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Abstract

Uncertainty has been, for more than a hundred years now, a topic of interest for both the economic and strategic literatures. While uncertainty is often depicted as a generator of threats that ought to be thwarted by means such as strategic planning, a part of the economic literature construes it as a source of opportunities, as the sine qua non condition of entrepreneurial action even. The entrepreneur would be this highly confident and energetic individual, willing to embrace the uncertainty of his or her environment and leverage the opportunities arisen from the chaos. Yet, although these theories (the most famous being Frank H. Knight's) have boasted important popularity and legitimacy over the years, more recent research has started to put them into question, arguing that uncertainty is much more than a macroeconomic concept and that it mainly hinges on the individual's experience of it. Thus, using a phenomenological approach, this study aims at answering the following question: "Compared to the economic-strategic literature relating to entrepreneurship and uncertainty, how do entrepreneurs actually experience and act upon uncertainty?"

This study brings forth a number of interesting insights on how entrepreneurs conceptualize their role, the uncertainty of their environment, and what factors influence their perception and appraisal of uncertainty among other things. By studying entrepreneurial action and uncertainty as a lived experience, we build on and nuance previous entrepreneurship and uncertainty theories.

Introduction

“Strategy can be defined as the determination of the long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals.” (Chandler, 1962). In other words, strategy-making consists of planning and organizing to achieve predetermined objectives. However, things rarely go according to plan: no matter how thorough and precise one’s strategy might be, there is more often than not a discrepancy between the intended strategy and the actual, realized strategy. Indeed, organizations evolve in uncertain environments for none of them has total control over its external environment and internal dynamics. Uncertainty is an inherent part of strategy formulation and implementation. But what do we mean by uncertainty? True uncertainty, also called Knightian uncertainty, is defined by Frank H. Knight (1921) as an outcome or a set of outcomes that are “not susceptible to measurement and hence to elimination”. Thus, although both terms are often used interchangeably when discussing strategy, risk differs from uncertainty in that a risk can be mathematically estimated. Indeed, Knight states that “a measurable uncertainty is so far different from an unmeasurable one that it is not in effect an uncertainty at all”, it becomes a risk.

Scenario planning, war-gaming, strategic plans, etc. are all widely popular tools developed by firms to reduce uncertainty for unknowns are seen as threats to effective decision-making and profit maximization. And while corporate businesses put a large amount of effort into curbing uncertainty to increase the predictability of their environment, entrepreneurial businesses thrive on uncertainty. In fact, it is argued that uncertainty is the *sine qua non* condition of entrepreneurial action. Indeed, according to Alvarez & Barney (2005) “one of the most important differences between nonentrepreneurial and entrepreneurial decision making is that the former takes place under conditions of risk, whereas the latter takes place under conditions of uncertainty”. Entrepreneurs also tend to be more uncertainty-prone than managers of established firms because they naturally focus on the opportunities that uncertainty brings rather than its threats, due to their “irrational confidence in their own good fortune” and their “buoyant optimism and large faith in things generally and themselves in particular” (Knight,

1921). As such, according to the literature, entrepreneurs would present common psychological traits and attributes that make them more uncertainty-prone and thus, more capable at leveraging the opportunities provided by uncertainty. However, the fact that entrepreneurs actually conceptualize their environment in terms of uncertainty and risk, with definitions as precise and distinct as given in the economic literature, can be questioned. Other researchers, more specialized in sociology and psychology have suggested that uncertainty could be more of a subjective concept (McMullen & Shepherd, 2006). Thus, using a phenomenological approach, this study aims at answering the following question: “Compared to the economic-strategic literature relating to entrepreneurship and uncertainty, how do entrepreneurs actually experience and act upon uncertainty?”

The paper is structured as follows: the first section presents a review of the relevant literature relating to uncertainty and entrepreneurship, the second section details our methodological approach for this study, the third section gives a description of our study sample of entrepreneurs, the fourth section develops our observations and findings and the last section presents our general conclusions as well as the limitations of this study.

Literature review

Let us start this literature review by expanding on Knight's (1921) definition of uncertainty, as it can easily be considered the starting point of the notion of uncertainty in economics. Knight defines true uncertainty by contrasting it to risk, two notions that were previously not properly separated and which are still commonly mixed up in today's strategy field. The main difference between those two notions is that risk is “a quantity susceptible of measurement” while uncertainty is “unmeasurable”. In fact, many business decisions are too unique, or too different from previously taken ones for them to be realistically measured. However, Knight does point out that “a judgment of probability is actually made in [situations of uncertainty]”. An effective summary would be that “Knight did not intend the risk-uncertainty distinction to refer to whether or not agents are able to form subjective probabilities. On the contrary, Knight explicitly stated that in his view agents can be assumed to have subjective probabilities even in cases of

uncertainty” (Leroy & Singell, 1987). Consequently, the difference between risk and uncertainty lies in the presence (or absence therefore) of “objective probability”.

Knight goes on to explain that it is this uncertainty that allows for profit, for in a world of perfect competition (in which there is no uncertainty but only risk), firms revenues would always equal cost (as the cost of risk can be estimated and accounted for). Indeed, a key distinction between risk and uncertainty is that the former is insurable while the latter is not. In Knight’s own words, “profit arises out of the inherent, absolute unpredictability of things, out of the sheer, brute fact that the results of human activity cannot be anticipated and then only in so far as even a probability calculation in regard to them is impossible and meaningless.” According to Knight, it is the duty of the entrepreneur to generate uncertainty through unpredictable changes and to bear this uncertainty in order to create profits. He links it to the peculiar mindset entrepreneurs tend to exhibit such as optimism, energy, and perhaps most importantly, faith in themselves. Such was the state of the research regarding uncertainty and entrepreneurship more than a hundred years ago, and while Knight’s contribution cannot be understated, many have come who sought to expand on this research subject.

The role of uncertainty in decision-making has been expanded on throughout the years. Indeed, it is sometimes considered as one of the fundamentals of economic activity, and that economic models which assume that people have complete information and make rational decisions fail to capture the complexity of real-world economic behavior (Shackle, 1976). Shackle emphasizes the role of imagination, expectation, and epistemic habits in relations with uncertainty, supporting the use of plausibility rather than probability. However, recent studies tend to focus on two theories regarding entrepreneurial action: the Discovery Theory and the Creation Theory. While both theories recognize the Knightian postulate that opportunities exist only under competitive imperfections, those imperfections are exogenous in the former and endogenous (created by the explorations of entrepreneurs) in the latter (Alvarez & Barney, 2007). The decision-making context for entrepreneurs might thus be risky because “opportunities are objective in nature” according to the discovery theory or uncertain as “opportunities do not exist until they are created” according to the creation theory (Alvarez & Barney, 2007).

The processes of value creation and value appropriation are particularly challenging for entrepreneurs as they operate under uncertainty, and thus with no way to know the economic value of the opportunity they wish to exploit (even probabilistically) (Alvarez & Barney, 2005). While “sometimes, organizing processes are unaffected by whether conditions of risk or uncertainty exist, other times, these conditions can have a significant impact on organizing processes”. Therefore entrepreneurs must organize their firms in specific ways in order to be able to solve the main issues that are resource coordination and value appropriation. If under risk, business planning techniques (such as scenario planning) may prove effective, under uncertainty the key seems to lie in flexibility (Alvarez & Barney, 2005).

Shackle’s (1976) potential surprise theory might offer some key ideas as to how those business planning techniques could be transformed to function under uncertainty. Potential surprise theory is based on two elements: (a) potential gain and losses from a course of action, (b) the degree of disbelief or implausibility of a particular outcome. The most important point is certainly the notion of plausibility, replacing probability, and being analyzed through its opposite - implausibility. “Unlike belief in a particular outcome, one's disbelief in several currently considered future outcomes is not necessarily affected in any way by consideration of, and disbelief in, a newly-considered future outcome.” (Derbyshire 2017). Decision-makers are asked to assign a degree of surprise on a scale ranging from zero (for outcomes that seem perfectly possible) to a maximum (for outcomes that seem completely impossible). The decision-maker then combines this measure of plausibility with the potential gain or loss to rank actions based on the "potential surprise" associated with their imagined outcomes. This allows for the comparison and ordering of actions based on how imaginable and compelling the potential gains and losses are, as modified by the plausibility of their occurrence. Thus, a framework to decision-making in the process of uncertainty could be envisioned through the use of the potential surprise theory.

As “entrepreneurial firms are designed to solve a transactional difficulty not faced by nonentrepreneurial firms” - the inability to know the value of an exchange at the time that exchange is started - different organizational mechanics arise. Alvarez & Barney (2005) propose 3 main organization types:

- “Clan-Based Entrepreneurial Firms” based on trust between partners, managed more as a clan (Ouchi, 1980) than a traditional hierarchy. Decision-making leadership is shared among essential firm employees, and they have equal decision rights.
- “Expert-Based Entrepreneurial Firms” based on the expertise of one party. Very hierarchical, the leader would be chosen based on the opportunity cost of joining the firm and is often seen as possessing expert knowledge that is essential to the firm’s success.
- “Charisma-Based Entrepreneurial Firms” based on the charisma of one party. Also very hierarchical, the leader would be exercising control based on his charisma or vision, granting him or her decision-making power. It is also important to note that this charisma might give a kind of certainty due to the clarity of the vision.

While a large part of the literature emphasized the effects uncertainty had on judgment and decision-making, some attempts have been made to develop a typology of uncertainty, with a focus on its provenance. Packard et al. (2017) suggest a new model derived from Knight’s original concept of uncertainty based on sets of outcomes and options, and more specifically, postulating that “the nature of uncertainty depends on the ‘openness’ or ‘closedness’ of these sets, as perceived by the decision maker”. Uncertainty is therefore divided in categories as follows: “Risk/Ambiguity”, “Environmental uncertainty”, “Creative uncertainty”, and “Absolute uncertainty”. An entrepreneurial judgment process is derived from this typology, as showcased by the following figure.

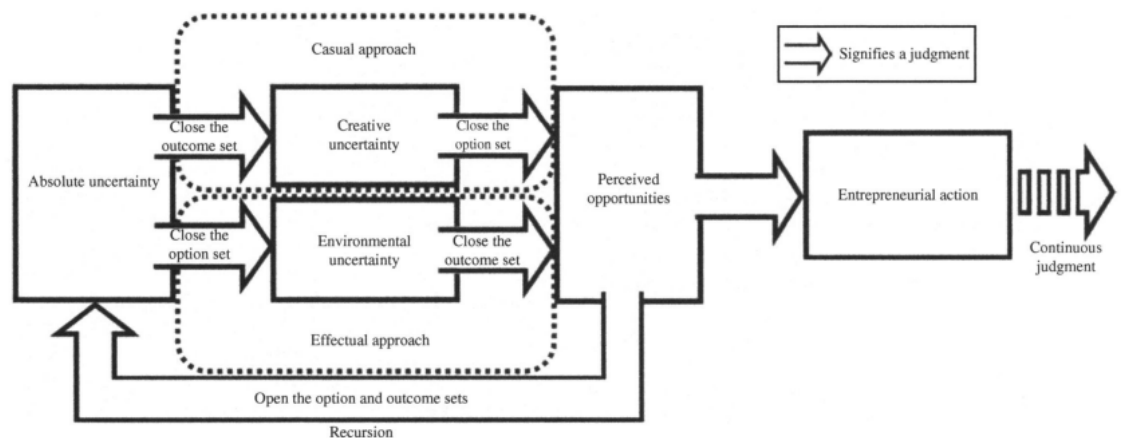


Figure 1: Model of the entrepreneurial judgment process originating in uncertainty

Another take on uncertainty typology is given by Griffin & Grote (2020). The authors break down uncertainty into two components, exogenous and endogenous uncertainty, and emphasize the role of the individual on uncertainty generation (a concept they call “uncertainty regulation”). Exogenous uncertainty is the uncertainty inherent to the environment, what would be known as true or Knightian uncertainty in economics. Endogenous uncertainty is the uncertainty directly experienced by an individual in its immediate surroundings, and because it is dependent on the individual’s perception of exogenous uncertainty, the individual can influence its own level of endogenous uncertainty through discovery and knowledge expansion. Building on concepts from psychological self-regulation, the authors propose a study of work-task-related uncertainty through a model of “uncertainty regulation” broken down into four components:

- “Attending to uncertainty”. The individual is aware of (exogenous) uncertainty in its work environment and proceeds to assess its level of importance (the perception-assessment process corresponds to endogenous uncertainty). At this stage, uncertainty is perceived both as a source of interest and a threat.
- “Appraising uncertainty”. Based on a preferred level of uncertainty that varies between individuals because of cognitive and situational discrepancies, the endogenous uncertainty can either be seen as a source of interest and potential rewards, or as a threat that should be mitigated.
- “Choosing between exploration and exploitation”. If the individual appraises endogenous uncertainty negatively, meaning above one’s preferred level of uncertainty, the individual will engage in exploitation through “closing behaviors” (application of existing knowledge to narrow the range of possible outcomes and pursue known rewards through convergent thinking, following set rules and routines, etc.). Conversely, if the individual appraises endogenous uncertainty positively, meaning below one’s preferred level of uncertainty, the individual will engage in exploration through “opening behaviors” (pursuit of highly uncertain opportunities with the hope of potential long term gain through divergent thinking, improvisation, etc.).
- “Aligning endogenous and exogenous uncertainty for effectiveness”. Performance is achieved in the work context when the individual aligns his level of endogenous uncertainty with the uncertainty requirements of

the environment (exogenous uncertainty) through either opening or closing behaviors. The environment can ask for proactivity and expansive agency (i.e. when an individual introduces higher levels of uncertainty through redefining the scope of his work to enhance performance) in case of high uncertainty or it can ask for proficiency and adaptivity in case of lower uncertainty. Effectiveness is achieved when an individual, based on his preferred level of endogenous uncertainty, aligns himself with the level of exogenous uncertainty. Conversely, misalignment will result in subpar performance.

