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The decision-making entrepreneur

Literature review

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1 Introduction

Small and medium sized enterprises (SMEs) play a key role in the modern market economy. The small businesses are the monolith fundament of every prosperous and effectively functioning state. They possess a number of advantages, which place them into the centre of the economic and social goals of society. The sector of the SME is being expected to provide:

- higher employment rate;
- regional cohesion and sustainable development;
- generation of innovation and diversification of the economy structure;
- social inclusion;
- new technologies for the knowledge-based society.

Often the dynamics of the small and medium sized sector is explained by results of "quantitative research" on macro and micro level. Nevertheless, in order to undertake adequate and sound governmental actions, "qualitative research" on micro level is needed.

The strategic decisions of the entrepreneurs have to be perceived as the direct driving forces for the dynamics of the economy, hence, a study on their decision-making process will enrich the knowledge of mechanisms that drive the companies to participate in the economy life of the state, thus creating growth and prosperity for society. A closer observation of the entrepreneurs' strategic behaviour and an inquiry on the managerial reasoning to perform in one way or another will broaden the vision of the policy makers of how to influence companies' environment and what concrete measures to introduce in their strategies of governance. Hence, it is important to acquire knowledge and conduct an in-depth study in order to identify the 'break' and 'pull and push' factors of growth. These qualitative aspects of the decision-making process of the entrepreneurs have been studied by EIM, which is conducted in order to bring knowledge about the driving force and the factors that explain the strategic managerial approach in the small and medium sized enterprises (SMEs).

This study provides a literature overview of the entrepreneurial decision-making process. The literature review is used as background information for a qualitative study, which investigates, by means of case studies, the decision-making process of small business entrepreneurs in the Netherlands (Gibcus and Van Hoesel, 2003). The literature overview forms the starting point of a confrontation between the literature on decision-making and the empirical findings of this qualitative study.

The research literature suggests significant materials on decision-making. Nevertheless, a limited amount of concrete practical surveys on SMEs exist to confirm or deny the theoretically derived conclusions. These conclusions are mostly concerning the big firms or the start-ups, rarely the attention is focused on established small businesses that meet strategic decisions, which turn the history of the enterprise in a new direction.

Outlay of the report

Chapter 2 gives an introduction to the general decision theory. It discusses the classical rationality, the bounded rationality and the neoclassical rationality. This chapter will also look at the place of the entrepreneur in the general decision theory. In chapter 3 an analytic framework of the strategic decision-making in SMEs is presented. The analytic framework consists of three elements: the entrepreneur, the environment and the strategic decision process. Each of these elements is described in the preceeding of chapter 3. Finally, in chapter 4 some empirical findings on entrepreneurial strategic decision-making are discussed.

2 Introduction to general decision theory

The first chapter of the literature overview will consider the general theoretic approaches in decision-making from a historical perspective. An introduction to the classical models will be presented (section 2.1) and then the model of bounded rationality (section 2.2). In the second chapter, the relatively recent work and literature contributions of 'behavioural economics' or 'economics and psychology' will be revised (section 2.3).

2.1 Classical rationality

Until the 70s the ruling paradigm was the one of *homo economicus*, the 'rational economic man'. The classic theory of the rational choice suggests that people are driven in their economic actions by pure rationality, hence are able in every given situation to rank with almost mathematical precision their preferences and to pursue the optimal outcome. Rational decision-making is choosing among alternatives in a way that 'properly' accords with the preferences and beliefs of an individual decision-maker. Behaviour is influenced by the way in which the external world is represented in the mind, and by the individual's exercise of choice claim Shaver and Scott (1991). Hence, according to the rational approach, once the characteristics of the environment are identified and studied, behaviour is easily predictable having the assumption of perfect rationality (Simon, 1979).

The theory of rational choice was developing intensively during the first half of the 20th century. Especially the theory of subjective expected utility and the game theory have been largely accepted as models of rational choice. The utility theory is a branch of the decision theory concerned with measurement and representation of preferences. Models of this theory were elaborated in the literature of economics by John von Neumann and Oskar Morgenstern (1944). Utility theorists focus on accounts of preferences in rational decision-making, where an individual's preferences cohere with associated beliefs and actions. 'Utility' refers to the scale on which preference is measured, thus the utilitarian definition of rationality is the maximisation of 'utility' (MIT¹ encyclopaedia of Cognitive science, 2002). Game theory is a mathematical framework designed for analysing the interaction between several agents whose decisions affect each other. In a game-theoretic analysis, an interactive situation is described as a game: an abstract description of the players (agents), the courses of actions available to them, and their preferences over the possible outcomes (MIT encyclopaedia of Cognitive science, 2002). The game-theoretic framework assumes that the players employ rational decision-making, that is, they act so as to achieve outcomes that they prefer. Typically, preferences are modelled using numeric utilities, and players are assumed to be expected utility maximizers.

Thus, over the first fifty years of the last century, the formal theories of decision-making were flourishing leaving no space for other explicative frameworks of the decision process. The managerial decision-making was considered to comprise

¹ MIT - Massachusetts Institute of Technology

nothing more than calculating the output of these normative models. While, in reality, the vast majority of managers do attempt to make optimal decisions, however, there are numerous impediments preventing them from actually doing so. The behavioural decision theory and cognitive psychology literatures have outlined numerous deviations from perfectly rational behaviour (Tversky and Kahneman, 1986 and Poulton, 1994). One of these deviations is that people do not weight probabilities linearly but tend to overweight small and underweight large probabilities (Tversky and Kahneman, 1992). This overweighting of small and underweighting of large probabilities implies diminishing sensitivity. Hence, increasing the positive probability of a new strategic move may explain the entrepreneurial actions despite the availability of obviously highly probable negative outcomes.

2.2 Bounded rationality

Further anomalies of rational choice have been observed in nearly every aspect of economic activity (Simon, 1986). Consequently, at the beginning of the 50s the fundamentals of the rational theory began to crack. As the environment was uncertain and the market conditions far from perfect competition, the model of bounded rationality¹ emerged as an alternative to classical rationality concept. The call of rationality to compare all the consequences of certain choice is unfeasible and requires measuring the probability of all possible eventualities (Simon, 1986). This requirement appears too strong to permit accurate description of the real behaviour studied in economics or psychology.

The limits of the classical approach are quite obvious, since the identification of all alternatives is impossible, given the intensively moving (and briskly changing) factors of the environment. According to Simon (1986) economic agents do seek to maximize utility, but within limits posed by incompleteness and uncertainty of the information available. Furthermore, in order to cope with the not fully computable circumstances, decision-makers are able to adopt several approaches (Simon, 1979 and 1986):

- to determine certain level of preference and as soon as a choice which satisfies the set up criteria becomes available – to accept it. This mode looks for satisfactory choices, not for optimal ones;
- to simplify the complex, uncertain situation into smaller easily observable and controllable outcomes;
- to delegate and distribute the decision tasks between several specialists who are able to comprise all the aspects of the issue.

All three approaches explain a mechanism of the bounded rationality.

Thus, Simon's satisficing² principle asserts that people only have limited problem-solving capacities and often do not have the time, motivation, or ability to imagine all possible decision outcomes in advance. More specifically, decision-makers

¹ Bounded rationality is rationality as exhibited by decision-makers of limited abilities (MIT encyclopaedia of Cognitive science, 2002).

² The word *satisficing* was coined by combining satisfactory and sufficient.

generally are not looking for the best or optimal, but for a satisfying solution of a decision task. Thus, they may try to simplify a complex decision by anticipating only a small part of all possible outcomes. Moreover, the social psychology literature strongly emphasizes the view of persons as 'cognitive misers' (Fiske and Taylor, 1991), thereby suggesting that people try to minimize cognitive effort whenever possible. The view of people as 'cognitive misers', taken together with their more distinct sensitivity to changes than to non-changes, offers the hypothesis that decision-makers would be able to simplify the decision task by just anticipating gains or losses but neglecting non-gains or non-losses i.e. to be partial in their planning.

2.3 Neoclassical rationality

The theory of 'bounded rationality' was studied and empirically tested by the followers of the neoclassical rational approach, who tried to overcome the gaps of the classical theory, in order to create a new rational model. Since mid 70s, an increasing interest has been taken in the analysis of quasi-rational decision-making under uncertainty and under risk. Several formal theories have been proposed like the Tversky and Kahneman's (1986) prospect theory and the regret theory (Savage, 1954 and Bell, 1982). The prospect theory is a model of decision-making under risk that explicitly incorporates the cognitive errors that have been found to systematically occur in decision contexts. This theory asserts that people are especially sensitive to environmental changes, i.e. persons adapt to the status quo, which serves as a neutral reference point, and then evaluate changes from this neutral reference point. If so, decision-makers may more easily anticipate gains and losses than non-gains and non-losses, because the latter do not constitute changes from their neutral reference point (MIT encyclopaedia of Cognitive science, 2002). The regret theory assumes comparisons between choices and captures anticipated regret and triumph when one learns that a different choice would have produced a better or worse outcome (MIT encyclopaedia of Cognitive science, 2002). Furthermore, recent advancements in management information systems (MIS) have increased the ability of managers to progress towards optimal decision-making by reducing the two constraints identified by Simon (1979): time (computational processing power) and memory (information storage and retrieval). To the neoclassical rational approach of decision theory can be associated decision tools like: the cost benefit analysis, the SWOT analysis, the net present value technique etc.

