity.

Despite the recent surge of interest in policies that support entrepreneurship, the potential of entrepreneurship has been undermined by regional instability. Although the MENA region is geographically positioned to be a global trade hub, the persisting regional instability that began with the Arab Spring in 2010 is fragmenting the

region's production, trade and economic links (Malik and Awadallah, 2013). Jordan is no exception, and the continuing instability has restricted the country's access to resources and markets, creating more uncertainty and adversity for entrepreneurs (Abukumail, 2019). On the one hand, entrepreneurs in MENA countries are influenced by the perception of an increasingly fragmented region, with access to some markets (such as Syria) compromised by conflicts; on the other, they are influenced by the perception of a single context that is based on a shared language, culture and history (Malik and Awadallah, 2013). These simultaneous but opposing perceptions strengthen the impact of instability on entrepreneurial activity.

The Jordanian context thus provides an opportunity for researchers to explore the complex nuances of perceptions of environmental uncertainty in highly unstable regional conditions, and to investigate the interplay between unstable conditions and entrepreneurial psychological capital and judgement. Although research on regional context has provided new insights into some of the psychological aspects of entrepreneurship (such as fulfilment, reliance and optimism), there are calls for more research into the more discouraging factors, and how and when these factors work in different regional settings (Cumming, Johan and Uzuegbunam, 2020).

### Methodology

We adopted an interpretive research paradigm to investigate entrepreneurs' decisions – and the role of self-efficacy in those decisions – in the context of regional instability. The ontological and epistemological assumptions underlying the interpretive research tradition are guided by three core notions. The first of these is the phenomenological notion of *life-world*, which argues that people and their worlds are inextricably related through the lived experiences of individuals (Berger and Luckmann, 1966; Husserl, 1970; Sandberg, 2005). Thus, the human world is never distinct and separate, but it is an experienced world that is related to a conscious subject. Second, the individual reality is socially constructed through actions, negotiations and agreement (Berger and Luckmann, 1966). Third, human action is based on individual understandings of reality. Therefore, how people act is determined by how they understand their reality (Sandberg and Targama, 2007). By adopting an

interpretive research tradition, we aimed to capture the extent to which Jordanian entrepreneurs' decisions in their context of regional instability are underpinned by how they perceive uncertainty.

We adopted a qualitative research methodology, because our research aims to study phenomena in natural settings and attempts to make sense of or interpret them through the meanings that people ascribe to them (Glaser and Strauss, 1967; Denzin and Lincoln, 2008). The research topics that lead to using qualitative data-collection and analysis methods are typically open-ended and exploratory. According to Pope, Van Royen and Baker (2002), exploratory questions are generally used as the foundation for qualitative enquiry when: (a) little is known about a particular research subject; (b) existing research is contradictory or stagnant; or (c) the issue is extremely complicated. Given that our aim was to understand entrepreneurs' decisions made in a context of perceived uncertainty, we adopted an open and exploratory approach (interviews) to find patterns in the data. This involved taking an inductive approach to answering the following research questions: how do entrepreneurs perceive environmental uncertainty, and how confident are they in reaching decisions under conditions of uncertainty?

To capture how entrepreneurs perceive uncertainty and why they chose particular courses of action, we gathered evidence from the field. The research insights emerged from a conversation analysis (Hoey and Kendrick, 2017). This involved a process of iteration alongside an in-depth analysis of each interview, making comparisons across cases, and making connections with the literature (Dougherty, 2002; Vaughan, 2012). Every aspect of the interview was taken into consideration; we paid particular attention to unfamiliar aspects of the conversation so that anomalies were not dismissed but were considered as part of the conversation to be analysed, which led to further analysis and theorizing (Hoey and Kendrick, 2017).

*Data collection.* A key sampling criterion was to obtain empirical material that captured the widest possible variation in entrepreneurs' perceptions and behaviours in the context of uncertainty. The study sample comprised entrepreneurs at various stages of their business: nascent (i.e., recent start-ups a few months old), growth, and scaling up (between 3 and 5 years old). Furthermore, to gain a comprehensive understanding of

entrepreneurship in Jordan, and to get access to the selected entrepreneurs, we conducted interviews with organizations that supported, mentored and promoted the development of entrepreneurship in Jordan. These included Endeavour, the Queen Rania National Entrepreneurship Competition, Business Incubators, the Business Development Centre, the Young Entrepreneurs Association, the Oasis 500 business incubator, Zain Innovation Campus, and INJAZ.

We asked the organizations mentioned above to provide the contact details of entrepreneurs whom they felt would be interested in participating. Accordingly, through a series of emails, phone calls and meetings, we approached 50 entrepreneurs, 30 of whom agreed to be interviewed on the condition of anonymity and confidentiality. Given that the entrepreneurs were selected on the basis of their availability and willingness to take part in an interview, the sample was a convenience sample (Wrenn, Stevens and Loudon, 2007). The final sample comprised 29 (21 males and nine females) entrepreneurs, as one participant withdrew from the research. The process of selecting and interviewing participants was conducted over five months. The participants represented a range of ages and phases of entrepreneurship (nascent, growth and scale-up), as recommended by Bowden and Green (2005).