With this model, the authors aimed to demonstrate that uncertainty is not necessarily something negative that must be systematically mitigated or avoided and that individuals can in fact influence their levels of perceived uncertainty to enhance performance and create value. Based on the concepts and theories aforementioned, we can see how entrepreneurs can influence the uncertainty levels of their environment to create opportunities for exploration.

Entrepreneurs themselves have often been at the center of theories of entrepreneurship and uncertainty. We recognized earlier that Knight (1921) emphasized on the nature of entrepreneurs with regards to their relationship toward uncertainty, hailing their “restless energy, buoyant optimism, and large faith in things generally and themselves in particular” as part of the reason why they manage to generate unpredictable change. Entrepreneurs are sometimes considered as possessing intrinsic qualities enabling them to become entrepreneurs, or as Shane (2003) puts it, “alert individuals, called entrepreneurs, discover (...) opportunities, and develop ideas for how to pursue them.” Alvarez & Barney (2007) also take into account the profile of the entrepreneurs when contrasting the discovery theory to the creation theory. While the nature of entrepreneurs and non-entrepreneurs “differ in some important ways (...) ex ante” (being the one alert enough to form and exploit the opportunity) in the discovery theory, they “may or may not differ (...) ex ante” and “may emerge, ex post” in the creation theory (small differences being exacerbated by the entrepreneurial path taken). Still on the topic of entrepreneurs, new entrepreneurial attributes allotted to the tendency of entrepreneurs to evolve amidst uncertainty have been analyzed, such as curiosity, considered as “both necessary and sufficient to motivate

entrepreneurs to begin the creation process” under Knightian uncertainty (Arikan et al., 2020).

However, as teased by Griffin & Grote (2020), uncertainty is not just a macroeconomic parameter: because how uncertain an environment seems largely depends on the entrepreneur’s personality and preferences, uncertainty is in fact very subjective. Building on the philosophy and psychology of action literature, McMullen & Shepherd (2006) reconcile several previous theories of entrepreneurship under uncertainty from both the system- and individual-level of analysis to propose a more complete conceptualization of entrepreneurial action under uncertainty at the individual level. Both authors argue that uncertainty is inherent to entrepreneurial action because an action takes place over time and the future is unpredictable by nature. Furthermore, the uncertainty is further enhanced by the novelty, the change potential, that is characteristic of entrepreneurship (creating new products, new services, new ventures, etc.). Most interesting is their take on how they conceptualize entrepreneurship compared to previous studies: where the latter focused on studying decision-making in conditions of uncertainty, McMullen & Shepherd emphasize that a decision is a necessary but not sufficient condition for entrepreneurship: one must decide and take action for entrepreneurship to take place, and whether one takes action depends on how much one relies on one’s judgment (the level of doubt experienced), which in turn depends on the degree of uncertainty experienced in the decision-making process. However, the two authors use a very distinct definition of uncertainty, compared to the Knightian acceptance of the term: uncertainty is not a change or a decision so radical that the outcomes are unpredictable but “a sense of doubt that blocks or delays action” (a definition borrowed from Lipshitz & Strauss, 1997). This particular conceptualization of uncertainty is of high theoretical importance for us because it suggests that:

- Uncertainty is subjective for “different individuals may experience different doubts in identical situations” due to differences in needs, values, attitudes towards risk, confidence, perceptions and heuristics.
- The doubt that delays the entrepreneurial action is not specified in terms of form, which means it can take any form for the individual.

- The doubt is conceptualized in terms of the effects it has on action: it can be hesitancy, indecisiveness, or procrastination. Here the focus is less on the nature of uncertainty and more on what it does to action.

As with this definition, uncertainty is seen as a prohibitive force against action, the authors posit that entrepreneurs choosing to pursue an opportunity is a function of (a) the amount of uncertainty perceived by the entrepreneur and (b) the entrepreneur’s willingness to bear that uncertainty. Additionally, they propose a two-step conceptual model relating perceived uncertainty and motivation to entrepreneurial action (exemplified by the figure below):

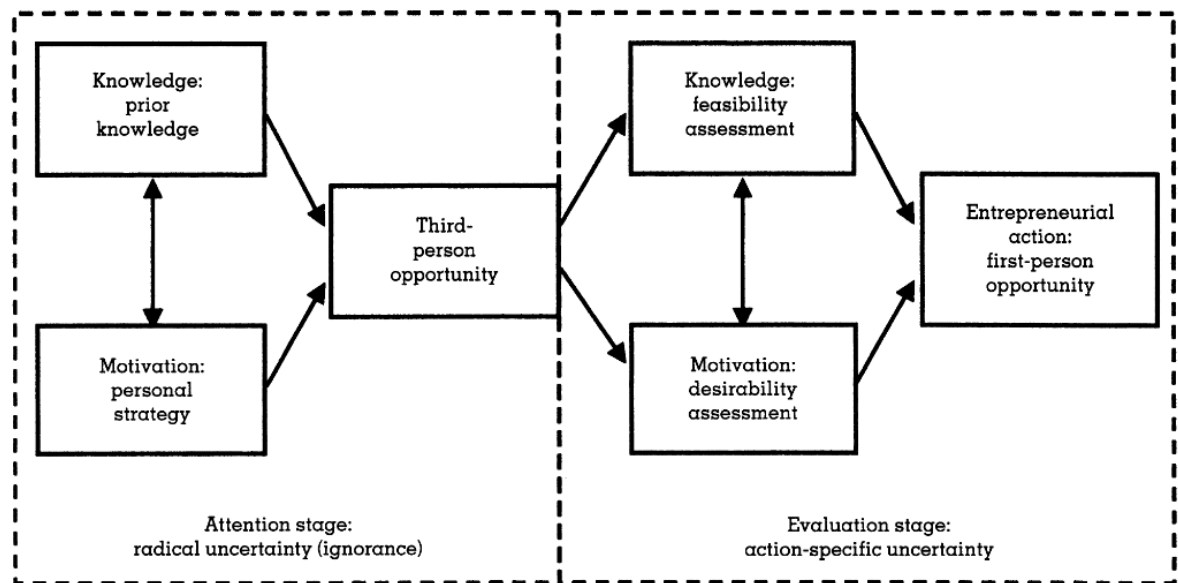


Figure 2: Two-step conceptual model relating perceived uncertainty and motivation to entrepreneurial action

- First, to act entrepreneurially, one must possess a sufficient level of domain-specific knowledge to recognize the opportunity to act (what the authors call a “third-person opportunity”). Yet, that alone will not spur action: one must be motivated enough, because of a personal strategy, to notice the opportunity and give it attention. The article takes the example of an individual who, dissatisfied with his or her current running shoes and planning to switch brands for a new pair, becomes more sensitive to (a) the different brands offering different features on their shoes and (b) new technologies that could be implemented to further improve running shoes. Here, it is because the individual’s personal strategy was to change

running shoes to a better performing model and because he or she gained knowledge trying various brands that the third person opportunity of implementing new miniaturized technologies to improve running shoes was “discovered”.

- Secondly, for entrepreneurial action to take place, one must concomitantly feel competent enough and consider the outcome resulting of pursuing the third-person opportunity desirable enough to pursue the so-called “first-person opportunity”, or as the authors summed it up: “Thus, it seems that, to act entrepreneurially, people need not have a high tolerance for uncertainty if they believe that they know what they are doing. Therefore, whether one will engage in a particular action is a decision that depends on whether the individual is motivated enough to act, given the uncertainty he or she expects to encounter in pursuit of a third-person opportunity.”

As such, we can see that McMullen & Shepherd’s conceptual model aims at reconciling older, system-level theories of entrepreneurship under uncertainty with more subjective, psychological and sociological approaches.

This literature review gives a brief glimpse at several theories of entrepreneurship under uncertainty, predicting how entrepreneurs behave and organize depending on the uncertainty of their environment. However, it is now highly apparent that uncertainty is not only a macroeconomic concept, but also a concept that is very subjective and dependent on one’s perceptions, beliefs, and knowledge. Our research will thus use a phenomenological approach to get a deeper, more organic understanding of how entrepreneurs actually perceive uncertainty, what factors influence their perceptions and how their perception of uncertainty in turn influence their entrepreneurial actions.

Research methodology

1. Research design

In order to investigate the way entrepreneurs perceive uncertainty and the different factors that shape this perception, we used a qualitative approach based on multiple in-depth interviews with entrepreneurs. As mentioned earlier, we adopted a phenomenological approach to our research.

Phenomenology is the philosophical study of the structures of experience and consciousness. On the premise that the realness of things is based on the human perception of said things, the way we interpret them giving them meaning, phenomenology can be a great notion to use as a basis to our questioning of the nature of uncertainty. It focuses on the subjectivity of human experiences by suspending assumptions and trying to find the meaning and essence behind them.

In the strategic context, this allows for a more comprehensive understanding of decision-making, changes, culture, and perception through the lens of the lived experiences of individuals and organizations. Thus, to gauge the way uncertainty is perceived by entrepreneurs and what factors influence this perception, we decided to look into their personal understanding of those notions and the way their experience shapes their perception. As Amadeo Giorgi (1985) puts it, our “ambition is to collect respondents’ lived experiences of a phenomenon, and from those idiosyncratic experiences approach the universal and general aspects of the phenomenon” while keeping a reduced scope mainly due to time constraints. Therefore, our sampling was done with the goal of obtaining a manageable and pertinent group of entrepreneurs who had interesting insights on the notions we wanted to observe. Our goal was to gain a more detailed understanding of the phenomenon rather than presenting specific cases or representing a general population (Smith et al. 1995).

2. Samples

a. Sample selection

We decided on our interview based on different criteria. In order to conduct an effective phenomenological study, we first wanted to keep a certain diversity amongst our interviewees, as much as a small qualitative sample size allows. Thus, we looked for entrepreneurs from different backgrounds, nationalities, age, gender, and experiences. We also did not specify successful or unsuccessful entrepreneurs in our research. The same applied for the companies those entrepreneurs were part of. We did not want to run the risk of finding respondents who all had the same experience of the subject, due to the similarity of their backgrounds. In the process of selecting entrepreneurs for our interviews, we started by listing the main startups of the Oslo metropolitan area (the Greater Oslo Region). This was done with the help of websites such as Crunchbase.com and Dealroom.co. Oslobusinessregion.no reports and the Oslo Startuplab also proved invaluable resources in finding relevant samples. This allowed us to identify 50 Norwegian entrepreneurs. We also leveraged our personal contacts and relied on our network to select international entrepreneurs from areas such as France, Germany, and Denmark.

b. Sample solicitation

Once we identified potential interviewees, we then proceeded to contact them. Our method of choice consisted of messaging them on LinkedIn and sending emails. Out of the 50 Norwegian entrepreneurs contacted, 4 were interested and available to participate in interviews (8% positive response rate). International contacts proved more responsive, a perk of leveraging our network, as more than 60% of entrepreneurs contacted abroad agreed to participate. All in all, we managed to interview 11 entrepreneurs from 10 different companies.

