

**A STAKEHOLDER APPROACH TO
ELECTRONIC COMMERCE DIFFUSION**

**A thesis submitted for the degree of
Doctor of Philosophy**

by

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Computers are useless, they only give you answers

Pablo Picasso (1881-1973)

Abstract

The evolution of electronic commerce as a global technological innovation raised a number of issues related to its adoption. Specifically, although electronic commerce use by companies has been associated with significant opportunities for growth, it has not been adopted in full. Small and Medium Size Enterprises (SMEs) in particular seem to hesitate to invest in electronic commerce technologies for reasons related to lack of awareness and concerns about security, human resources and cost. This phenomenon points to a need for effective electronic commerce diffusion strategies by policy makers in various levels of decision-making.

This research recognises the importance of electronic commerce and realises the difficulties involved in its effective adoption. For that reason it offers an in-depth study of the electronic commerce diffusion process by examining the roles, activities and relationships of the entities involved in this process. Theories that support the research effort are innovation diffusion and stakeholder theories, which are synthesised in order to develop a framework that illustrates how the gaps in the literature can be bridged and how it can be used as an instrument to guide empirical work in the field of electronic commerce diffusion.

The empirical contexts of the research are two projects on electronic commerce diffusion, which are analysed using an interpretive and qualitative research approach. The study concludes with specific implications for stakeholders involved in the provision of information and advice about electronic commerce and related consequences for diffusion receivers. The findings of this research can be useful for all stakeholders in the field, as they can get a better understanding of their own position as well as that of other actors in the context. Additionally, researchers in similar areas can find this work useful as a way to approach the study of the diffusion.

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Publications

The following papers have been published during the course of this research and present various aspects of the theoretical and practical findings that are detailed described in this thesis.

Journal papers

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- Papazafeiropoulou, A. & Pouloudi, A. (2001). "The impact of social issues in Internet policy making." *9th European Conference on Information Systems 2001 (ECIS 2001)*. 27-29 June, Bled, Slovenia
- Papazafeiropoulou, A., Pouloudi, A. & Currie, W.L. (2001). "Applying the stakeholder concept to electronic commerce: extending previous research to guide government policy makers." *Thirtieth-fourth Hawaii International Conference on Systems Sciences (HICSS-34)*, 3-6 Jan, Maui, Hawaii.
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Other conference papers

- Papazafeiropoulou, A., Pouloudi, A., Doukidis, G. (2001) "Electronic commerce awareness creation in south-eastern Europe: Key stakeholders". *European Conference of e-Commerce and e-Activities (E_COMM_LINE_2001)*, 24-25 Sep, Bucharest, Romania.
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CHAPTER

I

Introduction

1.1. Introduction

Electronic commerce has been defined by (Kalakota and Whinston 1996) in their seminal book "Frontiers of Electronic commerce" as:

"The delivery of information, products/services ,or payments via telephone lines and computer networks"

Electronic commerce has been introduced to the business community at a rapid pace and it is believed that its explosion has the potential to revolutionise the life of every individual. It is an integrated part of the business and society today and there are projections for constant growth proving that is not just a 'hype' but an ongoing process with substantial history (Hammond 1996). However, its adoption is related to important changes in the organisational structure of companies and the creation of a critical mass of users in society. Thus, the familiarisation of companies and individuals with electronic commerce technologies and practices is a top priority for technology adoption policies today (The White House 1999; European Commission 1997).

This research recognises the importance of electronic commerce and realises the difficulties involved in its effective adoption. The study begins with the observation that electronic commerce has not been adopted in full and its further diffusion is important for its development. This research intends to offer an in-depth study of the electronic commerce diffusion process by examining the roles, activities and relationships of the entities involved in this process. The multi-organisational context of this research multiplies the number of these entities and makes the analysis of their requirements and views an interesting research subject. The innovation diffusion theory based on Rogers (1995) with the support of Donaldson and Preston's (1995) taxonomy of the aspects of stakeholder theory consist the theoretical basis of this work, which will be carried out by following an interpretive research approach.

This chapter serves as an introduction to the research that led to this thesis. In the next section the motivation for research is presented. Specifically, the modest electronic commerce

adoption especially by small and medium size enterprises and their increasing need for awareness were the starting point for examining the practices of electronic commerce diffusion. In section 1.3 the research questions and objectives are defined and sections 1.4 and 1.5 provide an introduction to the methodology and contribution of this research. Finally, section 1.6 gives an overview of the thesis, summarising the context of the next six chapters.

1.2. Motivation for researching electronic commerce diffusion

The range of potential benefits from the use of electronic commerce practices has been described in the literature as quite significant. Individuals have the ability to communicate and exchange information with people around the world (Gore 1999). Companies have the potential to reach a large number of customers and fully automate their transactions in the value chain (Kosiur 1997). Governments can offer better services to citizens and offer automated procedures such as public procurement and local or national elections (Andersen 1998).

By using electronic commerce, companies can establish international presence for the promotion of their products, offering better services to their customers (Hoffman et al. 1996). Additional benefits include access to new markets, easy reach of potential partners and customers, better mass customisation and relationship marketing (Peppers and Rogers 1997). New types of intermediation or so called 'cybermediation' offer opportunities to companies especially in the information related sectors, to expand their business in new markets (e.g. (Bakos 1998; UKSG 1996). Although the benefits of electronic commerce adoption are reported to be substantial, there is evidence that its use has been stabilised at relatively low levels today, especially small and medium size enterprises (SMEs) as it will be demonstrated in the next sections.

1.2.1. Evidence of low electronic commerce adoption

Despite the advantages that electronic commerce technologies and practices offer to businesses, electronic commerce has not been adopted in full and it is believed that it hasn't

reached its full potential. The discussion in the media about the initial success and later failure of "dot.com" companies (see for example The Economist (2001)) is an indication of the insecurity related to investments in electronic commerce.

For example, the adoption of electronic data interchange (EDI), which represents the majority of business-to-business transactions, has been slower than expected, even though it has been introduced to the business community since the early 1970's (TEDIS 1991). The high implementation cost and the need for high skilled designers and developers are reported as the main reasons for the modest level of EDI diffusion (Damsgaard and Lyytinen 1998). Additionally, procedural, organisational and sociotechnical barriers have been reported due to the complicated interorganisational environment in which these systems operate (Lind 1998). The underdeveloped technological infrastructure and the lack of a comprehensive legislation framework are some other obstacles responsible for the models EDI adoption in certain national settings (Doukidis and Smithson 1995).

In the case of business to consumer applications, although Internet use, which is the base technology for those applications, is growing rapidly, it has not been deemed to have reached the critical mass of consumers needed to justify electronic businesses (European Commission 2001b; IDC 2000; IMRG 1998). Similarly to the private sector, the public sector also seems to face important barriers in electronic commerce adoption. Commonly reported reasons are lack of understanding and vision from managers and difficulties in putting government strategies for digitisation of the public sector in practice (Ranger 2000).

1.2.2 Electronic commerce adoption by Small and Medium Size Enterprises

Internet and electronic commerce adoption seem to be related to the size of the adopting company, as smaller business units are less likely to invest in new technologies and use the Internet (OECD 1998; OECD 2001). The phenomenon has raised the interest of policy makers world-wide as they have realised that SMEs are in need for support and encouragement in order to invest on new technologies (Corbitt and Kong 2000; European Commission 1999; Kendall et al. 2001; OECD 1998; OECD 2000; Tether 2000). The

definition of Small and Medium Size Enterprises (SMEs) according to the European Commission (European Commission 2001a) is summarised in table 1.1.

Table 1.1 Definition of SMEs according to the European Commission

DEFINITION OF A SMALL AND MEDIUM-SIZED ENTERPRISE (SME)			
Criteria	Micro-enterprise	Small	Medium
Number of employees	< 10	< 50	< 250
Annual turnover or total balance sheet	---	< 7m Euro < 5m Euro	< 40 m Euro < 27 m Euro
Independence	---	No more than 25 % of the capital or voting rights held by one or more enterprises which are not themselves SMEs	

Small and medium size enterprises (SMEs) represent a significant part of the world economy. In the European Union, for example, there are 18 million SMEs. They employ 66% of the workforce and are responsible for 55% of turnover. They represent 99.8% of all enterprises excluding those in the agricultural and non-market sectors (European Commission 1999). According to Pickup (1998) 64% of the UK's small businesses do not use the web. Investments on electronic commerce by SMEs have varying results, including reports on many abandoned electronic commerce implementations (OECD 1998). According to a more recent report of OECD (2000), Internet uptake is lower in smaller firms than in larger firms, while reports from various OECD countries confirm that there is a correlation between the rate of adoption of the Internet and the firm size. More specifically, according to national statistics from Australia, Denmark, Finland, Japan and Holland (OECD 1999), while the Internet penetration in large firms in 1999 was between 80% to 86% and for firms with 20 employees and more from 61% to 95%, for small and very small firms this number lowers to 19% to 57%.

A study conducted for 10 companies in Hong Kong and Finland (Farhoomand et al. 2000) have showed that the wide acceptance of electronic commerce has been slowed down by several country-specific barriers. Additional barriers that have been reported are resistance

to change, lack of education about the potentials for global electronic commerce and lack of flexible software. Similar results are presented by a study (Hadjimanolis 1999) conducted for the identification of barriers related to the adoption of innovation by SMEs in Cyprus. The most important barriers reported by the SME managers in this study are shortage of skilled labour, lack of government assistance, inadequate technical training of employees and limited access to knowledge created by research institutions.

According to OECD (1998) the most frequently reported barriers for electronic commerce adoption by small and medium size enterprises are:

- *Lack of awareness.* Companies do not seem to have a good understanding of the new business opportunities created by electronic commerce and find it difficult to access information about cost, human resources, specific industry sector needs.
- *Uncertainty about the benefits of electronic commerce.* Companies are not easily convinced about the benefits of electronic commerce use. They expect fast results with a low cost investment.
- *Concerns about lack of human resources and skills.* Small companies usually lack in-house expertise and are concerned about the necessity of major changes in their internal business practices.
- *Set-up costs and pricing issues.* One of the main concerns of the managers is the initial cost as well as the longer-term impacts for maintenance, training, consultancy and communication. Access to funding resources is a related important issue.
- *Concerns about security.* Security is a key issue for electronic commerce adoption. Although the technology seems to be mature, the uncertainty about the use of on-line transactions seems to be a barrier that will be difficult to lower in the next few years.

It is noticeable that all the above reported barriers are mostly derived from factors such as lack of awareness about the opportunities offered by electronic commerce and the necessary capabilities to develop it as well as lack of trust to the security measures taken for the implementation of electronic transactions. SME managers seem to be in need for detailed information about electronic commerce practices such as implementation requirements in terms of equipment and personal and practical advice about electronic commerce use in their everyday work.

The need for information and advice by SMEs points to a need for effective electronic commerce diffusion policies by policy makers. Such policies can help companies receive the necessary training and advice to overcome their initial hesitation and invest in new technologies creating an important, for the sustainability of electronic commerce, critical mass of user companies. The development of electronic commerce is related to social benefits associated to greater use of information and communication technologies and improvements to the employees' skills. Additionally, the increased competition in the telecommunication markets derived from extensive electronic commerce use can lead to economic development, by stimulating new investments and offer of innovative products and services. Thus, diffusion of electronic commerce can be beneficial as a way to help companies take an informed decision about their future investments. The next section shows that issues related to the diffusion of electronic commerce have been mostly ignored by the current research in the field, which focuses mainly on technical issues.

1.2.3. Limitations of the previous research on electronic commerce

The revolutionary growth of network technologies and especially the tremendous growth of the Internet as an international conveyor of information launched electronic commerce as a pure technological phenomenon. As a result most of the research in the field refers to technological issues and is mostly application driven. Technology is considered as foundation for electronic commerce (Crocker 1996). There is a significant emphasis in the technical infrastructure that supports electronic commerce applications such as networks, multimedia content, messaging and payments (Kalakota and Whinston 1996). Issues that are mainly examined in the literature are security (Denning 1996; Kosiur 1997) electronic payments (Gupta et al. 1996; Kosiur 1997; Neuman 1996), electronic catalogues (Keller 1996) and intranets (Chellappa et al. 1996).

There is also considerable concern about the business opportunities and changes that the use of electronic commerce brings to the business community. There is a plethora of articles analysing the new electronic marketplace and the role of business intermediaries and their elimination or transformation to 'cybermediaries' (Bakos 1998; Goh et al. 1998). Specific

industry sectors have also been analysed in the light of the new business environment, such as retailing (Kalakota and Whinston 1996), publishing (Chellappa et al. 1996; Kalakota and Whinston 1996), banking etc.

Thus, the electronic commerce literature seems to be application and technology driven. It seems that little effort has been made to analyse procedures such as the diffusion of electronic commerce practices to small enterprises, in particular, which lack the experience and information to implement them in their every day work. Instead, the examination of 'softer' issues in the literature mainly focuses on the relation between the individual user and the technology and the possible side effects this relation may have on his social behaviour (e.g. (Carter 1997; Hoffman and Novak 1999; SIQSS 2000) as explained further in chapter 2.

The social factors and interrelationships between interested parties involved in the implementation of knowledge diffusion mechanisms are usually neglected with few references on the role of important stakeholders such as the government, professional associations or IT vendors in the market. Current research in the role of the government in the implementation of the public electronic commerce policy (Rapp 1996) mainly focuses on issues such as taxation, legislation and computer fraud, while there is a little concern about the training of businesses in the use of telecommunication technologies. Damsgaard and Lyytinen (1998) take an interesting approach to the subject, by examining the governments' role in the diffusion of information technology. Nevertheless, their research focuses on electronic data interchange, which is only a part of the electronic commerce applications and practices.

The importance to examine not only technical but also social and educational issues while designing strategies for electronic commerce has been recently recognised by policy makers, as technology development is nowadays directly related to economic development (EC, 1997; The White House, 1999; US Department of Commerce, 1998).

In the next section the research questions derived from the problems related to the adoption of electronic commerce by SMEs as well as the limitations in the literature concerning the

examination of roles of interrelated stakeholders in electronic commerce diffusion are presented.

1.3. Research questions and objectives

In the previous sections, it was argued that although electronic commerce offers several advantages to businesses, it has not been adopted in full and small and medium enterprises seem reluctant to use electronic commerce technologies and practices. Research has shown that SMEs hesitate to invest on electronic commerce due to lack of necessary knowledge and advice which implies that electronic commerce diffusion practices pursuit by policy makers seem to be inadequate. Diffusion practices hence present complexities, which are partly attributed to the increasing number of *stakeholders* involved in the process as their views, interests and frequently conflicting requirements can influence the implementation of an electronic commerce diffusion strategy. This research attempts to address these challenges by investigating stakeholder participation in the electronic commerce diffusion process.

The main aim of the research is the *identification of various groups of stakeholders involved in the process of electronic commerce diffusion to SMEs with emphasis on analysing their roles, interests and relationships with the view to get a better understanding of this process.*

Thus, the focus of this research is the examination of the practices of electronic commerce diffusion to SMEs. This will be achieved by examining the roles and interests of stakeholders at the provision and the receiving end of the diffusion process from the knowledge to the confirmation level. The results of this research have specific practical implications for the diffusion providers with relevant consequence to the diffusion receivers (i.e. SMEs) as it will be analysed in chapters 6 and 7.

In line with this aim, the research questions that motivate this research are:

- *Which are the various groups of stakeholders involved in the provision of electronic commerce diffusion to SMEs and what are their roles?*
- *How do the various interests and views of stakeholders providing electronic commerce diffusion to SMEs can influence the achievement of the diffusion activities aims?*
- *How can electronic commerce diffusion contribute to addressing inequalities in the use of information technology between stakeholder groups?*

In order to provide answers to the above questions the following specific objectives, which also consist the main units of analysis of this research can thus be stated as:

- *Identification of various groups of stakeholders involved in the provision of electronic commerce diffusion to SMEs, with emphasis on their role (chapter 5).*
- *Investigation of the impact the various interests and views of stakeholders providing electronic commerce diffusion to SMEs has on the achievement of the diffusion activities aims (chapters 5 and 6).*
- *Examination of the relation of electronic commerce diffusion with the elimination of inequalities in the use of information technology between stakeholder groups (chapter6).*

These research questions and objectives derive from the research motivation and are related, as will be shown in chapter 2, to the gaps in the previous and current research in the areas of innovation diffusion and stakeholder theories. In addressing the research questions, the thesis demonstrates the importance of the use of a stakeholder approach in electronic commerce diffusion. While this is a comprehensive review of the diffusion process, it is recognised that a significant follow-up research activity, as discussed in the final chapter, is the definition and evaluation of success factors for the diffusion process.

1.4. Introduction to methodology

The underlying research epistemology of this research is *interpretive*. An interpretive epistemology is appropriate for the research context under investigation firstly because, as it was described in the previous sections, there are several social, political and cultural issues related to electronic commerce adoption, making a fruitful field for an interpretive study. Secondly, the close involvement of the researcher with the phenomena under investigation made the separation between phenomena and values difficult to delineate. Therefore an interpretive approach for the analysis of the research findings was deemed more appropriate (Walsham 1995).

Additionally, the qualitative research methodology (Denzin and Lincoln 1994) was selected for this thesis, as this approach is more suitable for understanding people within their social and cultural contexts. As electronic commerce is a relatively new phenomenon, qualitative research seems to be more appropriate for collecting the views of stakeholders and understanding the complex socio-economic environment of this phenomenon.

Finally, concerning the research strategy, the case study approach has been selected for this research. Case studies are gaining importance in information systems research and have a dominant part in the research methods used in the information systems field (Orlikowski and Baroudi 1991; Stake 2000). There are different types of case study namely: exploratory, descriptive and explanatory, depending on whether they are used to answer "what", "how" and "why" research questions respectively (Yin 1994). Based on this taxonomy, this study can be classified as exploratory, as the research questions, presented in section 3 are of the "what" type. The methodology and research design of this thesis are discussed in further detail in chapter 3.

1.5. Research contribution

The research aims to demonstrate the use of stakeholder analysis for the in-depth examination of the electronic commerce diffusion phenomenon. Thus, the research entails a theoretical and an empirical investigation of stakeholder issues in the electronic commerce

diffusion process and will lead to the development of a set of frameworks for stakeholders' roles and their interrelationships.

At a practical level the developed frameworks will be useful to all stakeholders interested in evaluating their potential role in the context and particularly to decision-makers both at national and international level. This contribution is important for players involved in the electronic commerce diffusion process in three categories. These are companies that receive the education and guidance, the organisers of knowledge diffusion activities and the policy makers at a regional or national level that support such activities.

At a theoretical level this research contributes to both the stakeholder and the innovation diffusion theories. Firstly, this will be achieved by synthesising these theories in an attempt to understand electronic commerce diffusion phenomena and secondly, by applying these theories in a new political and social context, that of electronic commerce diffusion. These contributions will become evident throughout the thesis and will be reviewed in the final chapter.

1.6. Structure of the thesis

The thesis is structured around seven chapters as follows.

Chapter 1 gives an overview of the motivation for this research, the research questions and contribution.

Chapter 2 provides the background theory for innovation diffusion and stakeholder theory. Description, analysis and developments in the field of both research areas are presented with the view to position this research in relation to existing work. Additionally, research studies related to the application of innovation diffusion and stakeholder theory in information systems and electronic commerce are analysed in order to differentiate this research from similar studies. Finally, a framework for the research of the electronic commerce diffusion process is proposed.

Chapter 3 aims at the presentation of the ontological and epistemological assumptions that this research is based on, the justification for the selection of the research methodology and the detailed presentation of the specific methodological approach followed.

Chapter 4 gives a detailed description of the empirical context of this research. The European project WeCAN (Wide Electronic Awareness Network) that served as the empirical basis for this research is briefly described as well as how this research has emerged working along with it. Under the same structure, the follow-up research, which examined the go-digital initiative in Greece, is presented.

Chapter 5 uses stakeholder analysis in order to offer a better understanding of the electronic commerce diffusion process. After the analysis of the empirical material, stakeholders involved in the process were described in order to draw a clearer picture about who is implicated and which is their role. Additionally, initial conclusions about stakeholder participation in the various stages of innovation decision are made.

Chapter 6 moves to a further analysis of the instrumental aspect of stakeholder analysis in the context of an electronic commerce diffusion initiative taken by the Greek government. Additionally, concerning the normative aspect of stakeholder analysis, issues related to bridging the "digital gap" are highlighted in this chapter in order to offer the basis for a more philosophical discussion concerning inequalities in the access to information and communication technologies.

Chapter 7 summarises the research findings and gives an overview of the research contribution in terms of theory, methodology and practice. Finally, limitations of the research approach as well as further research directions are presented.

For ease of reference the structure of this thesis is summarised in figure 1.1.