### *Data analysis*

We followed an inductive, qualitative, and exploratory approach to the data analysis in an effort to identify the key concepts in the data (Anand and Walsh, 2020). Categories, properties and themes were constructed by interpreting the data to form a generalized substantive-level theory (Strauss and Corbin, 1998). Given that our aim was to investigate entrepreneurs in the same context and to capture any variations in their understanding, knowledge and actions, we chose to ask informal and semi-structured questions in our in-depth interviews. The interviews were not designed in a traditional question-and-answer sequence but were dialogue-based; this allowed us to capture the richness of the entrepreneurs' accounts of their understandings of their context. Consequently, we asked the participants to elaborate on their descriptions by providing concrete examples. Each participant was asked two overarching questions: 'How did the regional instability affect your ac-

tivity?' and 'How did you deal with these issues?' We then probed for deeper meaning by asking follow-up questions, such as 'What do you mean by that?', 'Can you provide an example?' or 'What do you plan to do next?', depending on the specific scenario. The questions were designed to be flexible in order to provide appropriate variation and openness (Corbin and Strauss, 1990; Evans, 2013).

Some of the interviews were conducted face-to-face. The interviews lasted between 60 and 120 minutes and were audio-recorded and transcribed, generating more than 800 pages of text. The interviews were ended when a saturation point had been reached at which no additional information was being generated (Hagaman and Wutich, 2017; Gupta and Pathak, 2018). At the end of each interview, the participant was given the opportunity to add any comments or suggest any additional information that could enrich the research.

The interviews were conducted in the vernacular language (Arabic), translated, and then transcribed in English. The transcribed documents were sent back to the participants to ensure that their views and opinions had been interpreted and analysed accurately and to verify certain facts (Hoey and Kendrick, 2017). The interviews were supplemented by notes from the field, which formed part of the analysis through which we aimed to provide a comprehensive understanding of the entrepreneurs' stories and of how they started their activities. After the recordings had been transcribed, NVivo software was used for the coding process. Open coding was applied to the data before any categories were captured (Huberman and Miles, 1994). The theoretical method was iterative, requiring many rounds of interpretation and reference to the literature as the themes emerged (Evans, 2013).

*Categorization process.* The categorization process was made up of several iterative steps, each of which involved revisiting and refining our earlier interpretations. This process allowed us to uncover the complexity of the entrepreneurs' perceptions of uncertainty, their use of judgement, and, in turn, the complex cognitive process of understanding how instability and uncertainty affect their environment and what this means for their activities. We endeavoured to understand the entrepreneurs' perceptions of uncertainty. Further, we took a closer look at individual interpretations, based on the knowledge that the