3. Data collection:

When gathering data, it is important to be flexible enough to accommodate the richness inherent in the experiences of the participants while staying focused on the research question and the phenomenon explored (Berglund, 2007). To that end, we decided to use semi-structured interviews in order to leave the respondents room to speak and allow us to adapt to the answers on the fly. Those interviews lasted on average around one hour each and were conducted either

online (using software such as Zoom, Microsoft Teams or Google Meet) or in person (usually at the respondents' office). The interviews were constructed of 3 main parts. The first one concerned the interviewee, their firm, and their vision of entrepreneurship. The second one concerned the notion of uncertainty (and its links to risk); with specific attention the experience of the respondent, the organization of their firm and the exploration-exploitation tradeoff. Finally, the last part was thought as a comeback to previously explored notions through the lenses of time and evolution. We recorded each interview with the consent of participants and notes were also taken. The interviews were conducted in tandem by the two of us, and then transcribed in the most faithful manner. In the specific case of interviews conducted in French, they were also translated into English to harmonize the vernacular elements. This method allowed us to have different perspectives on each interview and to gather conducive data.

Data analysis

To analyze the data, we relied on some of the methodological steps proposed by Hycner (1985). As great importance is put on the idea that “no method can be arbitrarily imposed on a phenomenon since that would do a great injustice to the integrity of that phenomenon”, we voluntarily did not follow each and every step but rather decided to focus on the ones that would allow us to get the most interesting results. The global process had the following outlook:

- Transcribing
- Bracketing
- Reading and listening to the interviews for a sense of the whole
- Finding relevant meaning units and clustering them (coding was used for this process)
- Modifying the pre established themes
- Summarizing the meaning units and codes by linking them to overall questions and themes.

Before going into the details of our findings, let us start by broadly presenting the entrepreneurs we interviewed and their company. For reasons of

discretion, we refer to interviewees as a combination of the first letter of their first name and of their company.

RB:

RB is, in his own words, a German “serial-entrepreneur”. He has a background in computer science and risk management, and has been founding companies since he was a student. He is also teaching in universities and holds a PhD in enterprise risk management. He has founded a total of 6 companies, primarily in the IT sector, and sold 5 of them once they were leaving the start-up size while continuing to work on them as a consultant. He founded his last company in 2011. This company aims to help other companies “leverage their sales forces 100% offline”. It currently employs more than 60 people and has well-passed the start-up stage. RB background in risk management coupled to his vast experience as an entrepreneur made for some interesting insights regarding uncertainty.

AI and MI:

Co-founders of a German start-up in 2017, AI and MI met each other during their IT studies where they decided to create their company with a third fellow student. The company focuses on “software engineering for the cloud”, offering different products for different applications with the same technological base. As the company is 100% owned by its co-founder, they are able to make their own decisions regarding the path to follow which has led the company from failures to successes. The company has been able to grow, reaching the significant size of 24 employees and forcing them to recently invest in new headquarters. Now looking at long-term profitability and organic scaling, their approach to risk and uncertainty has evolved with the company. Personal differences are also accentuated by contrasting the experiences and perceptions of the two co-founders.

MT:

MT is a young French business school graduate who started his company last August following an entrepreneurship class he took with the 3 other co-founders. His company functions as a marketplace for internships and work-study contracts for business and communication students, on which

recruiting companies are the one doing the first step of contacting a student they are interested in. The company has been successful in finding users (there are currently 3000 students and 300 companies registered on the platform) and is now looking to monetize its product. MT has a lot of ideas regarding the future of his company and the recent nature of the company creates an environment conducive to change and uncertainty.

AIB:

AIB is also a young French business school graduate, and the only female entrepreneur amongst our respondents. She created her brand of sports bras for women with large breasts in November and has since been working full-time and alone on this project. With a first product launch approaching, AIB is also betting on the Olympic Games of 2024 to shed some light on her startup after she won a call for proposal for the event. Ambitious and determined regarding how she wants to develop her company, AIB expects to own an in-house workshop in the future to control the sourcing and production.

HT:

HT is the CEO and one of the two co-founder of a Danish startup that offers an “online tutoring platform for elementary and high school students”. He created this company a little more than two years ago after having been a tutor for a few years during his business studies in Copenhagen. Having managed to take advantage of the covid-19 situation, the company is now looking to capitalize on this temporary advantage and grow rapidly. The company is currently employing ten people and relies on more than 400 tutors and is working on expanding internationally. HT's approach to uncertainty is interesting to contrast with the other ones, as he states he does not “like risk as much as other entrepreneurs in general”.

NP:

NP is not the founder of the company he is working for but has joined it 4 years ago as the first employee. He describes himself as a “jack of all trade” with a focus on sales management. He decided to join a startup working on garage door opening and access control after having worked for more than 15 years for Telenor on pricing, strategy, and project management, firstly in Hungary and then

in Norway. His vast experience in both the corporate and the startup world made for invaluable insights and a conducive comparison point. Furthermore, as the company went through a lot of evolutionary steps during his time there, he was able to reflect on how the different changes had an impact on his experience and the notions we wanted to explore.

RF:

RF is a Croatian co-founder of an Austrian startup working for NGOs with the self-assigned mission to “create the best donation experience in the world for charitable organizations”. With a background in engineering and having worked for a few years in nonprofit organizations, RF founded his company in 2021 after having experienced the many difficulties of fundraising from the side of charities. Since then, the company has had its ups and downs, successfully recruiting and expanding, then having to lay off and restructure. They are now down to 3 people and hiring a new engineer is currently their number one priority and has proven more difficult than expected, forcing them to relocate in order to “search for different markets for talents”.

LO:

LO likes to describe himself as a “serial entrepreneur” and could not imagine his life without the entrepreneurial aspect it currently has. This Norwegian co-founder has more than 25 years of startup experiences, having started his working as a self-employed and uneducated carpenter as he “did not fit into the normal work life”. His latest company “works by taking marine plastic out of the ocean and keeping it in closed-loop systems in the marketplace by offering it in a service model”. This way, companies can “get a lot of extra value from data, from certificates of origin, return systems, marketing data, co-branding, and also not the least competence sharing through development projects”. Founded 3 years ago, the company has just reached the commercialization stage. Perhaps more importantly, LO's long experience in entrepreneurship and his reflections on the matter are an important source of insights.

AnB:

AnB is the new CEO of a Norwegian startup focusing on providing “cognitive training to footballers through VR”. He has previous experiences in

management, venture capital and operations management before being approached by the founder of what is now his company. As someone who was always interested in figuring out how to create value, this opportunity was one he could not miss, and he has since developed the company, which recently reached the milestone of 12 employees. His decision-making approach is reflected in the development of the company and in the steps that are yet to come, including his commitment to technology and a willingness to scale up fast.

PN:

Founder of a Norwegian deep tech company that aims at creating an “operating system and tools for developers for them to create links between objects and connect them with each other”, PN has spent the last 20 years working on the technology behind this endeavor. An expert in his field, PN used to work as a freelance consultant in IT before he “had a calling”, quit his job and spent all his money in the pursuit of this technological goal. While the company’s main struggle lies in its search for investors, it managed to grow enough to employ 21 people and is now hoping to spread its technological innovations and create an ecosystem of its own.

Respondent	Gender	Nationality	Educational Background	Corporate Experience	Founder	Company Age (in years)	Company Size	
IT and Risk								
RB	Male	German	management	No	Yes	12	63	
AI	Male	German	IT	No	Yes	6	24	
MI	Male	German	IT	No	Yes	6	24	
MT	Male	French	Business	No	Yes	1	4	
AIB	Female	French	Business	No	Yes	1	1	
HT	Male	Danish	Business	No	Yes	2	10	
NP	Male	Hungarian	Business	Yes	No	4	11	
RF	Male	Croatian	IT	Yes	Yes	3	3	
LO	Male	Norwegian	Other	No	Yes	3	11	
			IT and Entrepreneurship					
AnB	Male	Norwegian	Entrepreneurship	Yes	No	5	12	
PN	Male	Norwegian	IT	Yes	Yes	10	21	

Table 1: General overview of the respondents

Findings

Following the methodological steps proposed by Hycner (1985) generated 11 categories or core themes related to aspects of entrepreneurship and uncertainty which were grouped into 4 super factors that will be presented in the “Conclusion” section. The categories will now be described in greater details and illustrated with a number of verbatims from the interviewed entrepreneurs.

Becoming an entrepreneur

In order to understand how the respondents came to be entrepreneurs and the reasons behind it, the first questions of the interviews tried to serve as an introduction to themselves and their experience. Those first questions focused on two main ideas: “when did they first envision themselves as entrepreneurs?” and “what were the catalysts at the origin of their entrepreneurial action?”. This process also shed light on the different ways entrepreneurs come to identify an entrepreneurial opportunity.

Regarding the origin of their entrepreneurial drive, the results are evenly divided. Indeed, 4 of the respondents indicated that founding a company and becoming an entrepreneur had always been something they wanted to do. HT stated, *“I feel like I've always wanted to have my own company at some point.”* AnB even linked his willingness to become an entrepreneur to his childhood, *“Ever since I was a child, I've always been interested in figuring out how to create value.”*

4 other respondents stated that their willingness to join the entrepreneurial world came from a dislike of the corporate world. Indeed, LO stated, *“I don't feel I fit into the normal work life. (...) I felt I was just drinking coffee and banging my head against the wall [due to] the hierarchy and the slow progress.”* NP felt the corporate world had nothing left to offer him, *“After 15 years in the corporate world, I felt that the pace was a little slow and that my development was limited”*. MI specified, *“I didn't want my whole life to be just a small piece of something*

really, really big. And then my thoughts about founding my own company started.”

Additionally, 6 respondents stated that they decided to become an entrepreneur following a sudden opportunity. For AIB it all started with an entrepreneurship course: *“the assignment was to come up with an innovative idea that we would test as if we were entrepreneurs for two days.”* AI and MI both followed the third co-founder of their company who came up with an idea: *“I said yes immediately, before I even heard the idea”, “[He] came to me and said: ‘how about founding a company? I have an idea, let’s do something.’ (...) It was the opportunity I was waiting for.”* PN attributes it to a calling: *“And it was more like a calling. It’s not like I decided to be an entrepreneur. I just became an entrepreneur. (...) This was something I needed to do.”*

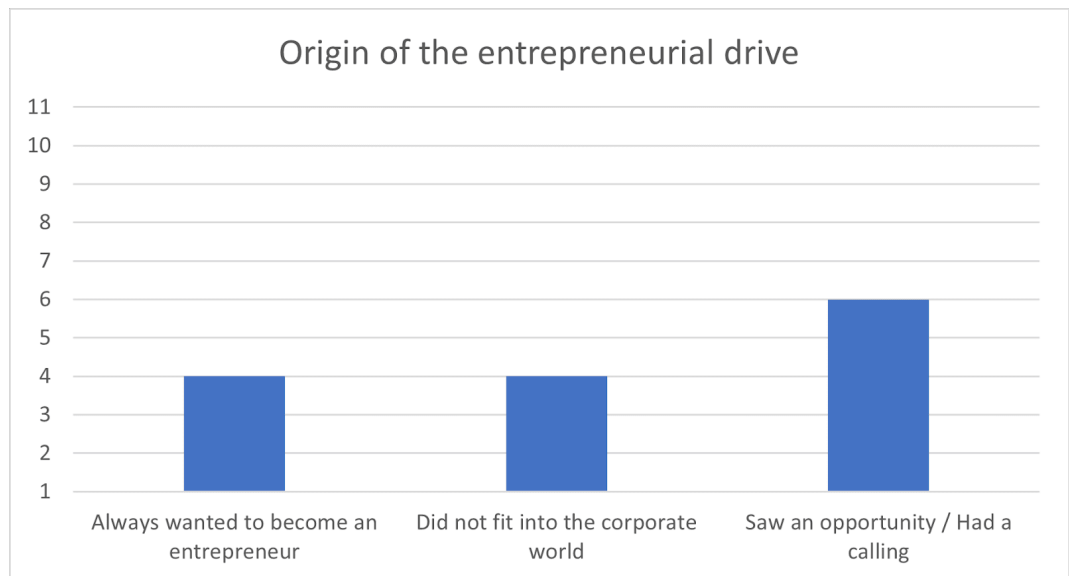


Figure 3: *Origin of the entrepreneurial drive*

Regarding the reasons and motivations behind the entrepreneurial actions of the respondents, a few aspects particularly stand out. Firstly, all of the respondents have in some way or another claimed that the desire to create value was one of the core elements behind their entrepreneurial action. AnB stated that he is *“interested in figuring out how to create value (...) And when I say “value”, I don’t necessarily only mean money, but also resources, time...”* MT stated *“What I like in the definition of entrepreneurship is meeting a need and adding value. To say to myself: (...) I’m going to try to bring value to this thing that’s working, for the moment not at 100% of its potential.”*