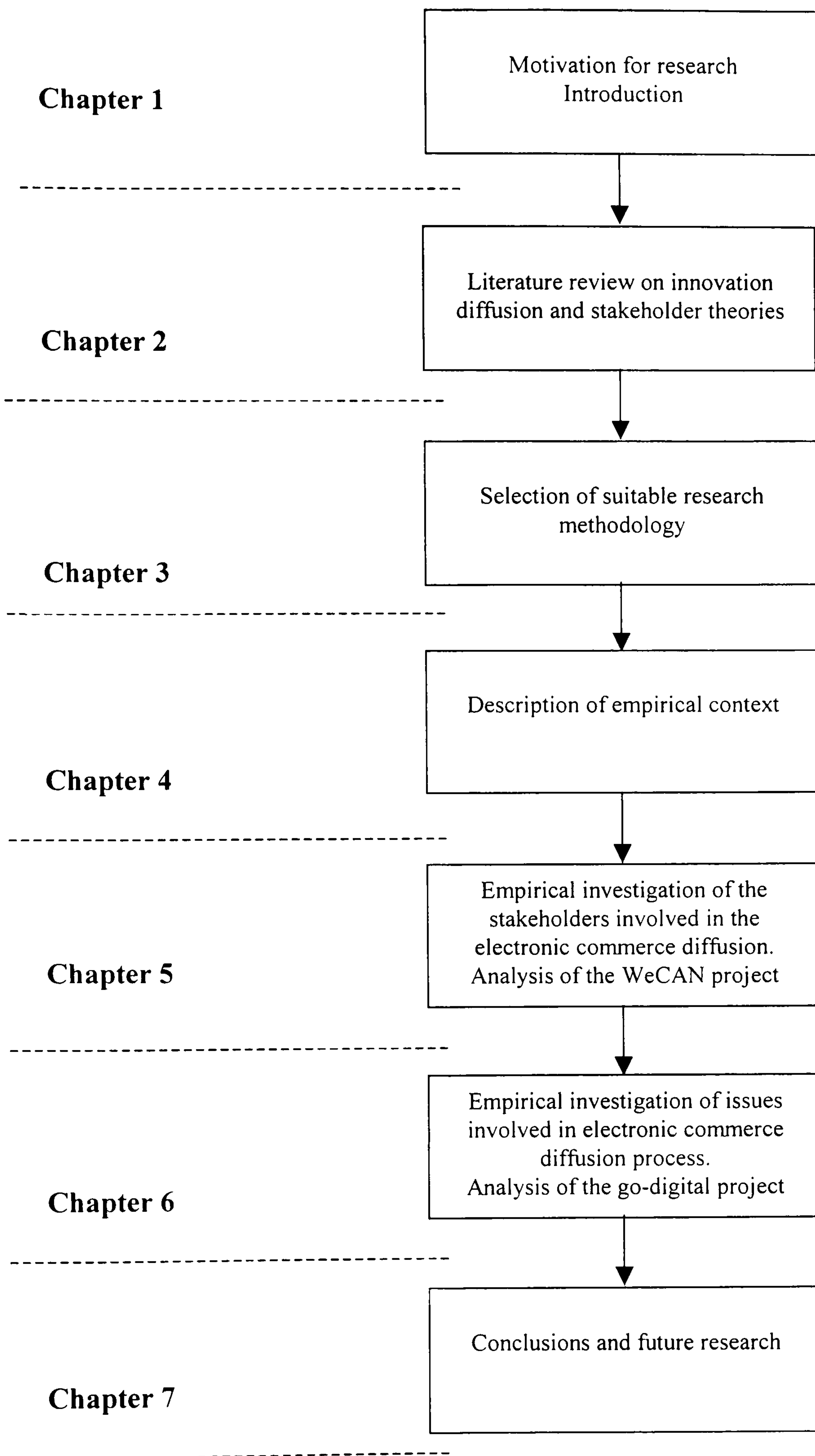


Figure 1.1 Structure of the thesis

CHAPTER

II

Background research: Innovation diffusion and stakeholder theories

2.1 Introduction

Electronic commerce is a technological phenomenon that has the potential to offer great advantages to companies and individuals. A number of areas related to electronic commerce diffusion and related policies have been neglected in the literature as discussed in chapter 1. Based on the issues introduced in chapter 1 the need for further research in theories related to electronic commerce adoption as a new technological phenomenon is examined.

Thus, chapter 2 provides the background theory for innovation diffusion and stakeholder theory that will be used in carrying out the research presented at the later chapters of the dissertation. Description, analysis and developments in the field of both research areas are presented with the view to position this research in relation to existing work. Additionally, research studies related to the application of innovation diffusion and stakeholder theory in information systems and electronic commerce are analysed in order to differentiate this research from these similar studies.

The chapter is structured as follows. In the next section the innovation diffusion theory is presented. Rogers' (1995) approach to the theory is described since it consists the theoretical framework of this research, as well as the developments in innovation diffusion for the information technology and electronic commerce in particular. Section 3 presents stakeholder theory, including its origins, its use in the information systems and electronic commerce literature. Section 4 includes a framework for using innovation diffusion and stakeholder theory for the examination of electronic commerce diffusion in Europe. Finally, conclusions from this chapter and introduction to the next one are included in section 5.

2.2 Diffusion of Innovations

King et al. (1994) define diffusion as:

“the spread of the capacity to produce and/or use an innovation, and its use in practice”
(p.140).

Additionally, Rogers (1995), defines *diffusion* as:

“the process by which an innovation is communicated through certain channels over time among the members of a social system” (p. 5).

Through this definition the importance of four elements of diffusion of innovation is revealed. These are:

- *The innovation.* It is an idea, practice or object that is perceived as new by an individual or other unit of adoption
- *Communication channels.* The means by which messages get from one individual to another. Mass media channels are often the most rapid and efficient means to inform an audience of potential adopters about the existence of an innovation, that is, to create awareness-knowledge.
- *Time.* The period by which an individual passes from first knowledge of an innovation through its adoption or rejection.
- *Social system.* A set of interrelated units that are engaged in joint problem-solving to accomplish a common group. The members of the units of a social system may be individuals, informal groups, organisations and/or subsystems.

Technology innovation is a type of innovation incorporating technical and theoretical elements, which are necessary for its application. For the diffusion of technical innovation simply focusing on the product is not sufficient to the study of transfer and diffusion of the technology. According to Bozeman (2000) it is not merely the product that is transferred but also knowledge for its use and application. He states that:

“when a technological product is diffused the knowledge upon its use is based should also diffused. Without the knowledge base the physical entity cannot be put to use. Thus the knowledge base is inherent, not ancillary”.

Studies for the diffusion of innovation have covered a wide range of industry sectors and information system types over the recent years (Fuller and Swanson 1992; Garud and Rappa 1994; La Rovere 1998; Lelebici et al. 1991; Loh and Venkatraman 1992). The work on the adoption of technological innovation rests along two major areas: intention-based models

such as Davi's (1989) Technology Acceptance Model (TAM) and innovation models such as Rogers (1995) that focus on innovation characteristics and processes (Elliot and Loebbecke 2000).

According to TAM the adoption of an innovation is based on two perceptions of individual users about the innovation. These are the ease of use of the technology and its usefulness. This model has been tested in a number of studies (see section 2.5). A major theoretical limitation of TAM has been identified as the exclusion of influences from institutional, social and personal control factors (King et al. 1994; Taylor and Tood 1995).

The innovation-diffusion model developed by Rogers (1995) is presented in the next section.

2.2.1 Rogers' theory of diffusion of innovations

The most dominant and authoritative work of the innovation diffusion literature is that of Rogers' (1995). His work has been widely cited although his framework, that has been developed during the last 35 years, has been debated (Elliot and Loebbecke 2000; Kautz and Pries-Heje 1996)) it is the first well-known and widespread framework for the diffusion of innovations.

According to Rogers the *innovation-decision process*, in which a decision-making unit passes from first knowledge of an innovation to the decision to adopt or reject it, plays a crucial role for the diffusion of an innovation. In this process five steps are defined:

- *Knowledge* occurs when a potential adopter learns about the existence on the innovation and gains some understanding of how it is functions.
- *Persuasion* occurs when a potential adopter forms a favourable or unfavourable attitude towards and innovation.
- *Decision* occurs when a potential adopter undertakes activities, which lead to the adoption or rejection of an innovation.
- *Implementation* occurs when an innovation is actually put to use

- *Confirmation* occurs when an adopter seeks reinforcement of an innovation-decision that has already been made, but the adopter may reverse this previous decision if exposed to conflicting messages about the innovation.

The first and very important step of the innovation-decision process is that of knowledge. There are three particular types of knowledge: awareness knowledge, how-to-knowledge and principles-knowledge. The first of these types, *awareness-knowledge* is information that an innovation exists. Awareness-knowledge then triggers the potential adopter to seek information of how-to and principles knowledge. This kind of information seeking usually occurs at the knowledge stage of the innovation-decision process, but it might appear at the persuasion and decision stages. *How-to knowledge* is related to information necessary to use an innovation properly. When an inadequate level of how-to knowledge is obtained then rejection and discontinuance are likely to result. Principles-knowledge consists of information regarding the functioning principles underlying how the innovation works. It is possible to adopt an innovation without principles-knowledge, but the possibility of misusing the new ideas greater in that case.

Rogers demonstrates that most change agents (entities that influence potential adopters) concentrate their efforts on creating awareness-knowledge. He suggests that change agents should pay their most distinctive and important role by concentrating on how-to knowledge, which is more essential for adopters in their trial of an innovation.

The stages of the innovation decision process defined by Rogers are considered relevant for this research as the examination of the influence that the adopters characteristics have on the diffusion activities is one of the issues examined by this research. In line with that these stages have been incorporated into the theoretical framework described in section 2.3. In the next section studies related to the diffusion of information technology innovation are presented because of their relevance to electronic commerce diffusion.

2.2.2 Diffusion of Information Technology Innovation

The rapid technological change and growth in the complexity and sophistication of computer and telecommunication systems made the diffusion of information technology a crucial issue

for policy makers world-wide. Damsgaard (1996) in his study on the diffusion of Electronic Data Interchange (EDI) defines three specific layers of the diffusion process. These are the organisational, industry and environment layers.

- The **organisational layer** consists of individual users and organisational bodies using the information technology.
- The **industry layer** consists of organisations and institutions sharing a stake in the same function, market area, or part of the value system.
- The **environmental layer** is divided into two sub regions: the institutional layer and the regulatory layer. The *institutional layer* consists of entities such as international agencies, trade associations and higher education institutions. These affect the diffusion by shaping the interaction between actors such as technology providers and potential users and thereby promote the use of the technology. The *regulatory layer* is related to telecommunication, business and privacy regulations applied by government regimes in order to set the normative boundaries for interactions between the trading partners.

An interesting approach for the examination of the environmental layer of information technology diffusion has been made by King et al. (1994) in their effort to understand the role of the government and other institutions in IT innovation. The authors observe that although the objectives of IT-related programmatic statements issued by various government agents are clear, the mechanisms used for the mobilisation of government leadership seem to be inefficient. They argue that these difficulties in the application IT diffusion policies are related to inefficient analysis of the role of institutions involved in the IT diffusion process.

The authors have used the demand-pull and supply push theory in government intervention for technology diffusion. They argue that governments can either be influential or regulatory. Combining the two modes of intervention with the two types of driving forces six main institutional actions are defined: These are knowledge building, knowledge deployment, subsidy, mobilisation, standard setting and innovation directive and are presented in figure 2.1.

	SUPPLY PUSH	DEMAND PULL
INFLUENCE	Knowledge building Knowledge deployment Subsidy Innovation directive	Knowledge deployment Subsidy Mobilization
	I	II
REGULATION	Knowledge deployment Subsidy Standard setting Innovation directive	Subsidy Standards setting Innovation directive
	III	IV

Figure 2.1 Dimensions of Institutional Intervention (Source: King, et al., 1994)

The authors analyse each of those institutional actions and based on empirical evidence they make conjectures about their importance in the application of an IT-diffusion policy. Table 2.1 includes the description of the 6 actions with the conjectures related to each of them.

Table 2.1 Institutional actions for IT-diffusion (adopted from King et al. (1994))

Action	Conjecture
Knowledge building. It is undertaken to provide the base of scientific and technical knowledge for the production and exploitation of innovations. This typically takes the form of sponsored research to universities and other research institutions.	<i>1. Institutional intervention to promote knowledge building is essential to sustained production of innovation in the field of IT, but it is not absolutely required for successful diffusion in use</i>

Action	Conjecture
<p>Knowledge deployment. Its objective is to stimulate the dissemination of new knowledge. The most obvious form of knowledge deployment is the general provision of education to the population either through the official educational system (e.g. schools, universities) or through temporary training of the working force.</p>	<p>2. <i>Significant production or use of IT innovation requires serious and sustained institutional interventions for knowledge deployment</i></p>
<p>Subsidy. It is financial support offered to innovators in order to help them defray the costs or risks related to IT adoption.</p>	<p>3. <i>Subsidies are often but not always essential instruments of institutional intervention in both the production and use of IT innovation</i></p>
<p>Mobilisation. It means the encouragement of decentralised actors and organisations to think in a positive way about the innovation. The main institutional instruments for mobilization are promotional and awareness campaigns.</p>	<p>4. <i>Mobilisation efforts are important but not essential in stimulating production and use of IT innovation, and are useful mainly in conjunction with other institutional interventions</i></p>
<p>Standard setting. It is a form of regulation aimed at constraining options of decentralised actors and organisations in line with larger social or institutional objectives. They can be completely voluntary or they can have the force of law.</p>	<p>5. <i>Standards are important tools of institutional intervention in production and use of IT innovation, but standard setting is risky and can produce counterproductive consequences.</i></p>

Action	Conjecture
<p>Innovation directive. It is a command to produce innovations, to use them, or to engage in some activity that will specifically facilitate production and/or use. For example governments may be engaged in the development or use of particular technologies, or when organisations invest given amounts of their resources in R&D activity presumed to lead to innovation</p>	<p><i>6. Top-down directives for stimulating innovation and diffusion can be powerful interventions in special circumstances such as crises, but are of limited long-term utility for sustaining production and use of IT innovation.</i></p>

According to the categorisation of the environment layer made by Damsgaard (1996) the institutional layer is mostly related to interactions of entities involved in the IT diffusion process. These interactions have influential rather than regulatory character. Similarly the regulatory layer in this categorisation deals with the application of laws and restrictions by government regimes and is related to regulatory actions. In line with that the actions that support the institutional layer are: knowledge building, knowledge deployment, subsidy, innovation directive and mobilisation (cells I and II in figure 2.1). The actions supporting the regulatory layer are knowledge deployment, subsidy, standard setting and innovation directive (Cells III and IV in table 2.1).

This research uses the categorisation made by Damsgaard (1996) for the examination of the electronic commerce diffusion process. Additionally, this research follows the argument of King et al. (1994) about the importance of examining the role of various institutions involved in IT diffusion. Based on the premise that a systematic examination of their roles, interests and interrelations will have interesting contributions to theory and practice, this thesis examines the roles and interests of institutions involved in the diffusion of electronic commerce to small and medium size enterprises in the European region. This is achieved by using stakeholder analysis in order to get an insight of existing interrelations in the electronic

commerce diffusion process as it is described in section 2.3. Figure 2.2 locates (indicated with grey shade) this research in this framework, which is positioned at the institutional part of the environmental layer.

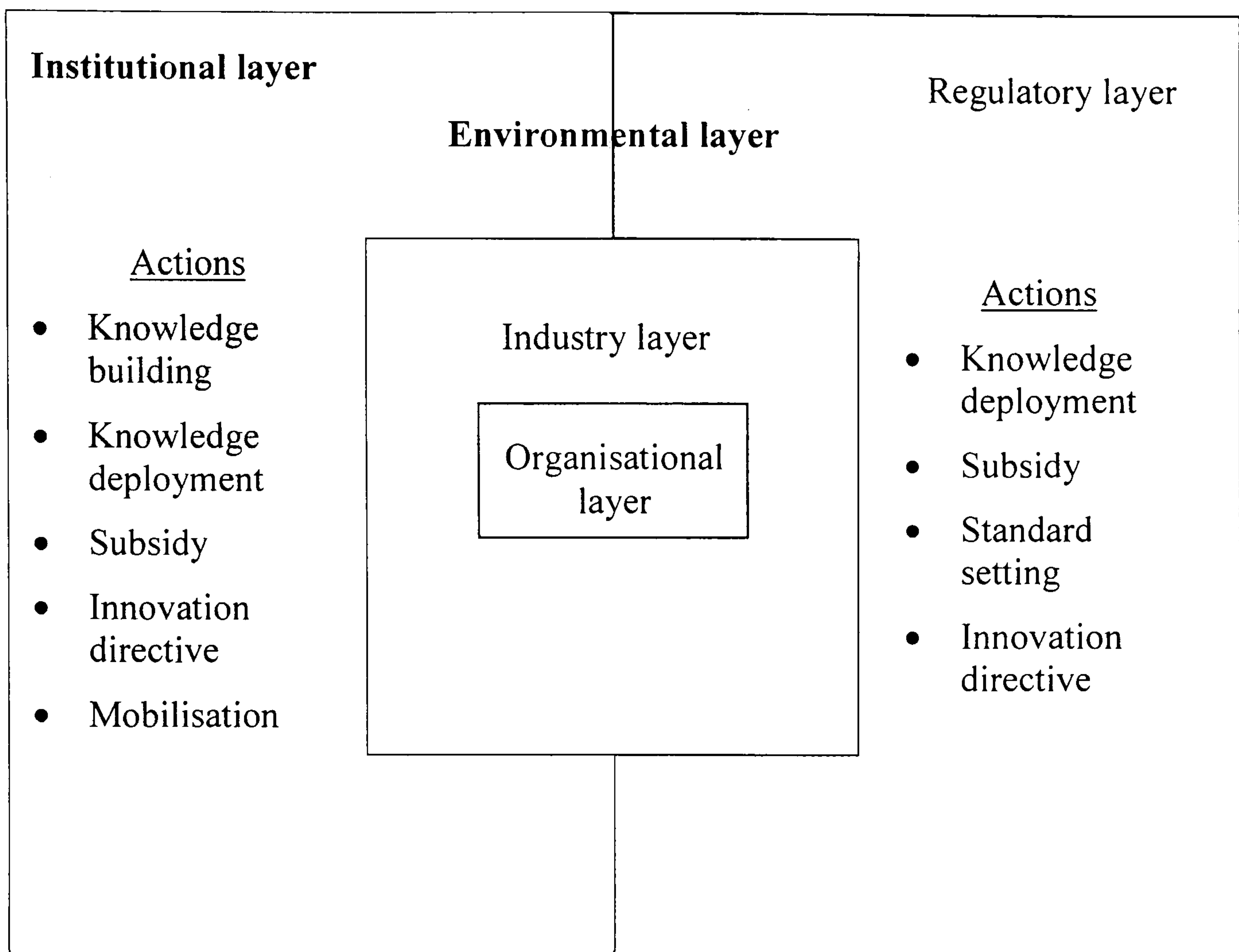


Figure 2.2 Position of the research within the diffusion process layers

In the next section the use of innovation diffusion theory in the electronic commerce field is examined. It is observed that the environmental layer on which this research focuses has not been analysed as much as the organisational and industry layers.

2.2.3 Current research on information technology innovation in the case of electronic commerce

Electronic commerce has a great effect on traditional ways of conducting business. The exchange of data within and between organisations or even business sectors is essential for its implementation and triggers organisational transformations and business processes

reengineering (Wilkins et al. 2000). Changes associated with innovations related to electronic commerce use range from fundamental changes in the economies of nations, to changes in the way industries function, right through to changes in organisational practices and processes (Applegate et al. 1996; Tapscott et al. 1998).

Electronic commerce, can be viewed as a kind of technology innovation since it is based on telecommunication technologies and business practices that introduce new methods in:

- Communications, e.g. (Chellappa et al. 1996)
- Business transactions, e.g. (Bryntse 1998; Crocker 1996; Currie 1999; de Kare-Silver 1998; Henning 1998)
- Market structure, e.g. (Fong et al. 1997; Giaglis et al. 1999)
- Education, e.g. (Daniel 1999; Murison-Bowie 1999)
- Work, e.g. (Doukidis et al. 1998; HCWD 2000)

A considerable effort has been made in the literature to examine adoption patterns and diffusion practices for electronic commerce as a technology innovation. For example Wilkins et al. (2000) examine the theories of diffusion of innovation, organisational innovativeness and process theory as they can be used for the implementation of electronic commerce into an organisation. The authors focus on purely technical issues of electronic commerce systems development within a company and not the diffusion of innovation as a public policy.

Marshall et al. (2000) also examine the adoption and diffusion of electronic commerce particularly in the car industry in Western Australia but focus on the managerial and organisational needs of the specific industry sector. Similarly Thompson (2000) examines the adoption of a portal for the business community of Western Victoria in Australia.

Furthermore, Lederer et al. (2000) and Magal and Mirchandani (2001) use the technology acceptance model (TAM) (Davis 1989) to examine how the ease of use and usefulness predict application usage in the World Wide Web. Gefen and Straub (2000) also use TAM to study how the perceived ease of use (PEOU) influence the users' purchasing behaviour on the Internet. TAM has also been used by Pavlou (2001) to predict users intentions to transact

electronically by integrating trust in electronic commerce. Another application of TAM has been made by Featherman (2001) who studies the individual adoption of Internet-based e-payment systems. Additionally, Elliot and Loebbecke (2000) use the Five Stages Innovative Process Model (Rogers 1995) to examine the adoption of four diverse pilot implementations of smart-card payment systems. In all the above cases the researchers study the adoption of a specific electronic commerce technology by individual users. There is no reference to the diffusion mechanisms used to influence companies to use and invest on electronic commerce.

The diffusion of electronic commerce to small and medium size companies has been recently investigated by Corbitt and Kong (2000; Debreceeny et al. 2000; Kendall et al. 2001). The researchers focus on the investigation of the barriers related to electronic commerce adoption in Singapore rather than on the diffusion mechanisms that could be used to decrease those barriers. Additionally, Riemenschneider and McKinney (2001) analyse the differences in the beliefs of small business executives regarding the adoption of web-based electronic commerce.

Finally, Boon et al. (2000) examine the adoption of Internet as a means for the promotion of electronic commerce by local governments in Australia. The research focus on one the diffusion mechanisms used by one of the actors involved in the electronic commerce diffusion process with no reference to other related entities and practices.

According to the above analysis, the research about the diffusion of electronic commerce has focused either on the adoption of Internet technologies by individual users or the implications that the adoption of electronic commerce has for a firm or an industry sector. Expanding the categorisation of Damsgaard (1996), by separating the organisational layer to individual and firm level, table 2.3 can be constructed presenting an overview of the current literature on electronic commerce diffusion. It is apparent that the environmental layer for electronic commerce diffusion has been neglected in the literature with most research focus placed on the organisational and less on the industry layer.