2.4 Conclusion: what is the place of entrepreneur in the general decision theory?

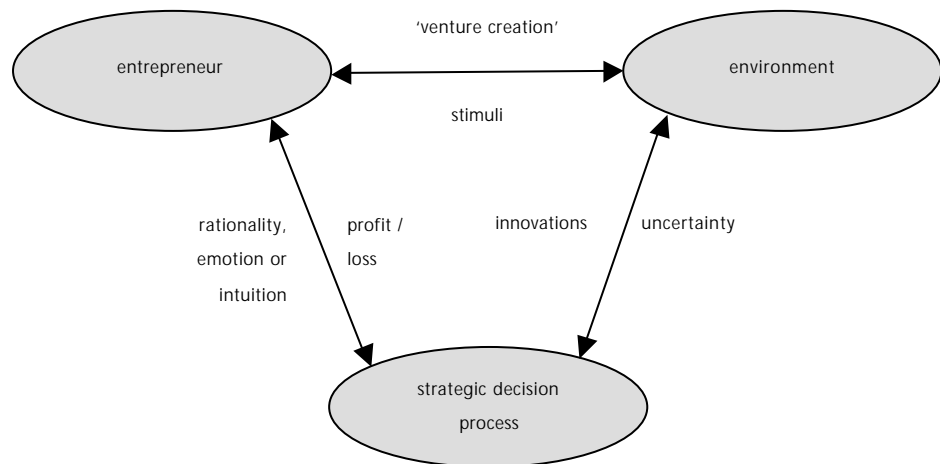
In this chapter the development of scientists' views on decision-making was presented. The historical developments reviewed above explain partly the often-asked question in the study of entrepreneurship: why is there no economic theory of entrepreneurship? Casson (1982) argues that the explanation lies in the very extreme assumptions about access to information, which are implicit in orthodox economics – that is in the neoclassical school of economic thought. Simple neoclassical models assume that everyone has free access to all the information they require for making decisions. The assumption reduces decision-making to the mechanical application of mathematical rules for optimisation. It trivializes decision-making, and makes it impossible to analyse the role of entrepreneurs in

taking decisions of a particular kind. Rational choice removes any opportunities for innovation, for co-ordination, and for uncertainty. More and more, however, we see economists introducing 'imperfect information' claims Baretto (1989). As economics moves toward relaxing the core assumptions, toward incorporating 'human elements', and toward explaining technological change, the entrepreneur will reappear. The reappearance of the entrepreneur in economic theory will be able to explain, at least partly, the economic development, whose driving force, as will be suggested below, rests upon the 'irrational' decision-making of entrepreneurs.

3 Analytical framework of strategic decision-making in SMEs

Most theories concerning the decision-making process (Mador, 2000; Mintzberg, 1976 and Papadakis et al., 1998) gravitate around a model of decision-making, which comprises three components: the environment, the specific characteristics of the decision to be taken and the entrepreneur himself. These three independent variables are in constant interaction while following the path of the decision process. Papadakis et al. (1998) state that for understanding decision-making process in depth, an integrative model, which includes decision specific, environmental and organisational factors, is needed. Likewise, DeMayer (1991) states that the elements, which are expected to influence strategic processes, are the manager's individual characteristics, internal organisational context, and environmental factors. Thus, there are three levels of analysis: the person (the entrepreneur), the environment, and the strategic decision process itself as depicted in figure 1. Such an analytical perspective is based on the same 'triadic reciprocity' mechanism that Bandura (1986) uses, in order to develop his concept of social cognitive learning. In this context human functioning is viewed as the product of a dynamic interplay of personal, behavioural, and environmental influences. How people interpret the results of their own behaviour informs and alters their environments and the personal factors they possess which, in turn, inform and alter subsequent behaviour states Pajares (2002). Similarly, in the scheme below the three major elements constructing the decision-making process are interlinked, and change in any of them reflects on a change on the others (Bandura's reciprocal causation).

figure 1 Levels of analysis in the decision-making process



Source: EIM, 2003 and Bandura, 1986.

In the following paragraphs each flow will be discussed.

Relation between entrepreneur and strategic decision process

The entrepreneur will influence the parameters of the strategic decision process by the approach he is going to adopt (rational, emotional or intuitive). Here, in section 3.1, the examined questions will be: 'Who is an entrepreneur?' and his cognitive mechanisms i.e. 'How does an entrepreneur think?'. The decision process, on the other hand, being strategic will affect the entrepreneur by bringing profit or loss to the business and will thus (possibly) reshape the entrepreneurial knowledge and experience.

Relation between entrepreneur and environment

The entrepreneur influences the environment by the very act of the venture creation and by the further strategic decisions he meets. In the opposite direction, the environment is constantly forwarding impulses for entrepreneurial actions (opportunities, threats, etc.). These environmental stimuli act as driving forces for the entrepreneur to make strategic decisions. Here, in section 3.2, the entrepreneurial mechanisms to process information will be discussed, as well as the issue of risk propensity and risk perceptions which is central for the theory of entrepreneurship.

Relation between environment and strategic decision process

The strategic decision process influences the environment by introducing advanced new methods of production or innovations (product or market novelties etc.), thus creating economic growth and market diversification. Conversely, the environment, being highly turbulent, brings uncertainty and probabilities of negative outcome, which shape the decision process and most often reflect in satisfactory instead of optimal decisions.

An interesting question is which of the three elements is more deterministic on the final outcome i.e. whether the nature of the decision problem shapes the process more than does the environmental and organisational context through which the process proceeds. According to an empirical study of Papadakis et al. (1998) it is the decision specific characteristics that determine the final decision.

On the following pages the literature contributions in the analysis of each of the three main factors determining the decision-making process (the entrepreneur, the environment and the strategic decision) are reviewed.

3.1 The entrepreneur

'Entrepreneurs ... they not only see the system as it is, but as it might be.'

Mitton, 1989

Whether a new firm is established or not depends on the respective environment and on the founder – the entrepreneur. Usually he does not have perfect knowledge about all critical factors, which drive an industry's development. Thus, he will have to bear certain risk. Only if the dimensions of the perceived risk appear to be sufficient to enter a market and the expected economic future shows promising signals, a new firm is born. The act of founding a firm depends on the individuals' perceptions and on the evaluation of the current (micro- and macroeconomic) situation. Furthermore, the firm's economic success, once founded, is determined again by the individuals' resources and the specific managerial capabilities, in short, it all depends on the entrepreneur.

3.1.1 *The roles of the entrepreneur according to theory of economics*

The economics theory reflected quite a lot on who is the entrepreneur and what roles he performs in the economy. Different authors were suggesting different answers to these questions through the years. The entrepreneur was typically viewed as:

Co-ordinator

Jean-Baptiste Say (1817) describes the entrepreneur as a 'combiner and coordinator of productive resources'. He viewed the entrepreneur 'as the core of the market system', the link of communication, between the various classes of producers, between the producer and consumer (Connell, 1999). Say placed great emphasis on the risk-taking entrepreneur and even included him as the 'fourth' factor of production in his analysis (Casson, 1982).

Arbitrageur

The entrepreneur as arbitrageur comes from Israel Kirzner (1973). He points out that an entrepreneur is someone with the ability to perceive profit opportunities and act upon them. The 'pure' entrepreneur observes the opportunity to sell something at a price higher than that at which he can buy it. He recognizes and acts upon market opportunities. In contrast to Schumpeter's (1934) viewpoint (see next paragraph), the entrepreneur moves the market toward equilibrium.

Innovator

Joseph Schumpeter (1934) believed the market system has an inherent tendency toward change and that the dynamic attributes of capitalism were its most useful characteristics. The entrepreneur is the innovator who implements change within markets states Schumpeter (1934). As such, the entrepreneur moves the market away from its equilibrium. Schumpeter's innovation is an outcome of new combinations. These new combinations are broad, including new goods, new methods of production, new markets, or new organisations that define economic development. Similarly to Schumpeter, Drucker (1985) defines entrepreneurship as an act of innovation that involves adding a new wealth-producing capacity to existing resources.

Uncertainty-bearer

The uncertainty bearer is divided into two sub-groups. The first subgroup is that of a speculator. Richard Cantillon (circa 1730), writing before Adam Smith, was the first to introduce the term entrepreneur to economics (Casson, 1982). Cantillon's entrepreneur is a speculator, but he is more than a mere arbitrageur (buying low and selling high) because of the presence of uncertainty. According to Cantillon, the entrepreneur, in conducting his transactions, buys at a certain price and sells at an uncertain one. Cantillon's entrepreneur is the key to the market system because of his willingness to bear risk (Casson, 1982).

The second subgroup is of particular interest because it is the one of the decision-maker. Frank H. Knight (1921) states that, in uncertain conditions, the decision-making function forecasts demand and estimates the factors' marginal productiveness. Entrepreneurs attempt to predict and act upon change within markets. Thus, according to Knight the entrepreneur is more than a manager or actual productive service. He is entrepreneur by virtue of his willingness to accept the results of a particular endeavour. Consequently, in their entrepreneurial decision entrepreneurs do not know the potential economic outcome but experimentally try different combinations.