Solving problems also appeared as a key driver of the action of the interviewed entrepreneurs. It is often one of the main reasons behind the beginning of the entrepreneurial journey. In fact, 8 of the 11 respondents talked about problem solving as a key aspect of entrepreneurship. While questioned about his definition of an entrepreneur, LO stated *“it's somebody who wants to solve something on their own, or by their own ideas, and can't find a home for that solution anywhere else. (...) For me, it's been about solving societal problems, like environmental problems or bigger issues that don't necessarily have a clear market opportunity in the first place.”* PN started his company after identifying what he refers to as *“a chicken and egg problem”*; *“we need to create the product and then we need to solve a problem for the customer.”* This problem is also often experienced by entrepreneurs prior to their company creation and thus serves as a catalyst, motivating and justifying the action through the lens of personal experience. AIB stated *“I didn't think of it as an entrepreneurial project, it was more like ‘it's bothering me, if you want, we can work on it’. It was only afterwards that I realized that this was really an entrepreneurial project for me, because it started from a problem that someone was facing, and actually, that someone wasn't just me.”* For HT, it all started because *“I had been a tutor before myself privately for several years. (...) And I saw how big an impact it could have on someone's life.”* For RF the starting point was *“I had my own nonprofit organization. And I saw that generating the necessary capital for a project is nearly impossible. (...) Basically, I was just pissed at how terrible donations work.”*

The notion of freedom is also associated with entrepreneurial life. For 5 of the respondents, it can be cited as a goal in itself or as a means to succeed in entrepreneurial action. RB stated, *“because there's no cage for you, you have the possibility to do all the things you want.”* This was also something NP was actively looking for by leaving the corporate world: *“I felt in [the corporate world] that there were a lot of theories and methods and while you were exposed to new ideas, there was a huge limit to what extent you can go after those ideas. Here it's more free.”*

On a similar note, for 3 respondents, creativity and energy are part of the reasons behind their entrepreneurial action. RF decided to become an entrepreneur after being impressed by the energy and vision of other entrepreneurs: *“I went to*

my first entrepreneur meeting, and I was blown away by the people standing on the stage and talking about visions and ideas.” For AIB, “this energy comes from the fact that we’re working for ourselves” and she loves being able to “get to touch a little bit of everything”. RB stated “it was always the driving component to be creative”.

Finally, financial reasons were important for 2 of the respondents. It is one of the main reasons RB set foot on the path of entrepreneurship: *“and my situation was that I have always earned my own money, there were no parents to spend money for me. (...) I have to earn my own money, I want to be busy, and so this is why I’m an entrepreneur.”* AnB remembers from when he was a kid: *“In the summer, I would go to houses nearby to ask ‘do you need anything to be done around your house? Can I get paid to do it?’. So that’s how I started, always just kind of trying to figure out how to make revenues.”*

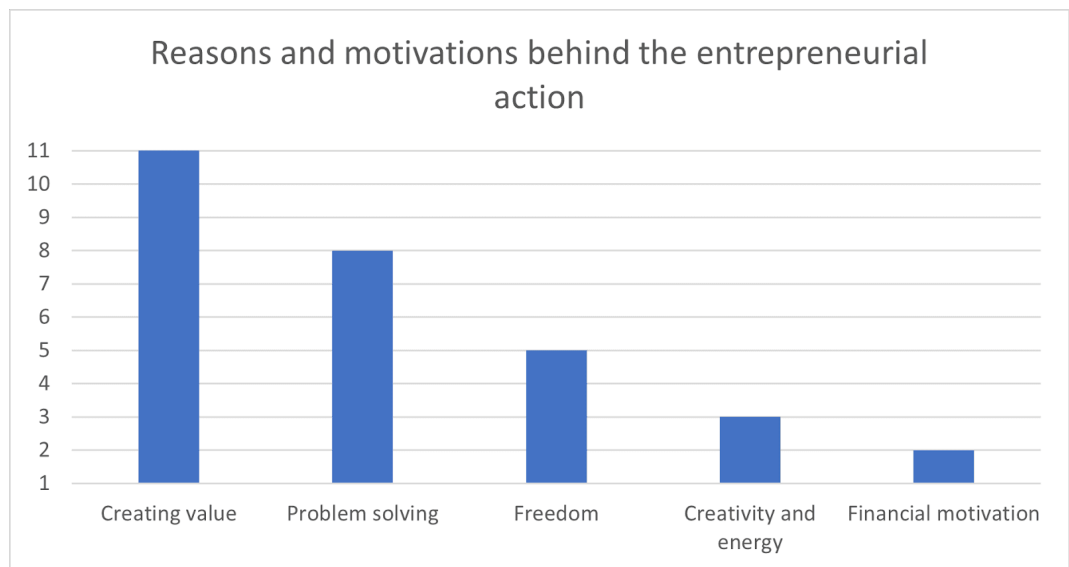


Figure 4: *Reasons and motivations behind the entrepreneurial action*

As mentioned earlier, the first round of answers shed some light on the different ways entrepreneurs come to identify an entrepreneurial opportunity. The respondents can be sorted into two distinct categories.

The first one consists of entrepreneurs who started their entrepreneurial activity with a clearly identified goal in mind. This comprises the majority of respondents, 7 out of 11, and is an interesting call back to the ideas we just explored regarding the reasons and motivations behind entrepreneurial action.

Indeed, a personally experienced issue makes for a great goal and entrepreneurial opportunity. Previous verbatims from HT, AIB or RF illustrate this idea clearly. The peculiar case of entrepreneurs joining or taking over an already founded venture also applies here. Such is the case for NP who stated that *“The company was founded by consultants working on a consulting project. Working for a client who is now one of the investors and owners, they realized that there was an opportunity here for more than just a consulting project, so they founded a company on the identified business opportunity.”* In this category, the idea comes into light from the side of the entrepreneur who is at the core of the opportunity.

The second category consists of entrepreneurs whose entrepreneurial opportunity came to light through experimentation. This might happen when the idea at the origin of the start-up is unsustainable or yields unfavorable results. As AI puts it plainly *“We started actually with a very bad idea. (...) So we stopped the idea. Then (...) we just asked the market for problems.”* Another fit for this category are entrepreneurs who are the origin of multiple companies. RB states that *“If you've already done it once, never repeat the same approach. (...) we brainstorm new ideas, (...) we always take into account the market situation and where we stand in the hype cycle.”* In those cases, it is through observation and careful market analysis that ideas come to light and that the opportunity is identified.

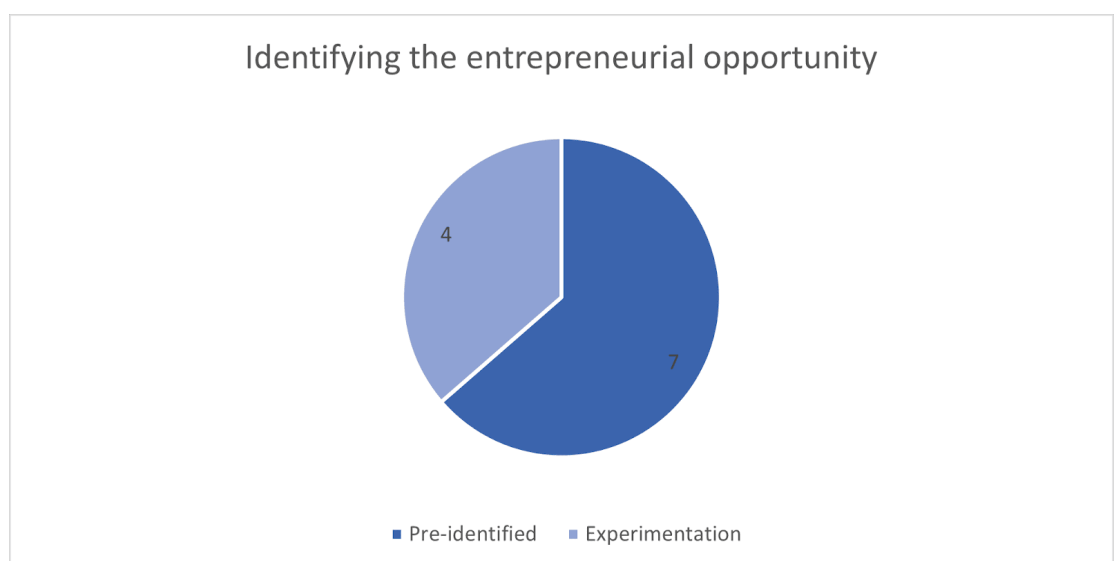


Figure 5: *Identifying the entrepreneurial opportunity*

Characteristics of a successful entrepreneur

Another theme that emerged during the interviews concerned a fundamental question: “What are the characteristics of a successful entrepreneur?” What fundamentally differentiates an entrepreneur from a non-entrepreneur, and what sets a successful one apart from the others? According to Knight (1921) entrepreneurs tend to exhibit the same set of characteristics: they are optimistic, energetic, and have a lot of faith in themselves. This is what allows them to generate abnormal profit by exploiting and generating uncertainty. By asking respondents what they think made a successful entrepreneur, how they would describe their mindset, the importance they think certain characteristics have on entrepreneurship, and by describing their own experience of failures and successes, we managed to identify a set core of characteristics that seem to indicate the success of an entrepreneur.

Overall, 8 characteristics were identified by the respondents as paramount to the success of an entrepreneur, namely:

- Optimism
- High-energy
- Tenacity and drive
- Charisma
- Naivety
- Risk-appentency
- Luck
- Adaptability

Similarly to what Knight emphasized, optimism is the most commonly cited characteristic, with 7 of the respondents considering it to be a key element to their success or at the very least a core characteristic of entrepreneurs. RB stated: “*You have to be a very optimistic person, otherwise you can't be an entrepreneur*”. RF added “*At the core [entrepreneurs] are optimistic.*” AI also stated, “*I think if you're not optimistic (...) you wouldn't start a business, because it's too much work.*” Thus, optimism is often considered as a *sine qua non* characteristic of entrepreneurs. One cannot become an entrepreneur without optimism for the task ahead is tremendous. For MI, the key lies in the fact that “*we have to look optimistically at the future and say, ‘One day we will reach our*

goals’.” Sometimes (for 2 of the respondents), the optimism is nuanced. AIB claimed: *“I’m not sure we’re very optimistic, I think we try to convince ourselves, to tell ourselves that we’re going to be fine (...) we’re optimistic in public, with people.”* Not all entrepreneurs can be optimistic, and they do not necessarily need to be, HT added, *“I’m probably not as optimistic as most other entrepreneurs I would say. But my co-founder is, so it’s good to have this balance.”*

This optimism was also occasionally contrasted with the fact that it was tainted by naivety. Such was the case for 4 of the respondents. MT stated: *“I think you have to be fairly optimistic, but I think there’s a kind of naivety behind it. But that’s not necessarily bad. It’s naivety that gives you hope, that gives you energy and that allows you to go so far. Because, if you were to take all the tasks and objectives you need to achieve to complete a project, I think more than a few people would be discouraged.”* PN’s dedication can even seem irrational, when stars seem to align, he stated *“It’s like you’re starting to believe in God or something because it’s like it was meant to be. (...) It’s not supposed to happen, but it does.”* AI concluded *“And what always is in my head is that everything is a game, like a strategy game where you can try to build something. So, I am always not taking things too seriously.”*

The energetic aspect of entrepreneurs is also echoed in the discussions with the respondents. 5 of them explicitly stated that demonstrating a high level of energy was paramount to entrepreneurs. This allows them to tackle obstacles, work hard for long periods of time and convince others of the merit of their undertaking. For AIB, *“this energy comes from the fact that we’re working for ourselves: for example, if I don’t make any progress on the project, I’ll never get paid, so there’s a bit of a ‘we’ve got energy, but if we don’t put it in, we’ll have nothing to show for it’”*. It is one of the reasons NP went on joining entrepreneurs: *“I was looking for more similar people in terms of flow and energy.”*

Tenacity and drive were two interesting coexisting notions. What transpired was that entrepreneurs need to be able to weather the numerous difficulties they face. Tenacity, perseverance, determination, pugnacity... are all needed to keep the entrepreneurial spirit alive when confronted to seemingly insurmountable obstacles or particularly uncertain times. AnB stated *“I think one of the attributes that you need to be a successful entrepreneur is tenacity. Like, if I*

had to give the main common denominator for all entrepreneurs, it would be tenacity. (...) It is really the tenacity trait that keeps you going. It's about not giving in to the negative mindset, not giving in to the hardships of being an entrepreneur.” For LO it is “*stamina or endurance*” that made them keep going until the market was mature enough. MI also touched on this idea: “*You often fail. But the most important thing is that one day you succeed, so you try again, and you try again.*”

Being able to convince others, leading a team, and persuading investors are all elements justifying the importance charisma has for entrepreneurs. 5 of the respondents agree that is a key element to the success of the entrepreneurial adventure. This can correspond to the type of previously introduced Charisma-Based Entrepreneurial Firms (Alvarez & Barney, 2005) but is also more broadly related to the way entrepreneurs act towards other people. Charisma can also be leveraged to spread other key characteristics down the firm. MI and AI explained that, as founders, it is important “*for us to convey our optimistic thoughts to our employees.*” NP added: “*I also think that when it comes to the composition of the start-up, the managers have to be positive. I think that the founders, the ones that people look at to see if you're worried, have to be positive. If you're not worried, I'm not worried, am I?*” Lastly, charisma can also be the motor that drives the company forward. Regarding the most important aspect of handling uncertainty RB stated: “*To have the right charisma to push people.*”

4 respondents ranked the ability and willingness to take risks as a crucial entrepreneurship characteristic. HT stated: “*If we talk about the psychology or the personality traits of entrepreneurs, I think there are a lot of them who are risk takers*”. For AI, compared to the general population, entrepreneurs “*need to be a little bit more risk taking*”. RF explains his risk-taking tendencies: “*This is necessary to be someone who wants to always do something else and not abide too much by the set rules*”.