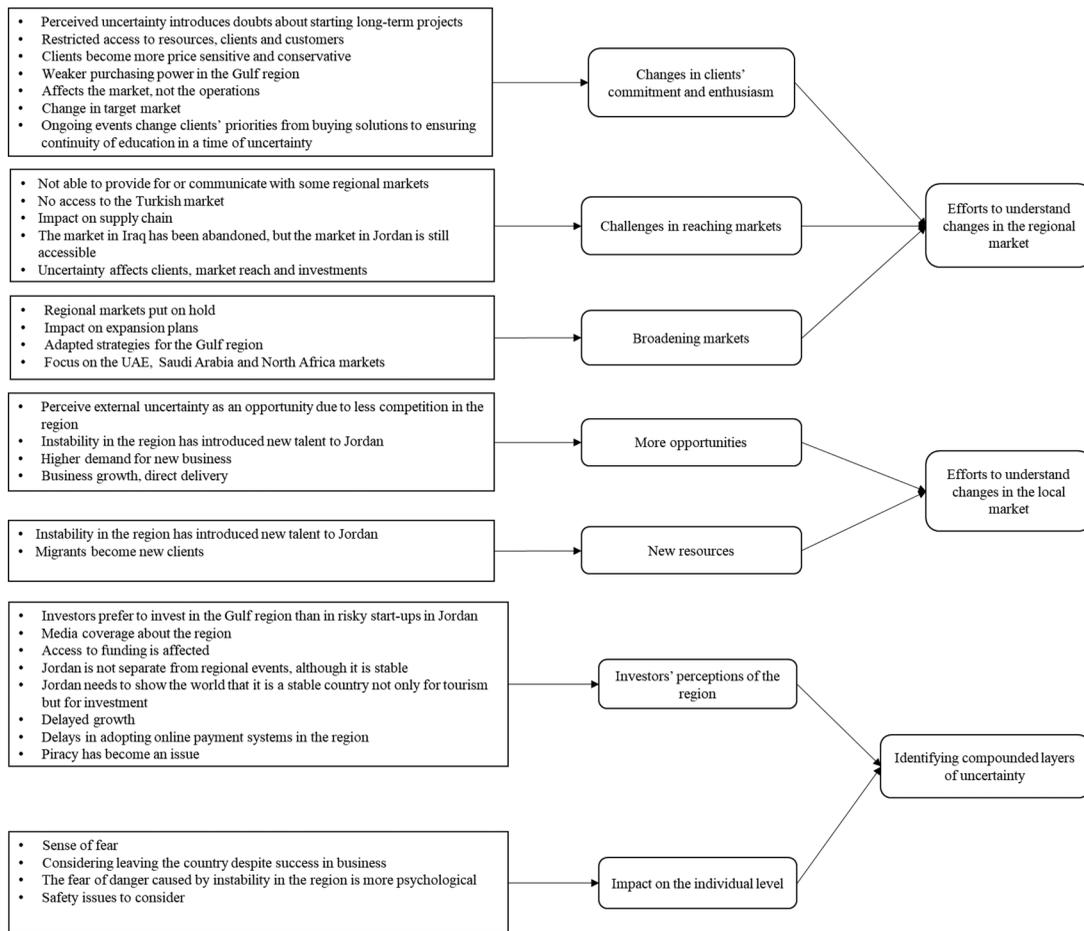


Figure 1. Categorization and data structure

entrepreneurs had begun their activities by targeting the regional market. At this stage, we were able to identify the entrepreneurs' understanding of their changing environment and how it informed their decisions. We captured the entrepreneurs' own interpretations of the situation and its impact on their activities and themselves as individuals (Figure 1).

As we continued with the interpretations, we referred to literature on the judgement-based approach and self-efficacy to formalize the results. We made comparisons among these interpretations by focusing on perceptions of uncertainty: how they perceived uncertainty; how the entrepreneurs used their judgement skills to reach a decision; and how confident they were about their decisions. This enabled us to recognize overlaps and interdependences in interpretations, while capturing patterns in how the entrepreneurs

created multiple interpretations. Further discernment of the various practices employed by the entrepreneurs facilitated an exploration of how and why they achieved varied outcomes. This process helped to capture the idiosyncrasies of decision-making under perceived uncertainty. Figure 1 illustrates the iterative process that we followed to identify the themes. The three categorizations represent a dynamic process of iterative interpretation of the entrepreneurs' confidence in making decisions in conditions of uncertainty.

In Figure 2, the categories are clustered into more abstract aggregate themes (Corbin and Strauss, 1990). We related the categories/themes to the entrepreneurs' perceptions of uncertainty and their thoughts about their clients, including their ability to reach and communicate with clients and the 'appetite' in the region for starting new projects. The entrepreneurs also communicated

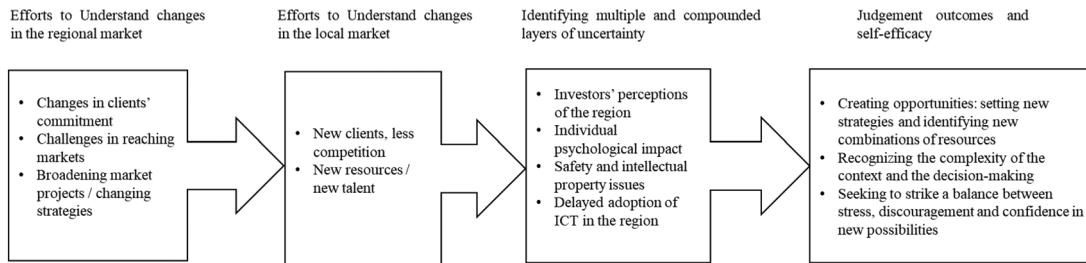


Figure 2. Key dynamics of entrepreneurs' actions under perceived conditions of uncertainty

feelings of discouragement and powerlessness in relation to being unable to reach or work with certain clients. However, they conveyed more optimistic perceptions in the thoughts they expressed about 'increased opportunities', 'reduced competition' and 'new clients'. These thoughts captured the complexity of the psychological process involved in determining a course of action and making judgements.

*Soundness of the method.* Following the interpretive research tradition, three criteria were used to justify the knowledge presented: communicative validity (Kvale, 1989), transgressive validity (Lather, 1993), and reliability as interpretive awareness (Sandberg, 2005). Communicative validity refers to the coherence between the interpretation and the data being examined. This was achieved by building rapport with the participants, explaining the purpose of the research, and asking open-ended questions and follow-up questions to allow the participants to explain their experiences fully and articulate their understanding of the uncertainties they faced.

An evaluation of transgressive validity draws attention to any contradictions or differences in the researchers' interpretations. We attempted to achieve transgressive validity by avoiding assumptions and taken-for-granted frameworks, while actively searching for differences and contradictions between the entrepreneurs' own perceptions and understandings of uncertainty. This allowed us to capture myriad categories, including the entrepreneurs' personal fears connected with the instability in the region.

Lastly, reliability as interpretive awareness focuses on the researchers' procedures for achieving reliable interpretations of each participant's perceptions and actions (Sandberg, 2005). We achieved this by taking a second-order perspective to ensure that the interpretations were grounded

in the participants' own understandings and experiences. Throughout the process of data collection and analysis, we treated all statements as equally important and avoided making assumptions by including contradictions and differences in experiences and understandings.

## Findings

In this study of entrepreneurial decision-making under perceived conditions of uncertainty, we explored the entrepreneurs' context of regional instability. Figure 1 illustrates the emerging data structure of the different perceptions of uncertainty articulated by the entrepreneurs. We followed the sequence indicated in the data to capture the entrepreneurs' judgements that led them to act, and grouped them into three main categories: efforts to understand changes in regional markets; efforts to understand changes in local markets; and identifying multiple and compounded layers of uncertainty. These are presented in the following subsections.

