Chapter 3
Methodology
CHAPTER 3

METHODOLOGY

This chapter discusses the major methodological aspects related to the current research work. The chapter begins with an overview of the research methodology and then discusses the research design, variables involved in the study, and the nature of sample studied. After this, a discussion follows on the instruments used in the study along with their development and organization in the form of final questionnaire.

3.1 Research Design

The current research follows a quantitative research methodology based on the principles of positivistic paradigm of scientific research. The study adopts an objective approach for studying the variables of interest. However, some variables studied in the research have been of latent type which have been computed with the help of two questionnaires. The subjects were asked to self-report their beliefs and opinions on the items of the questionnaire and the obtained data was later analyzed to meet the stated objectives of research. Li (2006) has cited Neuman (1997) and Rundle-Thiele (2005), according to whom, self-administered questionnaire surveys can be deemed appropriate for measuring self-reported beliefs and behaviours. The constructs of the study, for e.g., innovation-as-a-heuristic and business excellence have been measured based on the belief of the sample related to these and related constructs by using self-report measures, which satisfactorily capture them (Schmitt, 1994; Spector, 1994), developed by using standardized procedure.

Further, the study follows a correlational research design which attempts to explore the nature of relationship between innovation-as-a-heuristic variable and organizational excellence. Correlational research design have been regarded as a major and widely used
research design in scientific research (Isaac and Michael, 1977; Fraenkel and Wallen, 1990). It is especially useful when the researcher is interested in finding the relationship between two variables as this design helps in assessing the degree and direction relationship between two variables. Further, structural equation modelling was carried out to test the causal relationship among variables (Rippy, 2001).

3.2 Variables measured in the research

The two major types of variables studied in the current research were innovation-as-a heuristic variable and business excellence. A casual relation was hypothesized between the two variables where innovation-as-a-heuristic was conceptualized as independent variable and organizational excellence as the dependent variable. At the beginning, it was hypothesized that a factor analysis of the innovation-as-a-heuristic variable will give n factors whose effect over dependent variable i.e. business excellence will be explored through structural equation modelling along with studying mediation effect if any (fig. 3.1). Later, after a factor analysis the final hypothesized model was as shown in figure 3.2:

![Diagram](image.png)

*Fig 3.1: Initially conceptualized model (before Principal Component Analysis)*
The major objective of the present research was to explore the structural relationship between innovation heuristic and organizational excellence. The following kind of structural relationship was hypothesized (see figure 3.2) between variables which was later tested through structural equation modelling. In the final proposed model a linear causative relationship was hypothesized from the two identified heuristics that emerged after factor analysis, i.e., search & adapt heuristic, and fast & frugal heuristic, to heuristic intelligence variable. Again, a linear causative path was hypothesized from heuristic intelligence variable to the dependent variable, i.e. business excellence. In short, the effects of ‘search & adapt heuristic’ and ‘fast & frugal heuristic’ over business excellence was hypothesized to be mediated by ‘heuristic intelligence’ variable. The direct effects ‘search & adapt heuristic’ and ‘fast & frugal heuristic’ over business excellence were also studied using mediation analysis and the full mediation model was preferred over the partial mediation model\(^1\). The final accepted model is shown in figure 3.2 below:

![Diagram showing the hypothesized structural relationship among variables](image)

*Figure 3.2 The hypothesized structural relationship among variables (after Principal Component Analysis)*

\(^1\) For more explanation on it see discussion ‘3.2.1.4 Heuristic Intelligence (HI)’ in this chapter.
3.2.1 Description of the variables

A brief description of all the variables studied in the current research is given below:

3.2.1.1 Innovation-as-a-heuristic (IAH):

The current study aimed studying innovation as a rule of thumb guiding managerial decisions and seeing its impact on the organizational excellence. There are large body of researches that suggest that in the wake of new economic and technological changes in an uncertain world the use of heuristics and intuitions offers better decision outcomes especially as compared to rational economic models (e.g., Agor, 1984; Goodman, 1993; Tomer, 1996; Kuo, 1998, Eisenhardt 1999; Gigerenzer, 2000; Gigerenzer, 2002; Sinclair, 2005). Further, there are scholars who have related intuitions/heuristics with innovation (Hogarth, 2001; Officer, 2005; Kaufman & Sternberg, 2010). The present study attempts to study innovation-as-a-heuristic which is defined as using innovation as a fast and frugal intuitive decision strategy (or a heuristic) for achieving organizational excellence. To measure innovation-as-a-heuristic a questionnaire was prepared based on Manimala (1992) and Gigerenzer (2000, 2002) which was later psychometrically analyzed to develop a standardized scale. The details of the process of development of questionnaire can be seen in the measurement tools section of this chapter. Further the obtained data was factor analyzed and it was found that, after the factor analysis (and deletion of 3 items) of the innovation-as-a-heuristic questionnaire, two broad factors emerge from the factor analysis of the innovation as a heuristic scale i.e. innovation-as-a-search-and-adapt heuristic and innovation-as-a-fast-and-frugal heuristic. A sum of scores on innovation-as-a-search-and-adapt heuristic and innovation-as-a-fast-and-frugal heuristic was termed as heuristic intelligence of the manager/entrepreneur.

3.2.1.2 Search & Adapt Heuristic (SAH)

Search and adapt heuristic refers to the simple intuitive decision strategies (or rules of thumb) that guide managers/entrepreneurs in searching the new inputs, information and opportunities required for the successful growth and adaptation of their organizations.
The items measuring search-and-adapt heuristic are Item 1 to Item 17 in the innovation-as-a-heuristic questionnaire attached in the Appendix A. All of these items have been taken from the 19 innovation related heuristics given by Manimala (1992), two of which were deleted after reliability analysis and factor analysis of the questionnaire. The heuristic search and adaptation is of utmost value to the managers and entrepreneurs as due to availability of vast amount of information they may experience an information overload or, advertently or inadvertently, may end up using wrong information. It’s a management truism that information is life blood of organization. It’s not information per se but the ecologically rational use of right amount of information at right time that is more important for decision makers, otherwise it is the wrong infusion of the same lifeblood that kills organizations, says Bill Gates (Gates & Hemingway, 1999) in his best seller Business@speed of thought. So, the seekers of the information must have an intuitive stopping rule (Gigerenzer, 2000, 2002) which offer them a rule of thumb to gives them an intuitive feeling that, in the given ecology, they have reached to the point of right information and, that, they should stop their search an take action now. This stopping rule is a characteristic of fast and frugal heuristics as by being fast and frugal they keep a limit over the extent to which one can devote time and resources for searching the new information or input. Researches show that greater amount of time spent do not necessarily bring qualitative better or more profitable decisions (Gladwell, 2005). The name search and adapt heuristic was preferred as the factor structure of this factor was heavily loaded with items emphasizing search for new and innovative ideas and inputs and using them for better adaptation in one’s environment and ecology or the creation of new excellence niche.

3.2.1.3 Fast & Frugal Heuristic (FFH)

The study of innovation as a fast and frugal heuristic is based on the idea of fast and frugal heuristic as espoused by Prof. Gerd Gigerenzer and his research team at Max Planck Institute for Human Development, Berlin, Germany. According to them fast and frugal heuristics refer to simple, task-specific decision strategies that are part of a
decision maker’s repertoire of cognitive strategies for solving judgment and decision tasks (Gigerenzer, Todd, & the ABC Research Group, 1999). Fast and frugal heuristics can be important for decision makers especially when deciding about the new, hitherto unencountered problems. For example, Reimer and Rieskamp (2007) assert that in many environments fast and frugal heuristics can perform astonishingly well, in particular when making predictions for new cases that have not been encountered before.

Taking a cue from this idea for the purpose of current research, innovation is conceptualized as a fast and frugal heuristic which is defined as the perceived ability of innovation as a simple, task specific intuitive decision strategy for achieving business excellence in comparatively faster and efficient manner. Managers and entrepreneurs are constantly confronted with the task of taking their enterprise at new heights amidst growing competition, uncertainty and shrinking resources. In such situations innovation acts as a fast and frugal way to achieve excellence by creating nonlinear or disruptive outcomes (Schumpeter, 1934) in terms of new markets, new products or an improved method of production. In comparison to this, the traditional means of increasing profit and other barometers of organizational performance like investing more on advertisement, leadership, or more and more practice and learning (Ericsson, 1996), etc., are comparatively costly, slow and often inefficient. Internet’s biggest and worlds most innovative company Google™ didn’t spent a penny in advertising itself (Vise & Malseed, 2005) though later it did so for its browser Chrome™ during the era of great browser war with Microsoft™ and Mozilla Firefox™, but only to the extent of informing its potential customers. A cursory glance at world’s best companies today like Google™, Apple™, Facebook™, Intel™, Microsoft™, Dell™, etc. gives an impression that excellence is increasingly becoming synonymous with innovative capability of firms. All these firms have developed a choice architecture (Thaler & Sunstein, 2008; Thaler, Sunstein, & Balz, 2010) that nudges them to use innovation to achieve excellence in fast and frugal way.
3.2.1.4 Heuristic Intelligence (HI)

