EMPIRICAL INSIGHTS INTO THE BLACK BOX OF DECISION-MAKING IN NEW VENTURES

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INTRODUCTION

How are decisions (particularly, important decisions) made in new ventures?

Entrepreneurs are widely seen as 'seat-of-the-pants,' 'intuitive,' and 'opportunistic' decision makers. This perception arises in part because the popular press mythologise successful entrepreneurs. Mitchell (1997) suggests this is because 'the 'ordinary' is rarely news, [while] the 'extraordinary' and the 'idealized' assume an unwarranted pre-eminence.' He also says that the 'extraordinary' seems extraordinary because it is portrayed that way to outsiders though in fact it may be viewed as ordinary by insiders. But many researchers in the entrepreneurship field also consider that successful entrepreneurs are successful not because they plan well but because they seize whatever opportunities come their way.

However, if this popular image of an entrepreneur is correct, why do almost all 'how to be a successful entrepreneur' books emphasise the importance of being very systematic and taking a planned approach to new venture formation? Similarly, why do venture capitalists value business plans highly and carefully assess the competence and experience of new venture managers?

Surprisingly, this confusion is also reflected in the literature on decision-making. The dominant thinking (Berman, Gordon & Sussman, 1997; Bhide, 1994; Pascale, 1984) is that the entrepreneurial style of management is not systematic and planned, but rather ad hoc and opportunistic. The dominance of this view is such that in strategic management an intuitive and opportunistic style of decision-making has been labelled the 'entrepreneurial style' (Mintzberg & Lampel, 1999). A few researchers (Delmar & Shane, 2003; Olson & Bokor, 1995; Robinson & Pearce, 1984) however argue that engaging in a formal planning process gives entrepreneurs an in-depth knowledge of the business and, thus, helps in obtaining a better understanding of challenges.

To move beyond caricatures of daredevils or formulaic planners, Mitchell (1997), Carter, Stearns, Reynolds and Miller (1996) and Gartner (1998) suggest that greater understanding of the *approach* taken by entrepreneurs would be useful. Similarly, McMullen and Shepherd (2006) make a case for studying the 'process' of decision-making.

But despite these statements decision-making in new ventures has been a relatively neglected area of study. For example, in a recent survey by Chandler and Lyon (2001), there was no mention of any study that has taken a 'decision in a new venture' as the unit of analysis. Addressing this unresolved issue, this research takes a careful empirical approach to answering the following questions:

- Is there such a thing as 'entrepreneurial' decision-making? Does it show any typical characteristics or patterns, and are they related to performance?[1]
- Is there any relationship between the experience of the entrepreneurial team, the decision process they use, and the performance of the decision?

UNDERSTANDING SOURCES OF CONFUSION

A careful review of the literature shows several reasons why entrepreneurial decision-making remains a confusing and unresolved area of entrepreneurship theory.

First, and perhaps most important, has been the varying interpretations of 'planning' or 'strategic planning.' Mintzberg (2000) has listed quite a few, and Mintzberg and Waters (1985) had earlier questioned the very concept of 'strategic planning,' which at that time was interpreted as 'complete' deliberate strategy making. They identified many styles of decision-making that lie between purely 'deliberate' and purely 'emergent', and suggested that practice usually lies somewhere in between. While this concept is now as widely accepted as that of 'bounded rationality,' the majority of researchers seem to take the view that all strategy making with <u>any</u> element of 'emergent' is emergent. In this widely held view 'strategic planning' retains its traditional characterisation as deliberate strategy making. In other words, the majority of researchers have actually not changed their operational definition of 'planning/strategic planning' (Harris, Forbes & Fletcher, 2000; Slevin & Covin, 1997).

[1] The entrepreneurial team, in this research, means founder(s) along with senior management people during very early stages.

Second, 'intuition' is also a complex conceptual category that has been interpreted differently. Most often it is considered as gut feeling or apprehension without the intervention of any reasoning process. Mitchell, Friga and Mitchell (2005) however provide a useful theoretical definition of intuition developed through a comprehensive literature survey. They anchor their concept of intuition in the prior experience of the decision-maker. Many scholars in the field of entrepreneurship (eg Hart & Banbury, 1994; Hitt & Tyler, 1991; Schweiger, Sandberg & Rechner 1989; Sharfman & Dean, 1997) have emphasised the importance of experience-based decision-making for efficient and quick decisions across all functions in a turbulent environment. It follows that the decision-making process may vary with the specific characteristics of the decision and the decision-maker.[2]

Third, some researchers have not followed an appropriate analytical methodology. In particular, while analysing a decision, several researchers have used the firm as their unit of analysis, and have then drawn conclusions about the decision based on the performance of the firm (like Eisenhardt, 1989; Forbes, 2005). If one were to analyse the excerpts used by Pascale (1984) in his case study of Honda's entry to the US motorcycle market, one would conclude that many of decisions by Honda were quite logical (neither intuitive nor ad hoc) and that these turned out to be successful. In fact a detailed analysis at the level of individual decisions shows that the decisions made in ad hoc way, with neither planning nor relevant prior experience, and that, while the overall firm strategy was successful, many of these specific decisions failed.

Fourth, many researchers do not adequately take context into consideration. This is particularly the case in research involving a range of industries (Autio, 1999). The nature of, and the method used to make decisions in high-risk, high-capital industries may be quite different from those in low-risk, low-capital industries.

Fifth, much research in strategic assessment and decision-making has been developed in the context of a large firm, where there are formal structures, processes and roles and decision-making must be carefully managed. When researchers focus on the strategy process in the new venture or small business, the framework used is often derived from previous research in large firms. Seen through this lens, entrepreneurial decision-making tends to be seen as intuitive, ad hoc and opportunistic (Gartner, Bird & Starr, 1992).

Sixth, because new ventures are inherently more risky, entrepreneurs have been seen as risk takers with a high tolerance for ambiguity (Low & Macmillan, 1988). This widely held image of a risk-taker couples easily with intuitive and ad hoc decision-making. But it is unclear whether entrepreneurs' appetite for risk is any different from that of the general population (Brockhaus, 1980). It is thus imperative to relate performance to the way decisions are made in a particular context, as without this the researchers send the wrong signal on which approach to follow (Pettigrew, 1992).

Last but not the least, while these different perspectives have contributed to the confusion, some writers appear to be equivocal, supporting both perspectives (e.g. Bhide, 1994, 2000; Harris, Forbes & Fletcher, 2000). Perhaps shaped by these alternative perspectives there are even different interpretations of the same study. For example, while Mueller and Naffziger (1999) and Olson and Bokor (1995) state that Schwenk and Shrader (1993) found a positive association between the strategic planning and performance of small businesses, Frese, Gelderen and Ombach (2000) conclude that they found the association between planning and success to be below expectation[3]. This further adds to the confusion.

RESEARCH FRAMEWORK

While some scholars in entrepreneurship (like Ardichvili, Cardozo & Ray 2003; Gaglio, 2004; Lumpkin & Dess, 1996) have started to build a theoretical and empirical framework to better understand the 'recognition of the opportunity', the on-going process of decision-making following that recognition has largely been a neglected dimension. In the absence of a specific framework for the new venture context, it was decided to begin by integrating framework elements from strategic management and entrepreneurship, as suggested by Ireland, Hitt, Camp, & Sexton (2003).

Researchers in the field of strategic management have built decision-making models. Such models are built on the premise that 'decision processes are programmable even if they are not in fact programmed' (Mintzberg, Raisinghani & Theoret, 1976). Researchers (like Daft & Weick, 1984) in this area typically delineate different phases of the decision process, such as the three phase characterisation: identification of the problem or opportunity; development of the idea (mainly related to validating the idea by giving meaning to the data); and implementation of the idea. Some researchers (like Mintzberg et al., 1976; Schwenk, 1984) have added sub-phases to each to develop more clarity in concepts.