### *Efforts to understand changes in regional markets*

The most prominent theme in this category is the impact of regional instability on markets and client reach, and how this adds to the uncertainty around entrepreneurial activities. Indeed, events related to the regional instability have created a context of high uncertainty, high ambiguity, time pressure and emotional intensity, which have further complicated entrepreneurial decision-making (e.g. Hodgkinson *et al.* 1999; Shepherd and Patzelt, 2017). The entrepreneurs reported that these events also reduced their clients' commitment to and enthusiasm for new projects. This is reflected in their clients' behaviour, which the entrepreneurs

Table 1. Sample characteristics

Number of participants		30
Age	Age range (years)	28–53
Enterprise phase	Start-up	18
	Growth	8
	Scale-up	3
Withdrew from the interview		1
Total number of interviews		29

Table 2. Themes and quotations: changes in regional markets

Theme	Representative quotations
Changes in client commitment	<p><i>'The purchase power in the Gulf region is slowing down and they are very conservative in investing in big projects, especially educational projects where we expect a lot of funds and a substantial budget devoted to educational investment. However, currently in this year and last year, we can see that they are very price sensitive and very conservative in terms of budgets.'</i></p> <p><i>'... the fear of starting long-term projects, because the animation takes a long time from one year or one year and a half. There is fear of starting these types of projects, because no one can know how stable the country will be.'</i></p> <p><i>'... at this time our work is not a priority for them; their priorities are not the e-learning system, rather the security of students and the continuity of the education. This was the feedback that we have received. As a result, we had put this market on hold; of course, the instability was a major impact.'</i></p>
Challenges in reaching markets	<p><i>'If I started four years ago, Syria would be our target market after Jordan ... In the current situation we can't communicate with them, it is not like what it was four or five years ago. Iraq, Syria, Libya, even Sudan, they all bought solutions from Jordan ... currently I am working with Jordan as my primary market.'</i></p> <p><i>'We had a target market of around 150 universities in the Middle East region; we lost around 70 or 80 universities from that because we can't communicate with them because they are universities in Syria or Iraq.'</i></p> <p><i>'Iraq is a big market that is barely accessible now. That's basically abandoned.'</i></p> <p><i>'We had to put our plans on hold. Although we wanted to start the expansion in the Gulf when we were more stable, our original plan was to expand into the Gulf region after first establishing our presence in Syria, Iraq and Jordan, because they require more parts. The Gulf region has more purchasing power in terms of changing cars and car turnover, so they are not as much in need of spare parts as other countries in the region.'</i></p>
Broadening market reach	<p><i>'... because of the instability we had to shift our focus to the Gulf region. We are looking at starting our business in Saudi Arabia by early next year.'</i></p> <p><i>'We are looking forward to reaching the Arabic speaking migrants in Europe and the Western world, actually these organisations have started to approach us in Europe.'</i></p> <p><i>'We tried to offer our audio books to organisations taking care of visually impaired students and kids. We had some success in that direction.'</i></p>

explained in terms of changing priorities towards starting new activities, which had implications on the entrepreneurs' growth plans (Tables 1 and 2).

In the context of regional markets, the entrepreneurs perceived that the regional instability has led to multiple events that have affected their own behaviour and that of their clients. The entrepreneurs' decisions are based on a reciprocal relationship with their clients. Thus, the current situation in the region has imposed economic and social constraints on the entrepreneurs' activities,

limiting their growth and restricting their access to markets and clients, which impacted the reciprocal relation between them and their clients. The regional uncertainty has also weakened purchasing power in the region and clients' ability to engage in or commit to long-term projects. In the context of regional markets, therefore, the entrepreneurs expressed less confidence about mobilizing their resources in order to achieve their objectives. Their perceived lack of ability to overcome challenges in this environment has led them to feel discouraged

Table 3. Themes and quotations: changes in local markets

Theme	Representative quotations
More opportunities	'... the first impact was in terms of competition. In a way, our main competitors are first in Syria and second in Egypt. Unfortunately, we can say that the impact is positive; it shifted the focus on Jordan.' 'I can say [the regional instability] has a positive impact on our business more than negative, especially in Jordan. The current migration into Jordan has increased the number of cars in the city. These cars need new parts and accessories whether the cars are coming from Syria or Iraq; this has expanded our market.'
More resources	'It is more access to talent but less access to the market. Syrians and Iraqis are very talented people; them having problems means supplying the Jordan market with more talent, thus increasing the talent pool.'

and unable to act. They had the resources, but they were unable to outline their options for achieving their goals.

#### *Efforts to understand changes in local markets*

Although the regional instability has led to limitations in the context of the regional markets, it has created a new sphere of opportunity for the entrepreneurs. In addition to changing the dynamics and behaviours of clients in the regional markets, it has changed the dynamics of the local market in Jordan. The perceptions grouped under this category suggest that the regional instability has introduced new resources (and combinations of resources) that have allowed the entrepreneurs to make the decision to stay in the local market. These new resources offer new opportunities that compensate for the lost opportunities at the regional level (Table 3)

The entrepreneurs have a good perception of their options and sound knowledge of the resources available in the MENA region. They are using that knowledge as a valuable resource to determine their future activities. Although the changes they made were sometimes expressed as suboptimal when compared with their original plans, they perceived these adjustments as the only alternative that would allow them to achieve their goals despite the increased environmental uncertainty.