Luck was identified by 2 respondents as a key factor to their success. Talking about the reasons he was successful, RB concluded: “*And the last one is to be a little bit lucky, because you can do all the things, but you must be a little bit lucky.*” While the importance of luck was not clearly identified by 9 of the

respondents, all of them attributed some circumstances outside of their control to their successes or failures.

Finally, adaptability was the key word for 2 respondents. Those two respondents both founded their company less than a year ago and have experienced the need to be adaptive to succeed in their endeavor. AIB stated: *“maybe one day, in fact, [my brand] won't be a bra brand at all, and it'll be something totally different, because I realized that this project wasn't right.”*

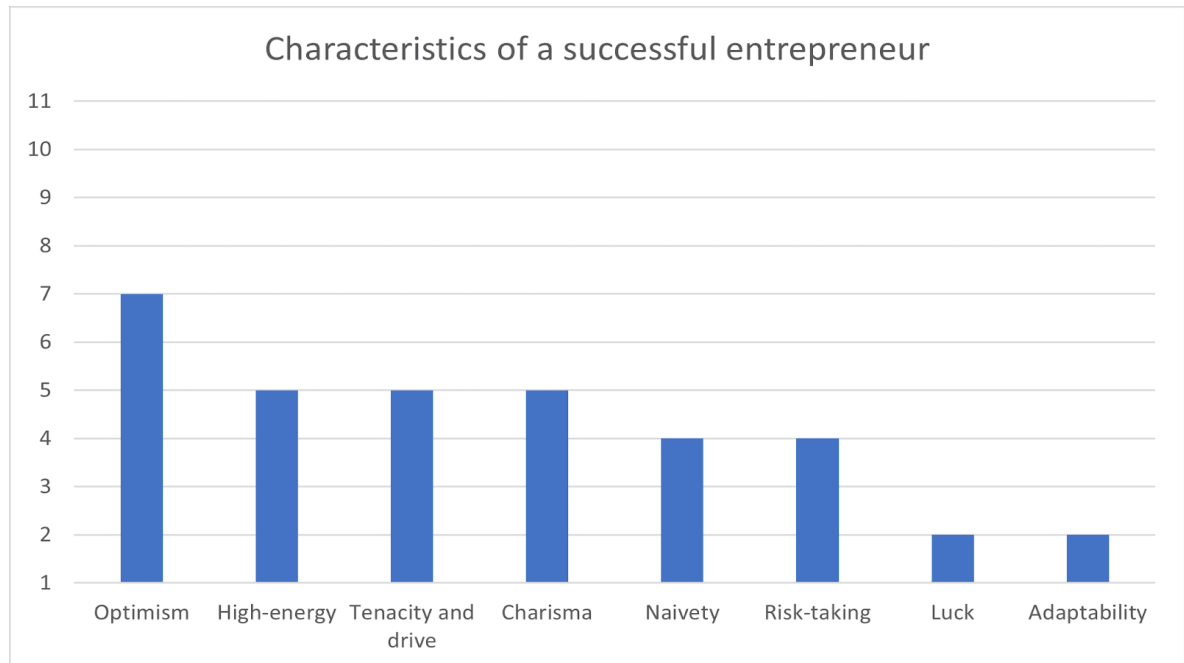


Figure 6: *Characteristics of a successful entrepreneur*

The role of the entrepreneur

For 6 of the respondents, the entrepreneur has to provide an answer to a need. This can be explained by the fact that the need was felt personally, and no solution was found on the market, as was the case for AIB and MT. This can also be explained by the willingness to create a solution on your own and not to rely on pre existing ones. Regarding this point, LO stated: *“it's somebody who wants to solve something on their own, or by their own ideas, and can't find a home for that solution anywhere else. Or, like me, also don't want to go somewhere else to solve the problems, because you actually want to pursue them yourself.”* The problem solving can take a very egoistic form, as is the case with PN whose initial purpose was solely to solve an issue he found interesting and that was plaguing

him: *“I had to do it. I couldn’t sleep. I couldn’t do other things. (...) I thought about it all the time. It’s like a chess game. You know, you’re just thinking about the chess game. You don’t have time for anything else.”* It can also take a very altruistic form, of wanting to help people to the best of your ability. HT’s endeavor started with this idea: *“after talking about this and realizing the big difference that a tutor can make in someone’s life, we talked about the fact that we wanted to do something regarding entrepreneurship. And we started [the company].”*

Another identified potential role of the entrepreneur is to be a motor for change and actions. As HT stated: *“an entrepreneur is someone who wants to maybe change something about the status quo”*. The notion of disruption also makes its appearance. RB explained, *“It’s essential to come up with a hopefully disruptive idea or a great copy of an existing one. (...) When we brainstorm new ideas, disruption is our primary focus. If there are still one or two companies in the market with similar concepts, we might also explore the possibilities of copying, disrupting, and improving upon them.”* Finally, creating new opportunities fit this category, as AnB said: *“an entrepreneur is someone that looks for untapped opportunities and tries to leverage them.”*

Lastly, the notion of uncertainty made its appearance in this theme for 3 of the respondents. This is particularly interesting as uncertainty had not been at this time explicitly discussed or introduced to the conversation. Acting in spite of uncertainty was identified as being something entrepreneurs have to do. MI stated *“even if you don’t really know what to do, you just do it. Even if you are quite uncertain about what to do, you just do it, even knowing you do not have the experience to do it, but you just try to.”* In a Knightian approach, it is needed to be able to succeed and create value. PN explained: *“entrepreneurship is learning new things, being brave enough to take risks, and then giving up stability a little bit to be in the forefront of new things.”*

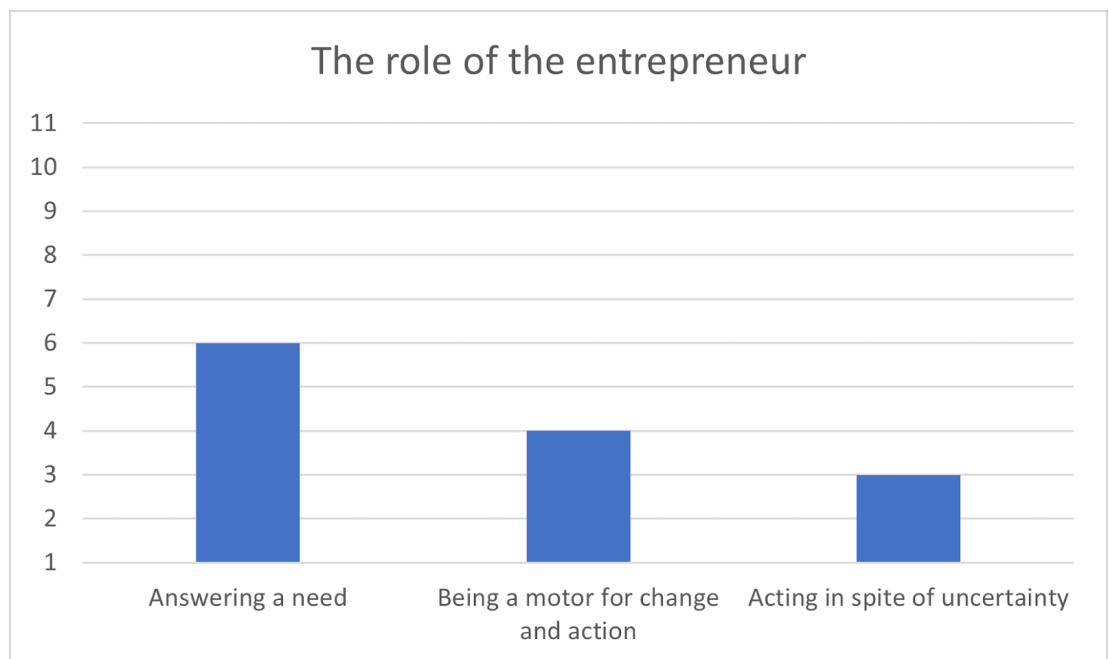


Figure 7: *The role of the entrepreneur*

How entrepreneurs conceptualize uncertainty

Extensive research has been done on the relationship between entrepreneurship and uncertainty, whether it is how uncertainty is a necessary condition for entrepreneurship (Knight, 1921) or how an individual’s preferences towards uncertainty dictate his or her behavior regarding the exploration of opportunities (Griffin & Grote, 2020). Yet, we found little research relating to how entrepreneurs actually conceptualize the uncertainty they operate in, and if they conceptualize it at all. This section presents our findings regarding how entrepreneurs conceptualize the uncertainty of their environment and compare it to previous theories.

During the course of our research, we observed that all the entrepreneurs interviewed had fairly similar conceptualizations of uncertainty. In line with the phenomenological approach we decided to adopt, we asked the entrepreneurs how they would define uncertainty, omitting on purpose any theoretical hints to avoid influencing their answers. To them, uncertainty pertains to the unpredictable nature of the future. They described it as the sum of all the variables you have no control over and the outcomes you cannot foresee. Here are some direct quotations from our interview transcripts:

“Uncertainty is the inability to tell the future, inability to define what will happen, inability to make up scenarios. It's also an inherent characteristic of making business decisions with limited information.” (NP)

“Uncertainty is all these doubts, all these paths that we don't imagine, all the problems that we don't imagine, all the pleasant surprises that we don't imagine either.” (ALB)

We can already see that the entrepreneurs interviewed conceptualize uncertainty quite distinctly to Knight's theory (or economic theories on uncertainty at large). The way they see uncertainty is not so much a set of outcomes whose probabilities cannot be estimated because of the radical change they can bring; instead, in the eyes of the actor - the entrepreneur - uncertainty is, in a way, the future itself, and permeates all business decisions, which is a conceptualization much closer to the sociological-behavioral one proposed by McMullen & Shepherd (2006).

How entrepreneurs appraise uncertainty

Although all the entrepreneurs interviewed demonstrated similar conceptualizations of uncertainty, discrepancies appeared in their appraisal of it (meaning their degree of unease, tolerance or even appeal for uncertainty).

First, 3 out of the 11 entrepreneurs interviewed considered uncertainty negatively, seeing it as a threat, a source of instability that forces you to rely on chance and gut-feeling. MT explained: *“I connect uncertainty with something negative. (...) I'm linking that to chance. But there's a real dimension to making the right decision at the right time. Because at T+1 it's no longer the right decision. It's about common sense, intuition.”* It is interesting to note that the entrepreneurs that see uncertainty as something negative are the least experienced of the sample in entrepreneurship (the relationship between experience and uncertainty-appetency will be expanded upon in a later section).

At the opposite side of the spectrum, 4 out of the 11 entrepreneurs construed uncertainty as something positive, an endless source of possibilities and opportunities, the very thing that allows creativity and genuine entrepreneurship. MI explained: *“Many people feel uncomfortable when faced with uncertainty, they see it as a risk. But accepting uncertainty allows me to separate it from actual risk. I understand that we cannot predict what will happen in the next six or twelve months. Once you accept this, it becomes easier to work with the unpredictability. While there is still an element of risk, there is no need to fear anything because you realize that anything can happen. Some individuals feel uneasy about the unknown future, and that contributes to the feeling of risk. (...) I think that for entrepreneurs, it's an opportunity. Because uncertainty not only means it can get worse, but that it can also get much better in the future. And I think lots of people see the one side that gets worse, but it can get much better. And entrepreneurs always tend to see the much better side and work for the much better side, of course.”* In a fashion reminiscent of Knight's theory, AnB not only viewed uncertainty as an opportunity but presented it as the very *raison d'être* of entrepreneurial action, saying: *“I think many entrepreneurs, without even thinking about it, (...) will look at it as a reason to exist. It's like a justification of the things that you're spending your whole life doing. Because if it wasn't uncertain, if it wasn't kind of risky, and if it wasn't hard, then it's probably not a big opportunity. Does that make sense? In our case, no one has done VR game football before us. No one has done it. Very difficult, many different challenges, many dependencies. Well, okay, that means that if you manage to do it, that's going to be a big competitive advantage on anyone else because it's going to be hard to get there.”*

Lastly, 2 of the interviewed entrepreneurs showed a rather mixed appraisal of uncertainty, explaining that they saw uncertainty as a potential source of threats as much as a potential source of opportunities. It is interesting to note that these entrepreneurs are the most experienced of the sample (both over 20 years in entrepreneurship and with several ventures created). RB explained: *“I think uncertainty is not a bad thing. Uncertainty could be a bad thing, could be also a positive thing. (...) I would say that it is 50-50. If people are handling it in a negative way, then they will likely be unsuccessful, and if people are optimistic and handle uncertainty in a positive way, then they have a good chance to be*

successful. (...) Uncertainty is the possibility to make a move in a direction, and it's always better to move than to stay where we are.”