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[2] While we agree with the theoretical definition of 'intuition' proposed by Mitchell et al. (2005), however in this research 'intuition' has been used in the popular sense and a separate construct of 'prior experience' was developed.

[3] Schwenk and Shrader (1993) found a low but positive relationship between strategic planning and performance.

One direction for the development of decision-making models involves essentially the elaboration of these stages (as suggested) while retaining the basic linear sequential approach. Most researchers taking this approach acknowledge iteration in decision-making but use a linear model because of complications in framing an iterative model (like Bourgeois, 1980; Beyer & Trice, 1982; Heerkens, 2006; Schwenk, 1984). A second approach, however, actually builds iterative processes into their models of decision-making (e.g., Daft & Weick, 1984; Lyles, 1981; Mintzberg et al., 1976; Nutt, 1993).

Several alternative framework decision-making models were considered. Nutt (1993) has outlined a structured model of the decision process, but the model does not provide a means to take into consideration the political dimension of decision-making. This is a limitation, as most decision-making does not rely on authorisation for the decision by a single decision-maker. Daft and Weick (1984) have proposed a model that includes iterative 'feedback' loops within an essentially linear three-phase model. But the simple categorisation of the phases has limited utility as an analytical framework. The model developed by Shrivastava and Grant (1985) is only partially iterative. It was decided that the Mintzberg et al. (1976) model remained a robust generic model suitable as a starting point for this research. But it needed to be revised to take into account more recent research. Consequently, new constructs were added to the framework based on more recent literature in decision-making and entrepreneurship. The rationale for using a working framework rather than a purely emergent approach is discussed in next section.

The basic structure (see Appendix B) and the key concepts of the preliminary framework, incorporating the additional categories are as follows:

- **Concept Development**: Initially, based on limited information decision makers *recognize the presence of an opportunity or a problem*. Once the validity of the belief has been partially ascertained, the next step is to look into many other issues that are specific to that decision. Being typically short of resources and time to make a formal study, a new venture decision-maker relies on proactive and purposive methods to reduce the uncertainty associated with these issues. This phase is thus more systematic and the search for information is more logical and can be done either by *deliberatio*n or *formal analysis*. For deliberation, decision makers tend to rely on their own experience and a host of advisers and experts (who are either employees of the company or are from networks) for the best possible information. Formal analysis involves use of paid consultants and/or carefully devised tools and techniques to gather required information about the environment.
- **Decision Formulation**: The decision formulation stage comprises steps related to coming up with different plausible courses and then choosing the one that is likely to give best results. The entrepreneur must 'contrive' a solution appropriate to the decision-makers' specific situation. Deciding on a course of action that is well established or designing a unique solution to the circumstantial need can do this. The latter approach can take two paths: *custom-made* solution(s) that are completely new and/or *modified* solution(s) that are derived from previous occasions but changed to suit the current situation. Once the options are known, 'selection' is the step to eliminate options that are not feasible and to determine what is appropriate. This can be done either by using one or more approaches: analysis, heuristics, or gut-feeling (ad-hoc, or 'intuition' in popular language).
- **Decision Implementation**: Majone and Wildavasky (as quoted in Moore, 1995), who were among the first theorists to challenge the separation of formulation and implementation, consider that formulation should actually be seen as part of implementation. However, Beyer and Trice (1982) and Nutt (2000) suggest, on the basis of careful empirical analysis, that implementation is an integral part of the decision-making process but that it follows after the adoption of the selected decision. This latter approach was followed for the model. In new ventures, decisions are made by the entrepreneur or the entrepreneurial team (along with investors) and they have to implement them. As such, it was assumed that adoption and implementation would be simultaneous or contiguous (unlike a large company, where adoption and implementation may be distinct). On considering the 'political' nature of the decisions (Eisenhardt & Zbaracki, 1992; Narayanan & Fahey, 1982), it was thought that the final decision for action can be achieved in various ways and will be circumstantial: *directly* when the decision-maker is the sole authority or there is consensus among the actors on the decisions or there is only one obvious or preferred way of doing things; by agreement on a course of action through the *involvement* of stakeholders; *edict* (Nutt, 1998); *bargaining* (Nutt, 1998); *persuasion* (Nutt, 1998); or a decision *forced upon* decision makers by investors.

RESEARCH DESIGN

Carrying out research in a complex area, where initial frameworks are not adequate, is challenging. To ensure a sound approach this research developed an approach based on:

The sequential development of the decision-making model, based on induction and deduction. The key reason for using a working framework rather than a purely emergent approach was to reduce the risk of losing direction

in a complex area (Miles & Huberman, 1994). However, as there is a danger that an imposed framework will result in losing important messages that do not fit the framework (Nutt, 2000), it was decided to have a working framework that would be modified as the analysis progressed. The key to managing this trade-off between imposing a framework and excessive differentiation leading to a lack of generalisation is a disciplined process of concept definition and development.

The decision as the unit of analysis. As the unit of analysis was a 'decision' it was essential to have a clear boundary defining that unit. The approach taken for boundary demarcation is similar to those suggested by Krippendorff (1980) and Langley, Mintzberg, Pitcher, Posada & Saint-Macary (1995). Based on the sample size used in previous studies, an assessment was made to have 20-30 biotechnology companies in order to discuss at length an average of 4-6 decisions per company. The companies (set up in Australia and India) were selected based on the twin criteria of their age and the availability of sufficient secondary information. It was decided to have one industry for two reasons: industry is an important element of context; and the researcher had a background and experience in the given industry - important consideration for the data collection and analysis in any qualitative study (Flick, 2002). 35 Australian and 14 Indian companies were deemed fit for the interview based on the criteria. 22 Australian and 11 Indian companies participated, and data from 30 of these companies was considered detailed enough for further use.

The use of secondary data to enrich and focus interviews. The secondary data (often quite detailed press coverage is available for biotech companies) provided a good background to the company and its stages of development. Interviews with the decision makers were the primary means to collect the data. While it is important to understand how things really happen in organizations (Mintzberg, 1979) real-time longitudinal studies are particularly difficult for doctoral students (Bygrave, 1989). With regard to the validity of retrospective interviews, an empirical investigation by Huber (1985) showed that the stability of the information was not significantly related to how much time elapsed between the making and first reporting of decisions and that the most important issues were the most stable.[4] Gartner et al. (1992) and Mitchell (1997) both have argued in favour of semi-structured interviews as being an important research tool. A substantial effort was made to interview more than one person so that more decisions per company could be covered and triangulated. Because the focus of the research was to understand the decision process for early decisions in a new venture, the founders and the senior managers hired quite early in the start-up were considered to have the best knowledge (Huber and Power, 1985). The interviews were tape-recorded and transcribed, after having signed a confidentiality agreement.

A generic interview schedule was developed based on the framework and a characterisation of the key decisions usually required in a new biotechnology venture. The questionnaire was pilot tested and revised. At this stage three companies participated. After the pilot tests, it was decided to personalise questions (based on the generic version of the questionnaire) to suit each company. Given the expected limitation of time for the interviewees and the objective of discussing some particular decisions at length, a few decisions for each company were selected and a matrix prepared for each company (akin to an aide memoire as suggested by Walker (1985: 4-5)), giving an overview picture on one page of issues to be discussed.