Entrepreneurs who are able to come to a decision in an environment of perceived uncertainty are more able to deal with challenges (Zhao *et al.*, 2005). This is reflected by the findings of our research: the entrepreneurs who perceived that the local market presented new resources and opportunities felt more confident about making decisions about the future.

#### *Identifying multiple and compounded layers of uncertainty*

The entrepreneurs mentioned that they were experiencing difficulties created by multiple other layers of perceived uncertainty, including finance, ICT, safety, intellectual property, and their own psychological capital (Table 4).

They expressed that they were finding it difficult to attract funds from investors. Start-ups are considered high-risk investments, and the regional uncertainty has heightened the perception of risk. This regional uncertainty has also reduced the use of technology and the internet, which has limited businesses' reach and entrepreneurs' access to resources. For example, the low take-up of online payments has restricted the ability to reach new clients and markets in the region.

The entrepreneurs felt the impact on investment and funding during competition and pitching events. Although their ideas have been well received, the media coverage about the region and its instability has weakened their ability to secure investment. Although Jordan is a stable country, its location in an unstable region has affected investment. This inability to attract funding and investment has reduced the entrepreneurs' confidence and weakened their ability to achieve their goals.

The perceived uncertainty not only has reduced the entrepreneurs' ability to source and secure the resources that would enable them to carry out their activities, but also has influenced their sense of personal security. They experienced feelings of apprehension and fear in relation to the regional instability. This extended to concerns about their own safety and the safety of their team, including people in their supply chain.

The entrepreneurs have consolidated facts that formed their perceptions about the current situation to determine their future trajectory

Table 4. Themes and quotations: multiple and compounded layers of uncertainty

Theme	Representative quotations
Investors' perceptions of the region	<p>'...all investors are very hesitant to invest in risky start-ups or businesses. Investing in a start-up is a risk by itself, so they are risking enough, add to it being in the war zone.'</p> <p>'... the instability in the region affected all businesses here not only directly with the clients and market reach, also in the investment and fund reach.'</p> <p>'... people get excited about the idea and they are willing to invest, we are not at the "getting their attention" phase any more. Once we started talking serious, once they know where we are located, they would back off, because of the instability in the region. For them, Jordan is not separate from what they see in Syria and Iraq ... Access to capital is being blocked as a result of the instability.'</p> <p>'... we started to feel the impact when we started to raise funds from the US; after we pitched the idea the reaction was not supportive based on the news coming from the region and the media about the wars in the region.'</p>
Delays in ICT advances in the region	'I believe that the instability is playing a strong and big part in the latency of the penetration of internet and online payments in the region.'
Individual psychological impact	'... if something as dangerous as what's happening around, I might be actually thinking of just picking up and leaving ... the main danger right now is me staying here and feeling secure as an entrepreneur. Here in Jordan it is safe and you are free to do anything, free to trade, but such danger, psychological danger is always there in the back of my mind and I might just leave the country if it becomes more.'
Safety and issues of intellectual property	<p>'It was a security matter for the driver and it was risky to get the shipment.'</p> <p>'The other challenges that we find in the region is a mentality or mindset challenge, as there isn't copyright in most of these countries so if I send them a script for printing it might get stolen and get published under another name. Piracy is very high, for example in Egypt.'</p> <p>'... they are usually shipped by land through Syria and we were faced with a one-month delay from the delivery date as a result of the conflict in Syria.'</p> <p>'Syria is closed now; we are unable to get material from Turkey because the route is through Syria.'</p>

and achieve the best possible outcome. However, further uncertainty has been introduced by additional challenges beyond their control, such as a lack of institutional support to protect copyright and intellectual property. This additional perceived uncertainty has increased levels of fear and anxiety among the entrepreneurs, reducing their confidence in their markets. Although the entrepreneurs are aware of the alternative markets in the region, they are not keen to move their activities to other countries because of perceived piracy issues. Referring to the rise of militant organizations in the region, some of the entrepreneurs also expressed fear that the regional instability might spill over into Jordan. Others focused their concerns on the security and safety of the drivers who work with them in relation to the militant groups and organizations situated on the routes from Lebanon through Syria.

Despite the compounded uncertainties, fears and anxieties that reduce their confidence, the entrepreneurs seem to be determined to act. They try to find a balance between stress, fear and discouragement, and they are still willing to pursue novel opportunities by leveraging their psychological capital. This extends to perceiving some positive outcomes of the regional instability for

Jordan. For example, the flow of migrants into Jordan from neighbouring countries is regarded as an increase in talent. Their ability to integrate migrants into their market and talent pool has provided the entrepreneurs with some confidence in the local market.