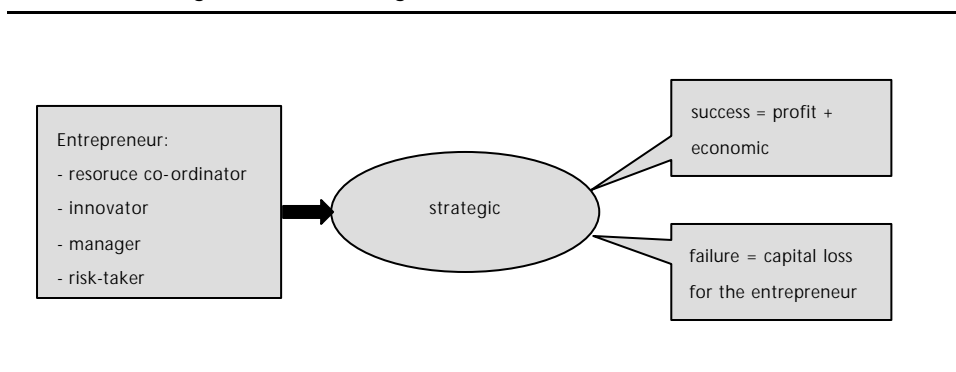
Shapiro and Sokol (1982) summarise all of the above by suggesting that an entrepreneur is every economic agent who undertakes an 'entrepreneurial event', namely who performs:

- 1 *Initiative taking* - grabs a market opportunity.
- 2 *Consolidation of resources* - uses the existing resources into new production combinations (the Schumpeterian view).
- 3 *Management* - of the organisation and the organizational assets to the best of the venture.
- 4 *Relative autonomy* - resources are disposed of and distributed with relative freedom.
- 5 *Risk-taking* - the venture's success or failure is assumed by the entrepreneur.

Casson (1982) also proposes an overall definition of entrepreneurship. For him there is no difference between the manager in a company and the entrepreneur, he claims that the differentiating criterion, the key trait of entrepreneurship is judgment in decision-making. Judgment is a capacity for making a successful decision when no obviously correct model or decision rule is available or when relevant data is unreliable or incomplete. The entrepreneur described by Cantillon needs judgment to speculate on future price movements, while Knight's (1921) entrepreneur requires judgment because he deals in situations that are unprecedented and unique. Schumpeter's (1934) entrepreneur needs judgment to deal with the novel situations connected with innovation. The insights of previous economists can be synthesized: entrepreneurs are specialists who use judgment to deal with novel and complex problems (Casson, 1982).

Thus, decision-making is the crucial characteristic of the entrepreneurial activity. Figure 2 provides a conceptual scheme / summary of the dimensions of entrepreneurship, which reflect in the characteristics of the strategic decision. The scheme shows as well the entrepreneurship's relation to economics and the economic feedback of the entrepreneurial activity (profit / loss).

figure 2 Conceptual scheme of the entrepreneurial nature with its impact on strategic decision-making



Source: EIM, 2003.

3.1.2 Psychological traits of entrepreneurs

According to Brothers et al. (1998) the personal characteristics of the decision-maker influence the decisions taken, thus in small firms rationality is expected to be decreased due to the strong personal influence of the entrepreneur. Hence, besides his economic roles, it is important to study the psychological facets of the entrepreneurial personality in order to comprehend the strategic decision-making in SMEs.

Empirical surveys found it hard to prove that entrepreneurs possess psychological or any other type of statistically significant differences than non-entrepreneurs (McClelland, 1967; Brockhaus, 1980; Schere 1982 and Low and MacMillan, 1988). Especially when examining risk propensity, researchers came out with contradicting conclusions and were not able to show convincing support of whether entrepreneurs are risk lovers or as risk averse as other people (this issue will be examined again in section 3.2.1). Nevertheless, there are some widely spread beliefs about the entrepreneurial psychology which merit to be mentioned here in order to get more insight in how small business managers meet strategic decisions.

The need for achievement

A significant psychological explanation of entrepreneurial acts is the need for achievement. When Shapero (1982) talks about 'negative and positive' factors to start a business ('negative' or 'push' are: unemployment, frustration, etc.), he mentions at first place among the 'positive' or 'pull' factors the need to achieve or innovate, alongside with the desire to gain control over one's destiny. Moreover, Brockhaus (1980) found empirical support that the entrepreneurs who were initially driven by 'push' factors have a higher failure rate. Furthermore, Shaver and Scott (1991) consider the achievement motivation. From his prospective the main characteristic of the business initiators is the high need for achievement which he defines following McClelland (1967) as a preference for challenge, acceptance of personal responsibility for outcomes and innovativeness. Papadakis et al. (1998) also underline that the two core aspects of entrepreneurship are the need for achievement and the attitude toward risk.

Desire to be independent and to control over situations

Much of the literature examining entrepreneurship appears to be guided by the presumption that, like crime, entrepreneurial acts represent deviant social behaviour affirms Campbell (1992). But jumping into risky ventures could be easily explained by the need to be independent and to possess autonomy over one's work. Hornaday and About (1971) reported that in comparison with men in general, entrepreneurs had stronger needs for achievement and higher degree of independence desire. McGrath et al. (1992) found that entrepreneurs agreed far more than did career professionals that 'Success is owning your own company'.

Individualism

Further to the desire of independence, Sexton and Bowman (1985) state that entrepreneurs need autonomy and dominance and are not strongly absorbed by needs for support from others or conformity to the norms of others. According to McGrath et al. (1992) entrepreneurs are rugged individualists. Their research confirmed the idea that entrepreneurs favour independent action and separation from groups and clans. This finding is consistent with Hofstede's results (1980), in which high individualism is associated with emphasis on individual initiative and achievement.

Locus of control

The concept of locus of control refers to a generalized belief that a person can or cannot control his or her own destiny. People can be classified along a continuum from very internal to very external (Rotter, 1966). Those who ascribe control of events to themselves are said to have an internal locus of control and are referred to as 'internals'. People who attribute control to outside forces are said to have an external locus of control and are termed as 'externals' (Spector, 1992, Nwachukwu, 1995 en Carver, 1977). Gilad (1982) notes that almost three decades of research consistently shows that internals are alert, discover opportunities, and scrutinize their environment to find information needed to formulate the optimal approach to developing those opportunities.

Ability to focus and pursue a goal

Furthermore, a recent empirical survey (Levander and Raccuia, 2001) on the predispositional cognitive abilities that are characteristic for entrepreneurs proves the hypothesis that entrepreneurs possess different cognitive and executive abilities than non-entrepreneurs. Their level of ADHD (Attention Deficit Hyperactivity Disorder i.e. hyperactivity) was observed to be higher than 4% (the average of an unselected population). ADHD-individuals were found to be highly over-represented among the entrepreneurs (12 out of 32), thus, explaining entrepreneurs' innovation and creativity abilities. The results show that entrepreneurs differ cognitively from general population by a striking difference in the capacity to focus attention on a single task. Attention is defined as the individual reception to environmental stimuli and the ability to process information (Levander and Raccuia, 2001). Thus, the survey concludes that it is the environmental stimuli and the ADHD that lead some individuals to react and to become entrepreneurs, motivating them for higher performance.

Optimism

Entrepreneurial insight is seeing something about an industry or a market that others miss or fail to understand (McGrath et al., 1992). But is it a true opportunity that entrepreneurs see or they simply inflate their 'gut feeling' and sense of rightness to the point where they overlook critical elements and discount uncertainties? Palich and Bagby (1995) suggest that entrepreneurs operate by a unique set of cognitive processes, thereby supporting their optimism. Furthermore, the literature on entrepreneurial behaviour suggests that entrepreneurs are likely to be optimistic and that they frequently make judgements based on subjective factors (Cooper et al., 1988; McCarthy et al., 1993 and Timmons, 1990). Excessive optimism hinders acknowledging some risks and may lead to serious damage on the business and even to its complete failure.

Other findings on entrepreneurial personality

Lyon et al. (2000) consider that entrepreneurial behaviour can be described as aggressive, innovative, proactive, risk taking, and autonomy seeking. Stokes (1998) suggests that owner-managers tend to concentrate on the day-to-day at the expense of the longer term. Levander and Raccuia (2001) warn that typical entrepreneur's features such as:

- impulsive character i.e. speed is preferred to accuracy (-> uncalculated risk and carelessness),
- inability to change problem solving strategies (-> low degree of flexibility) and
- inability to learn from mistakes (-> risk of vicious circle trap)

may affect negatively the process of strategic decision-making.

In addition to the above, Bazerman (1999) recognizes common behavioural traits and identifies ten 'important money mistakes' when making decisions about money (or anything else). That is, people tend to be:

- *Over-confident* when making decisions, trusting in established routines when they ought to be more wary of the efficacy of those routines;
- *Unprepared* when making decisions, assuming decisions fully reflect their knowledge and competence;
- *Ignorant* of others' decision-making and motives, assuming that others share the same dispositions and attitudes;
- *Exclusive*, assuming that their decisions are theirs alone, often failing to anticipate the interaction effects between themselves and others;
- *Competitive*, wanting to win while believing that their decisions will mean that others' welfare will be somehow less as a consequence;
- *Focused on the short-term*, thereby discounting the long-term in favour of immediate 'impulses';
- *Focused upon immediate reference points* of value, ignoring the wider implications of any decision for their total well-being;
- *Recursive* in the sense that one decision is the prelude for another decision and so on (decisions escalate);
- *Ignorant of the alternatives*, while emphasizing what is immediately relevant and known from previous decisions;
- *And easily influenced* by 'big' events rather than the causal structure of economic and financial processes that produce those events.