The total number of people interviewed was 54, and the average time for an interview was 70-75 minutes. The 'initial start' of each company was discussed and on average a further four or five decisions were discussed in each firm. Together they formed the basis of qualitative analysis. However, for statistical purpose only those decisions were used for which performance could be related explicitly. ***Performance was determined based on a priori statements about the expectations of the decision (gathered from secondary sources).***[5]

Pursuing the concern to balance an a priori conceptual framework with a more inductive approach three styles of analysis were used:

1. **Descriptive Qualitative Analysis**: This first stage involved the development of categories and subcategories of the decision process and the establishment of preliminary associations among them. It is in this phase that new categories and sub-categories emerged. Qualitative data analysis

[4] Protocol analysis though widely used to understand the process of 'individual' problem solving and decision-making was not considered to be the best alternative for the purpose of this research because: it relies on hypothetical cases given to individuals; most decisions (especially strategic decisions) in business settings are not taken by an individual; and important decisions in a new venture are expected to be non-routine in nature and Ericsson and Simon (1993) bring to notice variability in the verbalised responses of subjects when dealing with new situations that were typically non-routine in nature.

[5] As several types of decisions would be discussed within a company, no one performance variable would suit all decisions. The approach of using factual information rather than asking entrepreneurs their general impression of decision effectiveness was proposed by Dean and Sharfman (1996). Venkataraman and Ramanujam (1986) also recommend the inclusion of operational (or more proximate) performance indicators.

was done using software NVivo® as it facilitated cross-case analysis (Eisenhardt, 1989) by 'extracting and clustering the segments in which a theme appears' (Miles & Huberman, 1994). This also led to the evolution of the working framework.

2. **Flow Charts or 'Decision Process' Diagrams**: 'Decision process' diagrams of decisions were constructed. This approach is based on the work of Mintzberg et al. (1976) and Nutt (1993). The 'decision process' diagrams were constructed with the use of software called SmartDraw®.[6] Finally, drawing upon the empirically drawn flowchart diagrams of 53 decisions, the generic decision process diagram was constructed.
3. **Quantitative Analysis**: Drawing on methodological ideas of Barringer, Jones and Neubaum (2005), Isenberg (1986), Miller and Friesen (1978) and Nutt (1984, 1998), content analysis was used to develop quantitative data. Consistency in coding documents is essential for content analysis; otherwise the researcher can skew the results reducing replicability (Krippendorff, 1980). For this purpose, a set of rules for coding was developed and followed strictly (Refer Appendix A). Later to for the purpose of reproducibility, it was decided to check for inter-observer consistency. An MBA student and a senior academic researcher were given the coding rules and asked to review the researcher's coding of several cases.[7] Neither of the two had prior in-depth knowledge of the companies. In that way, their assessment was based on the interview transcript and the coding rules. The former checked about 15 per cent of the data and the latter about five per cent. In both the cases, they selected the decisions randomly. There was a very high degree of consistency with the concepts or themes the researcher had coded, being ~92 per cent and ~94 per cent respectively.

The means of the factors were more useful for analysis, hence the choice of using Analysis of variance (ANOVA) as the preferred statistical test. Wald tests were used to test whether an effect existed. This was due to the unbalanced nature of the data with respect to factors (which are the various elements of the decision process seen in Fig 1) and categories (like successful and unsuccessful decisions).

The generic model for the analysis can be stated as:

$$y_{ij} = \mu + \alpha_i + \beta_j + \varepsilon_{ij}$$

where
y_{ij} = response to i^{th} type (i = 1, 2, … n) and j^{th} type (j = 1, 2, … n)
μ = mean effect
α_i = effect of i^{th} type
β_j = effect of j^{th} type
ε_{ij} = residual
Note: α and β are qualitative variables or factors. Given that they are not continuous, it is appropriate to use ANOVA rather than regression. (ANOVA is a special case of regression.)

RESULTS FROM QUALITATIVE ANALYSIS AND FLOW CHART DIAGRAMS

The working model was a point of departure and it was expected that it would evolve in response to the emergence of new categories and relationships. Several major changes were made to the working conceptual framework as discussed below (Figure 1 is the final model that emerged):

- Gaglio (2004) defines 'opportunity' as 'the chance to introduce *innovative* (rather than imitative) goods, services, or processes to an industry or economic marketplace.' Others (e.g., Hill, Shrader & Lumpkin, 1999) define opportunity as the chance to start a business. However, it would be useful to broaden this definition because in a new venture there may be opportunities of several levels and kinds about which decisions have to be made. For example, there are opportunities to hire a prominent person, buy machinery cheaply or find a good location for a new office et cetera.
- It was found that decision options were identified by decision-makers using 'common approaches' and that these were used more frequently than expected. A 'common approach' is a preferred way of doing

[6] Flowchart diagrams were drawn for only 53 decisions, of which only 26 could be related to performance. The simple logic governing this decision was that if Mintzberg et al. (1976) were able to find a few patterns with their 25 diagrams, we should be able to find some with double the number. The approach was to draw at least one complex decision from each company. Among the different complex decisions of a company, decisions that showed some relation to performance were preferred.

[7] Ideally, each of the observers should have done the coding themselves. However, it takes a lot of effort to learn the software (NVivo®) and the coding style. Given their time constraints, it was decided to take this path. Even though this is methodologically less rigorous, it assesses the acceptability of conceptual themes and coding style.

a thing in a particular situation and is well established. Decision-makers can select one common approach (if there are many) and either use it as it is, or act creatively to adapt it to their need or formulate a completely new approach. The latter is called 'contriving'. So, it was decided to add an extra step to differentiate between 'common approach' and 'contrive' when both steps were involved.

- Making a choice from multiple options could be based on deliberation, formal analysis or intuition. While an element of intuition or guesswork will always exist, to differentiate between complete guesswork and only some use of intuition, the term 'ad hoc' is used for the former.
- Most of the categories used under 'decision implementation'- edict, persuasion/bargaining, managed procrastination, forced upon, natural choice, and consensus— were empirically observed in one or more case studies. However, other categories emerged— opportunistic, acting on unexpected good luck, acting to fulfil a need, decision based on trust, decision in frustration, compromise, and retaliatory decisions. (see Figure 1 and Appendix C).
- It became evident that, in some instances, formulation and implementation were not two separate phases but ones that blended into one another (due to the highly iterative nature of a decision-process), it was decided to do away with the three phases: concept development, decision formulation and decision implementation.
- After the decision to do away with the three phases, it was decided to name the final process of coming to a decision (or making a choice) as *decision end point*. It is here a go/no-go choice is made. This choice is different from choice of options. Whether a decision is analytical or not will be reflected in the decision process by the use of deliberation and formal analysis, here the idea was to characterize the style of coming to a decision. The *decision end point* was later segregated into two categories for quantitative analysis: select- constructive and considered, and select- not constructive and considered. (See Appendix C).
- The working model was based on an assumption that in new ventures the entrepreneur or entrepreneurial team would make decisions and so adoption would be direct once a decision was made. However, it was observed that a few decisions had to be approved by the board, especially when there were significant external investors. In that case, for the purpose of framework generalisation, it was imperative to add 'authorisation.'

The analysis of the rich qualitative data not only helped in refining the various elements of the decision process and the evolution of the framework, but also led to deeper understanding of the constructs.[8] For example,

- The analysis led to understanding what facilitates the recognition of a problem or opportunity. It was found that domain knowledge, experience, social networks, search activities, unexpected occurrences, an unfavourable environment and even serendipity are some of the likely explanations for the recognition of a problem or opportunity.
- Some of the factors that can facilitate making a decision are: having adequate resources; having knowledge of customers while starting; knowing one's competitive advantage; having support from influential people; decisions that are strategically coherent to the previous decisions; having symbiotic relationship when forming a partnership; involvement of experts, et cetera.