#### *Entrepreneurial behaviour in the context of regional instability*

The data indicate that in addition to self-efficacy, the following dimensions of psychological capital are at play: hope, resilience, frustration and stress. In this section, we report on psychological capital and the entrepreneurs' experiences as outcomes of regional instability and explore how the four emotions identified about have influenced the entrepreneurs' decisions. Previous research has reported that experiencing stress can have a negative impact on entrepreneurs' performance and success (Baron, Franklin and Hmieleski, 2016). In this research, however, we find that despite the fact that the entrepreneurs have to deal with high levels of stress, their judgement and confidence are maintained and are expressed in their ability to adapt their strategies. Their ability to embrace the ongoing uncertainties is translated into their

Table 5. *Entrepreneurs' perceptions of uncertainty*

Perceptions of uncertainty	Number of respondents	Judgement outcomes and self-efficacy
Efforts to understand changes in regional markets	6	Creating opportunities: setting new strategies and identifying new combinations of resources
Efforts to understand changes in the local market	13	Recognizing the complexity of the context and the decision-making
Identifying multiple and compounded layers of uncertainty	5	Seeking to strike a balance between stress, discouragement and confidence in new possibilities

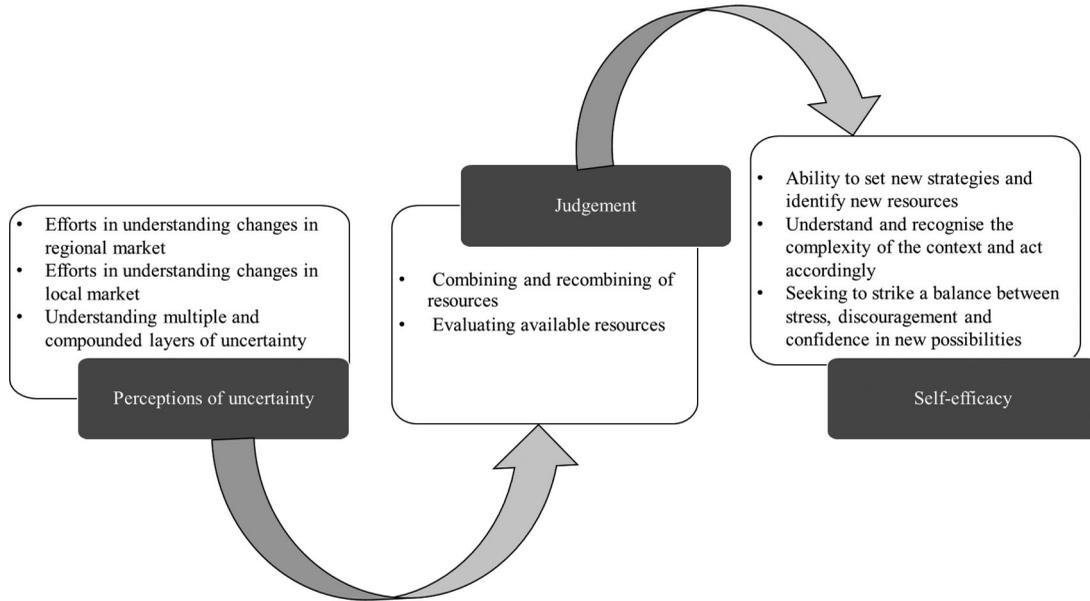


Figure 3. Model of entrepreneurial decision-making under perceived conditions of uncertainty

confidence in using their skills and knowledge to achieve the best outcome (Table 5).

Consistent with the judgement-based approach, the entrepreneurs' decision-making incorporates the dynamic role of perceived uncertainty and the role of self-efficacy (Figure 3). To facilitate the consideration of perceived uncertainty in the context of regional instability and decision-making, we offer the following explanations of our findings.

In the next section we introduce Figure 3, which presents an iterative and dynamic conceptualization of Foss and Klein's (2012) judgement-based approach in conditions of uncertainty. In this process, entrepreneurial thinking moves between knowledge spaces and the conceptual space of 'what can be done', exhibiting a process of co-producing knowledge (Honig *et al.*, 2005). Figure 3 presents a model that captures the entrepreneurs' perceptions of the uncertainty in their

environment and how their perceptions informed their judgements about combining, recombining and evaluating the resources available to them in their environment. Their ability to practise their judgement about the use of available resources led to them reaching decisions with confidence.

Second, considering a course of action encompasses conceptualizing opportunities (Pryor *et al.*, 2016). Decision-making is a cognitive process that does not start with the external validation of an opportunity but with a set of resources that can be utilized (Foss, Klein and Bjornskov, 2019). Therefore, considering the different contextual dimensions that bring these resources together informs entrepreneurial action and builds confidence in the ability to reach a decision that focuses on achieving a goal. An entrepreneur's confidence is demonstrated by their ability to find new combinations of resources.

Third, perceived uncertainty is a concept that is defined by perceptions of the market, technology and the formation of ideas (Reymen *et al.*, 2017). The impact of uncertainty in the environment varies among individuals, and introducing different combinations of compounded uncertainty leads to more complex situations. These factors become the focus of decision-making, through which entrepreneurs move beyond an idea or an opportunity, as indicated by previous research (Sarasvathy 2001; Shane and Vekataraman 2000).

The model (Figure 3) proposes a dynamic relationship between entrepreneurs' perceived uncertainty and decision-making. When the entrepreneurs consider environmental factors in the decision-making process, not only they consider factors in relation to one idea or opportunity but by considering all the available resources and factors (Foss and Klein, 2012). When facing a high level of uncertainty, the entrepreneurs can identify resources, which increases their confidence about taking action. After identifying their options, they may choose to use their resources in a variety of ways, thereby supporting their plans for expansion or growth. In this research, this is evident in the entrepreneurs' decisions about whether to work with countries where there is piracy or where there are inadequate intellectual property laws, which introduces further institutional uncertainty. On the other hand, the entrepreneurs who identify new resources based on their knowledge feel more confident about achieving their goals despite the uncertainty in their environment.