3.1.3 *Cognitive mechanisms explaining entrepreneurial decision-making*

Besides the reflections on the entrepreneurial nature, entrepreneurship might be explained by examination of how entrepreneurs think, hence by their cognition. Initially, research efforts were concentrated on identifying the personal traits, and those differences that lead some people to recognise opportunities and to pursue them (Shaver and Scott, 1991). Most of these studies did not show viable support of the thesis that self-employed businesspeople are different than others. Thus, research was shifted to another possible source of explanation – cognitive predispositions, i.e. a hypothesis that entrepreneurs simply think in a different manner (Baron, 1998). For example, Palich and Bagby (1995) found that while not differing in their general risk-taking propensity from non-entrepreneurs, the entrepreneurs tend to categorise business situations as having more opportunities for potential profit. It is not that entrepreneurs do not recognize risk, they just do not estimate it to be as high as other people would do, and neither would be as scared of it. Busenitz and Barney (1997) state that entrepreneurs are different from managers in that they take decisions by relying much more extensively on biases and heuristics, and furthermore speculate that without their use many entrepreneurial decisions would never been made. Even if the use of cognitive biases may be beneficial in some circumstances, it may lead to major errors in others continue Busenitz and Barney (1997). The most dangerous aspect of decision-making is the tendency for even the smartest people to fall into the 'cognitive

illusion' trap, which causes them to distort reality or delude themselves with sloppy or misguided thinking claims Bazerman (1999). Similarly, Baron (1998) argues that due to the specific situation entrepreneurs find themselves in (e.g. information overload, high degree of uncertainty, intense emotions, commitment, responsibility etc.) their susceptibility to cognitive biases and errors is increased. Some of the literature contributions concerning common entrepreneurial cognitive biases are reviewed below.

Affect infusion (emotional biases)

Most theories of decision-making are silent about the role of emotions. Savage (1954) proposed anticipated regret as a determinant to influence decisions, and later Bell (1982) systematically incorporated emotions into a theory of choice (see chapter 2.3). Important in the regret theory is that decision-makers anticipate all possible outcomes of the decision task and therefore have to face a high cognitive workload (Gilbert and Wilson, 2000). Another interesting theory presenting further emotional biases in entrepreneurial way of thinking is the affect infusion model, first developed by Forgas (1995). This model suggests that affective states created by one source or experience can influence (infuse) judgement about other unrelated events. Furthermore, Forgas speculates that the likelihood of affect infusion is higher when individuals engage in effortful thought (as entrepreneurs often are forced to do). Thus, Baron (1998) hypothesises that entrepreneurial decisions are highly susceptible to affect infusion.

Self-efficacy

Self-efficacy is defined as an individual's cognitive estimate of his or her capabilities to mobilise the motivation, cognitive resources, and courses of action needed to exercise control over events in their lives (Bandura, 1986). The same environment could be assessed as full of opportunities by people with high self-efficacy but burdened with costs and risks by people with low self-efficacy (Chen et al., 1998). Self-efficacy beliefs help to determine how much effort people will spend on an activity, how long they will persevere when confronting obstacles, and how resilient they will be in the face of adverse situations (McCarthy et al., 1993). Moreover, McCarthy et al. differentiate it from self-esteem in that the latter is viewed as an inherent characteristic of individuals that is relatively stable across situations, whereas self-efficacy is situation specific. While being an important prerequisite for entrepreneurial acts, self-efficacy represents a serious cognitive bias because it leads to the false perception of a very low possibility of failure (Brockhaus, 1980). These consequences of misjudgement are often observed in entrepreneurs (Koen et al., 2000) and are interlinked with further cognitive biases that represent a potential source of errors in the process of decision-making.

Planning fallacy

Planning fallacy is termed the tendency of most people to underestimate the time required to complete certain project, or to overestimate how much they can accomplish in a given period of time (Baron, 1998). Due to the fact that entrepreneurs, by the very nature of their activity, constantly step into new experiences, they do not have adequate reference (given the lack of previous experience) of how much personal effort or resources the new venture will consume. Hence, they are likely, being optimistic and euphoric about the new activity, to think they are able to do more than they actually could (McCarthy et al., 1993). Indeed, belief in the success is one of the key ingredients in a successful business venture but in the same time unrealistic optimism leads to bad planning, which in most cases ends with losses and failure.

Overconfidence

The planning fallacy bias is closely related to the entrepreneur's belief that he or she is more likely to succeed than others in the same kind of business, i.e. to overconfidence.

Overconfidence describes the tendency to overestimate the likely occurrence of a set of events (Zacharakis and Shepherd, 2001). Overconfident people make probability judgements that are more extreme than they should, given the evidence and their knowledge. Levander and Raccuia (2001) found that entrepreneurs have higher levels of self-confidence compared to general population. Thus, because of over-self-esteem, they are more susceptible to make decisions with uncalculated risks. It is not unusual for individuals to over- or underestimate their abilities and suffer the consequences of such errors of judgment.

Attributional styles

Baron (1998) claims that most individuals tend to attribute positive outcomes to internal causes (their own talent or effort) but negative outcomes to external causes (the self-serving bias: blaming others for negative feedbacks of decisions). Especially the self-serving bias i.e. the belief that negative outcomes are out of one's responsibility and attributed to external forces may be extremely devastating in strategic decision-making. Sooner or later it will probably lead to business failure. Baron (1998) predicts that successful entrepreneurs are less susceptible to the self-serving bias than are unsuccessful ones.

Escalation of commitment

The phenomenon of overcommitment to a failing course of action due to psychological biases connected to the original choice was introduced in the literature by Staw (1977). Because of this 'escalation' bias, when meeting strategic decisions (like persisting with the marketing of a failing product or expanding instead of contracting the business assets) entrepreneurs, despite negative feedback, may continue devoting significant amount of resources in activities that rationality would advise to give up on. Psychologically this misjudgment is explained by the fact that a negative outcome of a decision provokes a self-justification process whereby decision-makers attempt either to defend themselves psychologically against a perceived error in judgment or to make the previous choice appear rational through increasing their commitment to the failing course of action (Staw, 1981). Because of their deep commitment to their companies entrepreneurs may experience powerful pressures to justify their initial decisions, states Baron (1998). No matter whether they are afraid to look ridiculous in front of others or would not like to accept in front of themselves the initial mismanagement of resources, in both cases they continue persistently claims Baron (1998).

In this chapter a distinction was made between several common cognitive biases in entrepreneurial decision-making: affect infusion, self-efficacy, planning fallacy, overconfidence, attributional styles and escalation of commitment. As a conclusion has to be mentioned that a significant amount of research was devoted to identify the differences between entrepreneurs and non-entrepreneurs, but the results did not show reliable support of such a thesis – there might be some, but the nature of these differences are not predictable (Low and McMillan, 1988). Nevertheless, the speculation that entrepreneurs may differ cognitively from other people deserves attention and further empirical testing. The results of the current empirical study refer partly to these issues.

Table 1 summarises the typical psychological and cognitive characteristics studied by the researchers reviewed above.

table 1 Psychological and cognitive characteristics of entrepreneurs

<i>Author</i>	<i>Year</i>	<i>Characteristic(s)</i>
Bandura	1986	self-efficacy
Baron	1998	planning fallacy, attributional styles, escalation of commitment, affect infusion
Bazerman	1999	human cognition
Brockhaus	1980	risk propensity
Busenitz and Barney	1997	overconfidence
Chen, Greene and Crick	1998	self-efficacy
Cooper, Wood and Dunkelberg	1988	growth oriented, independence oriented, craftsman oriented, optimistic
Hofstede	1980	individualism, initiative taking, achievement motivation
Hornaday and Aboud	1971	need for achievement, autonomy, aggression, power, recognition, innovative/ independent
Khatri and Ng	2000	intuitive decision-making
Koen, Markman, Baron and Reilly	2000	misjudgement, cognitive biases
Levander and Raccuia	2001	ADHD syndrome, attention, self-confidence
Low and Macmillan	1988	entrepreneurial cognitive biases
Lyon, Lumpkin and Dess	2000	aggression, pro-activeness, autonomy
McCarthy, Schoorman and Cooper	1993	self-esteem, optimism
McCelland	1967	risk taking, need for achievement
McGrath, MacMillan and Scheineberg	1992	individualism, optimism, risk taking
Mintzberg and Westley	2001	intuitive decision-making
Mullins and Forlani	2000	risk propensity, venture choice, perceptions of risk
Palich and Bagby	1995	risk taking
Schumpeter	1934	Innovation, initiative
Sexton and Bowman	1985	energetic/ ambitious, positive reaction to setbacks, optimistic, individualistic
Shapero and Sokol	1982	entrepreneurial acts, need for achievement
Shaver and Scott	1991	entrepreneurial acts, achievement motivation
Shere	1982	risk taking
Staw and Fox	1977	escalation of commitment
Timmons	1990	self-confidence, goal oriented, moderated risk taker, internal locus of control, creativity/ innovation
Zacharakis and Shepherd	2001	entrepreneurial information processing, overconfidence

Source: EIM, 2003.