Table 2.2 Studies of electronic commerce diffusion

Researchers	Context	Layer
Wilkins, Swatman, Castleman (2000)	Organisational issues in the adoption of electronic commerce by companies	Organisational (firm level)
Lederer, Maupin, Sena, Zhuang (2000)	Investigation of the Technology acceptance model for work-related tasks with the World Wide Web	Organisational (individual level)
Marshall, Sor, McKay (2000)	Adoption and diffusion of electronic commerce in the car industry in Western Australia	Industry
Gefen, Straub (2000)	The importance of perceived ease-of-use in electronic commerce adoption	Organisational (individual level)
Elliot, Loebbecke (2000)	Adoption of smart card payment systems by four Australian companies	Organisational (individual level)
Corbitt, Kong (2000)	Factors affecting adoption of electronic commerce by SMEs in Singapore	Organisational (firm level)
Debreceeny, Putterill, Gilbert, Tung (2000)	Inhibitors to electronic commerce adoption by companies in Singapore	Organisational (firm level)
Kendall, Tung, Chua, Ng, Tan (2001)	Factors affecting the adoption of electronic commerce by SMEs in Singapore	Organisational (firm level)
Boon, Hewett, Parker (2000)	Adoption of the Internet in the Australian local government	Industry
Thompson (2000)	Examination of Internet portals as a means to diffuse electronic commerce in Western Victorian region in Australia	Industry
Riemenschneider, McKinney (2001)	Examination of differences in adopters and non-adopter companies of electronic commerce	Organisational (firm level)
Pavlou (2001)	Integration of trust in electronic commerce with the technology acceptance	Organisational (individual level)

	model	
Featherman (2001)	Investigation of the individual adoption of Internet based e-payment systems	Organisational (individual level)
Magal, Mirchandani (2001)	Validation of the technology acceptance model for Internet tools	Organisational (individual level)

This research tries to bring to the fore issues related to the interaction between actors involved in the environment layer of electronic commerce diffusion. The systematic investigation of their roles, interests and interrelations could prove useful for those dealing with the provision of diffusion and consequently can help the diffusion receivers as they can benefit from better diffusion practices. Stakeholder theory that examines the impact of different viewpoints of participants in an organisational situation is useful for this analysis. In the next sections the stakeholder concept is introduced and the relevance of its application in the electronic commerce diffusion process is investigated.

2.3 Introducing the stakeholder concept

2.3.1 Origins in the management literature

The concept of "stakeholders" was embedded in the management thinking and research since the publication of the seminal book, "Strategic Management: A stakeholder approach" by Freeman (1984). Despite the extensive use of the stakeholder theory, there are two fundamental debates in the literature. The first debate concerns the very meaning of the term stakeholder, while the second is concerned with its nature and purpose. More specifically, regarding the first debate, Mitchell et al. (1997) provides a list of 27 definitions of the term used from 1993 to 1995. This clearly depicts the intention of researchers to answer the fundamental question as to which entities can be defined as stakeholders and deserve managerial attention.

The use of the term varies significantly, showing that the term itself is not self-evident. There are very narrow descriptions that perceive stakeholders as entities who bear some form of risk, either by investing something valuable or placing themselves involuntarily, in a

risk position as a result of a firm's activities; without a risk there is no stake (Clarkson, 1995). There are broader definitions such as the classic one by Freeman (1984):

"A stakeholder in an organisation is (by definition) any group or individual who can affect is affected by the achievement of the organisation's objectives" (p. 46).

This definition leaves the notion of stakeholder open to include virtually anyone. Certainly, there are a number of definitions that exist between these two extremes (e.g. (Cornell and Shapiro 1987; Hill and Jones 1992; Nasi 1995)).

The second important debate in the management literature is concerned with the diversity of opinions on the nature and purpose of stakeholder theory. Donaldson and Preston (1995) propose a classification framework defining three aspects of stakeholder theory:

- The *descriptive* aspect means that "the theory is used to describe and sometimes to explain, specific corporate characteristics and behaviours" (p. 70)
- The *instrumental* aspect means that "the theory is used to identify connections, or lack of connections, between stakeholder management and the achievement of traditional corporate objectives" (p.71)
- The *normative* aspect means that "the theory is used to interpret the function of the corporation, including the identification of moral or philosophical guidelines for the operation and management of corporations" (p. 71)

In the following sections we study the extension of stakeholder concept from management literature to information systems in order to examine the possibility of its application to electronic commerce policy making.

2.3.2 Stakeholders in information systems

The use of the stakeholder term in the information systems literature was used to describe the knowledge gap between managers (users) and technical specialists (e.g. (Currie 2000). Similarly to the management literature, there are different views about the definition of the term stakeholder as well as about its nature and purpose. The study of these approaches

reveals that the application of the stakeholder notion in the information systems field is predominantly instrumental or descriptive with very little reference to the normative aspect (Pouloudi 1999).

Three groups of stakeholders are typically considered as the most important in the information systems literature. These are the users, managers and systems developers. The aim of the research in this field is then the resolution of the conflicting interests among these three groups, in order to guide information systems strategic planning, or the development and implementation of an information system (e.g. (Lacity and Hirschheim 1995; Lyytinen 1988; Lyytinen and Hirschheim 1987; Ruohonen 1991).

In any case, similar to the management literature, the research of the stakeholder notion in information systems is limited to the perspective of a single organisation. Only recently, following the introduction of interorganisational systems, there is a systematic attempt to consider a wider range of stakeholders and describe a number of principles of interorganisational stakeholder behaviour (Pouloudi 1998).

Moreover, as an extension of interorganisational systems, the commercial use of the Internet has been used as a domain for the application of the stakeholder theory. For example, the issue of "electronic activism" through the use of Internet and the empowerment of the various stakeholders such as customers, technical experts and companies have been investigated by Badaracco and Useem (1997) in their research about the ethical ambiguities involved in the Internet use. Additionally, stakeholder analysis has been used in the facilitation of the management of user requirements in the business to consumer web information systems by Lane and Koronios (2000). Finally, another effort to investigate the importance of stakeholders' involvement in the implementation of e-government applications has been made by Papazafeiropoulou et al. (2001). The authors study two important dimensions in the evolution of an e-government system: the number of stakeholders involved in the system and the degree of its functionality, highlighting the importance of stakeholders' involvement in the all stages of information systems development (Papazafeiropoulou et al. 1999).

2.3.3 Stakeholders in innovation diffusion

The notion of stakeholders is embedded in the innovation diffusion literature without the explicit reference of the term. More specifically, Rogers (1995) describes diffusion networks in order to emphasise the importance of interpersonal network influences on adopters both in their coping with the uncertainty of new ideas and in convincing them to adopt innovations. The notion of the opinion leadership is predominant in his work defining *opinion leaders* as: “individuals who lead in influencing other's opinions about innovations” (p.281). Other important notions in Roger's work are those of the *change agent* and *change agency*: “A *change agent* an individual who influences clients' innovation-decision in a direction deemed desirable by a change agency” (p.335).

Brown (1981) also refers to *diffusion agency* that he defines as the public or private sector entity through which an innovation is distributed or made available to the population at large. He gives examples of such entities like retail and wholesale outlets, government agencies or non-profit organisations. Other entities he describes are the *propagators* that are defined as: “profit or non-profit motivated organisations or government agencies acting to induce the rapid and complete diffusion of the innovation” (p. 52).

In the case of IT diffusion, and especially at its environmental layer (see section 2.2.2), King et al. (1994) recognise the importance of institutional intervention in IT diffusion process and list a number of institutions that influence IT innovation. These are: Government authorities, international agencies, professional and trade and industry associations, research-oriented higher education institutes, trend-setting corporations, multi-national corporations, financial institutions, labour organisations and religious institutions. Other entities such as the media and the black market, which can exert regarding IT innovation, are also mentioned. These entities are listed by the authors but there is no reference as to how they have been identified and which are their roles and relationships.

The role of *intermediating institutions* such as professional, trade and industry associations in the IT diffusion process has been highlighted by Damsgaard and Lytinen (2001) in their effort to investigate how industry associations intervened in the diffusion of Electronic Data Interchange (EDI) in Denmark, Finland and Hong Kong. Similarly Swan and Newell (1995)

examine the relationship between professional associations and their members for the diffusion of the Production and Inventory Control (PIC) in Canada.

An explicit use of the stakeholder notion in the diffusion of electronic commerce has been made by Nambisan and Agarwal (1998). The authors identify two key groups of stakeholders the end users (or customers) and the application or service providers. Using stakeholder and social network theory, they examine the diffusion of national information infrastructure (NII) in Singapore. This dichotomy of stakeholder roles in electronic commerce is similar to the initial dichotomy of users and developers in the information systems literature and therefore can be criticised for missing out the complexity of electronic commerce transactions.

The identification of the stakeholders and the description of their roles, interests and interrelations have not been introduced systematically in any of the studies of innovation diffusions described above. Thus, this research tries to combine the innovation diffusion and stakeholder theory in order to provide an in-depth analysis of the process of electronic commerce diffusion. The analysis of stakeholder views and ideas can offer some practical implications to diffusion providers with the view to offer better information and advice services to SMEs. The synthesis of the two theories is described in the next section.

2.4 Synthesising innovation diffusion and stakeholder theory. A framework for the investigation of electronic commerce diffusion

In the previous sections it was made obvious that the institutional layer within the environment layer of electronic commerce diffusion has not been analysed thoroughly and there is need for further investigation in the field. Additionally, although the investigation of roles and relationships among actors in the diffusion process is reported in the innovation diffusion literature as an important issue, the notion of stakeholders has not been used systematically.

Thus, a framework that investigates the institutional layer of electronic commerce diffusion using innovation diffusion and stakeholder theories is proposed here. More specifically,

Rogers' innovation decision process (presented in section 2.2.1) is extended by introducing the three main stakeholder groups, namely the change agency and the change agent working at the diffusion provision end and the decision making unit at the receiver end. While these three groups were identified by Rogers, they were not studied in relation to other groups that are also involved in the innovation diffusion process such as professional, trade and industry associations and higher education institutes, which have been described by King (presented in section 2.2.2). The identification of those stakeholders relevant in the electronic commerce diffusion process will be an important part of the empirical work that will be presented in the next chapters. An interpretive research approach will be used for that purpose as social structures such as roles, interests and interrelationships that need to be studied are better understood in the context of this epistemology as it will be further demonstrated in chapter 3.

The aim of this framework (see figure 2.3) is to provide a way of organising the main topics under investigation in preparation for the fieldwork. Additionally, this framework will be used as a tool for the analysis of the empirical material as it will be presented in chapter 3. The dark grey area in the figure represents the first phase of the empirical work where the descriptive aspect of stakeholder theory is used in order to identify entities acting alongside change agencies, change agents and decision-making units. The upper part of the area includes the diffusers of innovation, while the lower part the receivers. In the context of this research the decision making unit (the diffusion receiver) is small and medium size companies as they consist the target of the diffusion activities under investigation. The possibility of identifying additional entities in both the diffusers and the receivers groups after applying the stakeholder analysis for their identification will be presented in chapter 5. The light grey area represents the second phase of the analysis where using the instrumental and normative aspects of stakeholder theory the characteristics of the decision making unit and the communication channels used by the change agent will be analysed along the five phases of the innovation-decision process.

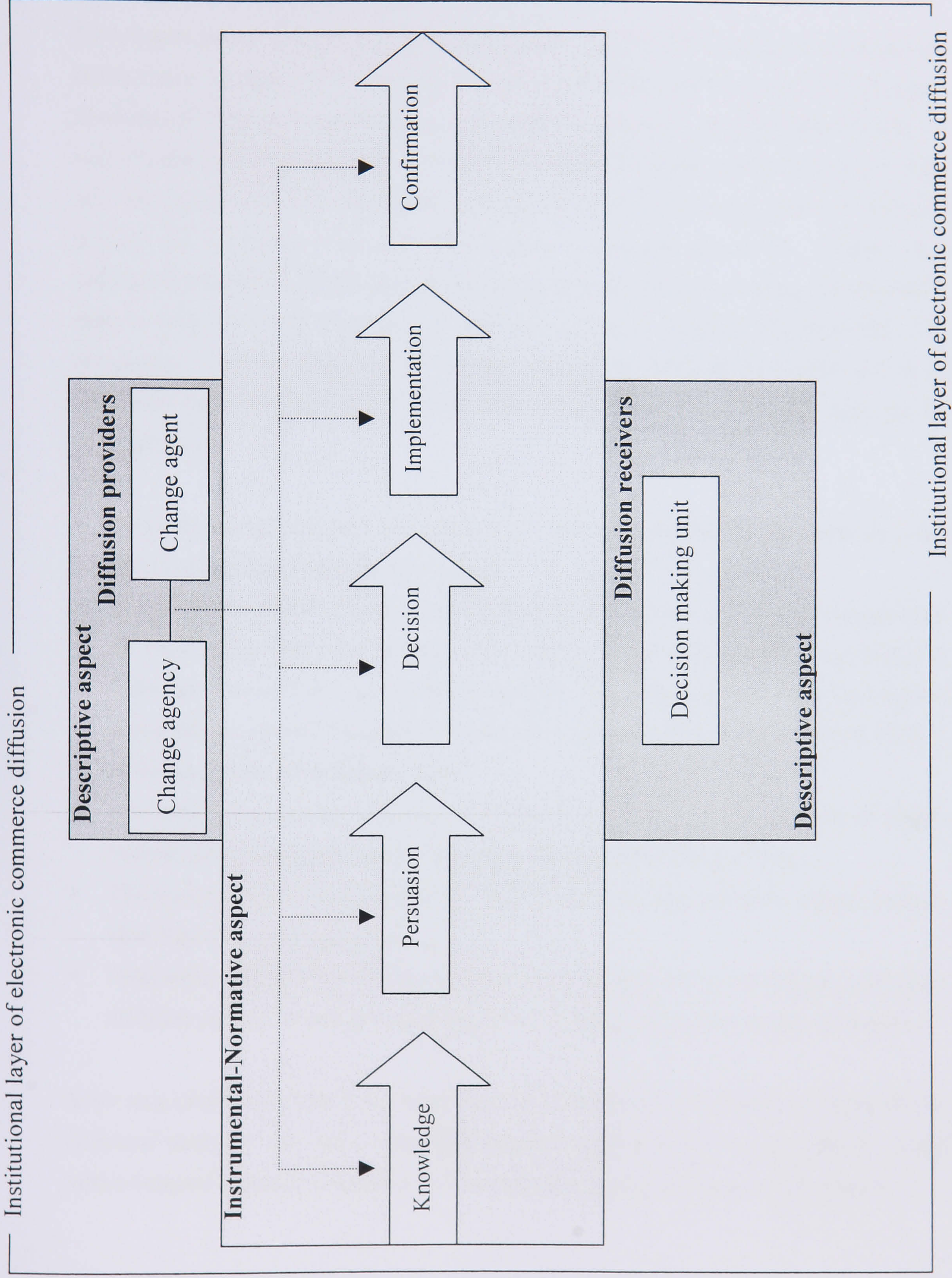


Figure 2.3: A framework for investigating electronic commerce diffusion

2.5 Summary-Conclusions

This chapter gave a detailed description and critical overview of the theoretical background of this thesis. In chapter 1 it was made evident that difficulties in the adoption of electronic commerce are related to inefficiencies in the diffusion policies pursuit by policy makers. It was also shown that the electronic commerce literature is predominantly technology driven and that issues related to stakeholder participation in the electronic commerce diffusion process are generally neglected. This chapter introduced innovation diffusion and stakeholder theories and proposed a theoretical framework that synthesises the two theories in order to study the institutional layer of electronic commerce diffusion. This framework was designed as a way to illustrate how the gaps in the literature can be bridged and as an instrument that will guide the empirical work in the next chapters. These gaps can be summarised as:

- There are limited studies of the *diffusion of electronic commerce* as the literature in the field is technology and application driven
- The *institutional layer* of innovation diffusion consists of entities that affect the diffusion by shaping the interaction between actors such as technology providers and potential users and promote the use of the technology. This layer has not been investigated thoroughly as most of the research in electronic commerce diffusion literature is focused at the organisational or industry layers.
- The *innovation decision process* is described, as simple linear sequence of stages without specifying which types of actions are more suitable for each stage.
- The *identification of stakeholders* involved in the innovation diffusion process has not been done in a systematic way.
- Stakeholder analysis has not been used for the examination of electronic commerce diffusion policies, which transcend not only organisational but also country boundaries.

In the next chapters the theoretical framework described above will be used as a basis for the empirical study of the issue under investigation, starting with the presentation of the methodological approach pursued by this research described in the next chapter (chapter 3).

CHAPTER

III

Research methodology

3.1 Introduction

Information systems is a multidisciplinary field and the selection of the appropriate research method for its study is not an obvious one. According to Galliers (1992b) the study of information systems is a complex topic. It is multidisciplinary and very much a social, rather than a wholly technical subject. Thus, the researcher in the field has to choose among a variety of research methods, approaches and techniques in order to develop an appropriate research framework.

This chapter illustrates the research methods used in this thesis for the examination of issues related to the diffusion of electronic commerce as they have been presented in chapter 2. The interpretive research approach has been selected as the most appropriate for the development of this thesis research framework. Interpretive research is used increasingly as an approach that can help the understanding to complex phenomena related to the use of information systems (Walsham 1995a). Such issues can be strategic planning, competitive advantage, organisational learning, information systems' role and the alignment of the information systems function in the organisation with other organisational strategies (Brancheau and Wetherbe 1987).

This chapter discusses first the ontological and epistemological assumptions, which form the basis of this research. In addition, it examines the selected research methodology, and the detailed presentation of the specific methodological approach followed.

3.2 Selection of an appropriate research approach

According to Land (1992) information systems are essentially social systems of which information technology is but one aspect. He supports that it is a multi-disciplinary endeavour as contributions to its study come from the natural sciences, mathematics and engineering, the behavioural sciences and linguistics.

In that sense, there is no single framework, which encompasses all the domains of knowledge needed for the study of information systems. As Galliers (1991) argues it is unlikely that there is a universal information systems research approach; thus selecting the appropriate one when studying information systems is one of the most difficult

decisions for a researcher. Additionally, Orlikowski and Baroudi (1991) claim that as information systems is not rooted in a single theoretical perspective, there is a wide range of philosophical assumptions regarding the underlying nature of phenomena under investigation and consequently research approaches and strategies which the researchers can choose from. The authors argue that much can be gained if a plurality of research perspectives is effectively employed to investigate information systems phenomena.

Thus, the selection of the appropriate research approach is a major task during the research design process. In line with that, awareness of the researcher about the whole range of research paradigms, approaches and strategies may facilitate informed choice and lessen the persistent bias towards one or another approach. As Orlikowski and Baroudi (1991) state: "*Researchers should ensure that they adopt a perspective that is compatible with their own research interests and predispositions, while remaining open to the possibility of other assumptions and interests*".

In this section the research methods and paradigms that have been selected during the development of the research framework of this thesis are presented as well as the rationale for the selection of the specific approaches.

3.3. Underling research assumptions

The set of beliefs that guide the researcher's actions can be defined as a paradigm (Denzin 1998). There is a wide range of classifications of the basic beliefs (or paradigms) constituting the philosophical stances that researchers adopt towards the world and their work (e.g. (Archer 1988; Guba and Lincoln 1994)).

Here Chua's (1986) classification of the basic beliefs underlying the construct of research as it has been adopted by Orlikowski and Baroudi (1991) is presented. These are beliefs about physical and social reality, beliefs about knowledge, beliefs about the relationship between knowledge and empirical world.

1. Beliefs about physical and social reality

- *Ontological* beliefs have to do with the essence of phenomena under investigation; that is whether the empirical world is assumed to be objective and hence independent of humans in creating and recreating

- *Human rationality* beliefs deal with the intentions, ascribed by various researchers to the humans they study.
- *Social relations* beliefs refer to how people interact in organisations, groups and society

2. Beliefs about knowledge

- *Epistemological* assumptions concern the criteria by which valid knowledge about a phenomenon may be constructed and evaluated
- *Methodological* assumptions indicate which research methods and techniques are considered appropriate for gathering valid empirical evidence.

3. Beliefs about the relationship between knowledge and empirical world

These beliefs concern the role of the theory in the world of practice and reflect the values and intentions researchers bring to their work. That is, what researchers believe is appropriate to accomplish with their research work, and what they intend to achieve with a given research study.

Table 3.1 summarises Orlikowski and Baroudi's findings concerning the underlying beliefs of research, as these are viewed by the positivist, critical and interpretive research philosophies.

Table 3.1 Basic beliefs of the three main research paradigms

Paradigm	Positivist	Critical	Interpretive
Beliefs about...			
Physical and social reality (Ontology, human rationality, social relations)	Physical and social world exists independent of humans, and its nature can be relatively unproblematically apprehended, characterised and measured	Social reality is historically constituted and hence human beings, organisations, and societies are not confined to existing in a particular state	Emphasis on the importance of subjective meanings and social political as well as symbolic action in the process through which humans construct and reconstruct their reality
Knowledge (Epistemology, methodology)	Belief of hypothetic deductive account of scientific explanation. That involves empirical testability of theories, which can be "verified" or "falsified"	The research methods of choice are long-term historical studies and ethnographic studies of organisational processes and structures	Understanding social reality requires understanding how practices and meanings are towards some shared goal. The researcher makes interpretations that account for the way that subjective meanings are created and sustained in a particular setting
The relationship between knowledge and empirical work	Researchers as impartial observers can objectively evaluate or predict actions or processes, but they can not get involved in moral judgements or subjective opinion	The role of the researcher is to bring to consciousness the restrictive conditions of the status quo, thereby initiating change in the social relations and practices, and helping to eliminate the bases of alienation and domination	The researcher can never assume a value neutral stance, and is always implicated in the phenomena being studied

The three research philosophies, positivist, critical and interpretive, are described by Klein and Myers (1999) in the context of information systems research, as follows.

Information systems research be classified as *positivist* if there is evidence of formal propositions, quantifiable measures of variables, hypothesis testing, and the drawing of inferences about a phenomenon from a representative sample to a stated population (Orlikowski and Baroudi 1991).

Information systems research can be classified as *interpretive* if it is assumed that our knowledge of reality is gained only through social constructions such as language, consciousness, shared meanings, documents, tools and other artefacts. Interpretive research does not predefine dependent and independent variables, but focuses on the complexity of human sense making as the situation emerges (Kaplan and Maxwell 1994). Interpretive research methods aim at the "understanding of the context of the information system and the process whereby the information system influences and is influenced by the context" (Walsham 1993) (p. 4-5).

Information systems research can be classified as *critical* if the main task is seen as being one of a social critique, whereby the restrictive and alienating conditions of the status quo are brought to light. Critical research seeks to be emancipatory in that it aims to help eliminate the causes of unwarranted alienation and domination and thereby enhance the opportunities for realising human potential (Alversson and Willmott 1992; Hirschheim and Klein 1994).