The variable heuristic intelligence is conceptualized as a summated measure of search & adapt heuristic, and fast & frugal heuristic. It is named as intelligence because of two reasons:

1) one, its contributory variables, i.e., search & adapt heuristic, and fast & frugal heuristic, have been defined and measured as the ability of managers/entrepreneurs to perceive and use innovation as a mechanism of adaptation and growth in ones environment in a fast and frugal way. Thus, the sum of two abilities can be again conceptualized as a type of ability.

2) Secondly, the variable, i.e., heuristic intelligence, itself has been conceptualized as a type of ability. The heuristic intelligence has been defined as the intuitive ability of managers to use those new information and inputs (from a large number of available information and inputs) which are ecologically rational so that they help in growth and adaptation in a specified task domain in a fast and frugal way. The choice of these information and inputs are subject to performance outcomes in a highly dynamic and uncertain environment so managers need to show the ability of selecting and implement the best alternative first, or so, as compared to his elements of his competitive sample. Alternatively, heuristic intelligence can be defined as the ability of managers to use of innovation as a fast and frugal thumb-rule in guiding their decisions to achieve organizational excellence.

One thing that needs to clarified here is why the preference was given to a joint effect of search & adapt heuristic, and fast & frugal heuristic on business excellence rather than relating then individually to the dependent variable i.e. business excellence? It was done partly on the basis of the conceptual understanding of variables and partly on the basis of guidance received from the data while doing the SEM analysis of the data. At conceptual level, a joint effect of search & adapt heuristic, and fast & frugal heuristic is more important as compared to their individual effects. Only search for innovative strategies is
not suffice. They all must be fast and frugal as well as ecologically rational at the same time. There is no dearth of new things or innovative strategies while designing a product, plan for a new business process, or some alternative form of innovation. What is important is that they must be adaptive and efficient i.e. fast and frugal. And the ability of a manager doesn’t lie only in choosing a thumb-rule which is new but adaptive and efficient as well at the same time. Later, while doing the SEM analysis it was found that both the heuristics (search & adapt heuristic, and fast & frugal heuristic) have a significant covariance (111.812, p < .001) and do not fit the alternative models which tried to explore their direct impact on business excellence. So, this means these heuristics are intimately interlinked with each other and studying their joint effect will be more fruitful as compared to seeing their effect in isolation.

3.2.1.5 Business Excellence

Business excellence in the context of current research has been conceptualized as it has been discussed by Peters and Waterman (1982) and operationalized and measured by Sharma et al. (1992). According to Peters & Waterman (1982) eight attributes of organizational excellence are:

1) A bias for action: Excellent companies practice an active and action oriented decision making process.
2) Close to the customer: Excellent companies are regularly in touch with their customers, take feedback from them regularly, and build over it.
3) Autonomy and entrepreneurship: Excellent companies provide enough personal space and autonomy which fosters creativity and innovation.
4) Productivity through people: Excellent companies see their staff as the main source of profit who are the ultimate source of gain. World’s best products are not created by machines but in minds.
5) Hands on, value driven: Excellent companies have organizational values that guide their people, and promotes the growth oriented culture in organizations.

6) Stick to the knitting: All excellent companies have a clear area of expertise or core competency, and they stick to it. Even if these companies diversify they preserve their core and stimulate the new progress around it.

7) Simple form, lean staff: Excellent companies have simple organizational structure with people working in small teams supported by an efficient management.

8) Simultaneous loose-tight properties: Excellent companies have a mechanism that strikes a right balance between central directions and personal authority.