The analysis using flow chart diagrams did not generate any common patterns, and hence did not generate 'typical' patterns that could be called entrepreneurial decision-making styles or patterns. This led to a reassessment of the types of decision processes that Mintzberg et al. (1976) had identified. While they were able to generate seven groups out of 25 decision processes, it is likely that they would have come across many more groups had they studied more decision processes. They also mentioned that the 25 decision processes could be represented in terms of seven basic models 'with minor additions which do not appear to be common' (1976). The fact is that there is a great deal of variation among individual decisions and possibly a large number of groups of decision-making processes. This level of variance greatly reduces the analytical value of visual process diagrams. However, this attempt to make diagrams of decision processes was not without gains. It led to a greater understanding of their use and limitations:

[8] Chapter 6 in the dissertation contains a detailed discussion (with examples) on not only the elements of the decision process, but also on the sub-elements. It was not the initial idea (or expectation) to discover the sub-elements; however, the rich data allowed that, leading to an even better understanding of the main elements/constructs of decision process.

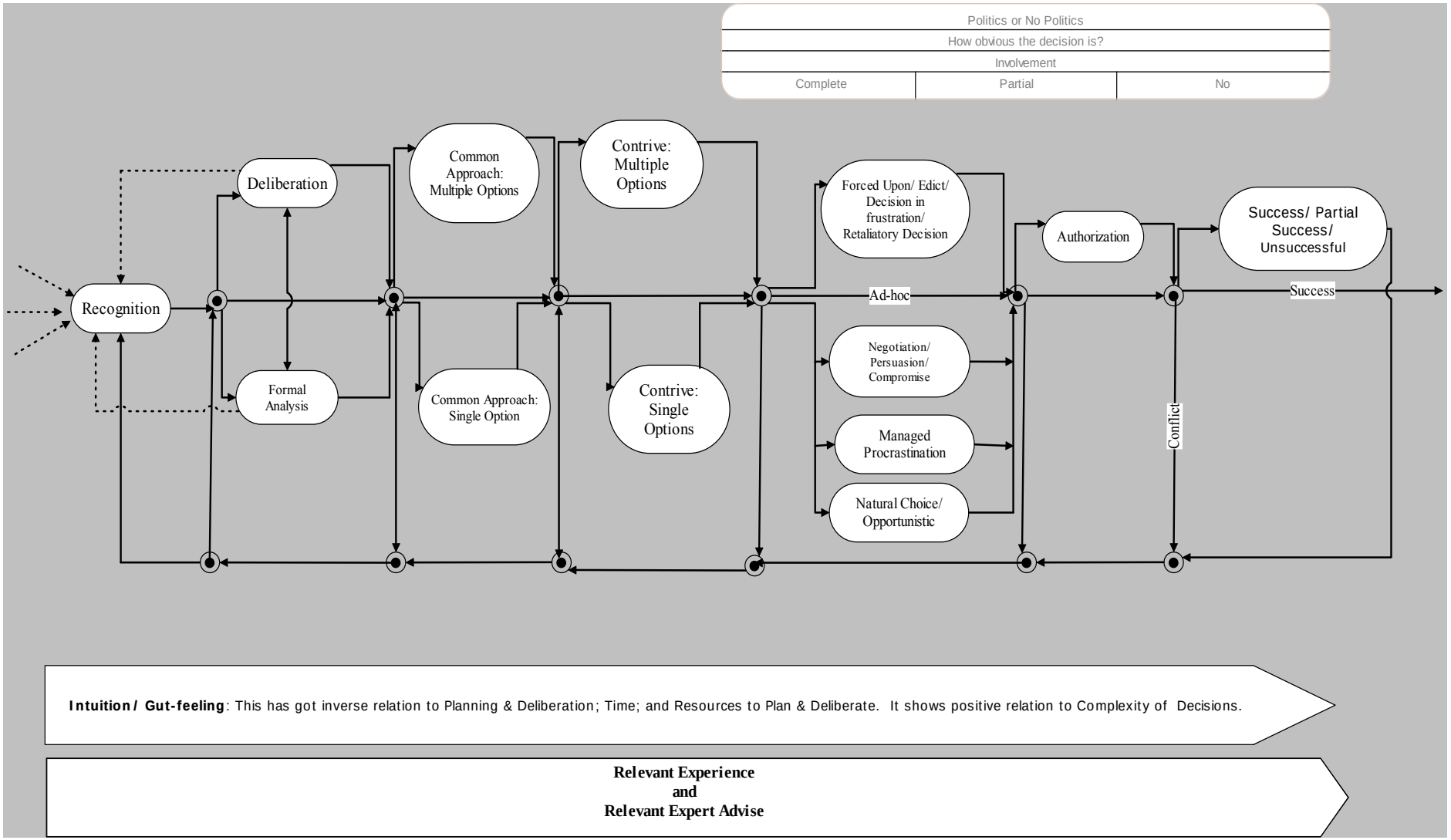

Figure 1. Empirically Grounded Generic Model for the Decision-making Process in New Ventures

- It can be difficult at times to pictorially show decisions that have taken a long time to evolve. The true depiction of that process can be very tricky and is many times not possible. For example, it can be very difficult to show the marketing strategy of a company that has taken a long time to evolve (due to a new market, novel products, etc.). Sometimes even the initial idea on which a company was formed may have evolved in stages— something very difficult to show convincingly by a decision process diagram.
- Closely related to the above point is the difficulty of showing a decision process in such a way that by looking at the diagram one can differentiate between whether it was a one-time decision or an evolving decision.
- Sometimes it is very difficult to construct the boundary of a decision unit. Two different decisions may be so closely intertwined that it becomes difficult to represent them individually or even in a combined way. For example, Company F raised $13.2mn, but their decision process to raise this amount was closely related to their decision process to appoint a new Chairman.
- It is also difficult to show ingenuity or smartness (on the part of decision-makers) that is related to some decision processes. To represent such ingenuity without losing the essence of it is a challenge.
- Quite closely related to the above point is the problem of bringing forth the quality of certain elements (such as deliberation or formal analysis) that may be key to the outcome.

Decision process diagrams can at best provide an overview of the decision process of a particular decision because the decision process is constructed by making use of major decision points as the signposts and then giving them the shape of the decision process.

RESULTS FROM QUALITATIVE AND QUANTITATIVE ANALYSIS

Decision-making and decision outcomes

The confusion and controversy related to the true nature of entrepreneurial decision-making was one of the main motivations for this research. The problem largely concerns the nature of evaluation during the decision process and it is the nature of evaluation that has been used by researchers to characterise decision-making by entrepreneurs. Hence, the research had a particular focus on carefully analysing the nature of evaluation during decision making and also, importantly, in assessing whether there was a relationship between the nature (style) of evaluation and the relative success of the subsequent decision.

The approach involved segregating successful and unsuccessful decisions (decided on a priori statements about the expectations of the decision) and then comparing their characteristics across the main elements related to *evaluation* (i.e. deliberation and formal analysis) and *selection* (i.e. decision end point) in the decision process. Based on the literature and on the qualitative analysis, various forms of decision end points or 'selection' (using term by Mintzberg et al., 1976) were grouped *a priori* into positive and negative approaches (see Appendix C). The lack of deliberation or formal analysis in a given situation were also coded and the respective categories labelled as 'non-deliberative' styles and 'lack of formal analysis', both were considered as negative approaches. It was also decided to see the effect of decision facilitators on the performance of decisions.

TABLE 1. DOES THE APPROACH TO DECISION MAKING INFLUENCE THE SUCCESSFULLNESS OF THE OUTCOME OF THE DECISION? ?

Fixed term	Wald Statistics	d.f.	Wald/d.f.	Chi pr
Decision Process Elements (DPE)	4.60	2	2.30	0.10
Result (Success/Failure)	0.24	1	0.24	0.625
Approach (+/-)	1.68	1	1.68	0.195
Result.Approach	7.26	1	7.26	0.007

TABLE 2. TABLE OF PREDICTED MEANS OF APPROACH.OUTCOME

	Positive Approach	Negative Approach
Success	1.454	0.167
Failure	0.557	1.000

Performance could be determined for only 48 decisions (n= 48). Content analysis of 34 successful and 14 unsuccessful decisions led to the generation of descriptive statistics (facilitated by Nvivo®) for further statistical analysis. Because the number of decisions assessed within each category was different, it was more prudent to compare the average incidence of decision elements in each category. Wald test was chosen as the statistical analysis method because the data was unbalanced with respect to the positive versus negative elements of the decision process. For the model, there were four decision process elements (deliberation, deliberation facilitators, formal analysis, and select—constructive and considered) under positive approach, and only three decision process elements (non-deliberative styles, lack of formal analysis, and select—not constructive and considered) under negative approach. Table 1 indicates that there is a significant interaction between the approach to decision-making and the successfulness of the decision (p= 0.007).