It is important to mention here the post-positivist approach that is positioned between positivism and critical theory in the literature (see (Lincoln and Guba 2000)) as it has been introduced as a need to change direction from positivism. According to Winefield (1991) post-positivism regards knowledge not as necessarily true, but postulates instead that what is constructed as knowledge, is that is accepted by the community. From a methodological stand an interesting part of post-positivism is what is called from Hirschheim (1992) calls "methodological pluralism", in other words the assertion that there is no single correct method of science but many methods.

Additionally, another interesting issue is the relation between interpretivism and critical theory as it has controversially been appeared in the literature. For example Orlikowski and Baroudi (1991) (see table 3.1 above), similarly to Burrell and Morgan (1979), clearly separate the interpretive and critical philosophies supporting that the latter is mainly characterised by an evaluative and emancipating perspective which are not obvious in

interpretive research. Walsham (1993) in contrast, argues that the two theories are related and more specifically, critical theory can contribute to interpretive research. Similarly, Lyytinen and Klein (1985) also see an interrelation between the two theories arguing that critical theory emphasises the role of the interpretive approach for research which has a social content. Finally, Kincheloe and McLaren (2000) on their study of critical theory from the its origins until its recent transformations also argue that interpretation holds a central role in critical research and they analyse the "critical hermeneutical methods of interpretation" (p. 286).

3.3.1 Selecting the interpretive research approach

The diversity of research paradigms posed complex challenges for the selection of the appropriate approach for this thesis. The researcher's effort in this work concentrated on:

- Acquiring the necessary *knowledge* about the existing research approaches in order to make an informed choice (e.g. (Galliers 1992a; Orlikowski and Baroudi 1991))
- Accommodating *ethical decisions* by making more pragmatic choices given time, cost and other resource constrains rather than choices closer to the researcher's value systems and the phenomena studied, which require deeper immersion in social settings for longer periods of time (e.g. (Miles and Huberman 1994))
- Using the researcher's *intuitiveness* to match the research problem to a particular research approach (e.g. Walsham 1995b)

Following from the above, for the purposes of this thesis the *interpretive* research approach has been selected as the underlying research assumption of this research. The reasons for that choice are twofold. First, the analysis made in the two previous chapters illustrated that there are a lot of social, political and cultural issues related to electronic commerce adoption. As such, the study of electronic commerce diffusion to companies cannot be easily separated from its organisational and cultural context.

Additionally, the close involvement of the researcher with the phenomena under investigation made the separation between facts and values impossible and it felt natural that the interaction with human subjects of the enquiry would change the perception of both parties (see (Walsham 1995b)). Specifically, the researcher was in close contact with the participants in the research as she was co-operating with them in the framework of a multi-national project and was familiar with the nature of their work. In some cases

she was asked to give her advice as the interviewees showed a genuine interest for the research and felt that they can benefit from the results.

It is also important to mention that concerning the relationship between interpretive and critical theories, although the emphasis in this thesis is on interpreting the electronic commerce diffusion process, the importance of critical theory is also acknowledged as it can enhance the use of interpretive research methods. Specifically, as critical thinking is closely interrelated to the normative aspect of stakeholder theory (Pouloudi 1998) (p. 81) critical thinking is considered as a supporting theory of this thesis.

Having discussed the reasons for selecting the interpretive research approach, the theoretical foundations of this approach are described in the next section in order to identify their implications for the research design of this thesis.

3.3.2 Phenomenology and hermeneutics as foundations of interpretive research

According to Gubrium and Holstein (2000) interpretive theory has diverse conceptual bases. These range from Schutz's (1967) development of social phenomenology to the empirical concerns derived from ethnomethodological research programs developed by Garfinkel's (Garfinkel 1967) early studies, and to studies of talk and interaction (e.g. (Sacks 1992; Silverman 1998)). Since then the theory has been extensively used in a number of disciplines such as psychology, sociology, anthropology, feminist studies and history (see (Schwandt 2000)).

According to Walsham (1995a) interpretive research is continuously gaining ground in the field of information systems as a methodological approach that can support information systems research. Klein and Myers (1999) in their effort to set some principles for conducting interpretive field studies in information systems have selected hermeneutics and phenomenology as the philosophical basis for their analysis. Indeed phenomenology and hermeneutics are two philosophical strands that are embedded to interpretive thinking (see (Schwandt 2000; Walsham 1993)). The following section presents the concepts of the two strands that are relevant to this research approach and will be practically used in the analysis the thesis results.

One important notion for this research is that of the hermeneutic circle. According to Schwandt (2000) the hermeneutic circle is based on the following view. In order to understand the part (i.e. the specific sentence, utterance or act), the inquirer must grasp the whole (i.e. the complex of intentions, beliefs, and desires of the text, institutional context, practice, form of life, language games and so on), and vice versa. The notion of the hermeneutic circle has been analysed by a number of researchers (e.g. (Bernstein 1983; Gadamer 1989; Geertz 1979)) in order to guide interpretive researchers to realise the evolutionary nature of the interpretive process. As Geertz (1979) argues "the process of understanding is a continuous dialectical talking between the most local detail and the most global structure in such a way as to bring both into view simultaneously" (p. 239). Indeed, the research in this thesis was undertaken for a long period of time and as it will be shown in chapters 4 and 5 the interpretation of the field studies are made at a detailed as well as at a more general level.

The second hermeneutic notion relevant to this research is based (contrary to the positivist approach) on the idea, that socio-historically inherited bias or prejudice is not regarded as a characteristic or attribute that an interpreter must strive to get rid of or manage in order to come to a "clear" understanding (Schwandt 2000). More specifically, according to Gadamer (1975) "traditions shape what we are and how we understand the world, the attempt to step outside of the process of traditions would be like trying to step outside of our own skins" (p. 87). In other words understanding requires the *engagement* of one's biases. In this thesis the personal views of the researcher are expressed during the interpretation in an effort to explore her expertise for analysing the results. More information about the role of the researcher in this thesis can be found in section 3.5.3.

In the next section the nature of the qualitative research approach is described in order to justify its relevance to this research.

3.4 Qualitative research

The term "interpretive" research is frequently used interchangeably with "qualitative" research. However, Denzin and Lincoln (2000) after Nelson et al. (1992) support that qualitative research crosscuts disciplines, fields and subject matters. There are a number of concepts, traditions and assumptions related to qualitative research. These include traditions such as positivism, post-positivism and many perspectives and/or methods

connected to cultural and interpretive studies. Similarly Myers (1997) supports that in practice qualitative research may not be interpretive, depending on the philosophical assumptions of the researcher. For example a survey that is conducted in a natural setting which examines a social phenomena using statistical methods to analyse the collected data can be a qualitative but not interpretive study.

The reasons for selecting the qualitative research approach for this thesis is because a main assumption of this approach is that qualitative researchers study things in their natural settings, attempting to understand phenomena in terms of the meanings that people bring to them (Denzin and Lincoln 2000). Additionally, Marshall and Rossman (1999) describe the types of research for which qualitative research would be appropriate. These are:

- Research that examines in depth into complexities and processes
- Research on little-known phenomena or innovative systems
- Research that seeks to explore where and why policy and local knowledge and practice are at odds.
- Research on informal and unstructured linkages and processes in organisations
- Research on real, as opposed to stated, organisational goals
- Research that cannot be carried out experimentally for practical or ethical reasons
- Research for which relevant variables have yet to be identified

This research can be categorised as one of those that study in-depth the complexities of the electronic commerce diffusion process, examining a new phenomenon while the linkages among the organisations involved in the process are highly unstructured.

Finally, it is useful to notice that the qualitative research approach has been used in a number of studies related to this research. These studies that have been presented in chapter 2 and deal with issues of innovation diffusion and policy making using qualitative methods of data collection and analysis of results (e.g. (Corbitt and Kong 2000; Elliot and Loebbecke 2000; Riemenschneider and McKinney 2001);(Boon et al. 2000)).

Thus, the adoption of qualitative research for this study seemed as a useful approach to the acquisition of a better understanding of the phenomena under investigation. In the remainder of the chapter the research design of this thesis is presented. This design has

been formulated based on the choices of research assumptions and approaches as they have been presented until this point.

3.4.1 The qualitative research process

Denzin and Lincoln (2000) define five phases of the qualitative research process. Behind all phases stands the socially and historically situated researcher (phase 1). The other four (2-5) levels of activity or practice work their way through the biography of the inquirer. These are described briefly as:

Phase 1: The Researcher. During a qualitative research process the inquirer enters into complex traditions and research perspectives. These traditions locate the researcher in history, guiding and at the same time constraining work in any specific study. The role of the researcher in this thesis is presented in section 3.5.3.

Phase 2: Theoretical paradigms and perspectives. The net that contains the researcher's epistemological, ontological, and methodological premises may be named as a paradigm, or an interpretative framework, a "basic sets of beliefs that guides action" (Guba 1990) (p.17). During this phase the researcher has to identify the paradigm that suits best her personal beliefs and the piece of work that she is planning to carry out. The interpretive research and reasons for its selection by this study are presented in section 3.3 of this chapter.

Phase 3: Research strategies. This phase starts with research design, which includes a clear focus on the research question, and the purpose of the study. During this phase the researcher is dealing with the problem of "what information most appropriately will answer specific questions, and which strategies are most effective for obtaining it" (LeCompte and Preissle 1993)(p.30). The next section (3.5) clarifies that the research strategy selected for this research is interpretive case studies.

Phase 4: Methods of collection and analysis. During this phase the researcher has to select from a range of data collection methods from interviews to direct observation, analysis of documents and use of visual materials. The selection of those methods is usually based on the selected research strategy. For example, the case study relies on

interviewing, observing, and document analysis. Detailed description of the techniques of data collection is included in section 3.5.2 and further analysed in chapter 4.

Phase 5: The art, practices and politics of interpretation and presentation. This is the final phase of the research process where the researcher has to transfer her interpretations to a public text that comes to the reader. Additionally evaluation practices have to be applied in this phase in order to show the quality of the results. The presentation of the findings of this research are included in chapters 5 and 6 while, the research evaluation is applied at the final chapter of the thesis (chapter 7).

Using the phases of the qualitative research process defined by Denzin and Lincoln (2000), figure 3.1 depicts the phases that this research went through. The highlighted items indicate the choice made in this research. Phases 1 and 2 of this research have been presented in section 3.2 of this chapter whilst the remaining of this chapter will analyse phases 3 to 5.

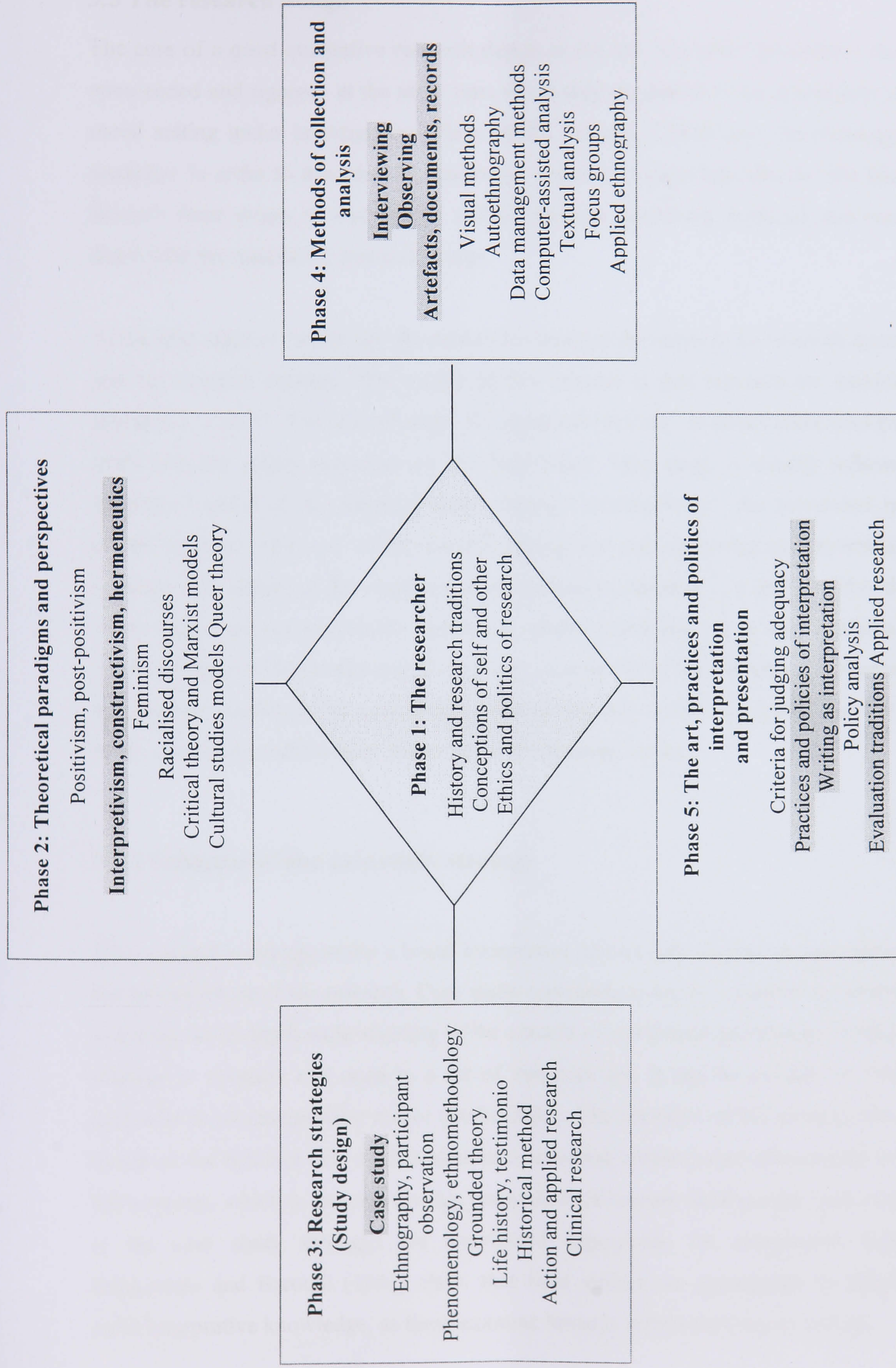


Figure 3.1: Selections made by the researcher during the process of this research

3.5 The research design

The core of a good qualitative research design is the use of a set of procedures that are open-ended and rigorous at the same time while they do justice to the complexity of the social setting under investigation (Flick 1998). Janesick (2000) uses the choreography metaphor in order to describe the qualitative research design. Specifically, she likens a dancer's three stages of warming-up and preparation, stretching exercises and cooling-down with the qualitative research design.

At the first stage of "warm-up" the researcher decides the subject, the research questions and the research strategy. The results of this process in this research are included in chapters 1, 2 and 3. The second stage of "stretch exercising" involves some background work and the actual execution of the field work. This stage is mainly reflected in chapters 2 and 4 of this thesis. Finally, during "cooling-down", the researcher has to decide when to "ease out" of the research setting and start analysing and presenting the findings. The results of this stage are most obvious in chapters 5, 6 and 7 of this thesis. These stages are not necessarily sequential, as the researcher has to start analysing the empirical material before the end of the study, in order to be flexible enough to revise her approach as needed. In the case of this research and due to the long period that the field study was conducted the three stages occur in repeating cycles.

3.5.1 Selection of the case study strategy

The case study strategy under a broad interpretive banner was selected as appropriate for the second phase of the research. Case study represents a way to systematise observation and aims for in-depth understanding of the context of a phenomenon (Cavaye 1996). The strategy is versatile and open to a lot of variation and it can be carried out taking a positivist or an interpretivist stance (Stake 2000). The selection of this strategy has been based on the fact that case studies attempt to examine contemporary phenomena in real-life contexts, which is the case for this research. Furthermore field studies (part of which is the case study strategy) are considered appropriate for interpretive research. Orlikowski and Baroudi (1991) claim that field studies are appropriate to generating valid interpretive knowledge, as these examine humans within their social setting.

The research was carried out in two phases. In the first phase a multiple case study (14 cases) was conducted within the framework of a European project (called WeCAN) that was aiming at the definition of the best diffusion models for electronic commerce. In the second phase a follow up study was conducted based on the findings of the first study. The latter was the investigation of an initiative of the Greek ministry of development, under the supervision of the European commission (called go-digital) aiming to support small businesses to use the Internet and inform them about the opportunities offered by the electronic commerce use.

The researcher was in close contact with the participants of the first study, as she was co-operating with them at the initial stages of the project. The idea was to explore the opportunity to collect data from informed stakeholders that had already shown an interest to provide feedback and information about the process of electronic commerce diffusion. For the second study, the researcher got involved in a more in-depth research, which was a follow up of the first study. During the design of the research agenda, this research context was considered appropriate for the investigation of descriptive, instrumental and normative aspects of the stakeholder approach as it is presented in section 2.3.1 of chapter 2. The vertical part of the diagram represents the descriptive aspect where the horizontal represents the instrumental and normative aspects.

The unit of analysis (see (Yin 1994)) was an *electronic commerce diffusion activity*. These activities could be a one-day event or continuous activities taking place in an elapsed time of 2 to 3 months. According to Benbasat et al. (1987) the unit of analysis can be an individual, group (e.g. a task force, profit centre, IS group) or an entire organisation. Alternatively, the unit of analysis may be a specific project or decision. For this research the latter was selected as each activity under investigation was a project in the field of electronic commerce diffusion that could give reach in-sights to the electronic commerce diffusion process. Detailed presentation of these cases and reasons for the site selection are reported in chapter 4.

The decision to analyse one or multiple cases is a central one to case study design. Multiple case studies enable the researcher to relate differences in context to constants in process and outcome (Cavaye 1996). According to Miles and Huberman (1994) multiple case studies can enhance generalisability and deepening understanding and explanation. This study follows a multiple case approach by investigating in the first phase 14

diffusion activities in different organisational settings and 1 follow up case in similar settings.

The next section presents the techniques used for the collection and the analysis of the empirical material and the design decisions made in this thesis in relation to the multiplicity of choices open to researcher using the case study strategy.

3.5.2 Alternative approaches

The previous sections justified the adoption of an interpretive, qualitative research approach with the use of the case study strategy for this study. This section considers alternative research approaches, in order to further strengthen the choice of research methodology followed in the thesis.

One alternative concerns the use of quantitative rather than qualitative research methods. For example, the examination of the information needs of SMEs could be investigated through a survey addressed to SME managers in order to acquire their needs for information and advice. Similarly, a survey addressed to intermediary organisations and advisors could provide answers to specific questions relating to the diffusion process in practice. Such surveys would be useful as a first step for understanding the electronic commerce diffusion process or as a follow up of which specific issues occur in practice. Given the objective of this research to get an insight to this process, and more specifically identify and understand the role of stakeholders, a qualitative approach is more suitable. Furthermore, the need to get an initial feeling about the diffusion needs and the situation of electronic commerce diffusion in the European Union was met by using existing surveys conducted by international agencies such as the OECD and the European Union. Additionally, the extensive experience of the researcher in the provision of electronic commerce diffusion to SMEs helped her create an original impression on the subject, which was actually the research motivation for a further investigation on the subject, that required a qualitative research approach.

The previous sections have also provided a justification for the selection of the case study method, and explained how the notion of a case study in the context of this research is qualitatively different from the case study as used traditionally in the research of information systems based in single organisations. A suitable alternative to the case study approach as defined here, would be the action research strategy. Action research, which also falls within the qualitative research tradition, would involve the direct involvement or even employment of the researcher by an intermediary organisation. Such an approach would also provide an in-depth understanding of the electronic commerce diffusion process. Nevertheless, this strategy would narrow the researcher's perspective to that of a single organisation, while the multiple case study strategy used in this research allows the investigation of a number of viewpoints coming from different sources and thus allows a more systematic and constructive use of stakeholder analysis, which forms an essential theoretical basis for this dissertation.

In the next sections the techniques of data collection and analysis used in this study within the case study strategy are presented in detail.

3.5.3 Techniques of qualitative data (or empirical material) collection

The design of this investigation employed multiple data collection methods as it is important in case research studies (Benbasat et al. 1987). In all cases data (or "empirical material" as it is the term proposed by Denzin and Lincoln (2000) for qualitative studies) were collected through a variety of methods, including interviews, documents, and observation. The use of multiple data collection methods makes triangulation possible and this provides stronger substantiation of theory (Eisenhardt 1989). Triangulation is the process that aims at corroborating the same phenomenon by using different data sources. Thus, Any finding or conclusion made from the cases is likely to be more convincing and accurate if it is based on several different sources of information (Yin 1994).

Table 3.3 depicts the strengths and weaknesses of the main sources of evidence in case based research and provides examples of their use in this thesis.

Table 3.2 Strengths and weaknesses of data collection methods, by Yin (1994) and use of in this study

Sources of Evidence	Strengths	Weaknesses	Use of sources in this study
Documentation	<ul style="list-style-type: none"> • Stable - can be reviewed repeatedly • Unobtrusive - not created as a result of the case study • Exact - contains exact names, references and details of an event • Broad coverage - long span of time, many events and many settings 	<ul style="list-style-type: none"> • Retrievability - can be low • Biased selectivity, if collection is incomplete • Reporting bias - effects (unknown) of bias of author • Access-may be deliberately blocked 	<ul style="list-style-type: none"> • Reports from the organisers before and after the diffusion activity • Educational material distributed to the participants • Advertising material • Deliverables of the WeCAN project on best practices in electronic commerce diffusion
Archival records	<ul style="list-style-type: none"> • {same as above for documentation} • Precise and quantitative 	<ul style="list-style-type: none"> • {same as above for documentation} • accessibility due to privacy reasons 	<ul style="list-style-type: none"> • Organisational records
Interviews	<ul style="list-style-type: none"> • Targeted-focuses directly on case study topic • Insightful-provides perceived causal inferences 	<ul style="list-style-type: none"> • Bias due to poorly constructed questions • Response bias • Inaccuracies due to poor recall • Reflexivity - interviewee gives what interviewer wants to hear 	<ul style="list-style-type: none"> • Semi-structured interviews with organisers • Unstructured interviews with organisers and participants
Direct observation	<ul style="list-style-type: none"> • Reality-covers events in real time • Contextual-covers context of event 	<ul style="list-style-type: none"> • Time consuming • Selectivity - unless broad coverage • Reflexivity - event may proceed differently because it is being observed • Cost-hours needed by human observers 	<ul style="list-style-type: none"> • Observation of diffusion activities • Observation of meetings between main and local organisers
Participant observation	<ul style="list-style-type: none"> • {same as above for direct observations} • Insightful into interpersonal behaviour and motives 	<ul style="list-style-type: none"> • {same as above for direct observations} • Bias due to investigator's manipulation of events 	<ul style="list-style-type: none"> • Presentation of research findings and discussions
Physical artefacts	<ul style="list-style-type: none"> • Insightful into cultural features • Insightful into technical operations 	<ul style="list-style-type: none"> • Selectivity • Availability 	<ul style="list-style-type: none"> • Hardware and software and equipment used for diffusion activities

A very important source of evidence of this study has been the unstructured in depth-*interviews* with the parties involved in the activities under investigation. Indeed, interviews are the primary data source for interpretive case studies. According to Walsham (1995b) interview is the method that the researcher can best access the interpretations that participants have regarding the actions and events under investigation. Initially, in this research the target of the interviews the three main entities depicted in the conceptual framework (chapter 2, figure 2.3) namely the change agencies (typically the organisers of a diffusion activity/case), change agents (typically the instructors/advisors) and the decision making unit (companies receiving training). These groups were further divided in smaller sub-groups after the stakeholder identification procedure, which took place in the first phase of the research (WeCAN cases). In the second phase (go-digital case) the main group of interviewees were the main organisers of the activity, who pointed the researcher to further stakeholders/organisers at a local level. The fact that the project was at a very initial stage meant that it was not possible for the researcher to come in contact with companies, as their involvement in the process was scheduled for some months after the research.