Appraisal of uncertainty amongst respondents

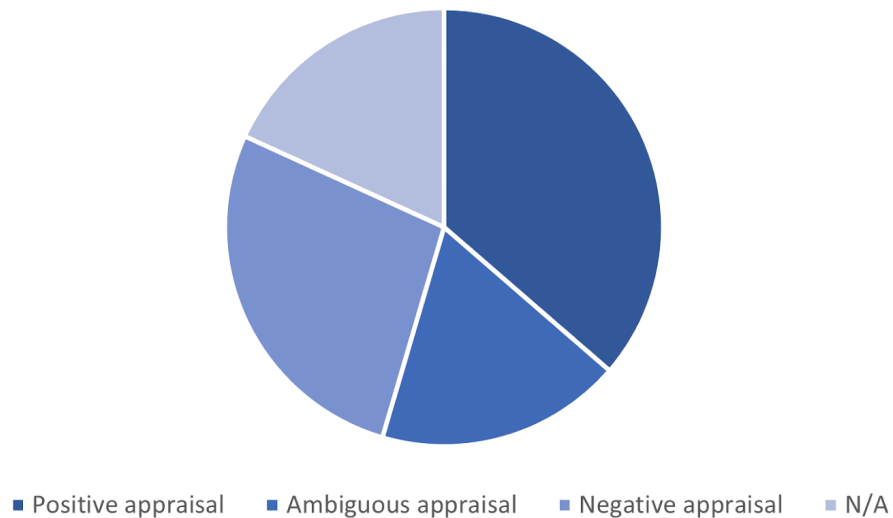


Figure 8: Appraisal of uncertainty within the sample

Main sources of uncertainty experienced by entrepreneurs

After observing their appraisal of the uncertainty of their environment, we went on to discussing their main sources of uncertainty, using to a large extent a mix of Placard et al. (2017) and McMullen & Shepherd’s (2006) definitions of the phenomenon, namely what type of options and outcomes spurred hesitation, indecisiveness, and procrastination.

By far, the most cited source of uncertainty was finance. Indeed, 6 entrepreneurs showed great concerns regarding the unpredictability of finance-related options and outcomes such as: losing or not being able to gain the investors’ trust and fundings, not having at one’s disposal a sufficient level of cash flow to follow a set vision without compromising on key features, or, in particular in the early stages of an entrepreneurial venture, having to advance a lot of costs without knowing if they will pay off in the future. AIB explained: “Well, the financial side of things [is a big uncertainty], because we're always obliged to advance costs, almost on everything we launch, (...) and yes we do our market

research, yes we check that there's a target, but in reality nobody's seen the product and we can't be 100% sure that it's going to work.”

The second most common source of uncertainty among the interviewed entrepreneurs was competition behavior. Indeed, because of their relatively small size and limited capabilities (particularly in the financial department to refer to our first point), 5 entrepreneurs seemed to fear that bigger competitors would be able to develop similar products and services (through means like industrial espionage and reverse engineering) and bringing them to the market in a much faster way and at a much larger scale. RB explained: *“For the last four years, we have focused on building a piece of software based on AI, (...) and we have done a prototype presentation in February of this year to a very well-known American entrepreneur, high-end level. And they said it was great because they have a full prototype and that we should discuss. It was supposed to be the next big thing for Office workflows. That was in February. And on the 1st of March, Microsoft gave a press conference to introduce the new Office for the future, exactly with the same functionality we've been working on for the last four years. We have the technology, but it makes no sense to follow through, because if we have Microsoft as a competitor, we are sure to lose. So back to your question, my biggest uncertainty is that there is another company worldwide doing the same, and it does not matter if we are faster or not, if they are larger than us.”*

The third most cited source of uncertainty relates to team management. Indeed, 4 entrepreneurs explained they experienced doubt or apprehension regarding their ability to recruit people with the right profile, the right levels of energy and dedication, people that shared their vision and their enthusiasm for the project, especially in an era marked by important turnover rates. RF explained: *“When it comes to employees, how to hire, there's a lot of movement around. You can't fully rely on the fact that people are going to stay as long as they might have stayed before. So, you have to take this uncertainty into consideration in your strategic planning.”* They also explained experiencing uncertainty regarding the performance of their collaborators: because of the usually small size of entrepreneurial ventures, the level of performance of one employee can greatly affect the operations and overall performance of the company. HT explained: *“In a startup, if one employee is not motivated or dedicated, that will have a big*

impact on the business. This is definitely an uncertainty of mine that some of the employees will stop working or will be unmotivated or something like that.”

Regarding less common sources of uncertainty yet still worthy of note, 2 entrepreneurs mentioned the regulatory power of governments as a source of uncertainty to watch closely, in particular for entrepreneurial ventures and other small businesses. LO explained: *“When it comes to regulations, I think that it could be a risk if you are working on systemic change. We want to create this system, circular economy or rather regenerative economy. (...) So you could say that if you depend on the regulations matching your own ideas, then that's an uncertainty. If politicians interpret the bigger shifts in society like the green transition is interpreted by politicians into something that you don't agree with, then that could be a major uncertainty for any startup that tries to do something good in the world. And with the experience, we've seen that this is exactly what happens.”* Another entrepreneur, AnB, mentioned the uncertainty that is inherent to a first-mover in a sector: there is no precedent to get inspiration from, no set recipe for success, which opens opportunities as many as doubts: *“Our main source [of uncertainty] is definitely that we are one of those companies that do something for the first time. No one has ever created a successful VR football game or no one has created a successful VR football training cognitive platform. Does it exist for other sports? Sure, there is something called WIN Reality that has succeeded quite a lot with baseball in the US. (...) But no one has done it in football. And there are a lot of different things happening on a football field. There's so many dependencies and creating a VR tool to represent all of those dependencies is really tough, really hard. (...) We are the first ones to really explore this field. And that opens up a lot of uncertainty because there are so many things that we don't know. (...) Since no one has done it, there is no dominant design to this. We are the ones creating the dominant design. (...) Because we're the first mover. First one to take that choice, that decision. So every day almost we're faced with decisions never seen before.”* Lastly, AI mentioned customer dependency as one of his biggest sources of uncertainty: *“We only have three main customers, providing us with let's say 90% of our projects. The uncertainty lies in the possibility that they might suddenly stop providing us with projects. That would change everything for us.”*

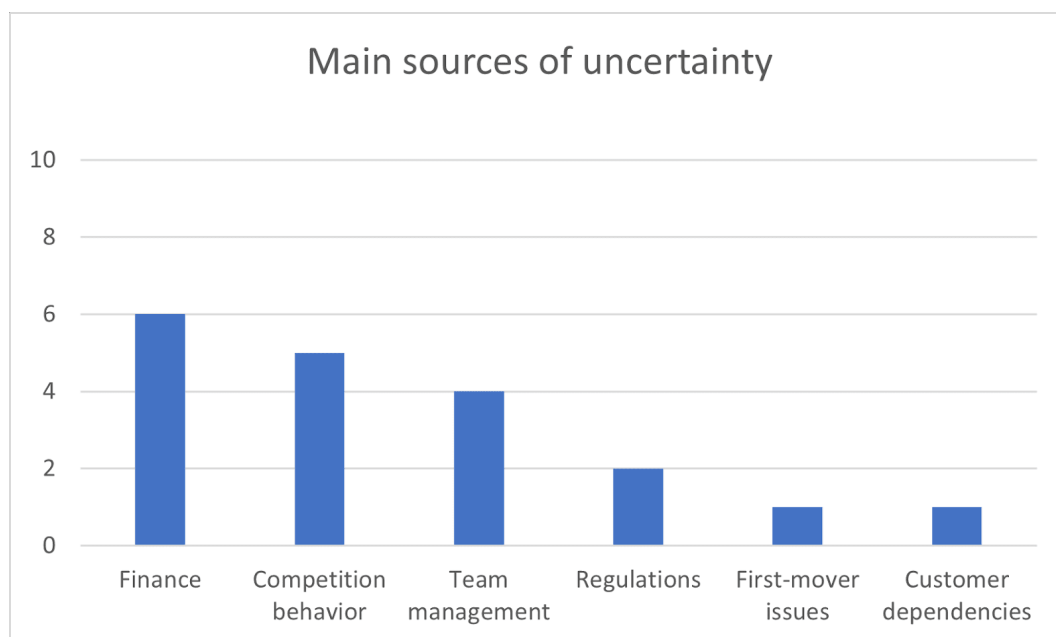


Figure 9: *Main sources of uncertainty*

Scaling and uncertainty in the entrepreneur's mind

The sources of uncertainty discussed in the previous section related mainly to external variables over which entrepreneurs have little to no control. Yet, during the course of our research, we also observed that entrepreneurs considered their own scaling process as uncertainty-generative. Whereas a large part of the literature opposes entrepreneurial ventures and more mature organizations, arguing that the latter operate in more certain environments, it seems that the process to get there is a source of great uncertainty for entrepreneurs. Indeed, 3 entrepreneurs mentioned that they had projects to widen the scope of their operations, either product/service wise or geographically-wise, and that they felt unsure of how they should process or whether this was a good idea (bringing us back again to McMullen & Shepherd's definition of uncertainty). MT explained, hesitantly: *"We also want to open up [our platform] to more students than the 2 profiles we have now, namely those who have studied in communications and business schools. We'd like to reach out to engineering and computer science students to get a more complete picture of the real situation. (...) That'll already be a big step. In the longer term, we're also looking at moving away from focusing solely on internships and apprenticeships, to include permanent and fixed-term*

contracts for young graduates. And lots of other ideas, but we'll take it one step at a time."

Additionally, 5 out of the 11 entrepreneurs interviewed mentioned scaling in size as a genuine source of uncertainty, mentioning challenges such as:

- Recruiting motivated and highly-qualified individuals that share the entrepreneur's vision and values.
- Internalizing functions such as production and distribution seamlessly.
- Growing in numbers without losing the agility and flexibility needed to navigate uncertainty successfully.

AnB argued: *"I think in a perfect world, the answer to that question would be yes [to the question Do you think scaling will help reduce the uncertainty of your environment?"]*. But in the real world, it depends on how successful you are in hiring and it depends on how successful you are in moving the culture down the company. So when we grow and we get leadership teams, people that hire new people and people making decisions throughout the company, all of these need to then be kind of within that same type of mantra. And if you're good and if you're able to hire the right people and everyone adopts the culture of the company, then yes. But that's not going to happen for many different positions, right?"

However, scaling was not seen only as a source of uncertainty but also as a means to reduce uncertainty. Indeed, 2 entrepreneurs explained that they saw scaling as a path to reduce their customer dependency. Both of their companies share similar situations: both are developing a technology that they use to deliver software solutions to a limited number of big customers. By scaling, both entrepreneurs hope to make more time to work on their core technology in order to commercialize it directly, thus no longer depending on customer-tailored projects which they described as time-consuming and often not rewarding.

Discrepancies in handling uncertainty

The entrepreneurs were then asked to describe their approach to handle uncertainty, using precise instances of their entrepreneurial experience. The aim was to understand how it correlates to their appraisal of uncertainty and see if our

findings are in line with Griffin & Grote's (2020) theory. From our observations, two sides emerged: one side leveraged uncertainty - taking advantage from chaos to take a competitive edge - and one side actively sought to reduce their perceived uncertainty through strategic planning, data consolidation and analysis, and modeling. Of course, some entrepreneurs showed a mix of both approaches; the distinction between the two groups, although a bit simplistic, is used for the sake of comparison.

