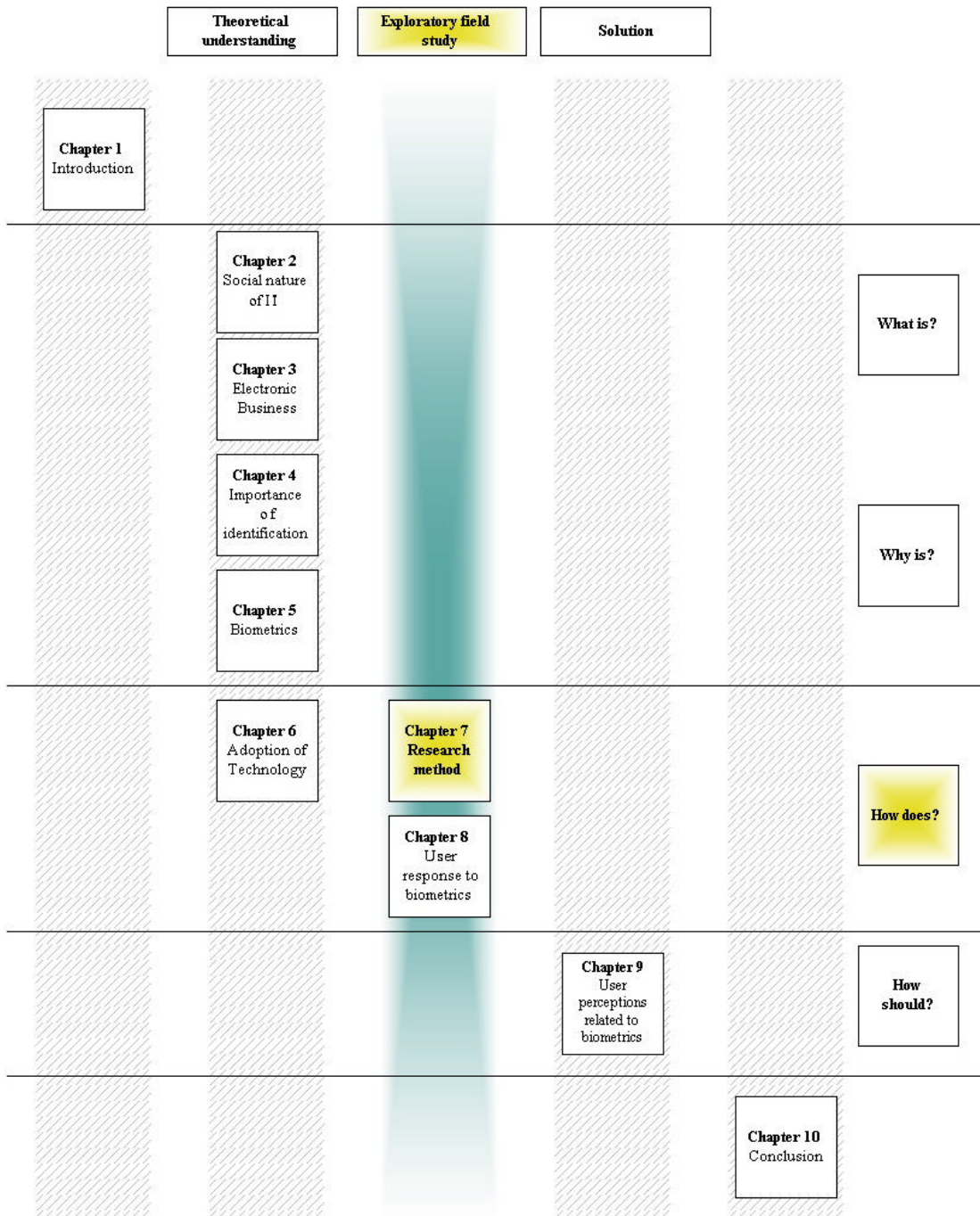


7. CHAPTER 7: RESEARCH METHOD

“A wise man will make more opportunities than he finds.”

Francis Bacon

Figure 7-1: Thesis roadmap – Chapter 7



CHAPTER 7: Research method

7.1 Introduction

This chapter provides:

1. A brief explanation of interpretive research that will be used to collect the research data by means of a research study questionnaire and research study focus group.
2. Information on the actual research site selected, the user interview process, including the research period, the research results and reporting process.
3. Explanations on how the research results were analyzed before moving on to the chapter's summary and conclusion sections.

7.2 Interpretive research

Walsham (1995) states that interpretive research has emerged as an important strand in Information Systems. Klein and Myers (1999) add to this by saying that interpretive research can help Information System research projects to understand human thought and action in social and organizational contexts.