As described in detail in chapter 4, during the first phase of the research (WeCAN cases) some cases were taking place over a long period of time making the physical presence of the researcher impractical for the whole duration of the activity. In those cases the researcher visited the site once at the end of activity taking interviews from the involved parties. In the cases where her presence was impossible, telephone interviews with the organisers were conducted and later reports by the organisers and filled in questionnaires from the participants were sent to the researcher by e-mail and surface post. The interviews were based on a semi-structured topic guide which is provided in appendix A and their average duration was almost an hour. Most of them were tape-recorded while additional notes were taken during the course of the interview. Transcripts from interviews were prepared shortly after each individual interview, usually the same day.

The collection of the data took place over a period of 6 months but the interviewees were encouraged to give their views and experiences about previous diffusion activities as well. Additionally, some diffusion activities that took place in different periods of time but were organised by the same parties, gave the researcher the possibility to discuss the same issues with the same people in a different time context. Furthermore, the second

phase of the research gave the researcher the opportunity to examine the same issues in a different time frame and context. Consequently, the results of the study go well beyond a snap-shot of a specific activity in a given time frame but one that takes into consideration events that took place over a long period of time as well as views about the past and future of the activities under investigation.

During the second phase (go-digital case) the collection of the empirical material was based on long interviews (1-2) hours with the organisers of the initiative. The semi-structured topic guide is provided in appendix B. A very useful source of data was the participation of the researcher at a number of meetings between the main and the local organisers of the activity, where a number of important for this research issues were raised spontaneously by the interested parties. Finally, the researcher was asked to give a presentation of her research, where representatives from the main organisers participated in a useful discussion related to the issues under investigation.

3.5.4 Analysis of the data

The analysis of the data has been based on the theoretical framework developed in chapter two, which synthesises innovation diffusion and stakeholder theories (figure 2.3). It was made obvious in chapter 2 that stakeholder theory is one of the theoretical basis of this research and it will be demonstrated here that it has been very influential for the analysis of the collected data. Particularly, the descriptive, instrumental and normative aspects of stakeholder theory have provided a useful framework for investigating the use of stakeholder analysis in the context of electronic commerce diffusion. More specifically, the descriptive aspect of the theory helped in the identification of the interviewees (obvious stakeholders identified in the innovation diffusion literature), who then led to the identification of other 'less obvious' stakeholders. The identification procedure followed was based on an interpretive approach proposed by Pouloudi and Whitley (1997) (see also (Pouloudi, 1998)) and is analysed in detail in chapter 5 (section 5.2).

The analysis of the data was taking place during as well as after the collection of the interviews. For the first phase of the research, when the multiple case study was

conducted the 14 cases were divided in 3 clusters, which were analysed by the use of the descriptive, instrumental and normative aspects of stakeholder analysis. During the analysis of the descriptive aspect the obvious and less obvious stakeholders were identified together with their views about electronic commerce. These stakeholders were initially divided to the 3 groups emerging at the theoretical framework (i.e. change agency, change agent and decision making unit) and then further expanded with more stakeholder groups. The identification of the objectives of the diffusion activities within each cluster helped in the use of the instrumental aspect of stakeholder analysis. This aspect led in the examination of the impact of stakeholder interest in the achievement of these objectives. As a result three different versions (one for each cluster of cases) of the initial theoretical framework was developed making possible to draw some conclusions about the electronic commerce decision process and the impact of stakeholder views on it.

During the second phase of the research the same data analysis process was followed. Based on the findings of the first phase in terms of identified stakeholder groups and viewpoints further conclusions were made giving a clearer picture of the electronic commerce decision process. This process is clearly described in chapters 5 and 6 where the analysis of the data is presented.

3.5.5 The role of the researcher

As mentioned in section 3.3.2 one of the main characteristics of the interpretive researcher is that she may have an influence on the research setting and also on the research results. Denzin and Lincoln (2000) compare the interpretive researcher with a *bricoleur* who is "someone who uses devious means compared to those of a craftsman, he is practical and gets the job done" (Weinstein and Weinstein 1991) (p.161). In other words the researcher enters the field with a set of beliefs and convictions, values, attitudes, with some accumulated experience, experience, certain limitations in the knowledge of the subject and certain skills. As Janesick (2000) expressively states, "The myth that research is objective in some way can no longer be taken seriously. At this point in time all researchers should be free to challenge prevailing myths, such as this myth of objectivity" (p.385).

Based on the beliefs and values of the researcher, she has additional specific roles to play during the collection and the analysis of the empirical material. More specifically, according to Walsham (1995b), there are two roles/positions which any researcher doing interpretive research case studies could assume, namely outside researcher and involved researcher (through participant observation, or action research). The involved researcher is usually a temporary or permanent member of the organisation or system under study. The merits of this are that the researcher will not normally be excluded from sensitive issues. Its main disadvantages are the potential for an unethical position arising from having a direct stake in various activities and the fact that some stakeholders may be more guarded in their views as a consequence (ibid. page 77).

The outside observer is usually an outsider who has not had a direct stake in various outcomes and may be better trusted. Nevertheless, the researcher may be excluded from sensitive issues and may not get a direct feel of the phenomena under investigation (ibid. page 77).

This research took on the role of *involved researcher*. Although the researcher was not an official member of the organisations responsible for the diffusion activities under investigation, she had worked with them on a project aiming to define best practices in the field. This fact allowed the interviewees to be more open in their conversations and interviews. Also, this provided the researcher with the advantage of being better trusted as an insider, which is similar position to that of an action researcher.

According to Walsham (1995b), one of the problems faced by involved researchers is on reporting the part that she or he has played in the matters under consideration. Walsham thus issues a warning to researchers: "self-reporting faces the twin dangers of over modesty and self-aggrandisement, and it is particularly difficult to steer a middle path between these two extremes" (p.78). With the above issue in mind, measures were taken as remedies to these potential dangers of attached involvement. These included making conscious effort during the investigation to not influence the answers of the interviewees and get in contact both with stakeholders that have and have not been co-operating with the researcher in the past.

3.5.6 Generalisations from interpretive case studies

A common concern about case studies research is that it provides little basis for scientific generalisation. Yin (1994) argues against this judgement, that case study does not represent a "sample" and the researchers aim is to expand and generalise theories (analytic generalisation) and not to enumerate frequencies (statistical generalisation).

Walsham (1995b) extends Yin's explanation by defining four types of generalisation from interpretive case studies. These are presented in Table 3.4, where the generalisations attempted in this research are highlighted.

Table 3.3 Types of generalisations by Walsham (1995b)

Type of generalisation	Description
Development of concepts	Development of a new or a integrated cluster of concepts which can be parts of a broader theory
Generation of theory	Development of a theoretical framework that can guide future studies in the same research areas
Drawing of specific implications	Provision of "tendencies" which may prove a useful insight for related work in other organisations and contexts within particular domains of actions
Contribution of rich insight	Use of empirical data to provide rich insights about a wide range of different topics

The theoretical framework developed by this research can be used as a guide for future studies in similar to electronic commerce and innovation diffusion research areas. Additionally, this research attempts to make generalisations by drawing specific implications for stakeholders involved in the electronic commerce diffusion process as well as researchers that plan to investigate similar subjects in different contexts. In chapter 7 a more detailed description of the contributions of this study to practice, theory and method will be presented.

Another important issue that concerns interpretive researchers is the validity and reliability of the research findings. The term that is usually related to those issues is that of triangulation as means of validating the results. Janesick (2000) cites four types of triangulation, namely: data, investigator, theory and methodological triangulation

originally suggested by Denzin (1978) adding a fifth one that she notes as interdisciplinary.

Data triangulation means the use of variety of data sources in a study. The second type of triangulation is the investigator triangulation, which is the use of several different researchers or evaluators. Theory triangulation refers to the use of multiple theoretical perspectives to interpret a single set of data. Methodological triangulation means the use of multiple methods to study a single problem. Finally, interdisciplinary triangulation is related to the investigation of issues related to more than one disciplines.

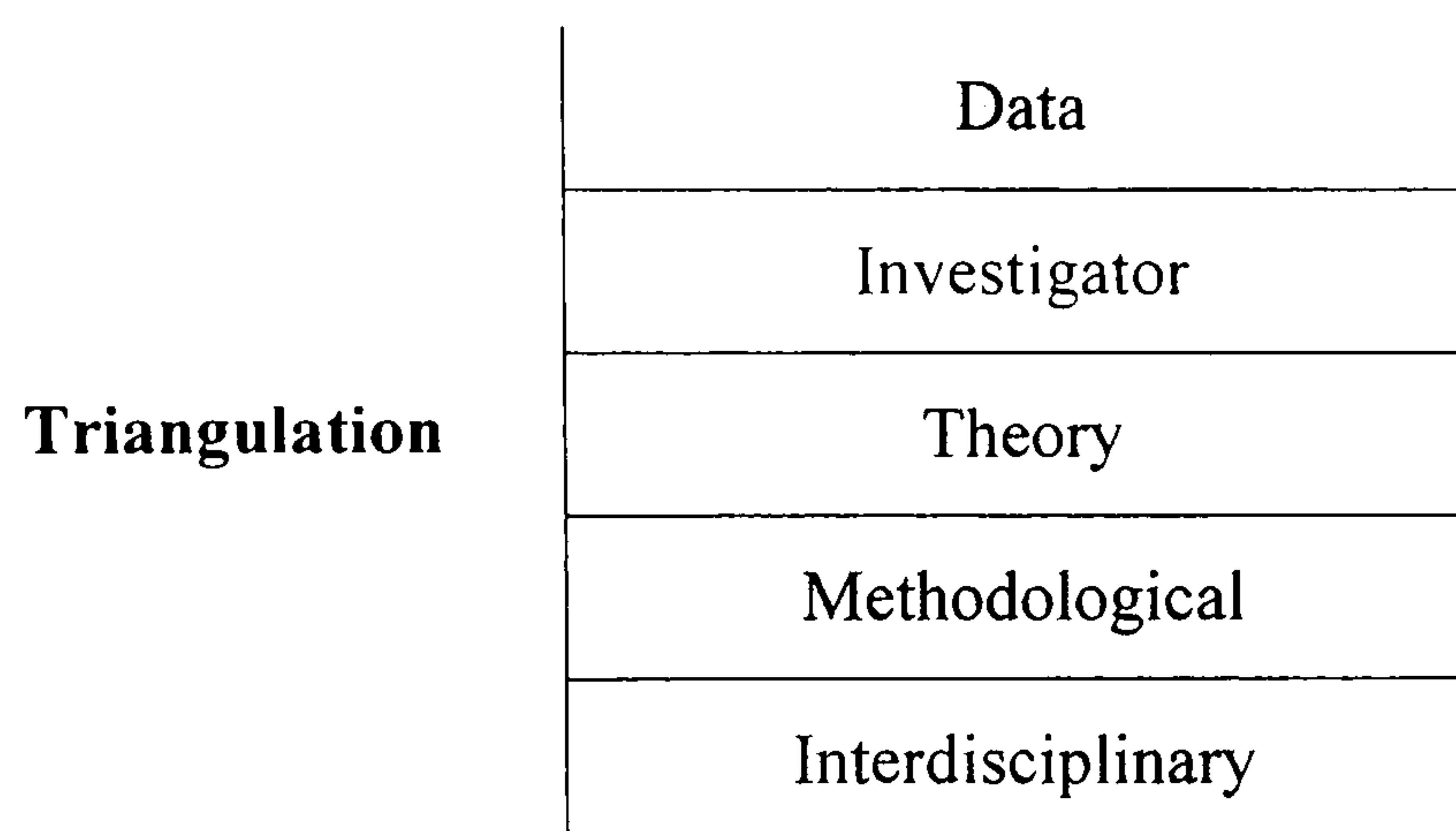


Figure 3 2 Types of triangulation

In the context of this research four types of triangulation are used, which are highlighted in figure 3.2. Firstly, data triangulation as various data sources such as documents interviews and questionnaires are used. Secondly, the combination of stakeholder and innovation diffusion theory leads to theory triangulation. Thirdly, the use of multiple data collection methods presented in section 3.5.2 is methodological triangulation. Finally, the last type of triangulation used by this research is interdisciplinary triangulation as it falls in different domains such as information systems and public policy.

3. 6. Summary and conclusions

This chapter presented the ontological and epistemological assumptions of the interpretive research methodology, which forms the basis of this research. It was argued that interpretivism is gaining ground in information systems research and can prove a useful approach, which can provide valuable insights to the study of information

technology diffusion phenomena. The use of a qualitative research approach within the case strategy was presented giving a detailed description of the way this strategy was designed and carried out for this research. Particular emphasis was given to the techniques for the collection of the empirical material such as interviews and unofficial meetings with the stakeholders, which were supported by a variety of relevant resources. The role of the interpretive researcher as a person who becomes an involved rather than an objective observer of phenomena was also discussed arguing that this approach can be an advantage of the research design rather than an impediment. Finally, the chapter discussed the issue of generalisation from interpretive case studies.

In the next chapter a detailed description of the empirical context of this research is presented. Specifically, the WeCAN project that was the framework of the first phase of the research is introduced together with the rationale behind the site selection of the 14 case studies conducted in this phase. The go-digital initiative is also presented as a follow up study and second phase of this research.

CHAPTER

IV

**The empirical context: Two
projects on electronic
commerce diffusion**

4.1 Introduction

According to Klein and Myers (1999) one of the main principles of interpretive case study research is that of contextualisation. This states that it is important for the interpretive researcher to reflect on the social and historical background of the research setting in order to “picture” the situation under investigation emerge. This chapter serves this purpose and gives a detailed description of the empirical context of this research. Consequently, two projects, which defined the framework of this research, namely WeCAN and go-digital are described in order to picture the context of this study. Additionally, there is some background information about the organisations involved in the case studies and their experience in electronic commerce diffusion. The settings of the case studies are also presented in detail, focusing on the rationale behind the selection of the specific sites, based on how they could contribute to the overall study.

The chapter is structured as follows. In the next section the WeCAN (Wide Electronic Awareness Network) and go-digital projects are briefly described. The way this research was conducted along side these projects and the reasons for the selection of the specific cases is also explained. Section 4.4 gives details of the practicalities involved in the implementation of the case studies and the principles of interpretive case research on which the collection and analysis of the empirical material was based. The chapter concludes with a brief description of the organisations involved in the study.

4.2 Background of the research: the WeCAN and go-digital projects

As presented in chapter 3 this research was organised in two phases. During the first phase a multiple case study was conducted under the framework of a European project aiming at the definition of best practices in the diffusion of electronic commerce. This project was named WeCAN (Wide Electronic Awareness Network) and took place from August 1998 until November 1999. During this time 14 case studies/diffusion activities took place in various organisational settings. The findings of this study were used as a basis for the follow up study that took place in Greece from March 2001 until December 2001 under the framework

of the go-digital initiative. This was an initiative taken by the Greek ministry of development with the objective to make small companies around the country familiar with the Internet and inform them about the benefits of electronic commerce. Figure 4.1 illustrates the two phases of this research.

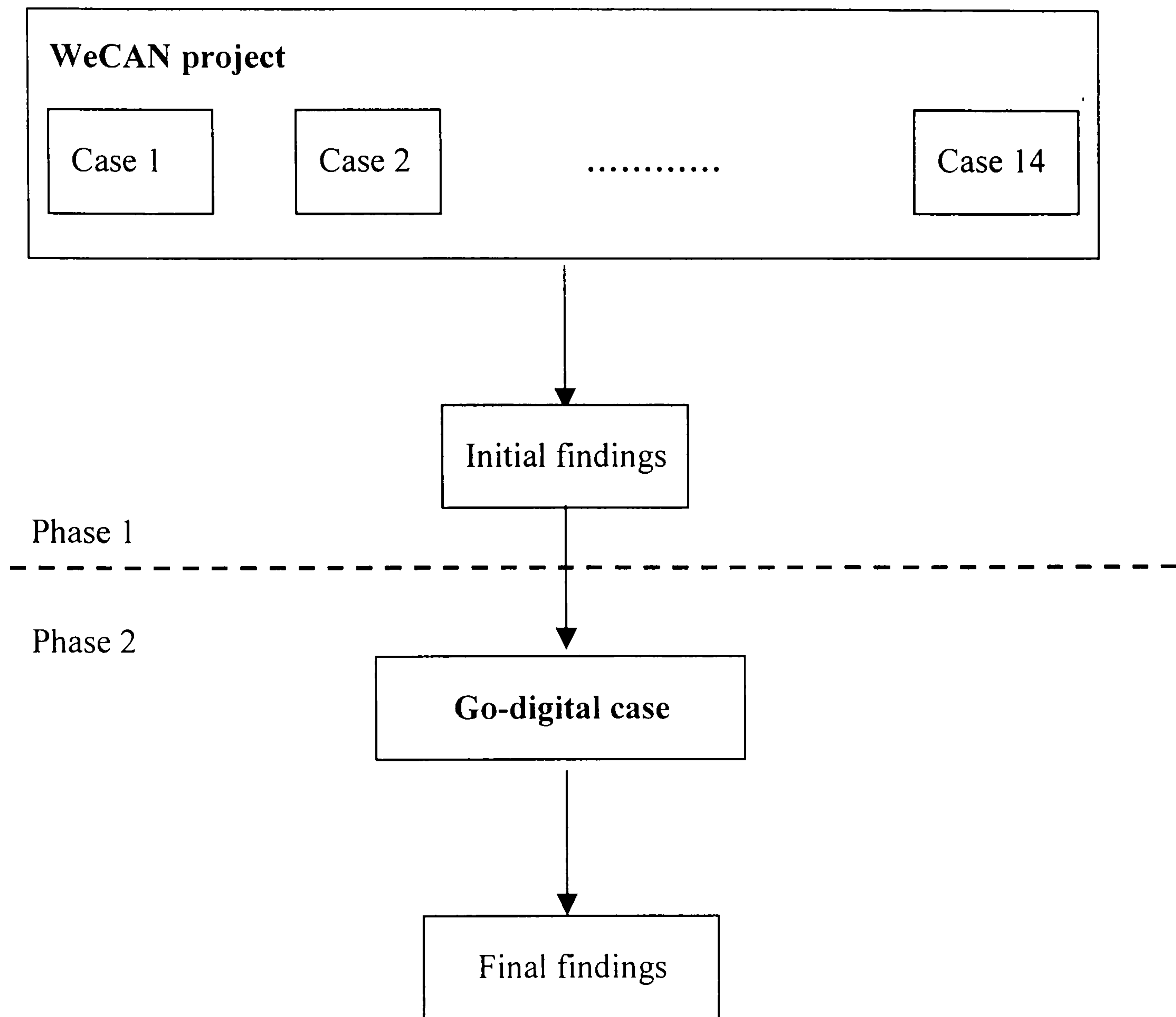


Figure 4.1 The two phases of this research

The decision to design this research around two phases is based on the theoretical framework presented in chapter 2, where the intention to examine the descriptive, instrumental and normative aspects of stakeholder analysis along the electronic commerce diffusion process is expressed. For that purpose the first phase (WeCAN case) serves the descriptive aspect of

the analysis as the large number of cases under investigation helped the stakeholder identification process. The instrumental and normative aspects are examined mainly during the analysis of the second phase (go-digital case) where a more in-depth analysis of the issues under investigation is performed.

The next sections comprise detailed descriptions of the WeCAN and go-digital projects, which constitute the empirical framework of this research.

4.3 The WeCAN project

WeCAN (Wide Electronic Awareness Network) was a project funded by the European Commission, which ran in the period from August 1998 until November 1999. It was established following an initiative of professional organisers of electronic commerce diffusion activities in the European region. According to the consortium of the project the rationale behind this initiative was as follows (WeCAN consortium 1998):

"Following the tremendous growth of Internet use and the excitement about electronic commerce, numerous national and international initiatives in the field of electronic commerce have been taking place all over Europe. However the level of knowledge for this topic amongst the SME community did not seem to be improving (e.g. (OECD 1998)). Awareness "messages" do not seem to be reaching the intended audience. Traditional approaches of awareness campaigns in electronic commerce and the distribution of European Community funded research and development (R&D) project results have tended to focus on the publications of documents and reports, the organisation of conferences, seminars and workshops. Too frequently the only people attending or benefiting were other experts in the field wanting to keep abreast of developments. The percentage of SMEs being reached by many diffusion activities has been considered to be too small" (p.14).

Thus, the WeCAN (Wide Electronic Awareness Network) project was suggested as an effort to identify the diffusion models in the field of electronic commerce that were being used across Europe by considering best practise examples in various countries. The projected

lasted 13 months with the participation of 8 European Union member countries and the financial support of the European Commission. The organisations that constituted the consortium of the project were active in the field of electronic commerce diffusion in their local markets.

Due to the originality of the project and the lack of similar activities of such a range in the field, the process followed to meet the project's objectives was a mixture of various methods and practices. More specifically, 5 main processes were followed (see figure 4.2). These are explained in the following paragraph.