## Discussion and theoretical contributions

The findings of this research reveal the importance of understanding entrepreneurs' perceptions and specific acts of judgement in evaluating, combining and reconfiguring resources under conditions of uncertainty. Faced with multiple layers of uncertainty, the entrepreneurs in this research were motivated by hope and optimism to achieve their goals, despite high levels of stress. Some of them were dealing with fears about their safety or the unknown, which affected their psychological state and increased their anxiety to the extent that they considered leaving the country. In addition, some of the entrepreneurs encountered institutional uncertainty (due to a lack of intellectual property regulations) when considering new suppliers in the

region. The entrepreneurs also perceived changes in clients' willingness to start or commit to new projects.

By revealing multiple sources of environmental uncertainty perceived by entrepreneurs and identifying how these uncertainties affect their judgement, this research has answered calls for the further contextualization of entrepreneurship research (Welter *et al.*, 2017). The findings have important implications for how we account for entrepreneurial perceptions of uncertainty. In summary, our research indicates that entrepreneurial action is a means through which entrepreneurs utilise their abilities and skills while considering sources of uncertainty. Furthermore, it answers calls to enhance the understanding of the complex interplay between uncertainty and decision-making (McKelvie, Haynie and Gustavson, 2011).

Our research suggests that in terms of judgements that influence decisions to act, regional instability has a stronger impact on clients and investors than on entrepreneurs. However, uncertainty has affected entrepreneurial activity on various levels. In terms of changes at the regional level, the entrepreneurs reported failed attempts to reach clients, lack of interest in their product because clients' priorities had changed, stagnating markets, less purchasing power, and the inability of clients to commit to new long-term projects. As a result, the entrepreneurs were unable to plan their growth phase. Their response was to focus on local markets and put their original plans on hold.

Entrepreneurs have the confidence to engage with markets in highly uncertain contexts; it is clients and investors who are reluctant to engage and commit. The entrepreneurs perceived both state and effect uncertainty (Milliken, 1987), with the latter mainly affecting their markets and customers; however, they appeared to be capable of developing responses that allowed them to pursue new opportunities. New opportunities can also be an outcome of uncertainty: for example, some of the entrepreneurs reported that the influx of migrants has increased the demand for their products in the local market and introduced new talent (resources) for their activities. Some of the entrepreneurs also reported that Jordan, despite being situated amid in the midst of regional instability, offers a stable environment for entrepreneurial activity. Thus, some of the entrepreneurs have opted to stay inside the local market as a response to the regional instability,

expressing optimism and confidence regarding the new resources in the market.

The findings suggest that in the face of uncertainty, Jordanian entrepreneurs can steer their businesses with confidence and a high level of self-efficacy. However, their clients and investors find it challenging to engage with them and make commitments. Therefore, institutions must develop regulations that offer avenues and directions for investors and clients to participate in the entrepreneurial process, not only to support entrepreneurial activities but also to generate prospects that foster innovation. Regulatory support must be provided to enable entrepreneurs to make progress in the local market and to access overseas markets in spite of the perceived instability. Increasing stability in the region may enhance income, productivity in the local and global markets, and innovativeness. Institutional success in combating and managing regional instability will foster entrepreneurship, attract investors, and expand Jordan's customer base.

The entrepreneurs who took part in this research also reported multiple, compounded uncertainties that have emerged from the regional instability. These layers of uncertainty have influenced them on a personal level, leading to feelings of fear and anxiety. Added to this anxiety, the inability to attract investors or reach certain markets, fears around personal safety, and the need to avoid working with suppliers who cannot offer an adequate level of intellectual property protection have reduced the entrepreneurs' ability to predict the outcomes of their activities. Our findings suggest that psychological capital assists in coping with stress and drives confidence in new opportunities. According to the Attraction-Selection-Attrition theory, Baron, Franklin and Hmieleski (2016, p. 742) explain that 'persons who are attracted by, selected into, and persist in entrepreneurship may be relatively high in the capacity to tolerate or effectively manage stress'. However, most of the entrepreneurs we interviewed have been able to leverage their psychological capital and self-efficacy to arrive at a judgement based on new combinations of resources and opportunities. Thus, this research also responds to a recent call to increase understanding of the role of psychological capital and self-efficacy in entrepreneurial judgement (Welter and Scrimshire, 2021).

Our findings revealed the challenges of developing a more nuanced account of entrepreneurial

judgement in the face of uncertainty, as well as the dynamic nature of entrepreneurial decisions by extending the judgement-based approach. As a result, new insights into how judgements are produced – and why they are almost never completely deterministic – have been gained. We have also contributed to the contextual underpinnings of the research by outlining how judgement and decision-making are viewed in the MENA region.