Sharma et al. (1992) have developed a 16 item scale based on these 8 attributes of excellent companies with two item on each attribute. This scale has been used to measure the business excellence variable.

3.2.1.6 Description of variables in SEM terminology

Further, structural equation modelling (SEM) has been done to see the structural relationship among variables, so given below is a description of variables in SEM terminology:
Exhibit 3.1 *Description of variables in SEM terminology*

<table>
<thead>
<tr>
<th>Types of variable</th>
<th>Description</th>
<th>Variable in dataset</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Endogenous Variable</strong></td>
<td>- are those modelled as dependent on other variables,</td>
<td>Business Excellence,</td>
</tr>
<tr>
<td></td>
<td>- They are regressed on exogenous variables</td>
<td>Heuristic Intelligence</td>
</tr>
<tr>
<td></td>
<td>- are receiver of arrowheads</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- are the variables being predicted</td>
<td></td>
</tr>
<tr>
<td><strong>Exogenous Variables</strong></td>
<td>- Are modelled as independent and influencing other variables</td>
<td>Search &amp; Adapt Heuristic,</td>
</tr>
<tr>
<td></td>
<td>- sender of the arrowheads</td>
<td>Fast &amp; Frugal Heuristic</td>
</tr>
<tr>
<td></td>
<td>- are the predictors (of endogenous variables)</td>
<td></td>
</tr>
<tr>
<td><strong>Observed Variables</strong> (Measured</td>
<td>- Are the variables that have directly been measured</td>
<td>Search &amp; Adapt Heuristic,</td>
</tr>
<tr>
<td>Variables)</td>
<td></td>
<td>Fast &amp; Frugal Heuristic</td>
</tr>
<tr>
<td><strong>Latent Variables</strong> (Inferred</td>
<td>- They are not measured directly but are inferred, defined and computed by</td>
<td>Heuristic Intelligence</td>
</tr>
<tr>
<td>Variables)</td>
<td>the researcher</td>
<td></td>
</tr>
<tr>
<td><strong>Residual Variables</strong></td>
<td>- residual are the difference between observed and predicted values</td>
<td>$r_1$, $r_2$</td>
</tr>
</tbody>
</table>

### 3.3 Procedure

The objective of the research paved the way for the procedure. Once the objectives were finalized the first task was to identify the sample and develop the measurement tools.
The sample (N=203) characteristics and other details of sampling procedure is discussed in the following section in this chapter. One measurement tool, i.e. innovation-as-a-heuristic questionnaire, was developed and its psychometric properties were established. The second measurement tool was Excel questionnaire which was adopted from Sharma et al. (1992). The details of these measurement tools are further discussed in this chapter in ‘Measurement Tools’ section. Once tools were ready they were administered on sample and data was collected. The collected data was analyzed by using SPSS 16.0 and Amos 18.0. The obtained results are discussed in discussion chapter, and finally, the future implications and limitations of the current study has been deliberated in the closing sections of the thesis.

3.4 Sample

Due to limitation of time and other resources scientific researches are conducted on a representative subset of a population under study. This representative subset of population is known as sample. For the current research, the decision was made to choose a sample which may help in realizing the objectives of the research. The objective of the current research was to study innovation as a heuristic to excellence as perceived and used by managers in Indian organizations. The sampling methodology used was purposive sampling. Purposive sampling is a type of non-probability sampling methodology which is characterized by the use of judgment or deliberate effort to obtain representative samples by including presumably typical areas or group in the sample (Kerlinger, 1973). Scholars (Babbie, 1998; Singh, 2006) have recommended the use of purposive sampling in cases where the researcher wants to study a small subset of a large population which he thinks includes typical or representative behaviour that he intends to study. The aim of current research was to study innovation as a managerial heuristic so the target population for the current research consisted of managers working in Indian organizational context. Of this population MBA students can be considered as a typical and representative subset as they are qualified to be managers with work/internship
experiences in relevant areas. In consonance with this, 203 (Mean Age = 23.9, S.D. = 4.4) final years MBA (Master of Business Administration) students from Delhi-NCR region, who had done their internship, were selected.