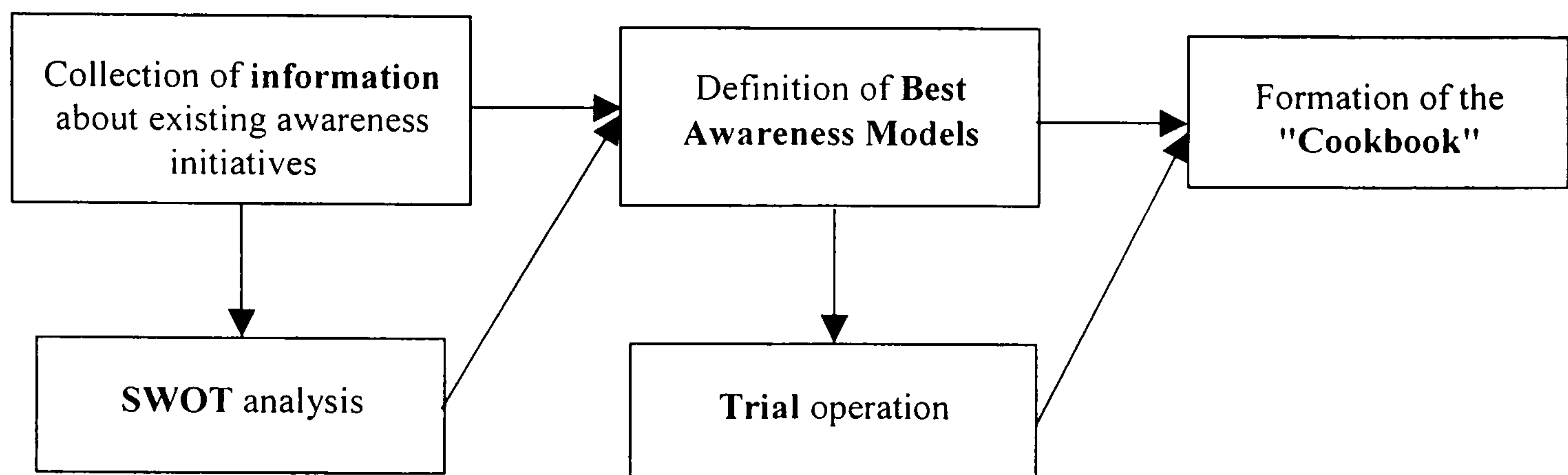


Figure 4. 2 The WeCAN process

- *Collection of Information about existing awareness initiatives.* During the first phase of the project an effort was made to collect any information about electronic commerce diffusion initiatives that were taking place in Europe, at the time. For this purpose a web-based database was constructed and the partners had to register any known activities implemented within their organisation or in their country in general. Apart from recording the partners' activities, the project team encouraged organisations from other European countries outside the WeCAN consortium to register their activities in the database. The incentive for this action

was free delivery of the project's results to these organisations. As a result a diffusion activities database was build with more than 150 entries including records form all the European Union country-members.

- *SWOT analysis.* After the collection of a large volume of information about electronic commerce diffusion activities in Europe the extraction of the most representative and widely used models took place. The technique that was used was SWOT (Strengths Weaknesses Opportunities Threats) analysis. Every entry of the database was (SWOT) analysed in terms of: medium, target audience, focus and scope of activity, best practice examples, evaluation approach, marketing and public relationships.
- *Definition of best awareness models.* The SWOT analysis performed at the previous step was useful in giving evidence about the quality of the entries in the database as well as helping in the grouping of similar activities under the same category. For example a very large number of entries referred to awareness items such as leaflets, booklets, promotional web sites etc. All of those entries were categorised under the "awareness material" model. The result of this analysis was the definition of 13 best practice awareness models that were grouped in 3 categories (see section 4.2.3).
- *Trial operation.* After the definition of the best awareness models, the consortium implemented these models in different European business environments in order to validate their selection and make improvements in their description. An evaluation procedure took place on the sites with the distribution of questionnaires to the participants of the activity. The evaluation procedure resulted in the models' enhancement according to the experience gained from the trial operation.
- *Formation of cookbook.* The final result of the project was a guidebook called "cookbook" that included a detailed description and guidance for the implementation of each model defined during the previous phase.

4.3.1 WeCAN results

The main output of WeCAN was a full description of the best practice models and implementation guidelines for them. The target group of these guidelines was professional organisers of electronic commerce diffusion activities who could get practical support for their work. As noted earlier, 13 diffusion models were defined and have been grouped in 3 categories as described below.

Category 1: General awareness activities. This category includes typical activities performed at the initial stages of the diffusion process. During this stage the aim is the delivery of information to the widest possible audience. "Marketing" strategies and means are widely used to support awareness creation about electronic commerce, the benefits related to its adoption and best practices for its implementation. Diffusion models included in this category are awareness material, prize award, road show, seminars and workshops and showrooms and exhibitions.

Category 2: Intermediaries oriented activities. This category includes diffusion actions that are not directly targeted to SMEs but aim at educating intermediaries that can in return transfer this knowledge to SMEs. Diffusion models included in this category are Intermediaries networking, training the trainers, trust and confidence.

Category 3: Focused SMEs support. This category includes models that work further than raising awareness about electronic commerce to SMEs. Specifically, it includes activities that support SMEs by offering advice and consulting services and caring for individual company needs. Models in this category are community networking, customised support, hands-on-trials, tool assessment and training courses.

This categorisation of the electronic commerce diffusion activities is an important finding of the project, which proved useful for this research as the categorisation of the activities helped in the understanding of the innovation-decision process. This will be shown in detail

in chapter 5. Figure 4.3 shows the diffusion models that are representative for each of the 3 categories described above. The full description of each one of these models can be found in appendix C of this dissertation.

-
- | | |
|--|--|
| <ul style="list-style-type: none"> • General awareness activities Awareness material Prize award Road show Seminars and workshops Showrooms and exhibitions | <ul style="list-style-type: none"> • Focused SMEs support Community networking Customised support Hands-on trials Tools assessment Training courses |
| <ul style="list-style-type: none"> • Intermediaries oriented activities Intermediaries Networking Training the trainers Trust and confidence | |
-

Figure 4. 3 Electronic commerce diffusion models defined by the WeCAN project

All these models were presented in the "cookbook" where the consortium tried to give a detailed description of the models in order to support organisers of electronic commerce diffusion activities to implement the most appropriate ones for their organisations. All this information was included in the "cookbook" which was produced in 10,000 copies. 4,000 of these were distributed by the European Commission while the rest 6,000 by the partners participating in the project. Furthermore, a matrix was constructed in order to assist the target audience to select the most appropriate models according to their specific needs. In this matrix the main criteria for selecting a suitable model were described. This matrix is presented in appendix C of this dissertation.

Some interesting observations were made during the life span of the project. For example it was observed that in the European region (especially in members-states of the European

Union) where electronic commerce is by now widely known, there is a need for a shift of focus from general awareness to more advanced activities. More specifically, direct contact with intermediaries and SMEs gave the members of the consortium the message that these companies are now in the need of customised and focused support. As a result, models in category 1 (general awareness activities) should more and more be substituted by the ones in categories 2 (Intermediaries oriented activities) and 3 (focused SMEs support). This is not the case for countries where electronic commerce is still in its infancy. The focus in these cases should still be on general awareness creation.

4.3.2 The WeCAN project in the thesis

This research has been carried out in parallel with the WeCAN project and tried to further investigate issues related to electronic commerce diffusion, which were also addressed by the project. It is important to note that although WeCAN consist a basis for this research its findings are not used as de facto and terms such as "best awareness models" used by the members of the consortium are not adopted by this research. Additionally, as demonstrated in the next chapters views coming from stakeholders participating in the project are often criticised. During the trial operation of the project the members of the consortium had the obligation to perform and report about their electronic commerce diffusion activities in order to test the applicability of the diffusion models defined by the project. At the same time they were asked by the researcher to provide further information about their activities in electronic commerce diffusion in the light of the theoretical findings and research questions described in chapters 1 and 2. The aim was the in-depth investigation of the electronic commerce diffusion framework (chapter 2, figure 2.3) addressing issues of stakeholder participation in the electronic commerce diffusion process.

As a result 14 cases studies were conducted in a period of 5 months in order to give empirical evidence for an interpretive analysis of the electronic commerce diffusion process. It was mentioned in chapter 3, that where the physical presence of the researcher was not possible, telephone interviews with the organisers were conducted and reports by the

organisers and filled questioners from the participants were sent later to the researcher by e-mail and surface post. In section 4.4 a detailed presentation of the 14 cases is given.

4.4 The go-digital initiative

Go digital is an action of the Operational Programmes "Information Society" and "Competitiveness" funded by the 3rd Community Support Framework of the European Union. The project started in December 2000, when the design of the activities took place, whilst the actual diffusion activities started in February 2002. The duration of the project is three years. Its main objective is to support small and medium sized enterprises (SMEs) to connect to the Internet and inform them of the benefits that will be obtained through its usage. In the case of Greece beneficiaries of the programme are all interested Greek enterprises with up to ten employees, except for joint stock companies and self-employed professionals. For this purpose enterprises are divided in the following three categories:

- Enterprises with no infrastructure to connect to the Internet.
- Internet ready enterprises with access to the Internet and an active e-mail address.
- Enterprises that have a web site with the capacity of electronic transactions with customers and/or suppliers (B2C or B2B).

"Go-digital" supports the first two categories in order to facilitate their move to the next stage: from the first to the second or from the second to the third stage. Funding is provided to each of these categories for:

- Purchase of basic terminal equipment, internet connection for two years and technical support for three years
- Development of a simple commercial web-page, maintenance and virtual hosting in an ISP for two years

Funding covers 40% of the total cost for both categories and cannot exceed 700 euros. The programme will be implemented over a three-year period, and the application process will be

on-going. The initial call for applications was announced in the beginning of December 2000 and remains open with no fixed deadline. The following criteria apply:

- The size of the enterprise based on the number of its employees and the company's annual turnover.
- The geographical location of the enterprise (remote areas will be favoured).
- The firm's activity and the prospects and dynamics of e-commerce applications in the specific sector.

The process of evaluating and processing applications has been designed to minimise paper work for the enterprises involved. The submitted application data will be electronically cross-checked on-line. This training procedure will include:

- Establishment of a central call centre and a web-based help desk
- Three visits of a total duration of seven hours each, at each eligible company, in order to:
 - a) Initially certify the equipment installation and the Internet connection
 - b) Provide training on Internet use, e-mail services and government electronic services. This does not include the technical support that will be provided by the hardware vendors.
- Production of informational and educational material
- Organisation of information days in every major city in Greece, taking into account the specific characteristics of the local economy

After the equipment is installed the local representatives of the consortium organise the first two consecutive visits to provide training to the SME employees. The third visit can be planned later upon prior communication between the eligible parties.

4.4.1 The go-digital initiative in this thesis

This research has been carried out at the initial stages (the first year) of the go-digital project. The aim was to conduct a follow up research as a way to further investigate the findings of the first phase of the research (WeCAN case). As go-digital was formulating its strategy it was interesting for the researcher to investigate whether issues that came up as important in the WeCAN findings were taken into account by the organisers of go-digital. For example as it was made possible to identify stakeholders and their roles in the diffusion process during the first phase of the research, it was interesting to validate these results by examining the stakeholders of the go-digital initiatives and their roles in the process. This process of "comparing" the two cases in order to enrich the final findings of this research is made obvious in the analysis of the findings in chapters 5 and 6.

4.5. Case studies description

In the previous section the WeCAN and go-digital initiatives were presented as the empirical background of this research. It was made obvious that their relevance to the objectives of this research made them appropriate frameworks for this study. This section includes a detailed description of the way these case studies were conducted within an interpretive and qualitative research approach.

4.5.1 Conducting interpretive case studies research

As discussed in chapter 3 case study research is accepted as a valid research strategy within the information systems research community. Nevertheless, although a set of methodological principles for case studies of a positivist nature has been formulated by a number of researchers (e.g. (Benbasat et al. 1987; Lee 1989; Yin 1994)) this is not the case with interpretive case studies.

Klein and Myers (1999) detected this knowledge gap in information systems research, and set some principles for interpretive field research based on the philosophy of hermeneutics.

The authors support that although the definition of pre-determined set of criteria might violate the emergent nature of interpretive research, the use of some basic standards for conducting and evaluating interpretive research is important and useful. Table 4.1 presents a summary of the seven principles defined by Klein and Myers as they have been applied for this research.

Table 4.1 Summary of principles for interpretive field research by Klein and Myers (1999). Application of the principles in this research

Summary of principles for Interpretive research	Application of the principles in this research
<p><i>1. The fundamental principle of the hermeneutic circle</i></p> <p>This principle suggests that all human understating is achieved by iterating between considering the interdepented meaning of parts and the whole that they form. This principle of human understating is fundamental to all other principles</p>	<p>The application of this case study research in a longitudinal manner made the application of the hermeneutic circle possible. For example the examination stakeholder behaviour and roles in different chronological points was a useful process for the understanding of the electronic commerce diffusion process.</p>
<p><i>2. The principle of contextualization</i></p> <p>Requires critical reflection of the social and historical background of the research setting, so that the intended audience can see how the current situation under investigation emerged</p>	<p>The background of this research is presented in detail in order to offer a holistic picture of the context of this research.</p>
<p><i>3. The principle of interaction between the researchers and the subjects</i></p> <p>Requires critical reflection on how the research materials (or “data”) were socially constructed through the interaction between the researchers and the participants</p>	<p>The role of the researcher for this study has been clearly described as an involved researcher. This stand is not considered as an impediment, on the contrary it can lead to a rich insight of the research context.</p>
<p><i>4. The principle of abstraction and generalisation</i></p> <p>Requires relating the idiographic details revealed by the data interpretation through the application of principles one and two to theoretical, general concepts that</p>	<p>The principles of abstraction and generalisation are obvious for this research through the theoretical framework made for this research (figure 2.3). The discussion of the findings is made in relation to this framework leading to the</p>

describe the nature of human understanding and social action	theoretical contribution of this research.
<p><i>5. The principal of dialogical reasoning</i></p> <p>Requires sensitivity to possible contradictions between the theoretical preconceptions guiding the research design and actual findings (“the story which the data tell”) with subsequent cycles of revision</p>	<p>The use of this principle for this research is obvious in the presentation of the final findings, where the initial theoretical framework based on current research is amended using the research results.</p>
<p><i>6. The principal of multiple interpretations</i></p> <p>Requires sensitivity to possible differences in interpretations among the participants as are typically expressed in multiple narratives or stories of the same sequence of events under study. Similar to multiple witness accounts even if all tell it as they saw it</p>	<p>This principle in conjunction with the hermeneutic cycle is fundamental for this research. The consideration of multiple interpretations from the widest range of stakeholders has been a main focus of this research.</p>
<p><i>7. The principle of suspicion</i></p> <p>Requires sensitivity to possible “biases” and systematic “distortions” in the narratives collected from the participants</p>	<p>The principle of suspicion has been seriously taken into account by this research as the importance of issues under investigation can make stakeholders to put forward views they wish to present to other stakeholders using the researcher as an intermediary. The collection of multiple perspectives has been used to ease the effect of this phenomenon on the research results.</p>

The application of the principles described above has been made obvious through the presentation of this research. In the next section details concerning the rationale behind the selection of the sites and details about the activities and the organisations under investigation are given.

4.5.2 Site selection

As mentioned in chapter 3 the units of analysis during the first phase of the case study research were diffusion activities that were conducted during the WeCAN project. Each activity-case was either a one or two-day event such as a seminar, conference, exhibition or a

continuous activity such as a community networking program. During the second phase of the research the initiative of go-digital as a whole was the unit of the analysis. The selection of the sites for this interpretive case study research was based on theoretical as well as practical considerations.

At a theoretical level, according to (Benbasat et al. 1987) the site selection should be based on the nature of the topic under investigation. For example research on organisation-level phenomena would require site selection based on the characteristics of the firm. For this research the interpretation of the institutional layer of electronic commerce diffusion as it has been described in chapter 2 made imperative the selection of a multi-organisational empirical context.

At a practical level, the time constraints made by the WeCAN project in which the trial operation of the activities lasted for 5 months and costs related to a multi-country study have dictated the selection of the cases. In the case of the go-digital initiative the researcher was conducting the research until just prior to the presentation of the results in this thesis. The ultimate goal was the investigation of as many as possible organisations with different viewpoints about electronic commerce diffusion and the examination of activities addressed to as many stages as possible along the innovation-decision process.

4.5.3 The WeCAN cases and the organisations involved in the first phase of this research

In the case of the WeCAN project the organisers of the activity were interviewed and where possible direct observation of the activities was taking place. As a result a list of 14 activities (cases) were selected. Table 4.3 outlines the 14 cases in terms of:

- The type of organisation that was mainly involved in the activity with the purpose to examine as many different organisations as possible
- The model category that the activity was representing, in order to examine activities in all the stages of the innovation-diffusion process.

Table 4.2 The WeCAN cases under investigation

Case	Type of organisation	Category of activity
1	Private consultant, Austria	<i>Focused SMEs support</i> (Customised support, Training courses)
2	Private consultant, Austria	<i>General awareness activities</i> (Seminars and workshops) <i>Focused SMEs support</i> (customised support)
3	Private consultant, Austria	<i>General awareness activities</i> (Seminars and workshops, showroom and exhibition)
4	University, UK	<i>Focused SMEs support</i> (Customised support)
5	University, UK	<i>Intermediaries oriented activities</i> (Training the Trainers)
6	Chamber of commerce, France	<i>Focused SMEs support</i> (Training courses)
7	Chamber of commerce, France	<i>Intermediaries oriented activities</i> (Training the trainers)
8	Chamber of commerce, France	<i>Focused SMEs support</i> (Tools assessment)
9	Chamber of commerce, Germany	<i>Focused SMEs support</i> (Customised support)
10	Private consultant, Italy	<i>Focused SMEs support</i> (Community networking)
11	Professional association, Spain	<i>Focused SMEs support</i> (Training courses)
12	Professional association, Spain	<i>Focused SMEs support</i> (Customised support, community networking)
13	University, Greece	<i>General awareness activities</i> (Showroom and exhibitions)
14	Professional association, The Netherlands	<i>Intermediaries oriented activities</i> (Training the trainers)

The stakeholder approach followed in this thesis made the examination of various types of organisations in the electronic commerce diffusion field a very important aspect of the research strategy. Thus, an effort was made to include all organisations-members of the WeCAN project in the study. Additionally, the importance in the examination of all the decision making stages in the innovation diffusion process according to the research

questions and framework of this thesis led to the examination of activities-cases that belong to all electronic commerce diffusion categories. More specifically, 3 cases from the general awareness activities were examined, 9 cases from the focused SME support and 3 from the intermediaries oriented activities. This "clustering" of the cases will be used in the next chapter where the theoretical framework developed in chapter 2 will be examined along these three categories of activities. In appendix D a detailed presentation of the cases under investigation can be found.

All the organisations involved in the study had long experience in electronic commerce diffusion and were in close contact with managers of SMEs. Additionally, their participation in a project related to best practices in electronic commerce diffusion shows their interest in the field and after co-operating with the researcher at the initial stages of the project they agreed to provide further information about their activities. The organisations were of four types, namely chambers of commerce and industry, professional associations, private consultants and higher educational institutes as depicted in table 4.3.

Table 4.3 Organisations involved in the WeCAN case study

Type of organisation	Country	Name
Chamber of commerce and industry	France	Paris chamber of commerce and industry
	Germany	DIHT (Deutscher Industrie-und Handelstag)
Professional association	The Netherlands	EDI-FORUM
	Spain	CETEMMSA
Private consultant	Austria	ODE
	Italy	CE Consulting
Higher educational institute	Greece	Athens University of Economics and Business
	UK	Cardiff university

Two to four employees from each organisation were typically the interviewees for this research. They were contacted before, during and after the implementation of the diffusion activities, while a number of unofficial discussions concerning the issues under investigation were taking place during the life-span of the study. Table 4.4 presents the profile of the interviewees and the number of interviews taken in each organisation.

Table 4.4 Profile of the interviewees in the WeCAN project

Organisation	Position of interviewees in their organisation	Total number of interviews
Paris Chamber of commerce and industry	<ul style="list-style-type: none"> • Deputy director • Director of international relationships 	6
German association of chambers of industry and commerce (DIHT)	<ul style="list-style-type: none"> • Public relations • Training manager 	2
EDIFORUM	<ul style="list-style-type: none"> • Director • Training manager 	2
CETEMMSA	<ul style="list-style-type: none"> • Manager of R&D projects • Project manager 	4
ODE	<ul style="list-style-type: none"> • Managing director • Director of international affairs 	6
CE consulting	<ul style="list-style-type: none"> • Managing director • Co-director 	1
Athens University of Economics and Business	<ul style="list-style-type: none"> • Professor (director of a research centre) • 5 researchers 	6
Cardiff university	<ul style="list-style-type: none"> • Development manager 	2
SMEs	<ul style="list-style-type: none"> • Managers 	17

In appendix E there is a detailed description of each organisation participating in the case studies together with details of the personnel that the researcher interviewed during the research.

4.5.4 The go-digital case and the organisations involved in the second phase of this research

In the case of the go-digital initiative the research took place during the first year of the project, when the national organisers were preparing the strategy for the activities meant to be implemented over the next two years. As it was mentioned earlier in this chapter (section 4.2.4) go-digital is an initiative works in two levels, namely the national and local. At the national level two organisations are the main organisers of the activities and are responsible for the co-ordination of the local organisers. These organisations are the Greek Research and Development Network (GRNET) and Hellenic organisation of small and medium size enterprises and handicraft (EOMMEX). Both organisations are in close co-operation with the ministry of development, which is the public authority that mainly promotes the use of advanced telecommunication technologies to Greek companies.

GRNET is a state company owned by the general secretariat for research and technology of the ministry of development and the ministry of education. It provides national and international network services to all institutions of higher education and national research centres in Greece. The close contact of GRNET with the higher educational network of the country was the rationale behind its selection by the ministry as universities are considered important entities in the diffusion of electronic commerce at local level. Four employees of this organisation were interviewed for this research, including the project manager of the go-digital initiative. It is worth mentioning that the interviewees showed strong interest for this research and asked the researcher to give a presentation to the employees of both national organisers (GRNET and EOMMEX). Additionally, the researcher was invited to the meetings taking place between the national and local organisers, which gave her the opportunity to have long unofficial conversations with a number of stakeholders representing universities, chambers of commerce and private consultants.