3.2 The decision environment

Enterprises act in a certain environment in which different actors and forces are present (such as: competitors, the governmental regulations, the customers with their specific demands, the suppliers, the taxation, the investors etc.). Each of them plays more or less a significant role on company's performance by presenting opportunities and imposing threats on its activities (Kotler, 1988). Hence, every firm has to meet strategic decisions about how to act in the given environment and to adapt its activities with the characteristics of the actors. Strategic planning focuses largely on managing interaction with environmental forces, and the ability of the small business owner-manager to deal with these groups will determine the success of the strategic decision (Bankova, 1991).

The decision environment

Successful decision-making requires an accurate understanding of the environment in which that decision will be played out. Without that understanding, it is impossible to assess the probable consequences and choose thoughtfully among them (Messick and Bazerman, 1996). The decision environment is defined as the collection of information, alternatives, values, and preferences available at the time of the decision (Harris, 1998). An ideal decision environment would include all possible information, all of it accurate, and every possible alternative. However, both information and alternatives are constrained because time and effort to gain information or identify alternatives are limited (Harris, 1998):

- the time constraint means that a decision must be made by a certain time and
- the effort constraint reflects the limits of manpower, money, and priorities.

Since decisions must be made within this constrained environment, the major challenge of decision-making is uncertainty, and a major goal of decision analysis is to reduce uncertainty (Harris, 1998). As it is almost impossible to have all information needed to make a decision with certainty, most decisions involve an undeniable amount of risk.

Characteristics of the contemporary business environment

Nowadays, more businesses face an unstable business environment with high levels of uncertainty present (Dess et al., 1997). Improvements in information processing and telecommunications have made major changes in most industries. Along with this, improvements in transportation and the growth of foreign economies (for example in South-East Asia) have created a global marketplace and redefined certain industries. In addition, as consumers are exposed to more choices, loyalty has become less important than it once was: a slightly better deal can easily result in loss of customers (Eisenhardt, 1989). Competitors also can change rapidly, with new ones appearing from the other side of the world facilitated by globalisation processes. Thus, the more complex the economy and the society become the more people prefer employment to independence (Loasby, 1998).

Consequences for entrepreneurs

For those who remained self-employed the rules of the game have changed: everything has to be done yesterday. In the past managers were acting under the general motto 'efficiency through stability', in the contemporary environment it is transformed into 'survival through change' (Duncan, 1989). Turbulent developments cause rapid changes in the modern business reality and it is hard to find a reliable point of reference. Hence, uncertainty, the inevitable element in entrepreneurial activities, is higher than ever.

Change is constant in the new economic landscape states Hamel (2000). In his view change has changed: it does not move in a straight line anymore, rather is discontinuous, abrupt and seditious. Thus, modern enterprises have to adopt a strategy of constant adjustment of their decisions to the fast-moving developments. The characteristics of the environment are different every week, every day, for some companies even every minute, so if entrepreneurs do not develop a hypersensitivity to the outside circumstances they risk to be shifted out of business.

Entrepreneurial approaches to overcome uncertainty

In such extremely complex circumstances the use of cognitive biases in decision-making reviewed above may be justified: they may not only be the easier but also the only possible way to deal with the turbulent environment. Busenitz and Barney (1997) claim that using biases and heuristics as simplifying mechanisms for dealing with these multiple problems may be crucial. More specifically, overconfidence may be particularly beneficial in implementing a specific decision and persuading others to be enthusiastic about it as well.

There are several theses about how the decision-makers cope with uncertainty (hostile environment):

- 1 Environmental heterogeneity affects the strategic decision process characteristics such as rationality, and leads to greater use of cognitive simplification processes (Schwenk and Shrader, 1993). Hence, this hypothesis claims that in order to deal with the external pressure and complexity, entrepreneurs seek to minimise their cognitive effort by creating 'short-cuts' in their thinking (such as relying on intuition or routine). Another element of the same hypothesis is suggested by Loasby (1998). He claims that being quite expensive to collect information about all possible outcomes, decision-makers reduce their costs by postponing decisions and then simplifying the postponed decisions. Consequently, this results in various forms of errors.
- 2 Hostile environments lead to a more rational decision process according to Dess and Beard (1984). Eisenhardt and Bourgeois (1988) also argue that it is positive to plan (comprehensiveness) in turbulent industries.
- 3 A third idea is provided by Fredrickson and Iaquinto (1989), namely that it is positive to plan in stable, but it is harmful to plan in turbulent industries. Through several empirical studies the researchers prove that comprehensiveness (i.e. rationality) exhibited a positive relationship with organisational performance in a stable environment and a negative relationship with performance in an unstable environment (same suggests Frese et al., 2000). Dean and Scharfman (1996) also reported results showing that it is positive to plan in stable industries. Papadakis et al. (1998) found no convincing support for any of the theses in his survey.

To predict how decision-making is influenced by environmental developments, it is critical to understand how the individual cognitively processes and interprets these developments. When regarding the environment, a central issue to analyse in the entrepreneurial behaviour is the ability of information processing and the risk propensity.

3.2.1 *Entrepreneurial risk propensity*

Psychologically, people prefer a reasonably deterministic world in which there are known explanations for things that happen (Messick and Bazerman, 1996). In decision-making, however, there is always some degree of uncertainty in any choice. In this context Knight (1921) claims that every effective exercise of judgement is coupled with a corresponding degree of uncertainty bearing, of taking the responsibility for the selected course of action. According to him, the very essence of free enterprise is the concentration of responsibility in its two aspects of making decisions and taking the consequences of decisions when put into effect. Furthermore, the scientist differentiates risk as measurable whereas uncertainty as immeasurable, hence there is no insurance for a business decision. Risks can be rated as percentages, ratios, rankings, grades or in any other form that allows them to be compared (Harris, 1998).

Very few studies have shown statistically significant differences between entrepreneurs and non-entrepreneurs in their risk-taking propensity (Brockhaus 1980; Low and MacMillan 1988). Nevertheless, this individual psychological trait continues to be discussed as an important variable for understanding entrepreneurial behaviour.

Palich and Bagby (1995) defend the idea that entrepreneurs do not differ from other people in respect to their risk propensity. Rather they react differently to environmental stimuli, especially when the data are equivocal. Entrepreneurs through the cognition process of categorisation are more capable to process and store ambiguous data, thus perceiving equivocal business scenarios more positively than others. Hence, it is not their risk propensity but their different cognitive processes that make entrepreneurs more optimistic about certain business venture claim the researchers. Furthermore, Palich and Bagby (1995) found empirical support of the theses that when presented with identical situations, entrepreneurs will categorise them as having more strengths, opportunities and potential for gain than non-entrepreneurs. Most importantly, the study of the researchers proved that entrepreneurs simply tend to associate business situations with cognitive categories that suggest more favourable attributes when the environmental data are equivocal i.e. exactly in the case of the contemporary high turbulent business environment with high degree of uncertainty.

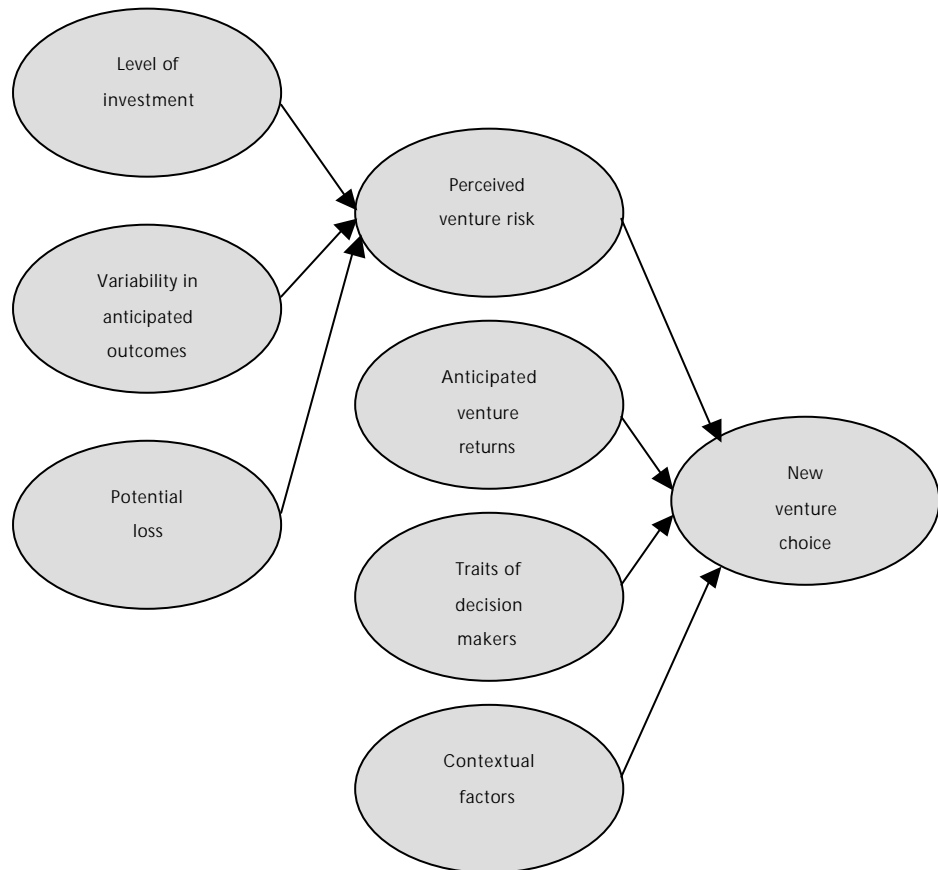
Mullins and Forlani (2000) also studied the risks incarnated in entrepreneurial ventures but their thesis is slightly different. According to them risk propensity appears to directly impact venture choice behaviour, rather than indirectly affecting behaviour through the perceptual process. The researchers found empirical support of the following hypotheses:

- the greater the variability in predicted outcomes of a proposed new venture, the greater will be its perceived risk and the less likely it will be selected for funding;
- the greater the magnitude of a proposed new venture's largest potential loss, the greater will be its perceived risk;
- the greater the risk propensity of the entrepreneur, the less will be the perceived risk associated with a particular new venture;
- the greater the risk propensity of the entrepreneur, the more likely he or she will be to select new ventures having higher levels of risk.