Leveraging uncertainty

One part of the entrepreneurs emphasized how it was important for them to embrace uncertainty. In line with what we expected, most of these entrepreneurs were the ones who had an ambiguous or positive appraisal of uncertainty. They mentioned how critical it was for them to relinquish some degree of control to stay agile in the face of brutal and radical changes, to be able to seize new opportunities as soon as they appear, using techniques such as sprint management (short-term objective-oriented planning). RF stated: *"[to leverage uncertainty] we use the sprint management model, which inherently has in that you're only going to plan out the next two weeks. These ones you make a bit more certain, but the rest you leave a little bit open, and we are relying heavily on this in the development side, but also in the sales side."*

An instance frequently brought up was the uncertainty brought by the COVID-19 pandemic, which actually benefited some of the interviewed entrepreneurs in a number of different ways. HT explained: *"COVID was something that hit many companies quite badly. But it was something that actually helped our company. Because under COVID, all the tutoring became online and because of the lockdowns people couldn't meet physically and we had positioned ourselves as the only tutoring company that is 100% online from the start. We're the only platform for tutoring in Denmark also. So, because of that, we got a lot of demand, and we grew very fast in that period. And then afterwards, you know, as soon as the lockdowns had stopped, then the other companies went back to normal. They went back to their roots, giving physical tutoring. But we took a risk, or an opportunity, there and said, okay, we want to maintain this online*

tutoring and not go back to physical because we believe this is the future. Because we believe this would actually grant more people access to tutoring because right now there's a lot of people in the outskirts of Denmark and the smaller cities who don't have access to these quality tutors. (...) Also, when it's online, we have the platform and we can design the whole experience much, much better. So, we believed in this and therefore we positioned ourselves. We took a risk, you can say, of just doing it online. But I would say that paid off because right now the attitude towards online tutoring has changed. People are more accepting towards it and can see the benefits of it.”

Some entrepreneurs also stressed how diversity was paramount to successfully navigate and leverage uncertainty: diversity in the workforce regarding culture, educational background, work experience, etc. Here is LO's point of view on the matter: *“To have a diverse team that actually puts in different perspectives on how you work, that creates a bigger opportunity space than being narrow minded and very decisive in where you want to move, if you know what I mean. (...) With diversity, you manage to have a lively conversation and then you can adapt to all the different uncertainties that you face.”*

Reducing uncertainty

The other approach we identified when discussing ways to handle uncertainty with the entrepreneurs was aimed at reducing the uncertainty perceived. Again, as we expected, the entrepreneurs that showed a preference for handling uncertainty by curbing it are the ones that showed a rather negative appraisal of uncertainty. When asked how they handle uncertainty, one part of the entrepreneurs immediately mentioned narrowing the project scope - so as to close the set of options and outcomes and thus the potential for unpredictability (to reference Placard et al., 2017).

Others mentioned focusing on data consolidation, data analysis and modeling as effective means to reduce uncertainty and avoid resorting to gut-feeling. AnB explained: *“If you consider everything that is uncertain and you don't have data-driven decisions to kind of handle those uncertainties, then you end up in a situation where you might do all the wrong things instead of doing a*

few right things. What I mean is that, when you create a strategy, especially for a startup, one of the most important things that we do is to figure out what we are not going to do, what we are not doing this quarter. That's why frameworks like Objectives and Key Results are so important. Because those frameworks enable you to say: 'OK, with the few resources we have today, these are the things we're going to focus on in the next quarter.' And then what it gives you is the opportunity to say no to different tasks that arise during that quarter, because it's not part of your OKRs, right? So, yeah, it's an opportunity to make a good decision, but it's also a pitfall if you never follow any data-driven approach to make those decisions.'

Causing uncertainty

We then went on to ask the entrepreneurs if they thought they could be a source of uncertainty for others. Knight (1921) argues that entrepreneurs are individuals that both navigate and cause uncertainty to create market imperfections and reap abnormal profits. This section thus aims at understanding, from the entrepreneur's perspective, how they think about causing uncertainty for others. What we found out was that our sample of entrepreneurs could be divided into three main groups: those who actively seek to cause uncertainty for others, those who see the uncertainty they can cause as a side effect of their vision, and those who don't believe they are a source of uncertainty for others.

4 entrepreneurs insisted on the disruption aspect of acting entrepreneurially: to them, it is the essence of entrepreneurship to be a source of uncertainty for others to reconfigure the market to their advantage and outrace competitors which are paralyzed by the uncertainty caused by the entrepreneur. RB explained: *"When we brainstorm new ideas, disruption is our primary focus. If there are still one or two companies in the market with similar concepts, we might also explore the possibilities of copying, disrupting, and improving upon them. From a technical standpoint, we always take into account the market situation and where we stand in the hype cycle (...). We have strong connections with analysts and seek their opinions on our new ideas. We want to know where the hype cycle stands for such ideas and what the global market thinks about*

them. If we find ourselves in the right position within the hype cycle, we move forward with the idea.”.

2 entrepreneurs considered that causing uncertainty for others can be a side effect of following their own plan, but they did not actively seek to cause uncertainty through disruption like the first group. AnB explained that although causing uncertainty was not an strategic objective in itself for him, the plan the company follows and the technology they offer can cause uncertainty because they operate in a very traditional sector (namely, football): *“I would say yes [I can cause uncertainty for other], not for many companies, probably, but within our field of football, I would say that there are some areas in which other actors could look at us and be a bit like, “whoa, is that possible?”. Because football is a very conservative business, even though people would not think it is. But if you look at how people train and how people use new technologies, very few things are fully adapted to all clubs and all players. It’s been only a few years since we started to see players wearing those GPS vests that monitor your heart rate and other vital signs. And that’s one of the most innovative things that has happened in how people train. So when you come with a concept like “instead of being on a pitch, you can actually become a better player just being at home, wearing some VR headsets, and then training your head and you don’t need to run”. That is, for many, a big step, a big leap even. So within football, definitely, yes, that would create some form of “whoa, where is my position now and how do I do coaching now with all of these things?”.*

Lastly, 2 entrepreneurs showed limited belief in their ability to cause uncertainty for others, nor did they seek to do so. As NP explained: *“I don’t think entrepreneurs wake up and say “let’s disrupt a bigger company”, do they? So, maybe we could disrupt other business models, but the main objective isn’t to disrupt anyone, but rather to... perhaps follow the Ryanair example: by tapping into untapped market potential, expanding the local model and all the airlines, we’re not necessarily disrupting British Airways and the very established airlines, but we’re making it much more accessible to people who couldn’t afford it before, right?”.*

An original take on our question - aimed at understanding how entrepreneurs think about bringing uncertainty to the competition - was RF's, who explained that he could be a source of uncertainty for his co-workers, and that it could negatively affect the company's performance as not everybody is as uncertainty-open as he is. He stated: *"Sometimes I see problems bigger than they actually are. And it creates uncertainty for others, so they're worried if I share too much. What I'm going through especially when I shared how hard it was to fundraise. Employees were then uncertain that they would not have a job if I didn't succeed. This was unintended for them. So, somehow, I created the uncertainty, which was unintended, of course, just by sharing. So, I got the idea that most people or many people are not as fond of uncertainty as I might."*

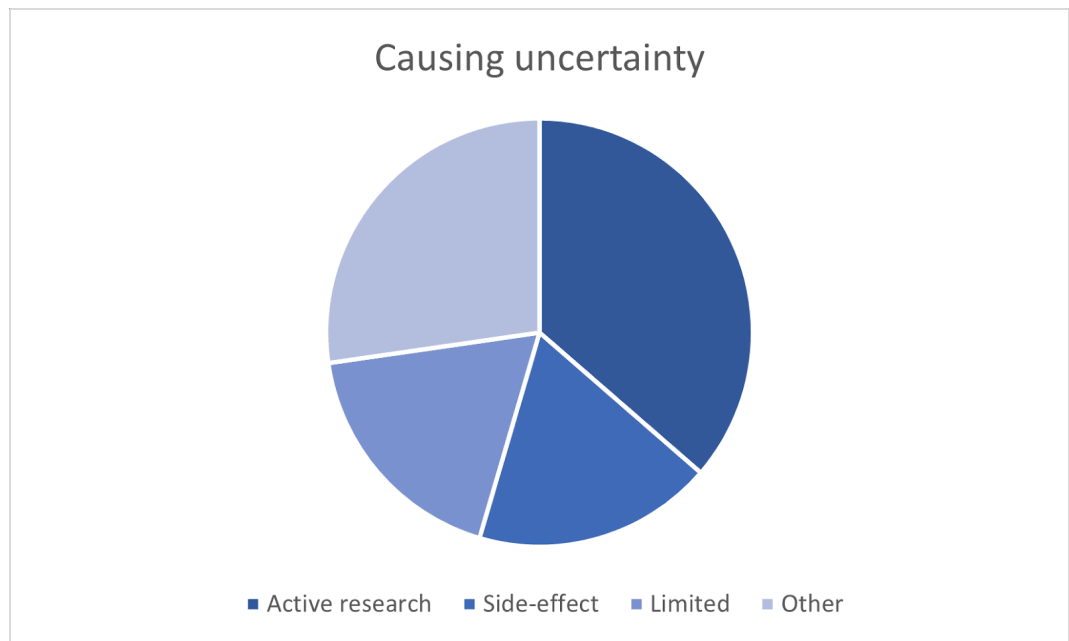


Figure 10: *Causing uncertainty*

Evolution of the relationship toward uncertainty over time

The second to last core theme that emerged during the interviews deals with how the respondents' relationship towards uncertainty changed over time.

What transpired for most of the respondents is that experience plays a big role in how they envision uncertainty. In fact, most of them became more open to

uncertainty as they gained experience. Experience and time can even lead to a total change in their perception of uncertainty, going from being uncertainty averse to being able to handle it effectively. Such was the case for RF: *“When I started off, I was very uncertainty averse. I wanted to plan out everything in great detail, but I soon realized it is prohibiting creativity and openness when it comes to solutions. So now the cycles are shorter, what we plan out. I don't do four-year forecasts anymore. I do maybe two, three months of forecasts internally. (...) So, I actually embrace it more and more now. It still worries me on a personal note because it's super hard to tell where we're going to go. But I learned to like it, actually, in the course of the last three years.”*

Some respondents explain this change of perception by enhanced intuition or pattern recognition thanks to their accrued experience. The most analytic ones like MI stated: *“As we gain more experience, it definitely affects how we make decisions about projects”* and *“I think you get a particular kind of experience working with uncertainty. At the beginning of the venture, we would take any project, just for the challenge and because we needed to make a name for ourselves, but we rarely got anything out of it. Now, we have learnt to recognize the projects on which we are sure to be successful, the ones on which we are likely to make a breakthrough, and the ones we should avoid for one reason or another. That's definitely something you learn to recognize, you build that instinct over the years, project after project.”* Intuition and gut-feelings occupy an important place in AnB's vision of uncertainty, and these elements change with time and experience: *“It's actually when you're older and more experienced that you have to make these gut-feeling decisions, because that's when you have a better intuition of things. It's experiential learning: the sum of all the things you've lived, read, learned, etc. that creates your gut-feeling, and people think it's a random thing, but it's essentially the sum of everything you know. So, a 45-year-old professional with intuition is much more reliable than a 25-year-old student with intuition, right?”*

RB was more measured on this point. Also considering that experience has made him more open to uncertainty, he adds it greatly depends on the experience itself. He stated *“This is coming from my personal success. (...) If you never failed, then you have more trust about your own doings. And if you have more*

trust, then you love uncertainty because you know that this is the possibility to be better than the other ones. And if you have the other direction, meaning that you fail more, then I think you will go more to the stable side, and you will hate uncertainty.”

On the other hand, 3 respondents indicated that they did not think time had an impact on their relationship to uncertainty. 2 of them have been entrepreneurs for less than a year and thus lack previous experience to contrast, but do not imagine their vision of uncertainty changing with time. The other one is PN who never envisioned risk and uncertainty when making decisions: *“I don’t think about risk, I just think about what needs to be done. (...) It’s more like a religion really, it is spiritual. (...) You have to have faith.”*

Exploration and exploitation when facing uncertainty

Griffin & Grote (2020) uncertainty regulation model assumes that entrepreneurs faced with uncertainty will choose between exploration and exploitation, with a focus on exploration (and opening behaviors) if the individual appraises endogenous uncertainty positively, meaning below one’s preferred level of uncertainty, and with a focus on exploitation (and closing behaviors) if the individual appraises endogenous uncertainty negatively, meaning above one’s preferred level of uncertainty. Exploration is also part of the Knightian postulate of opportunities only existing under imperfect conditions - as endogenous uncertainty is created by the exploration of entrepreneurs (Alvarez & Barney, 2007). Indeed, the last theme that came to light during the phenomenological study had to do with the choices entrepreneurs make when faced with uncertainty and how this can influence their exploration-exploitation tradeoff.

Out of the 11 respondents, 4 indicated that uncertainty influences the tradeoff between exploration and exploitation, 6 thought that uncertainty was not a factor in this tradeoff and indicated other influencing determinants, and 1 did not mention this aspect during the interview.