The predicted means of the interaction between approach and outcome is given in Table 2. The average SED (standard error of difference) is 0.4559. Table 2 shows that there is a significant relationship between the decision-making process and the successfulness of the decision and that the greater the use of positive approaches to decision-making, the higher the likelihood (about 1.454/0.557= 2.61 times) of a successful decision. Similarly, the greater the use of negative approaches to decision-making, the higher the likelihood of failure (about 1.0/0.167= 5.99 times more likely!).

Entrepreneurs in these cases were more likely to involve other stakeholders and decision-makers. This was more often the case in successful decisions. Apart from that, involvement (especially of board members) most often leads to a natural decision because people react more favourably and become more committed when they participate in the decision process (Nutt, 1998). Entrepreneurs also involve key players related to a decision with persuasion and negotiation. Quite contrary to the image of entrepreneurs as dominating individuals, edict type decisions were not observed. Similarly, decision-making processes dominated by politics were not observed much in the new ventures. It is perhaps because of this that the elaborate 'micro-politics' of the decision-process, as outlined by Narayanan and Fahey (1982), were not observed.

Relevant experience and the decision process

Start-up characteristics not only determine start-up performance (Reuber & Fischer, 1999) but also lay the foundation for a stable business, which can be expected to grow (Brown & Eisenhardt, 1998). To start a new venture is itself one of the most important decisions that the entrepreneurial team takes. Along with the decision to start a new venture are two very closely associated decisions: what will be the business, and how to raise funds for it. It was the establishment of a stable business model and/or raising of initial funding which was considered the end of decision episode of 'initial start'.

The 'initial start' was analysed as one major decision episode and the decision process was related to the experience of the entrepreneurial team because in the very early stages (pre founding and just after founding) the entrepreneurial team is a key resource and asset for a new venture, on which to a very great extent success or failure is based. Many scholars time and again have emphasised the value of experience (Hitt & Ireland, 1985; Mitchell, 1997; Reuber & Fischer, 1994; Reuber, 1997). For this study, a relevant industry (Chandler & Hanks, 1994; Kor, 2003) experience together with managerial experience (Reuber, 1997) comprised relevant business experience. Since, most biotechnology start-ups are knowledge-intensive, so all of cases had individuals from a science background, hence the 'key' differentiating aspect was knowledge of business. In order to operationalise this dimension, entrepreneurial teams were sorted into three categories: having relevant business experience; having non-relevant business experience; and having no business experience.

The question of whether relevant experience makes any difference to the decision process was explored, qualitatively and quantitatively. This was done through an examination of the difference in 'average' counts for entrepreneurial teams with different experience on each of the elements of the decision process: deliberation styles; non-deliberative styles; deliberation facilitators; formal analysis; lack of formal analysis; select— constructive and considered; and select—risky and not considered. For the completeness of data, the initial start of 27 new ventures was discussed in detail (so, n=27). Of these 27, nine ventures had relevant business experience in their entrepreneurial team; 12 had no business experience; and six had business experience skill sets, but the experience was not in the pharmaceutical and biotechnology industry.

The Wald statistics obtained from the analysis shows a large main effect due to approach (p= 0.003) and a significant interaction between approach and experience (p= 0.035), i.e. positive approach was seen more associated with more experience. This analysis was re-run omitting the non-significant two factor interaction terms. The results show that the main effect for the two terms was enhanced and highly significant (p<0.001), as was the interaction for approach and experience (p= 0.007).

TABLE 3. THE CONTRIBUTION OF EXPERIENCE TO THE DECISION-MAKING APPROACH: WALD TEST (SEQUENTIALLY ADDING TERMS TO FIXED MODEL)

Fixed term	Wald Statistics	d.f.	Wald/d.f.	Chi pr
Experience	0.62	2	0.31	0.734
Approach (+/-)	8.88	1	8.88	0.003
Decision Process Elements (DPE)	3.99	2	2	0.136
Experience.Approach	6.73	2	3.37	0.035
Experience.DPE	1.35	4	0.34	0.853
Approach.DPE	0.34	2	0.17	0.844

TABLE 4. TABLE OF PREDICTED MEANS OF EXPERIENCE.APPROACH

	Positive Approach	Negative Approach
Relevant Experience	3.108	0.37
No Experience	1.921	1.222
Non-relevant Experience	1.567	1.5

The predicted means of the interaction between experience and approach is shown in Table 4. The average SED (standard error of difference) was 0.6233. Table 4 clearly shows that the high value of positive approach and relevant experience is the main contributor to the significance of the interaction between experience and approach.

The analysis shows that entrepreneurial teams with relevant business experience tend to make much more thoughtful decisions than entrepreneurial teams with non-relevant or no business experience. The former type of team tends to use more deliberation and formal analysis for any particular decision. Indeed, entrepreneurial teams with relevant business experience made fewer ad hoc decisions and had fewer instances when they had to make a decision under unpleasant circumstances. However an interesting finding is that entrepreneurial teams with non-relevant business experience were more susceptible to so-called negative styles than entrepreneurial teams with no business experience. This may possibly be due to their 'half knowledge,' which is considered even more dangerous. For example, they know that it is important to plan and deliberate on commercial issues (related to both technology and business), but they do not know issues that are specific and vital in biotechnology, and hence may be over-confident (thinking to know what they do not know).

Does relevant experience make a difference to the outcome?

Reuber and Fischer (1994) report that even though it would be logical to think that entrepreneurs' experience affects firm performance, empirical research has yielded mixed results. While research into the experience-performance interaction has not produced clear outcomes (perhaps because of methodological difficulties), venture capitalists and other investors clearly value prior management experience (Reuber & Fischer, 1994).

Whilst Reuber and Fischer (1994) and Reuber (1997) have provided an understanding of relationships among experience, expertise and performance at a micro level, the approach in this research was less detailed. In analysing the relationships between experience and performance, the decision process was used as an intermediary construct. The research assesses the differences between the decision process in a venture having relevant experience and one not having relevant experience and then relates the characteristics of the process to the performance.

As previously, the 'initial start' has been taken as one decision episode. It is difficult to isolate performance on particular activities from the performance of particular individuals (Reuber, 1997). The question of performance related to a decision was addressed by taking into consideration only those initial starts for which one could make a clear judgment on whether they were a 'good' start or a 'troubled' start. For the peculiar nature of biotechnology, the performance indicators of the initial start were operationalised using both financial and operational indicators. This was made feasible by judging the achievements of the company in relation to its prior determined objectives (eg level of capital raising), which were gathered from secondary sources.

Seven of the case study companies had a troubled start and eight had an impressive start (so, n=15). Of the seven companies that had a troubled start, six had entrepreneurial teams that did not have any business experience (TN) and one had an entrepreneurial team with non-relevant business experience (TI). Of the companies that had an impressive start, seven had entrepreneurial teams with relevant business experience (IR) and one was found to have no business experience (IN). This suggests that there is a strong relationship between relevant experience and performance (at the decision level). The majority of companies having entrepreneurial

teams with relevant business experience were doing very well. By contrast, a majority of companies having entrepreneurial teams with non-relevant business experience had troubled starts. The next step in this analysis was the assessment of the relationships between the decision process, prior experience and performance. This was achieved by examining the differences in 'average' counts on each of the elements of the decision process (deliberation styles; non-deliberative styles; deliberation facilitators; formal analysis; lack of formal analysis; select—constructive and considered; and select— risky and not-considered) for TN, TI, IR and IN. However, further statistical analysis was carried only after grouping troubled start-ups (TN and TI) and impressive start-ups (IR and IN).