EOMMEX is the public body supporting the SMEs in Greece, supervised by the ministry of development. EOMMEX's mission is to promote the modernisation and development of small and medium sized enterprises (SMEs) so as to enable them to meet the

requirements of the changing business environment. In this respect, EOMMEX focuses on fulfilling three main objectives:

- Increasing the competitive capacity of SMEs.
- Promoting and development business activities.
- Modernising the financing, institutional and administrative SME environment.

EOMMEX has access to information about SMEs in the country and long experience in communicating with the managers of those companies. For these reasons it was selected as responsible for the collection of applications and the selection of companies eligible for funding by go-digital initiative. Two employees of this organisation were interviewed and participated in unofficial conversations with the researcher during this study.

4.6 Conclusions

This chapter served the principal of contextualisation of an interpretive research and gave a detailed description of the empirical context of this research. The European project WeCAN (Wide ElectroniC Awareness Network) was briefly described. The project aimed to define best practice models in the diffusion of electronic commerce in Europe and was the empirical context of the first phase of this study. It is also explained how this research has developed along with the WeCAN project by presenting the settings of the multiple case studies, the reasons for their selection and the conditions under which they have been performed. Under the same structure the follow up research (second phase of this study), which was conducted on the go-digital initiative in Greece was presented.

In the next two chapters the analysis of the case studies will be presented. In chapter 5 the analysis of the empirical material from the WeCAN project, which focuses on the descriptive aspect of stakeholder analysis is put forward. In chapter 6 the focus of the analysis shifts to the instrumental and normative aspects, which are used to analyse the data collected from the go-digital initiative.

CHAPTER

V

**Stakeholders, interests and their
impact on electronic commerce
diffusion. Insights from the WeCAN
project**

5.1 Introduction

The case studies conducted in the first phase of this research (WeCAN project) will be analysed in this chapter. The focus here is on the descriptive and instrumental aspects of stakeholder analysis which have been used in strategic management to explain specific corporate characteristics and the relation between stakeholder management and the achievement of traditional corporate objectives respectively (Donaldson and Preston, 1995).

For the purpose of this thesis the focus of the analysis is shifted from the level of a firm to that of the multi-organisational environment of electronic commerce diffusion. That increases the number of stakeholders that need to be identified and in conjunction their requirements and interests. The large number of cases under investigation (14 cases) that took place at the first phase of this research and consequently the increased number of participating organisations, made the WeCAN case a fruitful empirical context for identifying stakeholders. Additionally, the examination of multiple stakeholder views helped in the investigation of the relation between stakeholder roles and the achievement of the objectives of electronic commerce diffusion. Specifically, the *objective* of the diffusion activities under investigation was defined by the professional organisers of these activities as: "supporting SMEs to get an informed decision about moving from earlier to later stages along the innovation decision process". The examination of the way each group of identified stakeholders contributes to this objective, their explicit or implicit agendas and their beliefs about the roles of other stakeholders brought in to fore a number of instrumental implications for the innovation decision process.

As presented in chapter 4, the 14 cases/diffusion activities are grouped around 3 categories namely, general awareness activities, intermediaries oriented activities and focused SME support. These three categories are related to three variations of the main objective of the diffusion activities under investigation as described in the previous paragraph. These variations are associated with differences in the knowledge level of the diffusion receivers, as presented in detail in the next sections. The analysis of the cases is accordingly made

around 3 clusters corresponding to these three categories of diffusion activities. In the first cluster (general awareness activities) three cases are examined, nine cases in the second (focused SME support) and another three in the third cluster (intermediaries oriented activities). The sources used for the analysis of the case studies were:

- Description of the diffusion activity as part of the WeCAN project deliverables
- Interviews with the organisers of the diffusion activities
- Interviews with the tutors
- Interviews with the SMEs participating in the activities (where possible)
- Informal conversations with organisers and tutors

The next two sections include the approaches followed for the analysis of the empirical material from the descriptive and instrumental aspects of stakeholder analysis.

5.2 The process for identifying stakeholders, their roles and viewpoints (descriptive aspect)

Identifying stakeholders and investigating their relationships and perceptions is an integral part of the stakeholder analysis and the essence of its descriptive aspect. The identification of stakeholders and the analysis of their views are not independent. This is not a linear process where the identification of all stakeholders is followed by the investigation of their perceptions. More accurately the investigation of stakeholders viewpoints can lead to the identification of more stakeholders, whose perceptions can be further analysed. The identification procedure followed in this research was based on an interpretive approach as it was proposed by Pouloudi and Whitley (1997) (see also (Pouloudi, 1998)). According to this the most 'obvious' stakeholders identified in the electronic commerce and innovation diffusion literature were taken into consideration and then after the collection of the empirical material more stakeholders were revealed helping at the formation of a 'richer' picture in the field of electronic commerce diffusion.

Starting with the literature review for the identification of obvious stakeholders it was made apparent that there has not been any prior systematic identification of stakeholders in electronic commerce diffusion. The roles of change agency, change agent and decision making unit reported by Rogers (1995) are the most commonly used, while other terms such as 'propagators' (Brown, 1981) are used having the same meaning as the change agents. Nevertheless these roles have not been explicitly associated with specific types of organisations (e.g. private, public, government agencies) that could help the identification of respective entities in the case of electronic commerce diffusion. A useful reference was the emphasis on the role of professional bodies such as chambers of commerce and application service providers in the literature (e.g. (Swan and Newell, 1995; Nambisan and Agarwal, 1998; Damsgaard and Lyytinen, 2001)). These organisations seemed to be key stakeholders in the diffusion of similar to electronic commerce technologies such as EDI. Finally, King et al. (1994) list a number of institutions that influence information technology innovation but without mentioning how they have been identified and which are their roles within the diffusion process. These are government authorities, international agencies, professional and trade and industry associations, research-oriented higher education institutes, trend-setting corporations, multi-national corporations, financial institutions, labour organisations and religious institutions.

Following from the above, the organisations participating in the WeCAN project (chambers of commerce, professional associations, private consultants and higher educational institutions) were used as a starting point of the identification process as these organisations are also frequently reported in the literature as important for innovation diffusion. These organisations were asked to give their perceptions about the past, present and future of practising electronic commerce diffusion. Their 'stories' led to the identification of other stakeholders, which were further analysed, with the view to create a 'richer' picture of electronic commerce diffusion. Following up the issues brought in to light by the stakeholders the research moved on to the investigation of how their interests can affect the electronic commerce diffusion process, highlighting the instrumental aspect of the analysis as described in the next section.

5.3 Examining the impact of stakeholder interest on the achievement of diffusion activities objectives (instrumental aspect)

The examination of stakeholder views during the identification process led to the detection of issues that seemed of a great importance for some groups of stakeholders to the point they actually determined their actions and influenced the diffusion process. Specifically, after long conversations with various groups of stakeholders it was made obvious that apart from their obvious agendas they implicitly expressed additional interests or even concerns revealing other 'hidden' agendas.

The examination of those issues was made easier after asking the stakeholders to state the aim of the diffusion activities/cases under investigation in order to examine how stakeholder behaviour was related to the achievement of this aim. It was then made apparent that this aim seemed to be related to the category of the diffusion activity. For example for activities in the general awareness category the aim was the provision of basic information to SME, while for the focused SME support activities was the provision of practical advice for the implementation of electronic commerce applications. In all cases the main objective was helping the diffusion receiver to move from an earlier to a later decision stage in terms of electronic commerce adoption. What determined the exact definition of the objective was the nature and knowledge level of the diffusion receiver. At this point it was decided to examine the cases in three clusters representing the three variations of the diffusion objectives. These clusters were:

- Cluster 1 (general awareness activities): cases 2, 3, 13
- Cluster 2 (focused SME support): cases 1, 2, 4, 6, 8, 9, 10, 11, 12
- Cluster 3 (intermediaries oriented activities): cases 5, 7, 14

The 14 cases are described briefly in chapter 4 (table 4.2) and more detailed in appendix D.

The innovation decision process as it has been described by Rogers (1995) was then brought in to picture as the above clusters of cases seemed to relate to specific stages in this process. These stages have been presented in chapter 2 (section 2.2.1) and are:

- *Knowledge.* The diffusion receiver plays a passive role, as it cannot actively seek information about the innovation until they know it exists.
- *Persuasion.* The diffusion receiver forms a positive or negative attitude towards the innovation.
- *Decision.* The diffusion receiver engages in activities that lead to a choice to adopt or reject an innovation.
- *Implementation.* The diffusion receiver puts the innovation into use.
- *Confirmation.* The diffusion receiver seeks reinforcement of the decision already made.

The transition of SMEs from one stage to the other seemed to be a major objective for the stakeholders involved in the diffusion activities under investigation. After the analysis of their explicit or implicit perceptions a number of instrumental implications about the electronic commerce decision process was made clear as shown in the next sections.

5.4 Analysing general awareness activities

This category includes activities performed for the delivery of information related to electronic commerce adoption to the widest possible audience. Typical diffusion activities included in this category are conferences, seminars and workshops, road shows and technology exhibitions. The organisers of general awareness events stressed the importance of those activities for awareness creation that can lead to the development of a positive attitude towards electronic commerce adoption by SMEs. When the organisers were asked about the objectives of those activities they expressed opinions such as:

- "General awareness activities can be used to provide general, initial knowledge on electronic commerce and how it can be used".
- "At the end of such awareness events SMEs do have the necessary information to decide on the usefulness of electronic commerce for their own initiatives"
- "... activities such as seminars and workshops can be used as a first contact tool, opening the way for follow up activities..."

Following from the above statements general awareness activities seemed to be addressed to audience that either lack basic knowledge about electronic commerce or is knowledgeable enough to form an attitude towards electronic commerce adoption. Thus, in terms of stages in the innovation decision process general awareness activities refer to SMEs at the *knowledge* or *persuasion* stage. Therefore, the aim of those activities can be expressed as:

The provision of information to SMEs, in order to help them move from the knowledge stage to persuasion or later stages of the electronic commerce innovation decision process.

In the next sections the stakeholders participating in general awareness activities are identified and described together with the analysis of their roles and perceptions towards the achievement of the aim stated above.

5.4.1 Stakeholder identification in general awareness activities

General awareness activities are events addressed to a wide audience and aim at awareness creation about electronic commerce to the business community. The organisers reported that in most cases such events are initiated and organised under the supervision or 'auspices' of *government agencies* that are in favour of awareness creation about electronic commerce to the public. As general awareness activities provide information that needs to be explained in a comprehensive manner that is easy even for novice audience to follow, the role of the speakers was described as very important by the organisers. Entities who can play the role of the *speaker* are independent business experts or employees of companies already involved in electronic commerce. In the case of big events such as conferences and seminars the participation of well known speakers was reported as essential, by the organisers, for the attraction of a wide audience. Such speakers can be academics, politicians or executives from multinational companies. SME managers participating in a technical exhibition (case 3) reported that: "business experts with good knowledge in electronic commerce management practices who can avoid using the technical jargon are the most appropriate speakers in events parallel to the exhibition such as seminars and workshops".

Individual experts acting as speakers for general awareness activities, coming from the academia claimed that they have the interest in participating in such events because that could help them get in contact with the "reality of the business world" and further their research interests. Politicians-speakers claimed that they are interested in such events as they electronic commerce diffusion is an important part of technology diffusion and the awareness events are a good outlet for the promotion of government policies. An interesting view was expressed by the speakers coming from user companies, who were invited to share their experience with other companies. These speakers were asked if the competition with companies in the audience could stop them from participating in such events. They claimed that they agreed to give speeches for such events only when they had been assured that there are no competitors in the audience but rather companies that can be actual or potential suppliers or clients, who can be convinced to cooperate with them electronically.

The organisers of general awareness events stressed that promotion of the events is essential as the attraction of the widest possible audience is considered as a very important success factor for these events. The *organisers* in such cases play the role of the promoter and the alliances between organising bodies is common for the attraction of a wide audience. According to the private consultants that organised case 2 (a multi-phased one-day event that included a seminar, a workshop and personalised consulting services) the local chamber of commerce played the role of the co-organiser and promoter of the event. One of the interviewees stated: "For general awareness activities, chambers of commerce and commercial electronic commerce providers are most common organisers of such events. The first ones aim at the promotion of electronic commerce to their members, while the latter to promote their software or hardware solutions to SMEs". This statement reveals the diversity of interests coming from stakeholders acting as organisers, especially in the case of IT providers. Their motivation of acquiring new customers come in contrast with the interest of public bodies such as chambers of commerce and local authorities whose interests are closer to the original aim of the activities, which is the transition of SMEs to more advanced stages of the electronic commerce decision process.

The need for wide promotion of general awareness activities makes the cost for their marketing considerably high making the participation of *sponsors* a very important issue. These sponsors should provide the necessary infrastructure as return for the wide publicity they will get from the event. The motivation of IT providers for participating in such events was questioned by organisers coming from chambers of commerce. Specifically, IT providers were mentioned as appropriate sponsors for such activities but their participation was proposed to be done with caution. An interviewee from a chamber of commerce stated: "...it is always important that sponsoring is kept somehow neutral. "selling" the sponsors product is not the right approach".

Additional organisations mentioned by the organisers of general awareness events, as possible sponsors are international organisations, such as the European Commission, or national funding bodies, such as ministries or other government authorities. These organisations are willing to fund electronic commerce awareness events as they can use those activities to promote their technology policies, which are in favour of wide electronic commerce adoption. These policies pursued at national or international level and the rationale behind them will be further analysed in chapter 6 as part of the normative aspect of stakeholder analysis that taking place in this thesis.

In the next section the stakeholder groups, their roles and interests that have been identified and described in this section will be further analysed in order to detect their implications for electronic commerce diffusion for SMEs at the first stages of the innovation decision process.

5.4.2 Instrumental implications for diffusion within general awareness activities

The identification of stakeholders was not independent from their views and interrelationships. An interesting phenomenon was that the motivation for participating in general awareness activities by most of the stakeholders was not always close to the initially stated aim. Specifically, although a number of stakeholders stated that it is their main interest to help SMEs get the necessary information to form an opinion towards the adoption of

electronic commerce, further discussions with them indicated further agendas and perceptions deviating from this aim.

In line with that the objective of table 5.1 is twofold. First it illustrates the identification process by describing the 'obvious' stakeholder groups and the extended list of stakeholders after the interviews with individuals involved in general awareness activities. Second, it demonstrates the difference between the standard and further hidden agendas of the identified stakeholders.

Table 5.1 Stakeholders in general awareness activities, their roles and agendas

'Obvious' stakeholder groups and roles	Further stakeholder groups and roles (Key roles are highlighted)	Agendas Standard/Further
<i>Change agencies</i> Government agencies		Electronic commerce awareness creation for the business community / Economic and social development
<i>Change agents</i>	<p><u>Speakers</u></p> <p>Independent business experts</p> <p>Employees of user SMEs</p> <p>Academics</p> <p>Politicians</p> <p>Multinational companies' executives</p>	<p>Knowledge provision to the business community / Job opportunities for consultancy</p> <p>Sharing of experience with other companies / Hunting for suppliers and clients</p> <p>Knowledge transfer to the business community / Link with business and funding possibilities</p> <p>Awareness creation for the business community / Promotion of government policies</p> <p>Knowledge provision to the business community / Company promotion</p>

	<p><u>Organisers</u></p> <p>Private consultants</p> <p>Chambers of commerce and industry</p> <p>Professional associations</p> <p>Higher educational institutes</p> <p>IT providers</p>	<p>Knowledge provision to the business community / Acquisition of clients SMEs</p> <p>Awareness creation for their members</p> <p>Awareness creation for their members</p> <p>Knowledge transfer to the business community / Link with business and funding possibilities</p> <p>Knowledge provision to the business community / Company and products promotion</p>
	<p><u>Sponsors</u></p> <p>IT providers</p> <p>European commission</p> <p>Government agencies</p>	<p>Company, products promotion</p> <p>Support of awareness creation for SMEs / Promotion of EU policies</p> <p>Support of awareness creation for SMEs / Promotion of government policies</p>
<p><i>Diffusion receivers</i></p> <p>SMEs</p>		<p>Acquisition of knowledge in order to take an informed decision</p>

Table 5.1 illustrates a number of roles and groups of stakeholders further than those mentioned in the literature. Speakers and organisers are two roles that seemed to have major importance for general awareness activities. These roles have been grouped together with the change agents role, as they comply with the definition of change agents as entities that influence innovation-decision. The role of the sponsors, although important for events with the participation of wide audience, has not been demonstrated as much influential as that of the speakers and organisers so it is presented separately.

Groups of stakeholders can share the same role or a group of stakeholders can play different roles. For example, government agencies can be change agencies by designing national

electronic commerce policies and at the same time act as sponsors for awareness events. Similarly, SMEs may act as diffusion receivers attending seminars or conferences, whilst they can share their experience in electronic commerce use by presenting their cases to other companies. This exchange and sharing of roles by stakeholder groups is interesting when examining how stakeholders' perceptions change when they play different roles. These perceptions can vary for standard agendas but the further agendas seem to remain considerable constant for the same group of stakeholders in various roles. This finding supports previous research on the identification of interorganisational systems stakeholders (Pouloudi, 1998). For example, government agencies act as sponsors in order to give a an 'official stamp' to the event but their further agendas is to make the business community aware of their technology policies with the view to get them involved in electronic commerce. Indeed, the analysis of further agendas can prove useful for the examination of their impact on the electronic commerce diffusion process.

The stakeholders did not necessarily express their additional agendas themselves. In some cases other stakeholders explicitly or implicitly stated what other groups want or believe. For example, IT providers stated that their participation in general awareness activities although it is a way to promote their products, the provision of information and advise to SMEs is also important for them. The chambers of commerce and industry and government agencies also declared that IT providers come to awareness events just to sell their products, naming them the "necessary evil". This debate about the neutrality of commercial companies brings into fore the responsibility that public bodies have to make sure that the aim of the activity is achieved.

The participation of user companies to general awareness activities can also be questionable as co-existence of companies with competitive interests can hamper the diffusion process. The selection of speakers and participants in such events has to be done with caution and by an impartial intermediary.

The above analysis shows that the interest of non-profit organisations such as government agencies, chambers of commerce, professional associations and universities are closer to the

achievement of the objective to help SMEs get an informed decision about electronic commerce adoption. The role of profit organisation might as well have the same effect, which is materialised through the achievement of other objectives such as the creation of profit for them. The implications for the innovation diffusion process is that the co-operation of the private with the public sector seem to be a fruitful process, when it can be balanced and controlled by a non-profit body, which can guarantee the neutrality of the participating companies.

Figure 5.1 illustrates the findings of this section on the theoretical framework proposed in chapter 2. Specifically, the figure is amended with the stakeholder roles not mentioned in the literature but have been identified during the analysis of the WeCAN case. As the figure reflects the descriptive and instrumental aspect of stakeholder analysis for general awareness activities only the first stages of the innovation decision process appear together with the instrumental implications identified in this section.

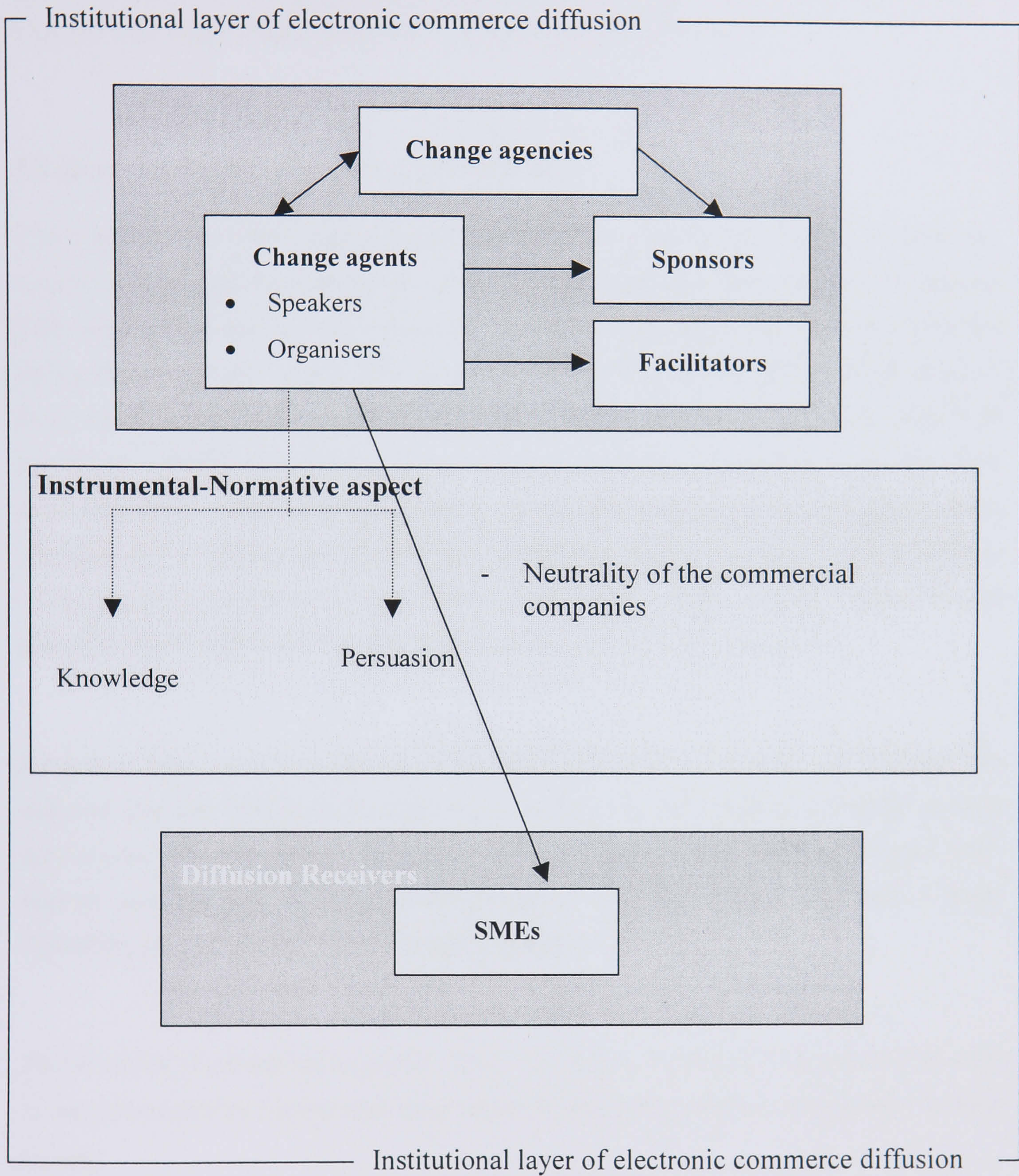


Figure 5. 1 Revised theoretical framework for general awareness activities

In the next section the activities under the focused SME support category are analysed in order to identify stakeholders, roles, interests and their impact for activities addressed to SMEs in later stages along the electronic commerce diffusion process.