Amongst the 4 respondents that indicated that changes in perceived uncertainty led to changes in the exploration exploitation tradeoff, 3 indicated that they tended to focus on exploration when faced with uncertainty. Often using examples of past experiences or projecting in the future, they explained that being confronted to more uncertainty leads them to changing their way of doing, be it by trying to adapt to the change, creating a new venture or taking advantage of the uncertainty. MI took ChatGPT as an example of technological and business uncertainty and stated: *“The first thing for us is: we explore ChatGPT, we use it, we write articles about it, we look for presentations that we can hold for other businesses, meetings with other companies, and we present the use of ChatGPT and the technology behind ChatGPT. So usually, we go to the exploration stage.”* MT stated: *“The greater the uncertainty, the more agile we need to be, so we'd really concentrate on exploration. You have to be able to make a quick turnaround.”*

Only one respondent claimed that an increase in perceived uncertainty would lead them to concentrate on exploitation. Regarding exploration, AIB stated: *“That's your Friday afternoon when you're too lazy to work, or your Sunday afternoon when you've got nothing to do, but in everyday life, you're more likely to be redoing your website, improving your database, reviewing your social networks and always improving. (...) I know exactly what I want to do over the next five years.”*

Barring the respondent who did not mention this theme during the interview, all the other ones indicated that uncertainty did not play a major role in their exploration-exploitation tradeoff. Amongst those 6 entrepreneurs, 4 of them considered that the maturity of their venture played a much bigger role. Some of them link the maturity of their venture to a decreased overall uncertainty. As HT stated: *“I think in uncertain times, you will probably explore more, right? Because with startups, in the beginning, there's more uncertainty and the more mature the company becomes, the less uncertainty there is, the more you can predict the outcome of the things you do. That's why also in the beginning, it makes more sense to explore more because then you might hit these products or these services or innovate something that will create a lot of value. But later on, when there's not so much uncertainty anymore, it makes more sense to optimize what you already*

have.” For RB, as paradoxical as it might seem, the growth process is very clear and leaves no room for changes due to uncertainty: “When my colleague brainstorms with me, we start with a broad focus. This is a very wide perspective, and it brings a lot of uncertainty. That’s how it goes in the first year. But as we move forward into the second year, we start narrowing it down, and things start to improve. We keep narrowing it down each year until we reach a point where we can confidently sell the company. (...) I cannot change the model because it’s one product and one product from 0 to 100. And so, we don’t think about this topic.”

Operational imperatives can also play a bigger role in this tradeoff than perceived uncertainty. Such is the case for 2 of the respondents. For AI: *“We are solution providers, and we have a team for every topic so whether we create new products and services or refine what we already have does not really depend on how uncertain we see the market. Because, basically we solve problems submitted by customers, so it can be more or less uncertain based on the nature of the problem they want us to work on. If it is a really tricky issue in a rather new industry, yes, we may have a little more exploration involved; if it is a problem similar to one we already tackled, it will be about refining the solution we already had. It also depends on how big our team is: if we are low in numbers, we may not have time to allocate to exploration.”* For RF, it is more about not falling into the pitfall of trying to adapt and switch plans after every change you perceive: *“We are always going back and forth between exploration and exploitation. (...) We try not to change our way of doing things based on perceived uncertainty. (...) If the uncertainty goes up, you can feel it, when investors get nervous, then you feel it. And then you suddenly try to do something faster, which normally would take a bit longer, the exploration phase for instance. But we really try to stick to this.”*

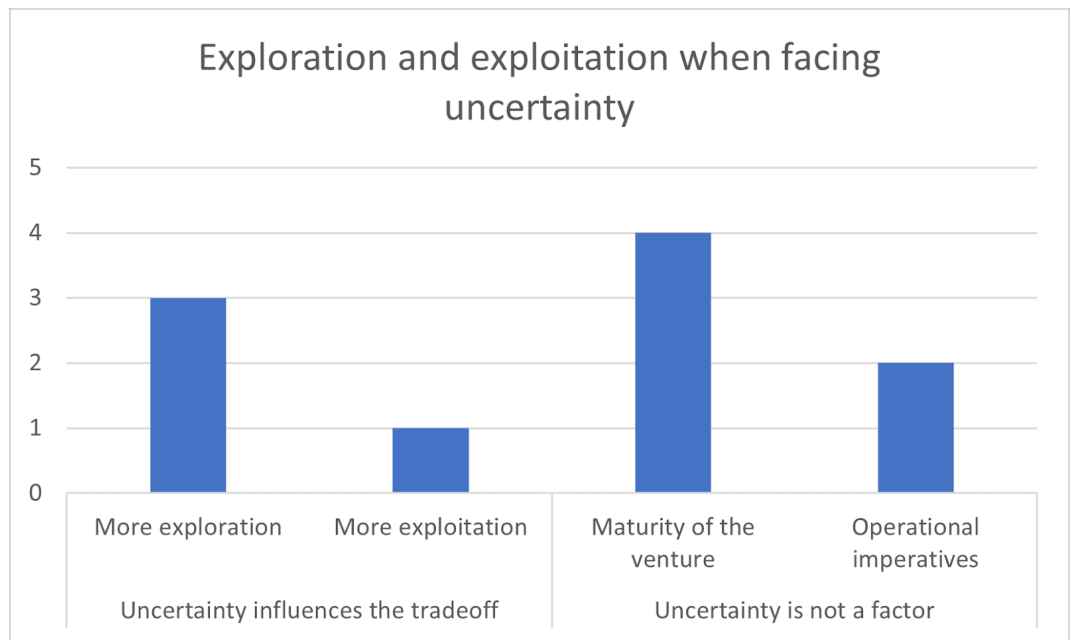


Figure 11: Changes to the exploration-exploitation tradeoff when facing increasing perceived uncertainty

Conclusion and limitations

Conclusion

The first phenomenologically appraised factor of the study has been the psyche of the entrepreneur. Among the categories of this factor, the study highlighted the mechanisms underlying the act of becoming an entrepreneur. While initial motivations may differ, similar mechanisms can be found amongst the respondents, indicating a certain similarity in their mindset, an idea that has been theorized for more than a hundred years, and most notably by Knight (1921). Creating value, solving problems, enjoying a certain amount of freedom, drawing on their creativity and energy are all reasons and motivations behind entrepreneurial action. Respondents also tended to express some recurrent characteristics pertaining to their success: optimism, high-energy, tenacity and drive, charisma, naivety, risk-appetency, luck, and adaptability. These characteristics are key to being able to leverage opportunities and to navigate uncertainty and seem related to the “intrinsic qualities” developed by Shane (2003). The importance of curiosity highlighted by Arikan et al. (2020) can also be found behind those highlighted attributes. Finally, respondents tended to consider their entrepreneurial action in the scope of the society, either as answering a need or being a motor for change and action. Some of them even clearly considered acting under uncertainty as one of the main responsibilities of entrepreneurs, very similar to what Knight (1921) or Alvarez & Barney (2005) explained. This almost philosophical and psychological approach to entrepreneurship greatly highlights the mechanisms behind the relationships of entrepreneurs towards uncertainty and allows for some interesting conceptualization (McMullen & Shepherd, 2006).

Our study also allowed us to get a deeper understanding of a second factor: how entrepreneurs actually perceive and appraise uncertainty, and how it correlates to their exploration and exploitation behaviors. What was found was that entrepreneurs conceptualize uncertainty in a very distinct manner compared to system-level economic theories like that of Knight (1921), and much closer to the subjective perspective described by McMullen & Shepherd (2006). Indeed, uncertainty is rarely seen as something entirely positive, a source of opportunities ready for the taking to disrupt the incumbents, and much more as an ambivalent

phenomenon that permeates all the aspects of an entrepreneur's business. Furthermore, our study qualifies the relationship between uncertainty appraisal and exploration-exploitation behaviors as it is described by Griffin & Grote (2020). What we found was that an entrepreneur's positive appraisal of uncertainty does not always amount to a more exploratory behavior; conversely, an entrepreneur's negative appraisal of uncertainty does not always amount to a more exploitation-centered behavior. Other factors such as the entrepreneur's professional experience or the maturity of the venture also play a huge part in the tradeoff between exploration and exploitation in the entrepreneur's mind.

The third factor we identified focuses on the sources of uncertainty (whether experienced or caused by the entrepreneur). We first got interesting insights on what entrepreneurs consider to be the main sources of uncertainty they face. At the top of their concerns list are financial dependencies, competition behavior, team management, and governmental regulations. We came to understand that all those factors constituted important sources of uncertainty for the interviewed entrepreneurs, which again confirms that the way entrepreneurs experience uncertainty is much more in line with McMullen & Shepherd's concept of uncertainty and less with Knight's who conceptualizes uncertainty as mainly radical innovation-related and very distinct to risk. Also, contrary to Knight's proposed definition of what makes an entrepreneur (i.e., an individual who actively seeks to cause uncertainty through unpredictable radical change and leverage it to make profits), most of the entrepreneurs of our sample did not actively seek to cause uncertainty in their environment; some even showed limited belief in their ability to do so. As such, our study gives a more nuanced view of how individuals think and act entrepreneurially.

Finally, the last factor highlighted by the phenomenological approach has to do with the evolution of the perception of uncertainty over time. Our study added empirical evidence to the understanding of the role of time and experience on the perception of uncertainty for entrepreneurs. For most of the respondents, experience played a major role in their perception of uncertainty, often becoming more uncertainty-prone as they gained experience. The lessening adversity to uncertainty can be linked to the increased success of respondents over time, allowing them to handle uncertainty in more effective ways. Once again, the

importance of the entrepreneur's mind and his perception of his environment play an important role in the action towards uncertainty. The only respondents who did not link experience to changes in the perception of uncertainty were interestingly enough the less experienced ones. It seems that the projective capabilities of entrepreneurs can change over time according to their experience and their uncertainty-awareness.

Limitations

This study's limitations are inherent to its methodology. As all phenomenological research, this approach has no vocation to be generalizable but is rather pursued to provide additional insights and empirical evidence to a particular topic. While important efforts have been made in the bracketing department, total abnegation regarding previous knowledge is but wishful thinking and might have thus transpired in the interviews. The language barrier of some of the respondents might also have hindered part of the results, situations where the word "uncertainty" was not part of the respondent vocabulary having for example arisen. Finally, as indicated in the methodology section, the diversity of respondents was an important factor to the validity of this research, and while this diversity has been achieved in areas such as ethnicity, age, educational background and experience, only one of the respondents was of the female gender.

Future research

This study addresses the gap between the existing literature and the actual experience of entrepreneurs on the subject of uncertainty. By conducting phenomenological research, we contributed to a better understanding of the observed mechanisms. We close this paper by suggesting two potential future approaches for research on the subject of uncertainty and entrepreneurship.

First, the notion of experience was proven to be a key concept in the perception of uncertainty by the respondents. Time played an important role in it and many are the respondents who stated that their vision of uncertainty changed as they gained more experience. It would therefore be interesting to interview the same sample of entrepreneurs in the future to gather and compare data from two different points in time.

Second, while our phenomenological approach was not intended to be generalizable, 4 important factors have been identified and in our opinion deserve additional research. A quantitative approach with a generalizable goal focused on one of those factors would serve as an interesting starting point to bridge the theory and the facts in the literature.

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Appendices

THEMES	SUBTHEMES	MAIN TOPICS
GENERAL QUESTIONS	PERSONAL	Introduce yourself quickly
		What did you do before?
		Why are you an entrepreneur?
		What is, for you, an entrepreneur?
		What characteristics do you think make a successful entrepreneur?
	COMPANY	What is it?
		How did it start? Where did the idea come from? How has your business been impacted by recent global events? (Covid/Ukraine/environment...)
UNCERTAINTY	GENERALITIES	What do you think uncertainty is?
		How would you define your behavior towards uncertainty?
		Main sources of uncertainty you face?
	EXPERIENCE	Examples of handling uncertainty from past experiences?
		Did the relationship change over time?
		Do you think you are a source of uncertainty for others?
	ORGANIZATION	Regarding team: hiring/building/hierarchy
		Regarding business development
		Regarding day-to-day operations
	EXPLORATION-EXPLOITATION	How does it apply to you?
		What factors influence whether you do more exploration or more exploitation? Is uncertainty one of them?
EVOLUTION & TIME	PROCESS	What is next?
		Motivation and objectives?
	CHALLENGES	What challenges for the future of your business?
		How will you handle them?
	TIME	What would you have done differently?
		Do you think it will go according to plan?

Exhibit: Interview grid that was used to conduct the semi-structured interviews. The questions in the grid were used as starting points to engage in a discussion with the respondents.