3.4.1 Sample Size

The sample size of the current sample is 203. Li (2006) has cited a review of studies indicating what should be the appropriate sample size for a scientific research study. According to him “for SEM studies, a sample size of about 200 is typically considered as adequate for small to medium structural equation models (Boomsma 1983; Loehlin 1992; Ullman 2001). Other accepted rules of thumb include 5 cases per estimated parameter (Bentler and Chou 1987), or 15 cases (Research Consulting 2001; Stevens 1996) per measured variable” (p. 112). So, keeping in mind the objective of the study and number of variables studied a sample size of 203 appears adequate, and wherever it has been necessary, appropriate tests for measuring sampling adequacy has been computed; for e.g., before doing principal component analysis (to identify the major factors underlying innovation heuristic) Kaiser-Meyer-Olkin test (Kaiser, 1970, 1974) of sampling adequacy was carried out.

The sample consisted of both males (N= 79), consisting of 38.9 % of the sample, and females (N=124) consisting of 60.6% of the sample, as shown in the figure 3.3. Since, the study didn’t aim to make any gender based comparisons so no attempt was made to balance the gender ratio in the sample.
3.4.2 Criteria for inclusion & exclusion in sample

The criteria of inclusion was that each member of the sample should be second year Master level student of business administration with work/internship experience. Also, full time managers employed in private/public limited companies were included in the study as they also fall in the typical/representative cases. Twelve entrepreneurs working in area of service sector were also included in the sample. MBA first year students or second year students without internship were excluded from the study. Age and gender were not the criteria of exclusion.

*Figure 3.3 The gender division of sample size*
3.5 Measurement Tools

The two questionnaires were used in the study for measuring two constructs, i.e., ‘innovation as a heuristic’ and organizational excellence. These tools are discussed below along with their psychometric properties.

3.5.1. Innovation-as-a-heuristic questionnaire:

a) The major aim of current research was to measure innovation as a managerial heuristic. Due to non-availability of any direct measure on this topic innovation as a heuristic questionnaire was developed by Taking 19 innovation related heuristics (out of total 186 heuristics that were being used by managers and entrepreneurs in various business related decisions) given by Prof. Mathew J. Manimala, IIM-Banglore (1992) after discussion with experts. These heuristics, Manimala (1992) found that, were frequently used by Indian managers and entrepreneurs as a rule-of-thumb guiding the management decisions involved in the start-up and management of a new venture. According to Manimala (1992) the “data on innovativeness and use of heuristics were collected from 138 published undisguised cases on entrepreneurs, using the case-survey method that involved the content analysis of these cases and quantification of the above variables. Case data thus collected were verified against the field data collected from a comparable group of 26 ventures” (p. 477 ). These innovation related heuristics were arranged in a format of 7 – point Likert type rating scale where 1 denoted ‘strongly disagree’ and 7 denoted ‘strongly agree’. The list of items included in the questionnaire are:

Exhibit 3.2 List of items included in innovation-as-a-heuristic questionnaire

(based on Manimala, 1992)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Be a pioneer in the choice of products. Avoid highly competitive, low margin, run of-the-mill products.</td>
</tr>
<tr>
<td>2</td>
<td>Ideas are the most important resource. Look for them everywhere.</td>
</tr>
</tbody>
</table>
Look for new (product) ideas among personal contacts (friends, hobby clubs, professional associations, customer complaints, previous job contacts, etc.).

Look for new (product) ideas among technological developments abroad especially among new, rare, or specialized products developed abroad.

Look for new (product) ideas among one’s own vision of the future, special talents, and innovative research findings, or among the special skills of one’s associates and staff.

Look for new (product) ideas among the components, substitutes, complements, neglected ranges, supply gaps, deficiencies, and inadequacies of existing products.

Look for new (product) ideas in others’ failures, commercialization gaps, their half-baked ideas, etc.

Look for new (product) ideas in the general environment (existing practices and changes in the legal, political, religious, social, and cultural domains).

Be flexible in one’s ideas and plans.

Do not get stuck to one idea. Be prepared to leave it at the slightest indication of failure, and develop new ideas.

Never be constrained by rigid plans and the narrow visions. Act according to opportunities.

Treat personal problems/handicaps/mishaps as indications to change one’s line of thinking/occupation.

Never be complacent about successes, but keep on striving for excellence through new ideas (Do not repeat success strategies until they fail).

Never stop searching for new ideas and opportunities.

Never set any geographical limits to one’s search for ideas and opportunities.