We have presented the entrepreneurs' varied perceptions of uncertainty in a single context, which adds to the research on the dynamic relationship between entrepreneurs and their context. We have also addressed the literature on psychology and entrepreneurship, namely on the relationship between uncertainty and behavioural processes (Schmitt *et al.*, 2018), which suggests that uncertainty may present a state of conflicting perceptual and behavioural possibilities that lead to feelings of doubt and avoidance (McMullen and Shepherd, 2006; Hirsh, Mar and Peterson, 2012). Our theorization of perceived uncertainty, patterns of judgement and changing perceptions of efficacy extends the current understanding of the variations among entrepreneurs, how they reach decisions under conditions of uncertainty (Foss, Klein and Bjornskov, 2019), and the continuous interplay between individuals and their context. Also, we have extended the current theorization on entrepreneurial decision-making. In a departure from previous research, which found that in response to perceived uncertainty entrepreneurs reach decisions of avoidance (McMullen and Shepherd, 2006; Hirsh, Mar and Peterson, 2012), our findings show that the interaction between entrepreneurs' judgement, the goals they wish to achieve and the perceived uncertainty in their context leads to a range of decision scenarios.

The existing literature has linked high self-efficacy to confidence in the possibility of achieving a goal, while linking low self-efficacy to the inability to pursue a goal (Schmitt *et al.*, 2018; Markowska and Wiklund, 2020). In contrast, our findings show that despite high and compounded levels of uncertainty, the entrepreneurs sought to arrive at proactive decisions. This reveals that the entrepreneurs were able to deal with uncertainty and understood their ability to adapt their behaviour and their changing perceptions of efficacy, revealing that decision-making processes are not always restrictive but can be engaged in

tandem in response to judgements based on perceived uncertainty.

Finally, our framework includes the elements required to support the entrepreneurial decision-making process. This may help to provide an understanding of how these decision-making processes work. By taking a contextual perspective, it may also help researchers to provide a fuller explanation of why some entrepreneurs perceive uncertainty in a particular way. In particular, the findings have introduced different levels of uncertainty and captured the dynamic relationships between entrepreneurs and potential clients. Indeed, it is important to note that decisions to act not only are contingent on the entrepreneurs but also rely on commitment from clients. We argue that these dynamic relationships need further investigation and consideration.

Our findings have implications beyond the regional context of instability that we used as the empirical background for this research on entrepreneurs who perceive a high level of uncertainty (Khoury and Prasad, 2016) and beyond countries experiencing a large influx of migrants (Easton-Calabria and Omata, 2016). Hence, the findings of this study opens up opportunities for investigating the model in different contexts.

#### *Contributions to policy and practice*

The study has important implications for policy intervention; for example, given that the findings show that entrepreneurs face challenges in attracting external investors, supporting entrepreneurial activity by establishing local funding schemes and 'angel investors' in the country would help them to progress their activity. There are also several managerial implications for policy-makers and government representatives. First, there is a need for collaboration between policy-makers and government representatives to support and encourage entrepreneurs during periods and contexts of uncertainty by facilitating access to new markets and protecting intellectual property rights. Second, there is a need for clear planning in relation to the type and level, by supporting them. This can be achieved by establishing mentoring programmes and pairing with established entrepreneurs in order to gain an understanding of entrepreneurs' perceptions of uncertainty in the environment and the impact of this uncertainty on supply chains, markets, clients and competition. It is important to find new ways to empower entrepreneurs and

increase their self-efficacy in this context, especially at the policy level, to support entrepreneurs with investment mechanisms during times of increased uncertainty. Furthermore, there is a need to provide information on the value of the resources available to entrepreneurs, especially during periods and contexts of uncertainty, and on how they can be successfully deployed. This would help entrepreneurs to develop and increase their self-efficacy, which, in turn, would help them to make informed judgements about adapting their strategies and coping with uncertainty.

#### *Limitations and future research*

The research described in this paper has some limitations that provide opportunities for future research. First, we focused on regional instability as a form of uncertainty. This could be altered; for example, future research could consider the pandemic and the role of entrepreneurs in that highly uncertain environment. Second, we focused on the use of self-efficacy to inform decision-making. This cognitive factor could be extended or replaced (e.g. by dispositional factors) to examine how entrepreneurs cope with changing uncertainty (Tumasjan and Braun, 2012). Third, our sample included entrepreneurs who were at different stages of business growth. It would be useful to examine the findings of this research by conducting a similar study among a more homogenous group of entrepreneurs. For example, it would be useful to examine the decision-making processes in nascent start-ups, given that these businesses tend to experience higher levels of perceived uncertainty as they are continuously changing and refining their ideas (McMullen and Shepherd, 2006). This will help in exploring the evolution of decision-making and the various levels of action that entrepreneurs take (von Gelderen *et al.*, 2000).

## **Conclusion**

By applying the judgement-based approach and integrating the concept of self-efficacy, we investigated entrepreneurs' decisions in a context of perceived uncertainty. In doing so, we addressed gaps in the existing research on entrepreneurs' decision-making by capturing the interplay between individuals and their wider context. Our research has significant practical implications for entrepreneurs and academics. It will help venture

capitalists and training organizations to advise entrepreneurs by considering entrepreneurial thinking in different contexts and the role of self-efficacy in informing their decisions.

## Declaration of Interest

None. We wish to confirm that there are no known conflicts of interest associated with this publication and there has been no significant financial support for this work that could have influenced its outcome.

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