Table 5, which presents the Wald statistics, shows that there is a large main effect due to approach (p<0.001) and a significant interaction between approach and the performance of the initial start of the venture (p<0.001).

TABLE 5. DOES APPROACH MAKE A DIFFERENCE TO THE PERFORMANCE OF THE DECISION?

Fixed Terms	Wald Statistic	d.f.	Wald/d.f.	chi pr
Start	**5.27**	**1**	**5.27**	**0.022**
Approach (+/-)	**12.12**	**1**	**12.12**	**<0.001**
Decision Process Elements	**11.3**	**5**	**2.26**	**0.046**
Start.Approach	**24.39**	**1**	**24.39**	**<0.001**

TABLE 6. TABLE OF PREDICTED MEANS OF PERFORMANCE.APPROACH

	Positive Approach	Negative Approach
Troubled	**0.39**	**2.241**
Impressive	**2.676**	**1.057**

* Average Standard Error of Deviation = 0.6582

Further analysis based on predicted means for the start.approach interaction (Table 6) shows that a positive approach to decision making leads to a better start for a new venture, which is more likely seen among people with relevant experience. By contrast, a troubled start by a company (mostly seen when people with no or no relevant business experience) is found to be related to a negative approach to the decision process.

This analysis clearly shows that among these ventures relevant experience made a difference to the outcome. The analysis also provides strong evidence that the way it makes a difference to the outcome is by affecting the decision-making process. There was a consistent pattern of decision-making that can be associated with each of the two broad groups, entrepreneurial teams having relevant business experience and those that did not have relevant business experience. In both cases, the relevant technology experience was effectively a prerequisite and was taken as a given.

Entrepreneurial teams having relevant business experience appeared to deliberate and analyse issues and decisions more often than those that did not have relevant experience. In that way, their decisions tend to have a double advantage, first, due to their relevant experience and, second, because they draw on more information. It is no wonder that they have a greater chance of being successful.

DISCUSSION

Conclusion

This research has found that, contrary to the dominant belief, among this group of entrepreneurs in a high-tech sector, there was little evidence of successful entrepreneurial decision-making that could be characterised as opportunistic, intuitive and ad hoc. Intuitive and ad hoc styles of decision-making occurred more frequently in unsuccessful decisions. Successful decisions were generally carefully planned, made use of expert advice and involved decision-makers with relevant prior experience.

The research shows that successful entrepreneurial teams use deliberation methods more often than they use classical formal planning methods. This indicates that relevant information can also be obtained in real time and without being elaborate. Professional consultants and experts are shown to play a key role in decision processes that have superior outcomes. Formal planning methods were not used often but when used seemed to have a considerable impact on the success of the decision. Formal planning is definitely more robust (Dean & Sharfman, 1996), but is used more sparingly. This is because 'perfection has its price, and suggest that value

analysis should be reserved only for the most complex and important decisions, especially those that are now-or-never and can't be reversed or substantially revised later' (Russo & Schoemaker, 2002). These were more often seen in successful decisions that were important in nature, and successful ventures in general. Even for 'big bet' decisions, decision-makers can improve their chances by using simple techniques that may be either formal or informal (like Brown & Eisenhardt, 1998; Russo & Schoemaker, 2002). It is not strange that Nieuwenhuizen and Kroon (2003) found in their empirical research work that small industrialists take 'calculated risks'—i.e., considered action. This is shown pictorially in Appendix D.

An entrepreneurial team will not be innovative in every decision. In fact, most decisions made in these new ventures were based on common approaches. This is similar to the process of innovation that typically involves a high level of knowledge reuse. For some types of decisions, there are certain standard procedures to follow.

The analysis also consistently shows the importance of using positive approaches to decision end-points – i.e. approaches that avoid conflict or politics and are not made under any pressure. Decision makers with relevant experience were more likely to use positive approaches and so to make more successful decisions.

The research shows clearly the importance of systematic and comprehensive approaches to analysing and making decisions in response to problems and opportunities. But 'systematic and comprehensive' does not mean formulaic or standard in the sense of the 'algorithm' type of approach (Miller, Galanter & Pribram, 1960) of a major investment study by large corporations. The capabilities of the decision-makers and the nature of the decision process are inevitably interrelated: while neither wholly substitutes for the other and strength in both is ideal, some counterbalance is often effective.

Limitations

The generalisability of this study is limited by the focus on the biotechnology industry (a high technology, risk prone, long gestation and dynamic environment). More studies across different industries and countries will develop more insights into the nature of the decision process within new ventures, their performance and their relationship with the experience of the entrepreneurial team, which are clear and strong in the case of these biotechnology ventures. It may be that biotechnology ventures and entrepreneurs have specific characteristics that differ from, for example, software ventures.

Notwithstanding the necessity for a careful approach to generalisation, the framework developed here is an extension of the ideas of other researchers, especially Mintzberg et al. (1976). The framework integrates in a systematic manner the concepts involved in the decision process and was designed to be a useful generic decision process framework. Further testing of the framework in other contexts will assess its usefulness.

Contributions

Contribution to the field of entrepreneurship

Currently the trend among entrepreneurship scholars has been to develop deeper understanding of specific phenomenon. While this approach is useful and often necessary, it can limit our capability to understand and appreciate the 'holistic' nature or interconnectedness among phenomena. It then leads to a peculiar problem where everyone develops a different understanding of an elephant by grabbing one or the other part, but is never able to correctly understand the nature of the complete animal (Mintzberg & Lampel, 1999). From the 'process' perspective, most researchers in entrepreneurship have focussed on 'how' of opportunity recognition or importance of planning. Other important aspects in decision process in a new venture have so far remained neglected, which this study draws attention to. For example, it has been shown that for many decisions in new ventures choices used are the ones that are very common to that context. This should be further studied to understand how innovative should one be in formulating choices in a new venture, since the dominant understanding is that entrepreneurs have to be innovative in thinking.

While it is commonly believed that entrepreneurs are (or should) be action-oriented and jump at opportunities, without the delay for deliberation or analysis, it has also been shown that 50-80% of new ventures do not exist after a few years (Timmons, 1999). There is little research showing any link between the two. And if there is one, should we still propagate this perception of an entrepreneur? This study provides a basis to reflect on some of these questions.

Contribution to the field of Decision-Making in Strategic Management

Langley et al. (1995) highlight the ideas of Simon and March and many other researchers in cognitive psychology and organisational theory when they portray the decision-maker as 'passive, a receptacle to whom things happen: problems arise, opportunities appear, choices are forced, interruptions occur.' Many researchers seem to have applied the same ideas to entrepreneurship. This approach simply dissociates the actor from the action. This study has shown the significant association between the actor and the action. As such, it helps to open up the lid of the 'black box' of decision-making in new ventures. Complete rationality, complete

comprehensiveness and a completely systematic approach have been shown to be a myth. Strategy, as the combined effect of significant decisions, is always emergent due to the ever-evolving context. This in itself is not a new concept, however the way it has been considered and applied in this research setting is new – complete rationality has not been equated with planning, but it more context-related.

The focus of this research has not been to assess the extent to which entrepreneurs plan, but was to understand how they make decisions. To provide a basis for that understanding the research has developed an empirically-grounded generic decision process model, which is iterative in nature. The model outlines all of the major decision elements that were observed in this new venture context. This is a major contribution as most of the alternative frameworks and models are based on studies of decisions that have been made in large organizations or in large bureaucratic set-ups. It is nonetheless expected that more studies across different industries and countries will develop more insights into the nature of the decision process within new ventures.