Introduce new products, modify existing products, and/or change strategies periodically.

Keep the organization fresh and dynamic by periodically inducting young people into it who have new ideas and the drive to implement them.
Launch new products on a trial basis, receive feedback, and slowly widen the market.

Management is an art; play it by the ear. Rely on experience and intuition. Trust one’s gut feelings more than formal analysis of data, trial runs, expert opinions, etc.

b) 8 items were generated based on Prof. Gerd Gigerenzer’s idea of fast and frugal heuristics (Gigerenzer, Todd, & the ABC Research Group, 1999; Gigerenzer, 2000; Gigerenzer, 2002) as it was hypothesized that innovation brings fast, frugal, and drastic changes in performance and other competitive domains of business. Many researchers have corroborated about the ability of innovation in bringing non-linear, drastic or disruptive changes in business by improving performance, beating competition, creating new markets and establishing market leadership (Schumpeter, 1934; Kim & Mauborgne, 2005; Khandwalla, 2006). These innovation related heuristics were arranged in a format of 7-point Likert type rating scale where 1 denoted ‘strongly disagree’ and 7 denoted ‘strongly agree’, see Exhibit 3.3 below:

Exhibit 3.3 List of items measuring innovation as a fast and frugal heuristic included questionnaire (based on Gigerenzer, Todd, & the ABC Research Group, 1999; Gigerenzer, 2000; Gigerenzer, 2002)

20 Innovation is the fastest way to create new market leadership.
21 Innovation is the quickest way to create an uncontested market and beat competition.
22 The best innovative product/service in a domain is one that accomplish the domain specific task in minimum number of steps and maximum simplicity.
23 Product/service improvisation means identifying and eliminating all unnecessary steps in design and use.
Innovation is driving the market toward smaller but more efficient products/services. The evolution of smart phones, tablets and nano-cars is case in point.

When I make changes in my product I focus on how fast & simple it will become for customers while adopting it.

I welcome all new ideas but ideas which are fast and frugal in bringing returns are likely to be funded and supported first than others which promise only long term benefits.

A faster way to challenge and involve employees to give them time to explore new ideas/products on their own.

c) The questionnaire was administered to the sample (N=203) and reliability analysis was carried out whose result is shown below:

Table 3.1 *Reliability analysis of innovation as a heuristic questionnaire*

<table>
<thead>
<tr>
<th>Item</th>
<th>Corrected Item-Total Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Be a pioneer in the choice of products. Avoid highly competitive, low margin, run-of-the-mill products.</td>
<td>.590</td>
</tr>
<tr>
<td>Ideas are the most important resource. Look for them everywhere.</td>
<td>.737</td>
</tr>
<tr>
<td>Look for new (product) ideas among personal contacts (friends, hobby clubs, professional associations, customer complaints, previous job contacts, etc.).</td>
<td>.787</td>
</tr>
<tr>
<td>Look for new (product) ideas among technological developments abroad especially among new, rare, or specialized products developed abroad.</td>
<td>.670</td>
</tr>
<tr>
<td>Look for new (product) ideas among one’s own vision of the future,</td>
<td>.716</td>
</tr>
</tbody>
</table>
special talents, and innovative research findings, or among the special skills of one’s associates and staff.

Look for new (product) ideas among the components, substitutes, complements, neglected ranges, supply gaps, deficiencies, and inadequacies of existing products.

Look for new (product) ideas in others’ failures, commercialization gaps, their half baked ideas, etc.

Look for new (product) ideas in the general environment (existing practices and changes in the legal, political, religious, social, and cultural domains).

Be flexible in one’s ideas and plans.

Do not get stuck to one idea. Be prepared to leave it at the slightest indication of failure, and develop new ideas.

Never be constrained by rigid plans and the narrow visions. Act according to opportunities.

Treat personal problems/handicaps/ mishaps as indications to change one’s line of thinking/occupation.

Never be complacent about successes, but keep on striving for excellence through new ideas (Do not repeat success strategies until they fail).

Never stop searching for new ideas and opportunities.

Never set any geographical limits to one’s search for ideas and opportunities.

Introduce new products, modify existing products, and/or change strategies periodically.

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Launch new products on a trial basis, receive feedback, and slowly widen the market.