Furthermore, Mullins and Forlani (2000) tried to identify the elements of the perceived venture risk by entrepreneurs (see figure 3), claiming that the central factors taken into account are the hazard incorporated in the venture (if things go wrong how much can

be lost, the potential loss) and the variability in the anticipated outcomes of the venture (the probability of actual returns deviating from the expected return or outcome).

figure 3 Conceptual scheme of the entrepreneurial nature with its impact on strategic decision-making



Source: Mullins and Forlani, 2000.

3.2.2 Entrepreneurial information processing

Nowadays, managers are faced with rapidly changing and fast-paced competitive environment, which places demands on organisations to actively interpret opportunities and treats when making strategic decisions (Dess et al., 1997). In the same time today's rapidly changing markets offer little assurance that a decision will not soon be found inappropriate or obsolete claims Dickson (1992). Probably the most important impact of modern environmental complexity on enterprises is the intensification of information and communication processes. The information became the most sophisticated modern weapon to defeat competition. Some authors even call it a fourth production factor (Loasby, 1976). However, the immense new opportunities are only one side of the coin. The process could also represent a real threat for some enterprises. Nowadays, the information flows are so intense and so diverse that for most companies it is hard to distinguish between relevant and irrelevant data. As much as the Internet helps

businesses it could also be a dangerous source of disinformation. The phenomenon of immediatisation (pressure for multitasking performance) makes the problem even more complicated (Eisenhardt, 2000). Most entrepreneurs meet difficulties in selecting the correct information and taking a decision in short terms.

As time passes, the decision environment continues to grow and expand. New data and new alternatives appear. Ideally, more information should enable the decision-makers to assess more precisely the probabilities on possible outcomes. However, Zacharakis and Meyer (1998) state that additional data even when relevant make the decision more complex. Even if more information is available, people usually don't analyse all of it, although they think they do (Zacharakis and Shepherd, 2001). Furthermore, the phenomenon of information overload is also to be taken in consideration. People often have problems to select and process the needed data from the constantly intense environmental flows (Loasby, 1998). Mental fatigue occurs, which results in slower or poor quality work. Often the outcome is fast, careless decisions or even decision paralysis - no decisions are made at all (Harris, 1998). Thus, according to Mador (2000) the process of information gathering and analysis in the SMEs is often chaotic and opportunistic.

3.2.3 *Two entrepreneurial approaches to deal with environmental uncertainty and complexity*

In high velocity environments, as seen above, in order to cope with the exponentially increasing complexity of the surroundings entrepreneurs create 'shortcuts' in their thinking. Two possible simplifications are relying on routine practices and applying intuition in the decision-making process.

Routine (habitual) decision-making

When the prerequisites needed to take a decision are partly unknown or too complex, decision-makers try to structure the initial endowments and to classify them according to their previous experience and knowledge (Loasby, 1998). Hence, to adjust the new circumstances to an old decision situation and to apply the same techniques as used at first place (re-usage of knowledge). Such an approach of referring to habit could be extremely dangerous in the contemporary business environment when market characteristics change rapidly and require constant management of change. 'Relying on the autopilot' may guide the entrepreneurs to the situation of the boiled frog from the well-known case (Bankova, 1991). The tendency to over-generalise from a few characteristics or observations (Busenitz and Barney, 1997) may lead decision-makers to lose their ability and motivation to be proactive and refer to previous experience, hence routine and habit, in order to solve problems or meet decisions.

As mentioned at the beginning of this chapter, reactive style of management was often enough to keep the business going. However, today changes happen fast and come from many directions. By the time a reactive manager can make the necessary adjustments, he or she may lose many customers possibly for good (Bankova, 1991). Frese et al. (2000) observed that a reactive strategy is negatively related to firm success. Furthermore, Van Gelderen et al. (2001) found that there is a circular process between reactive strategy and failure i.e. a reactive strategy leads to less success, and failure leads to reactive strategies. Conversely, proactive planning in an unstable, technology driven business environment is critical to continuing success claim Van Gelderen et al. (2001). Proactive planning is the anticipation of future events. Rather than reacting to the situation as it changes, proactive planning requires that the entrepreneur analyses

environmental forces and makes resource-allocation decisions, which are based on predictions of future states of the environment as opposed to reactions to various crises as they occur (Van Gelderen et al., 2001).

Intuitive decision-making

Intuition is a sophisticated form of reasoning based on 'chunking' that an expert hones over years of job-specific experience (Prietula and Simon, 1989). Intuition is not emotion; it is subconscious, complex, quick and not biased state Khatri and Ng (2000). It is not the opposite of rationality, nor is it a random process of guessing, rather a complementing path to come to a decision continue the researchers. According to them intuition is connected to experience and expertise. Similarly, Mintzberg and Westley (2001) link it with deep knowledge, usually developed over years, followed by a period of incubation, during which the unconscious mind mulls over the issue. Then with luck (as with Archimedes in the bathtub), there is a flash of illumination (Mintzberg and Westley, 2001). That eureka moment often comes after sleep - because in sleep, rational thinking is turned off, and the unconscious has greater freedom; the conscious mind returns later to make the logical argument. Thus, no one should accept any theory of decision-making that ignores insight argue Mintzberg and Westley (2001).

An empirical study of Khatri and Ng (2000) conducted on the role of intuition in strategic decision-making found support of the hypothesis that intuitive synthesis is greater in unstable than in a stable environment and that in an unstable environment intuitive synthesis is positively related with organisational performance. Furthermore, a study of entrepreneurial personality (Levander and Raccuia, 2001) found support that rationality has a lower priority than instinct in shaping entrepreneur's behaviour.

3.3 The decision and the process of strategic decision-making

Decision-making is a multistage and multicriteria process (Hall and Hofer, 1993) determined by the interplay between the expectations about the future of the decision-maker and the calculation and sequential recalculation of risk and reward (Clark and Marshall, 2002). Both elements depend on the information available i.e. the knowledge about the decision, the effects of its alternatives, the probability of each alternative, and so forth (Harris, 1998). Furthermore, a critical factor is that in spite of the way it is presented on paper, decision-making is a non-linear, recursive process (Harris, 1998). That is, most decisions are made by moving back and forth between the set of criteria (the characteristics that the final choice has to meet) and the identification of alternatives (the possible outcomes to choose from). The available alternatives influence the criteria applied to them, and similarly the criteria influence the alternatives to be considered (Harris, 1998).

In this section four popular theoretic models of decision-making process are presented. These models reflect the core assumptions of the decision theories reviewed in chapter 2. Rational choice is incorporated in the 'elimination-by-aspects' (EBA) model, and the bounded rationality, is depicted by the satisficing model. Furthermore, the models of Mintzberg et al. from 1976 and 2001 represent a detailed framework on the stages in making a strategic decision.

Tversky's EBA model

Tversky (1972) suggests a simplistic recursive EBA routine:

- Step 1: Selection of a desired aspect (attribute).
- Step 2: Elimination of all alternatives that do not have that attribute.
- Step 3: Selection of another desired aspect and return to step 2.

In doing so, the decision-maker goes closer and closer to the desired goal until its final achievement.

Simon's satisficing model

Simon (1976), suggests an even simpler strategy: satisficing. In some ways, this turns EBA on its head. The 'satisfactory' decision-making rule or heuristic is a two-step rule:

- Step 1: Set the minimal acceptable level of each relevant attribute.
- Step 2: Choose the first instance you come across that meets those minimal standards and then act accordingly.