Mintzberg et al. (1976) had pointed to our lack of understanding of the 'design' (using their terminology) in the decision process, which still holds true at least in new venture context (McMullen & Shepherd, 2006). This study makes a small but definite contribution in that direction. Similarly, this study (by building on other researchers, like Nutt, 1998) shows a broader range of decision making styles in coming to a decision end-point. In short, a detailed understanding on the main elements of the decision process - what facilitates recognition of a problem or an opportunity; how deliberation can take place; the nature of the choices (based on their newness); styles of coming to a decision end-point- is another sizeable contribution of the study.

Contribution from the methodological viewpoint

Methdologically this was a challenging exercise, but one that gave many insights and led to new learning. A key aspect of the research design is the micro unit of analysis (i.e., a decision). While Chandler and Lyon (2001) and Davidsson and Wiklund (2001) have discussed different levels of analysis used by researchers in the field of entrepreneurship, none has specifically highlighted the importance of the decision as a unit of analysis. Given their comprehensive coverage of the literature, it is reasonable to conclude that either no published study in entrepreneurship has used the decision as the unit of analysis or such studies are very rare. By taking 'decision' as the unit of analysis and relating performance at that level, the study opens a new scope for approaching some of the important research questions in entrepreneurship; it is however expected that researchers will further refine the methodology in future.

Chandler and Lyon (2001) suggest that only 18% of the researchers used qualitative methods for their research and even less (about 3.3%) employed both qualitative and quantitative methods. In this study both qualitative methods and quantitative methods were employed along with pattern diagrams. Content analysis was used to produce descriptive statistics, which was later used to do further statistical analysis. This is relatively a new approach and there is scope to refine the method.

Practical Implications of the research

In order to improve the relationship between managers and management researchers, Ford, Duncan, Bedeian, Ginter, Rousculp and Adams (2005) suggest that more 'practice-relevant' research should be carried out. From a practical standpoint, this study will be useful to entrepreneurs/entrepreneurial teams to assess their strengths and weaknesses in addressing the challenges of starting a new venture. It will assist them to identify where their prior experience is a less reliable guide and where they need to tread carefully, consult widely or bring others onto the entrepreneurial team. It will also help investors, because it provides clues about what to expect (and what necessary actions to take) from a certain entrepreneur/entrepreneurial team vis-à-vis their approach to the decision process and behaviour.

Managerial Practice and Entrepreneurship Education

Gartner et al. (1992) emphasise the need for empirical evidence about the difference between 'good' and 'bad' managerial work. Keeping in line with the traditional theoretical definition of entrepreneur, entrepreneurship scholars and academics have focused on the entrepreneurial opportunity - best practice related to recognising, assessing and acting on opportunities. The ongoing management of the venture, despite its importance for success, has been neglected because it is seen as a 'managerial' and not an 'entrepreneurial' act. By shifting the focus onto decision making this study bridges this unhelpful gap. Decision-making can be related to entrepreneurial opportunities, managerial opportunities, and the large or small problems faced from time to time. This study demonstrates, within the new venture context, the link between the decision process and the performance of the decision—i.e., which styles of decision processes are likely to yield what sort of results, taking into account the decision-maker(s). Hence, the research establishes a relationship between the decision-maker and the decision process, and between the decision process and the performance of the decision—i.e., what sort of decision-maker will most likely follow which decision process approach and what the consequence is likely to be. The study will be beneficial to decision-makers (especially entrepreneurs and senior managers in

a new venture) as it emphasises the value and limitations of specific types of prior experience, and identifies more effective approaches to decision-making.

These findings have significant pedagogical implications. In-depth case studies of companies can be used for analysing strategic decisions in different context and for highlighting the importance of relevant experience and a positive approach to decision-making. This approach will be more useful than students being taught "best practice" that is not grounded in context - empirically grounded good practices in specific contexts will be more useful than 'ideal' managerial practices.

Implications for Venture Capitalists and Entrepreneurs

It is well known that venture capitalists assess the quality of the opportunity and the capabilities the senior management team (that includes entrepreneurs) to deal with the challenges ahead. In fact the approaches of venture capitalists to assessment foreshadow the main conclusions of this study – they place a strong emphasis on prior experience and careful planning (the business plan). This study demonstrates the importance of relevant industry experience to managing a new venture. It shows that relevant experience is related to *positive* approaches to decision-making leading to better performance. The results of this study imply that venture capitalists (and other early stage investors) should carefully assess the nature of the prior experience of entrepreneurs, and in the case of significant doubts over capabilities move to augment teams, facilitate mentoring or ensure a Board level role in major decisions.

With the rising complexity of technologies, markets and business models new venture formation is increasingly capability-intensive. As a consequence of this increasing demand for higher capabilities, new venture development is increasingly collective. The capabilities that contribute to new venture assessment and decision making are not only those of the entrepreneur (or more often entrepreneurial team), but also the Board, and often the incubator, local mentors, angel investors and VCs. Recognising the limitations of one's own experience, and hence both underlying cognitive frameworks and personal networks, is vital. So also is the capacity to develop and use a wider foundation for decision making.

Implications for Management Consulting

Last but not the least, the research suggests that the strategy-making processes of a firm can be a significant predictor of firm performance (Hart & Banbury, 1994: 265). One can assess the quality of the decision process of a sample of decisions taken in a new venture to assess the quality of governance of that new venture, and hence the expected performance. Such an assessment can supplement the traditional ways of analysing the performance of a firm – perhaps adding a more prospective dimension, but also (where necessary) suggesting possible interventions.

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Appendix A

Coding Rules

According to Krippendorff (1980:75):

'The 'categories must be exhaustive and mutually exclusive' is an often stated requirement. It pertains to the semantics of a data language in that it fixes a relation between the phenomena to be described and the data representing them. This dual requirement demands that the semantics of a data language partition the universe of possible recording units into distinct classes and that the members of each class are represented by a different datum so that the distinctions made in the world are unambiguously represented in the data.'