Management is an art; play it by the ear. Rely on experience and intuition. Trust one’s gut feelings more than formal analysis of data, trial runs, expert opinions, etc.

Innovation is the fastest way to create new market leadership.

Innovation is the quickest way to create an uncontested market and beat competition.

The best innovative product/service in a domain is one that accomplish the domain specific task in minimum number of steps and maximum simplicity.

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When I make changes in my product I focus on how fast & simple it will become for customers while adopting it.

I welcome all new ideas but ideas which are fast and frugal in bringing returns are likely to be funded and supported first than an those which promise only long term benefits.

A faster way to challenge and involve employees to give them time to explore new ideas/products on their own.

d) Inter-item correlations were also computed and it was found that none of these correlations were less than .3, so the items can be accepted for final analysis (Field, 2010).
e) Further, items were factor analyzed through principal component analysis method (oblique rotation), and it was found that two broad factors emerge, of which one was related to search for new things and creative adaptation in ones business environment (consisting of items mainly drawn from Manimala, 1992), and another was related to fast and frugal characteristic of innovation as a heuristic. However, it was found that item number 7 (i.e., ‘Look for new (product) ideas in others’ failures, commercialization gaps, their half baked ideas, etc.’), 19 (i.e., ‘Management is an art; play it by the ear. Rely on experience and intuition. Trust one’s gut feelings more than formal analysis of data, trial runs, expert opinions, etc.’), and 20 (i.e., ‘Innovation is the fastest way to create new market leadership.’) are not falling within any of the two factors, so they were deleted from the final questionnaire. Thus, the final questionnaire consisted of 24 items (See the Appendix A).

f) Reliability of total scale was found to be .963 (Cronbach’s Alpha = .963), which shows the high reliability of the scale.

The innovation as a heuristic scale is based on the research in Indian organizations (Manimala, 1992), so it is likely to offer the accurate measure of the extent to which managers/entrepreneurs perceive innovation as a heuristic excellence. However, since the scale has been constructed specifically to meet the objectives of current research involving mainly managers with limited experience, so in future the use of this scale may warrant more revisions leading to the more mature assessment of the innovation as a heuristic.

3.5.2 Measure of Organizational Excellence

To measure organizational excellence the EXCEL Scale (Sharma et al., 1990a) was used which is a 16 item scale designed to operationalize and measure 8 attributes of excellence as espoused by Peters & Waterman (1982) in their book ‘In search of Excellence’. The
Excel scale consist of 16 affirmative statement type items with 2 items on each attribute of excellence listed earlier in this chapter. The respondents of the current research were asked to rate these 16 statements on a 7 point Likert type scale where 1 denoted strongly disagree and 7 denotes strongly agree.

The Excel scale is a powerful measure, and so far best identified tool to directly assess the 8 attributes of excellence as suggested by Peters & Waterman with verified reliability and validity through independent researches (Caruana et al., 1995). The scale was developed after following the rigorous procedures and paradigms of testing and developing marketing constructs in business (Churchill, 1979). Sandbakken (2004) has cited various researches which report the Cronbach’s Alpha reliability coefficient for the Excel scale as .89/.90 (Sharma et al., 1990a), .92 (Caruana et al., 1995; Sandbakken, 2002). Apart from this, 5 indicators of organizations performance were further added after discussion with experts. On these indicators subjects were required to indicate their responses on a 7-point Likert type scale. The total excellence score was computed by adding the total scores of subjects on Excel scale and the 5 indicators of organizational performance. The entire scale can be seen in the Appendix A.

3.6 Chapter Summary

Research is a creative exploration of some socially and academically significant issue with a scientific temper. However, there is a danger associated with this creative exploration that the researcher may get lost in the unknown wilderness of relative, multiple and subtly changing social and scientific realities. So, it’s necessary to have a guiding framework for the research along with sound scientific parameters which can be used for testing the research findings. A sound research methodology is an imperative for good scientific research. The modern scientific research is equipped with highly sophisticated tools and packages which have been very helpful to the researcher and
scientific community in general in parsimonizing the entire research process. The current research also tries to achieve its objectives by adopting a scientific framework to guide it along with the use of analytic software packages like SPSS 16, and Amos 18.0. While making an attempt to imbibe these points this chapter has discussed the research design, nature of sample, measurement tools and other methodological details and procedures followed in this research study.