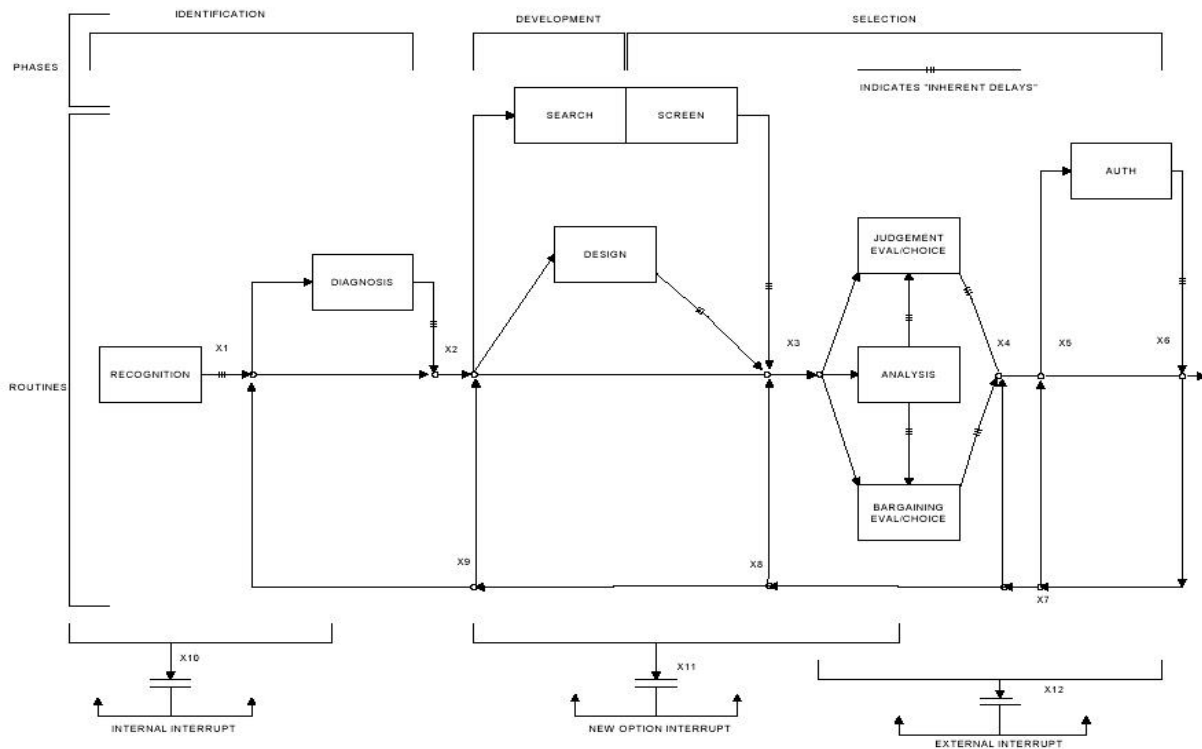
Clearly, EBA is a negative (eliminative) strategy while 'satisficing' is a positive (acceptance) strategy. Empirical work is required to reveal whether and under what circumstances these heuristics are actually used. An early experiment (using an apartment-buying game) by Payne (1976) suggested that people did initially use EBA at times and often used a modified 'satisficing' strategy, in which a small set of minimally acceptable instances, was 'let through the net' (Clark and Marshall, 2002). After making the task more manageable in this fashion, participants then used calculations more akin to utility maximization to make the final choice.

Mintzberg's model of unstructured decision processes

Indisputably, the most integrative and popular attempt to create a descriptive framework of the decision-making process in literature belongs to Mintzberg et al. (1976). In their well-known study of twenty-five strategic decision processes across a range of organisations the scientists suggest that there is a basic structure underlying these 'unstructured' procedures. The theorists define the characteristics of strategic decision process as novel, complex and open ended with decisions not so much made under uncertainty, but within a continuous state of ambiguity, where almost nothing is given or easily determined. The proposed model (see figure 4) tries to show that whilst strategic decisions are immensely complex and dynamic, it is possible to give them conceptual structuring.

Mintzberg et al. (1976) argue that the structure can be described by seven elements comprising three 'central phases' (identification, development and selection), three sets of 'supporting routines' (decision control, decision communication and political) and six sets of 'dynamic factors' (interrupt, scheduling delays, timing delays and speedups, feedback delays, comprehension cycles and failure recycles). The general model describes the interrelationships among them and the decision processes studied are shown to fall into seven types of 'path configurations'. Three decision stimuli sit in a continuum, namely 'opportunities' (voluntary decisions to improve a secure position) at one end, 'crises' (decision responses to intense pressures) at the other and 'problems' in the middle; each capable of integrating or moving along the continuum.

figure 4 Conceptual scheme of the entrepreneurial nature with its impact on strategic decision-making



Source: Mullins and Forlani, 2000.

The seven elements / stages of the decision-making process according to Mintzberg et al. (1976) are:

1 *Recognition*

This first stage marks the beginning of the decision-making process. Here, the need to make a decision becomes visible as a difference between certain actual situations and some expected standards or goals. Thus, the entrepreneur realises that a key moment has come and action has to be taken. Recognition depends on the way information is gathered and processed in the entrepreneurial mind (see chapter 3.2.2) and by the environmental characteristics (encouraging or restrictive).

2 *Diagnosis*

In this stage, the entrepreneur seeks to comprehend the evoking stimuli and to determine the cause-effect relationships for the decision-situation. Existing information channels are reviewed and new ones found in order to clarify the issues and get as much input information into the decision-making process as possible. Determination of the scope and limitations of the decision is done.

3 *Search*

This stage is devoted to finding ready-made solutions i.e. to identify the available alternatives. This is a hierarchical, stepwise process of alternative seeking. Cyert and March (1963) hypothesise that search begins in immediately accessible areas, with

familiar sources. Initial failure in search leads to use of more active search procedures and in more remote areas (Mintzberg et al., 1976).

4 *Design*

Here the decision-makers either modify available alternatives or create alternatives that do not yet exist. According to the approach used in this stage the final decisions are classified as: ready-made (adopted from an existing alternative in the environment); modified (when a ready-made solution is developed to fit the particular situation) or custom-made (when a solution is invented especially in order to meet the decision criteria).

5 *Screen*

Thus, from the previous two stages the entrepreneurs dispose with a set of alternatives. In the screen stage the decision-maker has to set criteria, which the ideal decision should meet and to eliminate the unfeasible solutions.

6 *Evaluation / choice*

In this stage the evaluation of the value of each alternative takes place first, then a course of action (a decision) is selected. The decision-maker considers the negative (cost, consequences, problems created, time needed, etc.) and the positive characteristics of each alternative (money won, time saved, added creativity, or happiness to customers, etc.). A great number of factors have to be observed, most of them 'soft' or non-quantitative. This is how elements of bounded rationality intervene the decision-making process. Being the most powerful and often the only decision-maker, the entrepreneur often transfers his cognitive biases into the decision-making process on this stage. The evaluation-choice routine gets distorted by information overload or by unintended as well as intended biases claim Mintzberg et al. (1976).

7 *Authorisation*

Decisions are authorised when the individual making the choice does not have the authority to commit the organisation to the selected course of action (Mintzberg et al., 1976). The theorists introduce this routine in their model because it is aiming at creating an integrative framework of the decision-making process. In the specific case of entrepreneurial decision-making, though, this stage does not represent significant research interest since entrepreneurs are autonomous.

Summarising, the model of Mintzberg et al. (1976) suggests three main phases of the decision-making process. The Recognition and the Diagnosis routines form the central phase of 'Identification'. The Search and the Design routines structure the 'Development' central phase; and the 'Selection' phase comprises the Screen, the Evaluation/choice and the Authorisation routines.

Mintzberg and Westley's 3-axis model

It is disputable whether entrepreneurs follow to the letter the pattern that Mintzberg et al. (1976) propose. Being created in the 70s (i.e. by its very nature based on rational assumptions) this model does not take into consideration many cognitive, anomalies of rational choice some of which were reviewed in chapter ?. From the nowadays perspective Mintzberg revises his point of view to a certain extent (Mintzberg and Westley, 2001). Without denying the rational approach the researchers defend the thesis that the conventional rationality is not anymore the only advisable way to determine the course of action. Good decisions are the output of careful analytical

thinking combined with two other possible 'ingredients' of decision-making, namely intuition and pro-active behaviour (see figure 5). Consequently, they claim that there are three approaches to meet a strategic decision:

1 *Thinking first (rational)*

This is the already reviewed path to arrive to a decision:

define -> diagnose -> design -> decide.

2 *Seeing first (intuitive)*

Seeing first' is a rather subconscious manner of decision-making, which requires a significant amount of prior experience (see also the section dedicated to intuitive decision-making in section 3.2.3). Here Mintzberg and Westley (2001) follow the Gestalt psychology developed by Wallas in the 1920s, which identifies four steps in creative discovery:

preparation -> incubation -> illumination -> verification.

3 *Doing first (action-oriented)*

If rationality is helpless and strategic vision is not present Mintzberg and Westley (2001) advise simply to 'jump into the pool', hence to undertake an action. The feedback of the action will direct the further steps. Thus, 'doing first' is a way to evaluate possible alternatives, to see which one suits best the organisation and to continue following it. This approach is advisable when the situation is novel and confusing, and things need to be worked out claim Mintzberg and Westley (2001). That is often the case of entering new industry. The pattern here is suggested by Weick (1979):

enactment -> selection -> retention.

Mintzberg and Westley argue that an integrative and successful decision-making process should rely on all the three axes.

table 2 Characteristics of the three approaches to making decisions

<i>'Thinking first' features the qualities of</i>	<i>'Seeing first' features the qualities of</i>	<i>'Doing first' features the qualities of</i>
science	art	craft
planning	visioning, imaging	venturing, learning
the verbal	the visual	the visceral
facts	ideas	experiences

Source: Mintzberg and Westley, 2001.