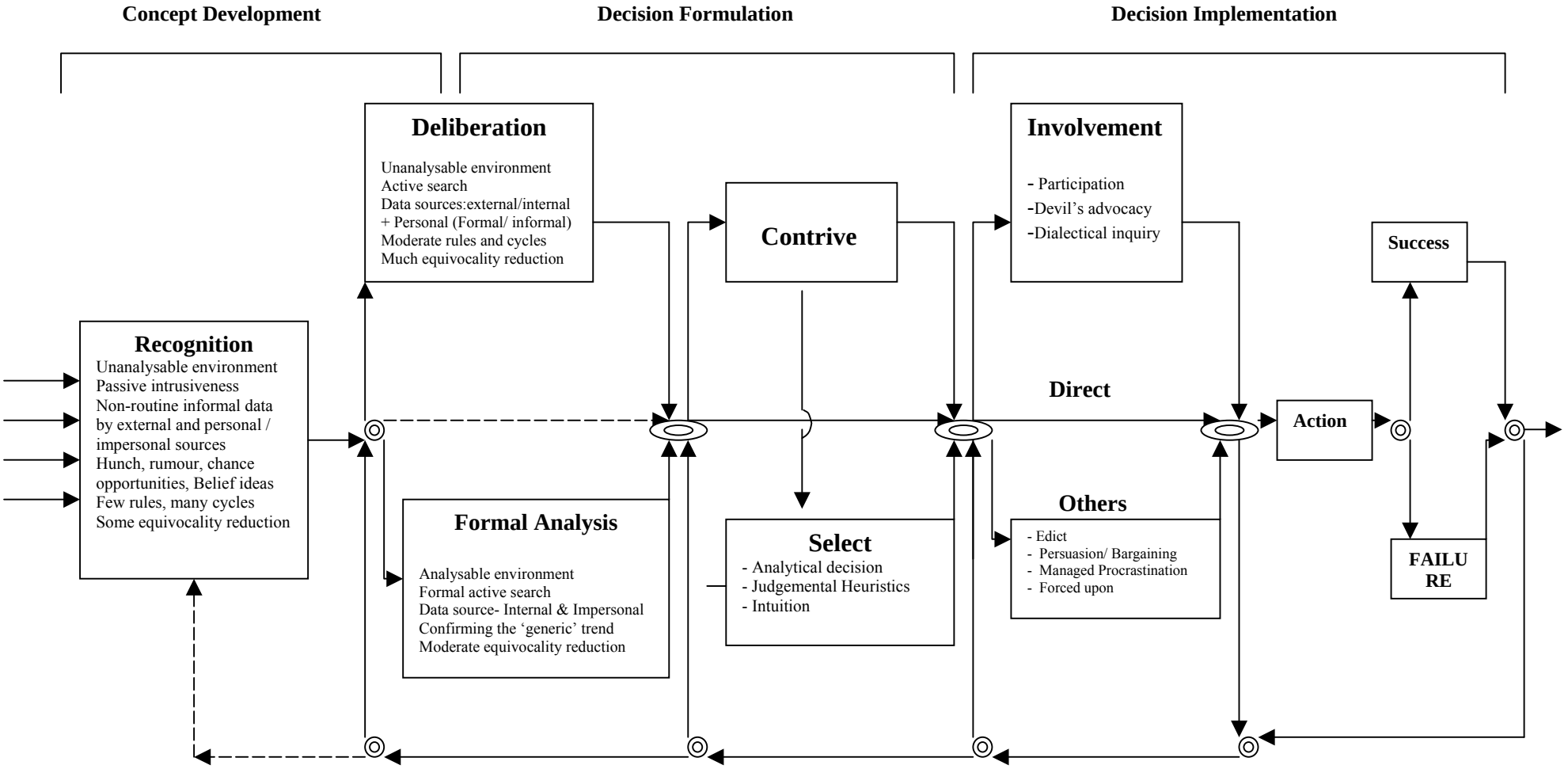
Each interview resulted in a detailed transcript. For every individual decision a separate document was created by taking out sections/paragraphs related to that particular decision in the trascripts. These documents were then individually analysed and coded using NVivo. The codes used for coding were the sub-elements. These sub-elements, as mentioned in the text, were categorized into the elements of the decision process.

Following are some of the rules that were adhered to:

1. Repetitions in a response are not coded. For example, if a respondent talked about hiring professional consultants and then talked about it again in the same context, care has been taken to code it only once.
2. Coding is usually not done in answer to triangulation questions. This is because answers to traingulation questions generally did not reveal anything new. However, if occasionally the response to such questions contained some additional and new aspect on the process of that particular decision, it was coded.
3. Sometimes a paragraph (from the transcript) has been used in two separate decision documents (to give a complete meaning to each). Such sections are coded only if they actually are part of the decision process (and are not just background to it).
4. Where there are separate dimensions of the same decision, the coding reflects the existence of a given decision sub-element/element in different dimensions separately. For example, if a discussion is about a decision on marketing of a product, *pricing* is a separate dimension to *identifying marketing* channels (i.e., direct selling or online selling or through distributors). Now, if the discussant has talked about *deliberating* on pricing as well as identifying market channels then 'deliberation' has been coded spearately for the two dimensions.
5. In the same paragraphs, 'double coding' has generally been avoided (particularly for the same dimension of a decision) from the following two decision process elements—'Deliberation' and 'Formal Analysis.' For example, if a section or part of it has been coded as 'formal planning' (a sub-element of 'Formal Analysis'), it has not been coded as 'deliberation'. Likewise, care has been taken to avoid excessive coding for sub-elements representing similar approach. E.g., Use of professional consultants reflects on the formal approach to planning. So, 'formal planning' is not coded at the same place where the code of 'professional consultants' has already been used. Similar care has been taken for other categories (like *decision end point*) as well. This care has been taken to avoid distortion of 'quantitative' results (i.e. unduly enhancing a certain type of approach).

   It should however be noted that coding has been done in the same section using more than one sub-element of the same category if the ideas reflected were separate and not contiguous. For example, writing of a Business Plan may or may not have involved Professional Consultants. In cases, where writing of a Business Plan did involve professional consultants, it has been coded for both of them. We call this double coding as both 'Business Plan' and 'Professional Consultants' are sub-elements of 'Formal Analysis'.

Appendix B - Proposed Generic Model for Strategic and Tactical Decision-making Process in New Ventures



Note: ◎ are the critical points in the decision process where process options are selected.

Appendix C - Definitions of the Decision Process Elements

'Select' –Constructive & Considered (considered +ve 'Select' Approach)	
Involvement	Decisions based on involvement means that majority of the important stakeholders were involved in the decision-making.
Natural Choice	When one option is the preferred option by all or most of the decision-makers and each one of them has given their consent for it, then it becomes a *natural choice*.
Trust Decisions	*Trust decisions* are those that become natural choice because of high-level faith among the decision makers (and the facilitator, if any).
Opportunistic Decisions and Unexpected Good Luck	There may be occasions when one comes across a really good opportunity *that is usually not expected* and decides in favour of it. Quite similar to opportunistic decisions is '*unexpected good luck*.' The difference between the two is that an *opportunistic decision* is unexpected, not part of the original plan and expectations, whereas *unexpected good luck* is where something was expected, but one doesn't expect its fulfilment so easily.
Easy Decisions	*Easy decisions* are those kind of decisions in which a positive outcome is most likely and not too much is at stake. An *easy decision* will also not involve (major) extra expenditures. An opportunistic decision can also be an easy decision.
Need Based Decisions	*Need based decisions* are basically adaptive decisions to overcome a problem.
Negotiation and Compromise	*Negotiation and compromise* almost always seems to go hand in hand. Whenever there is a difference in expectation about a decision between two individuals or parties, then it is quite obvious that each would try to negotiate to get the best deal. Each party then has to find an amicable solution, which would partially fulfil the needs of both parties. This idea is close to bargaining used by Nutt (1998). The compromise solution will generally be a win-win situation for both parties, but that doesn't mean that the agreement reached will always be in the middle ground- one of the parties may get a better deal. This may be more often than expected.
'Select' – Not Constructive & Considered (considered -ve 'Select' Approach)	
Ad hoc Decisions	A decision taken without working through the essential modalities and knowing the important facts is termed as an *ad hoc* decision. Instantaneous decisions based primarily on instinct and that are of an intuitive/guesswork nature will be *ad hoc* decisions. Many opportunistic decisions, as discussed earlier, are instantaneous as well and are intuitive in nature. Hence, *opportunistic* and *ad hoc* decisions are very similar. In practice, an opportunistic decision is based on an informed choice (of at least important variables). On the other hand, *ad hoc* decisions are more guesswork (i.e. without any relevant experience) or at best based only on partial knowledge of even the most important factors associated with the decision.
Business Environment Forced Upon	There will be instances where a decision is made not because of choice but because of the unfavourable business environment, so in a way it can be said to be *forced upon*. In this case one has to make that decision and there is no other alternative.
Conflict	Conflict can come when there is a genuine divergence in interest among the parties, or due to politics among the actors. The former can be often resolved by negotiations or persuasion, but if left unresolved, it can be very damaging. The latter is generally damaging and difficult to resolve.
Retaliatory decisions	*Retaliatory decisions* as it sounds are the decisions that is in response to an unfavourable decision taken by another negotiating party/ discussant.
Decision in frustration	*Decision in frustration* is decision that a decision maker is forced to make because of unfavourable business environment or there is one single option and that option is not the desired one.

Appendix D - The Effect of Context, Nature of Decisions and Experience on Decision Process