Interpretive research has the potential to produce deep insights into the Information Systems phenomena (Klein and Myers 1999). What makes interpretive research so attractive (Klein and Myers 1999) is that the research method does not pre-define dependent and independent variables, but focuses on the complexity of human sense-making as the situation emerges.

Interpretive research of Information Systems is aimed at producing an understanding of the context of the Information System, and the process whereby the Information System influences and is influenced by the context (Klein and Myers 1999). This “understanding” can be obtained through social construction such as language e.g. questionnaires, consciousness, shared meanings through interviews and/or focus groups, documents, tools and other artefacts (Klein and Myers 1999). Interpretive research is not about reporting facts; it is about reporting interpretations of individuals; in other words, perceptions and/or attitudes (Klein and Myers 1999).

CHAPTER 7: Research method

7.2.1 Research site

An Information Technology organization by the name of DexData Technologies Pty (Ltd), also known as DexIT, was selected for the research study exploratory field study section. The Dex Group of companies is a global Information Technology-based organization that runs systems for financial services, healthcare managers and security application clients. DexIT was originally established in 1982 to provide brokers and insurers with the systems, data and analyzing tools required to make underwriting decisions. DexIT is also involved in encryption technology offering security and verification products to the market. DexIT, more specifically its information security and verification company Dex Security Solutions (DSS), was selected as the site for the research study because the study will add value to its research and development (R&D) business unit with regard to user perceptions related to biometric identification, as only a few organizations are involved in this industry at present. The research study will also gather user perceptions, from computer literate DexIT employees, with regard to different biometric identification methods, providing insight into user acceptance of DSS's fingerprint verification units, which can be integrated with Electronic Business's identification and/or security systems.

Only **one** organization (DexIT) was selected for the research study exploratory section due to the fact that the implementation of biometrics identification within Electronic Business is still new to the Information Technology field and therefore the research study will attempt to lay the groundwork for further research studies with regards to identifying user perceptions related to identification through biometrics within Electronic Business.

7.2.2 User interview process

Yin (1989) argues that evidence from interpretive research may come from **six** data sources, including documents, archival records, interviews, questionnaires and/or focus groups, direct observations, participant observation and physical

artefacts. For the purpose of the research study, a questionnaire has been used to collect the relevant research data and a focus group has been used to obtain additional perceptions and attitudes relating to the research data collected.

The closed and open questions of the questionnaire were divided into the following sub-sections:

1. Demographic information on the employees that participated in the survey.
2. Background information on their Internet use and concerns.
3. Background information on their e-banking usage and concerns.
4. Background information on their on-line purchasing activities and concerns.
5. Background information on conducting e-transaction on behalf of their organization and concerns.
6. Biometrics as an identification method.
7. Perceptions related to user adoption and perceptions.
8. An additional comments sub-section for any additional comments the participant would like to add on the problem statement.

Over a period of **two** months, starting in June 2003, the questionnaire was distributed amongst eighty computer literature employees of DexIT. The employees all have a sound Information Technology background and comprised analyst programmers, business analysts, network specialists, system operators, technical specialists, account and/or sales executives, project managers, division managers and top management of the organization. The questionnaire was used to determine the opinions and/or perceptions of the employees of DexIT with regard to the research study problem statement presented to them within the questionnaire. A focus group was used to obtain additional perceptions and attitudes on the research results obtained from the questionnaire. The users were assured that their response would be treated as

confidential and they were offered the opportunity to receive the result of the thesis once completed.

7.2.3 Research results and reporting

The research study questionnaires were distributed via an e-mail message to eighty DexIT employees. The employees were given a deadline to respond and they could do so electronically or via a hardcopy of the actual questionnaire. The research data was then analyzed by placing the data on to tables in accordance with the question's related themes. The themes will be shown per question (Chapter 8 and 9) where applicable. The themes were ranked in accordance with the total number of times they were selected by the employees that participated in the research study questionnaire. The integrated themes that correspond to each question are listed in the first column of the table, while the number of times selected by the employees is indicated in parenthesis in the second column of the table. A quick glance per table will enable the reader to compile a picture of the resulting themes. The data was transferred into various Excel spreadsheets so that schematic diagrams e.g. column, bar, line, pie, etc. could be compiled for illustration purposes (Chapter 8 and 9). The Excel diagrams used for the research study include exploded pie with a 3-D visual effect and cluster column comparing values across categories. Lastly, a focus group was held with key employees discussing the conclusions that were reached within Chapter 8 and 9 of the research study to provide more insight to the employee's perceptions and attitudes.