4 Empirical findings on entrepreneurial strategic decision-making

In section 3.3 four popular theoretical models of the decision-making process were reviewed. Here will be discussed some of the empirical findings on entrepreneurial decision-making. Unfortunately, there are not many existing surveys conducted on entrepreneurial decision-making in a later stage of the business. Most of the research is concentrated on the 'entrepreneurial acts', hence, on the motivation of founding a business (start-up decision-making). Nevertheless, these results could be considered as applicable to the current research because strategic decision-making at a later stage of the business development is somewhat similar to new venture creation. Strategic decisions, which lead to a turning point in the development of small firms, like entering a new market or introducing a new product, usually involve high levels of uncertainty comparable to those of establishing a firm at a first place. Thus, it is reasonable to assume that starting entrepreneurs are susceptible to the same pressures as entrepreneurs that already have certain experience.

Are entrepreneurs rational in their decision-making?

The strategy process focuses on the formulation and implementation of the strategic decision, and is connected to formal planning (detailed business plan elaboration) claim Olson and Broker (1995). In a conducted empirical survey the researchers observed that half of the examined small fast growing enterprises did not develop an initial formal plan. Moreover, (Levander and Raccuia, 2001) found that entrepreneurs often deal with a situation without planning in advance, which decreases the firm performance when confronting with more complex problems. Busenitz and Barney (1997) argue that entrepreneurs simply do not have the time to go through a thorough, rational decision-making process. Papdakis et al. (1998) observed that strategic decisions for new business investments and marketing type seem to be subject to a less comprehensive analysis than strategic decisions on capital investment and internal reorganisation. Such results are in line with Thompson (1967) who suggested that in cases of high uncertainty, managers act in an 'inspirational' manner, by making obsolete any formal procedures and rules usually followed. Busenitz and Barney (1997) also claim that more extensive use of heuristics in strategic decision-making may be a great advantage during the start-up years. Furthermore, Frese et al. (2000) found proof that an opportunistic strategy might be useful approach to deal with uncertainty until the decision-makers get familiar with the industry and the specifics of the market, hence in the beginning of the business history. Van Gelderen et al. (2001) observed that complexity of the environment will lead to increased use of complete planning, but changeability of the environment will lead to less frequent use of rationality. Furthermore, changeability of the environment will lead to the increased use of an opportunistic strategy and a lack of munificence in the environment will lead to an extensive use of reactive strategies. Their overall results show that the undifferentiated prejudice by advisors and banks, that top down planning is always good, has to be modified. Nevertheless, it is more advisable to use a planning strategy when the firm becomes larger and when the owner has a better grasp of the operative business conditions (Frese et al., 2000). Moreover, the survey of Frese et al. (2000) shows that the small business owners in the Netherlands have a high uncertainty avoidance (hence preference for detailed planning) score, similar to that in Germany. Same cultural characteristics and preference for rationality were reported by Hofstede (1991). Finally,

Brouthers et al. (1998) claim that larger small firms, in terms of both sales and number of employees, are significantly more rational than the smaller small firms. According to their empirical findings, small firms tend to gravitate around the average rates of rationality, but in the same time stress that their results found evidence of personal characteristics playing a role in decreasing rationality.

Most common factors influencing the entrepreneurial strategic decision

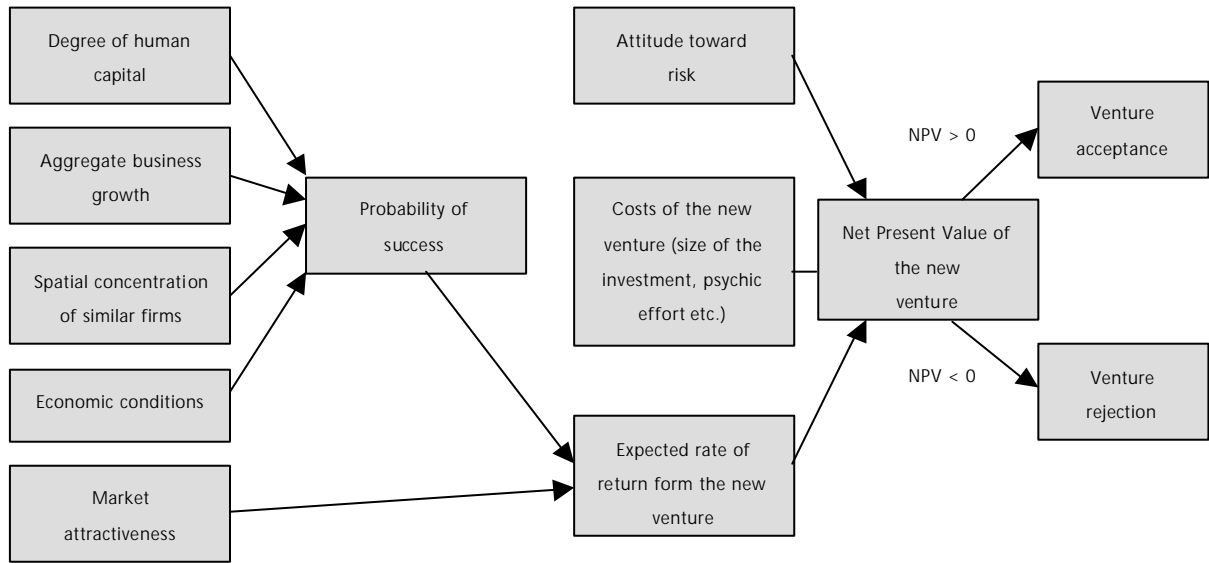
It is difficult to identify the factors that influence human decision-making in general, as this is an individual cognitive process hard to track while happening. Thus, researchers have to rely on post-hoc analysis of the strategic decision (typically interviews with the decision-makers). This tool is not reliable argue Zacharakis and Mayer (1998) because people tend to overstate the information they relied upon and to use far less information (typically five to seven factors) to make a decision than they actually think they use. Ex post facto data could be biased by inaccuracies in the recall ability of the entrepreneurs affirm also Hall and Hofer (1993).

Nonetheless, significant amount of research is dedicated to identify what firm's based factors lead small business owners to take their first steps toward growing and expanding. According to Wells (1974) the entrepreneur's abilities and those of the entrepreneurial team are decisive in the strategic decision-making process: their background, previous experience and level of commitment. The market segment attractiveness is asserted as the most important environmental factor. Tyebjee and Bruno (1984) affirm the size of the investment, the cash out potential, the geographic location and the product differentiation as most influential for the strategic choice. Moreover, Harris (1998) focuses the attention on factors like: time available for making the decision, cost involved with alternative solutions, availability of resources, knowledge and personal psychology (values). According to Papadakis et al. (1998) the decision specific characteristics influence the decision-making process more than any other environmental, organisational, or managerial factor.

Furthermore, Mullins (1996) claims that prior performance and firm competency are among the significant decision criteria that direct the strategic course of action. He argues that under conditions of better prior performance and a higher level of firm competency, direct action market responses are less likely to occur (the 'fat cat' syndrome introduced by Hedberg et al., 1976). Consequently, under conditions of poorer prior performance and a higher level of firm competency, direct action market responses are more likely to occur prove the results attained by Mullins (1996).

Frese et al. (2000) argues that entrepreneurs use the approach of concentrating on the most difficult, most unclear, and most important point first. Only after solving this first critical point further steps are planned. Furthermore, following a very rational approach Campbell (1992) claims that the entrepreneurs elaborate very formal cost benefit analysis of the potential benefits and compares them with the alternative costs, and if the expected net present benefits are positive, the strategic decision would be implemented (see figure 5).

figure 5 Model of entrepreneurial strategic decision-making



Source: EIM, 2003 and Campbell, 1992.

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Annex I Glossary of important terms

Entrepreneurship: 'the identification and exploitation of previously unexploited opportunities' (Hitt et al., 2001, pp. 480).

Entrepreneurial mindset: 'a way of thinking about your business that captures the benefits of uncertainty' (McGrath et al., 1992).

Decision-making: 'the process of choosing a preferred option or course of action from among a set of alternatives. Decisions often involve uncertainty about the external world. The decision-making process often begins at the information gathering and proceeds through likelihood estimation and deliberation, until the final act of choosing (MIT encyclopaedia of Cognitive science, <http://cognet.mit.edu/MITECS>).

Need for achievement: 'To accomplish something difficult. To master, manipulate, or organise physical objects, human beings, or ideas. To do this as rapidly, and as independently as possible. To overcome obstacles and attain a high standard. To excel one's self. To rival and surpass others. To increase self-regard by the successful exercise of talent' (Murray, 1938).

Risk: 'the degree of uncertainty and potential loss associated with the outcomes which may follow from a given behaviour or set of behaviours' (Mullins and Forlani, 2000, pp. 309).

Risk propensity: 'the tendency of a decision-maker either to take or to avoid risks' (Mullins and Forlani, 2000, pp. 310).

Strategic decision:

- a decision which is 'important, in terms of the actions taken, the resources committed, or the precedents set' (Mintzberg et al. 1976).
- 'those infrequent decisions made by the top leader of an organisation that critically affect organisational health and survival' (Eisenhardt and Zbaracki, 1992, pp. 17).

Strategic entrepreneurship: 'an entrepreneurial action with a strategic perspective' (Hitt et al., p. 480).

Velocity: 'A measure of speed of change and continuity in demand, competition, and technology. In high velocity environments, changes are so rapid and discontinuous that information is often inaccurate, unavailable, or obsolete' (Bourgeois and Eisenhardt, 1988).

Uncertainty: 'rate of change' (Rajagopalan et al., 1993).