The iterative process between field data and theory took place and evolved over time and can be summarized in the follow steps:

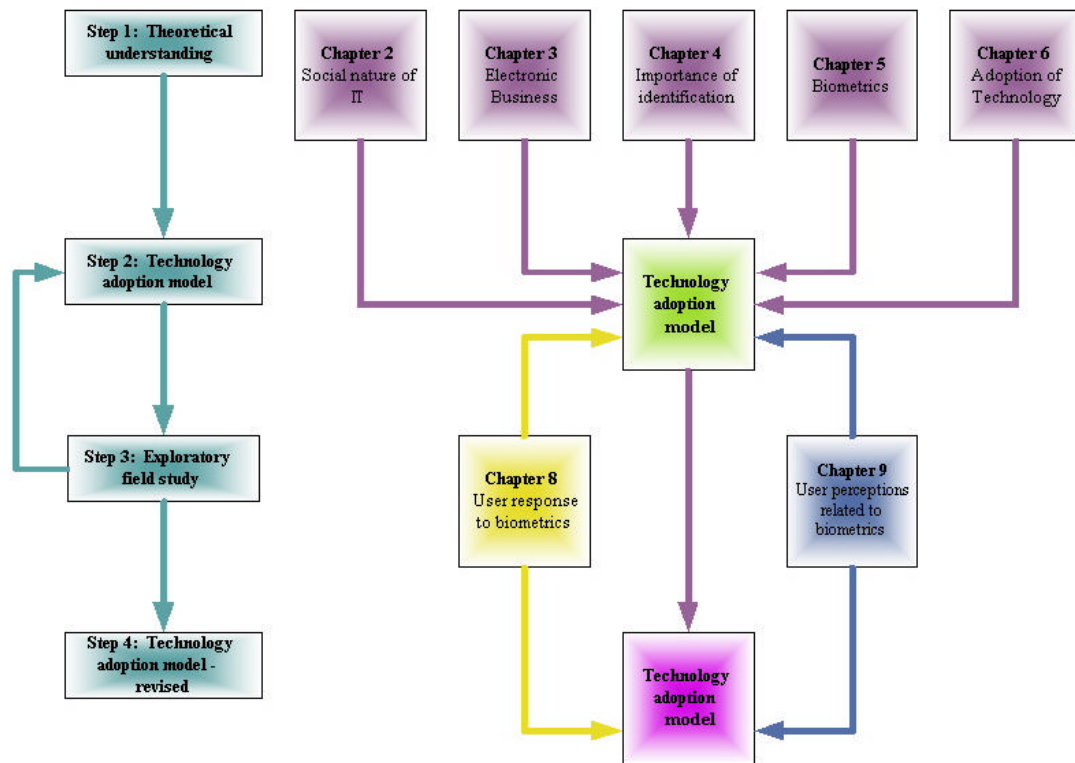
1. **Step 1:** The theoretical contribution of the research study was obtained from:
 - Chapter 2 – The social nature of Information Technology,
 - Chapter 3 – Electronic Business,

- Chapter 4 – The importance of identification,
 - Chapter 5 – Biometrics, and
 - Chapter 6 – Adoption of technology, which
2. **Step 2:** resulted in the development of a Technology Adoption Model at the end of Chapter 6 – Adoption of technology,
 3. **Step 3:** thereafter an exploratory field study took place and the results were depicted in:
 - Chapter 8 – User response to biometrics, and
 - Chapter 9 – User perceptions related to biometrics, and
 4. **Step 4:** the field data of the research study resulted in a revised Technology Adoption Model that can be found at the end of Chapter 9 – User perceptions related to biometrics.

In other words, there was a definite iterative process between field data and theory within the research study. The following figure illustrates the iterative process that took place and evolved over time:

CHAPTER 7: Research method

Figure 7-2: Iterative process diagram



7.3 Summary

This chapter provided some background on the interpretive research method selected for the research study. The interpretive research method provided information on the research approach itself, the research site selected, the user interview process and the research results and reporting process (Walsham 1995). There was a definite iterative process between field data and theory, resulting in the reporting of individual interpretations, perceptions and/or attitudes for the research study problem statement.

CHAPTER 7: Research method

7.4 Conclusion

It was concluded in this chapter, **Chapter 7 – Research method**, that interpretive research helps to understand human thought and action in a social and organizational context.

Next, the **first** chapter (Chapter 8) that forms part of the exploratory field study section of the research study will address “User response to biometrics” by means of research questions defined through Roode’s (1993) process-based research framework for Information Systems.