5.5 Analysing focused SME support activities

This category of activities is addressed to SMEs that have decided to invest or currently use electronic commerce. The organisers report (at the description of the activities) that focused SME support activities aim at companies "who want a little extra help and support before taking the plunge and expand what they are currently doing". The diffusion receivers of these activities are either aware of electronic commerce practices but need support to implement specific applications or are already electronic commerce users but need reinforcement for their decision. Training on specific software tools and management practices for e-business are typical tasks undertaken during an SME support activity. According to the organisers of such activities the target audience can be "SMEs that are already present on the web ... and willing to integrate to electronic commerce".

Following from the above focused SME support activities seemed to be addressed to audience that has decided to use electronic commerce or need support to expand existing applications. Thus, in terms of stages in the innovation decision process focused SME support activities refer to SMEs at the *decision*, *implementation* or *confirmation* stage. Therefore, the aim of those activities can be defined as:

The provision of customised support to SMEs, in order to help them pass from the decision to implementation or confirmation stage along the electronic commerce innovation decision process.

In the next sections the stakeholders participating in focused SME support are identified and described together with the analysis of their roles and perceptions towards the achievement of the aim stated above.

5.5.1 Stakeholder identification in focused SME support activities

Activities under this category seem to have attracted the interest of most of the organisations involved in this study. Indeed, 9 case studies from this category were performed and gave evidence for the identification of stakeholders participating in such activities. According to the organisers the popularity of customised support activities can be attributed to the phenomenon that the majority of companies in Europe has a basic knowledge about electronic commerce and is anxious to move to implementation. As an interviewee of the Paris chamber of commerce stated: "...companies today are in need of more customised support, they had enough of general information about electronic commerce, we should move on from general seminars and conferences to one to one base support".

According to the description of the activities given by the organisers, local public administrators are described as good examples of institutions appropriate to undertake such an activity, acting as *organisers*. The 'official' character that public bodies can give to a customised training activity is essential to make local SMEs trust the organisers and actively participate to the activity. Chambers of commerce or local IT and business centres can also act as the initiators of such an activity since their relation with the local business community is equally strong. Professional associations can also be suitable organisers for such activities as their orientation to particular business sectors can prove to be very useful. As an interviewee for the association of a local association from the textile sector in Spain stated: "SMEs like to get examples from their own industry sector when receiving training, they don't care about Internet success stories from the tourism when they run a business in textile manufacturing".

When non-public bodies such as IT vendors or private consulting companies decide to carry out the activity independently, the participation of the local authorities is important. In case 9 (where customised advice was offered to SMEs visiting a technical exhibition) for example, a chamber of commerce organised the activity with the co-operation of IT commercial companies with the latter acting as sponsors. Similarly to general awareness activities, the

interviewees from chambers of commerce suggested that the participation of IT commercial companies should be done with caution because their extensive involvement can not guarantee the objectivity of the whole process. According to one of the interviewees from the federation of German chamber of commerce: "The excessive involvement in supporting activities of representatives of suppliers can be dangerous because their neutrality is of course questionable".

Local authorities can act as *sponsors*, offering total or partial financial support, or promoters using their existing links to make the local business community aware about the services offered by the activity. Other organisations reported as possible sponsors are:

- Banks
- Public administration agencies (ministries, local authorities)
- The European Commission

The participation of solution and/or service providers in particular was stressed as essential by the SME managers participating in focused SME support activities. As software and hardware demonstration is the core element of such activities the familiarisation of SME managers with the widest range of products/solutions in the market is important for their decision to select the appropriate products. The competition that can be raised by the participation of a number of IT providers at the same activity could also be beneficial for participating SMEs.

The technical character of the customised support activities makes the availability of equipment such as computers, projectors, Internet facilities and web development software a very important issue. For that reason there is a need for a hosting party or *facilitator* that can offer technical support. Such organisations can be technical support centres, chambers of commerce and industry, training centres or educational institutes where, according to the description of one the cases, "a wide range of facilities is available". An important criterion for the selection of facilitators is according to an interviewee from the Paris chamber of

commerce that these organisations "must be known by the local SME community and accepted as a provider of quality and appropriate training".

The technical training and advice that is offered during focused SME support activities makes the selection of *tutors* or advisors with a very good technical background very important. In general awareness activities speakers have to be known in order to attract a wide audience but in the case of focused SME support the tutors need to be technical people that can talk the SME managers language and are in the position to offer practical advice and training.

Similarly to general awareness activities in the previous section the stakeholder identification will follow an analysis of their interests in order to reveal possible implications for practices in electronic commerce diffusion for SMEs at later stages on the innovation decision process.

5.5.2 Instrumental implications for diffusion within focused SME support activities

The examination of stakeholder viewpoints during the identification process raised a number of issues with various implications for the achievement of these activities. The provision of practical advice help SMEs move from the implementation to the confirmation stage, which is the original aim of focused SME activities was not necessarily in the agenda of all stakeholders. Further agendas were also involved and presented in this section with the view to draw some instrumental implications for diffusion within focused SME support activities. Table 5.2 serves this purpose by illustrating obvious and further stakeholders and agendas.

Table 5.2 Stakeholders in focused SME support activities, their roles and agendas

'Obvious' stakeholder groups and roles	Further stakeholder groups and roles	Agendas Standard/Further
<u>Change agents</u>	<p><i>Tutors</i> Independent business experts</p> <p><i>Organisers</i> Local chambers of commerce and industry Local IT/business centres Private consultants Professional associations Higher educational institutes IT providers</p>	<p>Provision of technical knowledge to SMEs / Job opportunities for consultancy</p> <p>Support their members (local SMEs)</p> <p>Support local SMEs</p> <p>Knowledge provision to the business community / Acquisition of clients SMEs</p> <p>Support local SMEs of a specific industry sector</p> <p>Knowledge transfer to the business community / Link with business and funding possibilities</p> <p>Company, products promotion</p>
	<p><i>Sponsors</i> IT providers European commission Government agencies Banks</p> <p><i>Facilitators</i> Chambers of commerce and industry Training centres</p>	<p>Company, products promotion</p> <p>Support of awareness creation for SMEs / Promotion of EU policies</p> <p>Support of awareness creation for SMEs / Promotion of government policies</p> <p>Introduction of security systems to SMEs / Company, products promotion</p> <p>Support their members SMEs</p> <p>Support of local SMEs</p>
<u>Diffusion receivers</u> SMEs		Acquisition of technical knowledge

In table 5.2 two new roles have been introduced in addition to the ones appear in the table describing stakeholders in general awareness activities (table 5.1). These roles are the tutor, that replaces the speakers, and the facilitator. Tutors are categorised as change agents due to their influential role in the diffusion process. Facilitators, similarly to sponsors, are categorised separately due to their considerably less important role in influencing diffusion.

The examination of stakeholders' further agendas raised a number of important issues involved in the diffusion activities for SMEs at the decision, implementation or confirmation stage of the innovation decision process. One very important issue that was also predominant during the analysis of the general awareness activities was the neutrality of the IT commercial companies. The need, expressed by SME managers, to have a holistic view of the existing software/hardware solutions in the market in order to be able to take informed decisions towards electronic commerce adoption make IT vendors an important player either acting as organisers or sponsors. It is the responsibility of non-profit organisations to guarantee the neutrality on the matter.

Another issue that was made obvious during the analysis of stakeholders interests and agendas for focused SME activities was the importance of organisations working at local level having a multiplying effect for electronic commerce diffusion. Interviews with SMEs participating at focused SME activities at local business centres revealed their need for support coming from organisations based close to them who understand their needs better. Although for general awareness activities a national or international event could be value adding for the attraction of a wide audience, for focused SME support activities with local or regional orientation seem more suitable. The importance of public authorities, business centres and professional bodies working at local level is manifested here as SMEs seek advice and support from trusted parties that have the capability to care about their local needs.

Another aspect that appeared as important by interviewed SMEs, when receiving training from focused SME activities, was their interest in receiving training and advice based on their industry sector. Knowledge of the specific business sector that they belong was also on the agenda of organisers of such activities. When the training or advisory session takes place on one to one basis, the business orientation is considered very important. However, training many SMEs from the same sector may give rise to conflicting interests. The selection of the participating SMEs should then be done with caution with a view to support collaboration between potential suppliers and customers rather than conflict over competitive stakes.

Figure 5.2 illustrates the findings of this section on the theoretical framework proposed in chapter 2. Specifically, the figure is amended with the stakeholder roles not mentioned in the literature but have been identified during the analysis of the WeCAN case. In this figure the change agents have a dominant role as they have links to all other groups of stakeholders. Indeed, change agents receive policy directives from change agencies and with the support of sponsors and facilitators offer training and advice to SMEs. As the figure reflects the descriptive and instrumental aspect of stakeholder analysis for focused SME support activities only the three last stages of the innovation decision process appear together with the instrumental implications identified in this section.

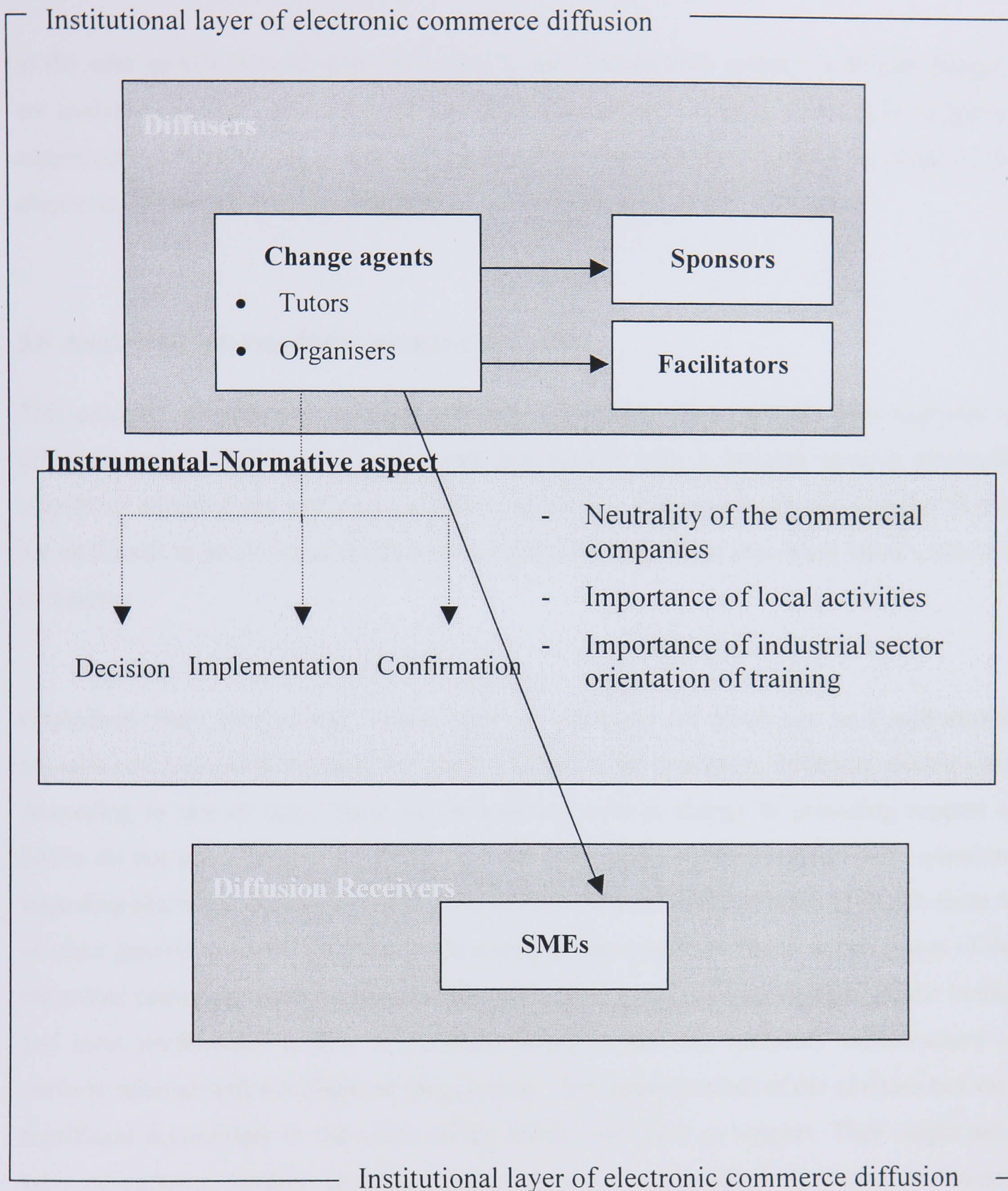


Figure 5.2 Revised theoretical framework for focused SME support activities

In the next section the activities belonging to the intermediary oriented activities category are analysed in order to identify stakeholders, roles, interests and their impact for activities addressed to advisors who in turn will transfer their knowledge to SMEs at any stage of the electronic commerce decision process.

5.6 Analysing intermediary oriented activities

This category of diffusion activities presents a particular characteristic. The receivers of diffusion are not SMEs or any other unit that need to take a decision towards electronic commerce adoption but rather the diffusion suppliers. The intermediary oriented activities are addressed to professional trainers who in turn can raise SME awareness about electronic commerce.

Organisers from professional bodies such as chambers of commerce and professional associations expressed the need for such a category of awareness diffusion mechanisms. According to one of them “most of the advisory staff in charge of providing support to SMEs do not often possess the know-how and knowledge to answer even basic questions regarding electronic commerce”. The need to train these advisors in order to enable them to conduct general awareness activities and even provide support to SMEs at late stages of the electronic commerce decision process was made clear by all the interviewees. Public bodies and local professional centres in particular seem to lack the necessary infrastructure to perform internal staff development programmes. The training needs of the advisors can vary significantly accordingly to the needs of the SMEs they have to support. They might need basic education to perform general awareness events or advanced skills to conduct focused SME support activities.

Following from the above intermediary oriented activities are addressed to advisors that need to support SMEs in every stage of the electronic commerce decision process. Therefore, the aim of those activities can be expressed as:

The provision of training to advisors in order to enable them to offer training and advice to SMEs in all the stages of the electronic commerce innovation decision process.

In the next sections the stakeholders participating in intermediary oriented activities are identified and described together with the analysis of their roles and perceptions towards the achievement of the aim stated above.

5.6.1 Stakeholder identification in intermediary oriented activities

Activities in this category are small-scale events that incorporate internal staff development sessions in the form of seminars and workshops. According to the description of the cases given by the organisers, the initiator for such activities is typically an intermediary organisation (chamber of commerce, professional association etc) that needs training for its staff and consequently plays the role of the *organiser* as well. Sponsorship is usually not needed for such a small-scale event since the organisers pay for the organisation of the activity.

IT providers can act as *tutors* offering expert training to perspective SME trainers. Making the latter familiar with their commercial products can help their marketing among the SME community. All interviewees coming from professional body institutes stressed that their organisations need to train their employees in order to support their members (SMEs). IT providers can use this opportunity to promote their solutions to the SME community by training employees of professional associations, who can in turn influence SMEs to select appropriate software/hardware tools.

In the next section interests of stakeholders are analysed in order to detect possible implications for practice in intermediary oriented activities.

5.6.2 Instrumental implications for diffusion within intermediary oriented activities

Stakeholders, their roles, standard and further agendas are presented in this section in table 5.3 and analysed in order to examine their relation with the achievement of the aim of intermediary oriented activities.

Table 5.3 Stakeholders in intermediaries oriented activities and their roles

'Obvious' stakeholder groups and roles	Further stakeholder groups and roles	Agendas Standard/Further
<u><i>Change agents</i></u>	<p><i>Tutors</i> Independent business experts</p> <p><i>Organisers</i> Local chambers of commerce and industry</p> <p>Professional associations</p>	<p>Provision of technical knowledge / Job opportunities though links with SMEs</p> <p>Provision of technical knowledge to their employees / Increased visibility or their role</p> <p>Provision of technical knowledge to their employees</p>
	<p><i>Facilitators</i> Chambers of commerce and industry</p> <p>Professional associations</p>	<p>Provision of technical knowledge to their employees</p> <p>Provision of technical knowledge to their employees</p>
<u><i>Diffusion receivers</i></u> Prospective tutors		Acquisition of technical knowledge

Table 5.3 illustrates that the number of stakeholders involved in intermediary oriented activities is much less than those in the previous two categories of activities. The main characteristic of those activities is the change of the diffusion receiver role that is now played by prospective tutors and not SMEs.

The issue of the collaboration between non-profit organisations and commercial IT providers appears as important for activities in the intermediary oriented activities category. Similarly to general awareness and focused SME support activities the participation of commercial companies seem to be necessary but their ultimate goal to promote their products have to be taken into account when inviting them to act as tutors.

Figure 5.3 illustrates the findings of this section on the theoretical framework proposed in chapter 2. Specifically, the figure is amended with the stakeholder roles not mentioned in the literature but have been identified during the analysis of the WeCAN case. The most predominant feature of this figure is that the part of the figure describing the diffusion receivers has been amended by adding the prospective tutors. As the figure reflects the descriptive and instrumental aspect of stakeholder analysis for intermediary oriented activities all the stages of the innovation decision process appear together with the instrumental implications identified in this section.

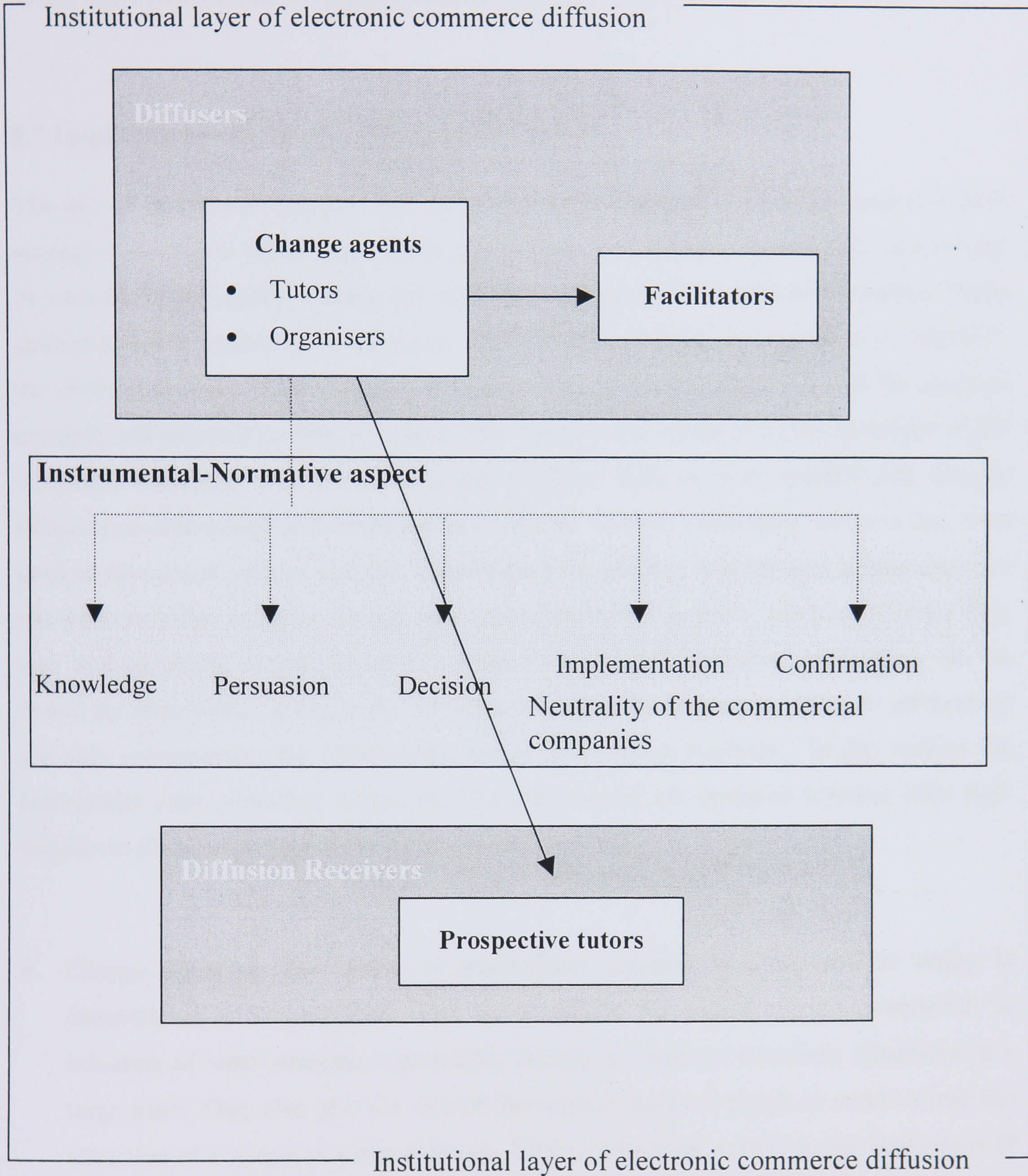


Figure 5.3 Revised theoretical framework for intermediary oriented activities

In the next section the findings of the analysis carried out in the three previous sections are further discussed in order to examine implications for theory and practice.

5.7 Implications for theory, policy and practice

The use of stakeholder analysis has been originally proposed to assist managers in their strategy formulation. In the case of electronic commerce diffusion stakeholder analysis can be used to support policy making and strategy formulation for electronic commerce. These strategies can be applied at international, national or local level. As discussed in chapter 2, the underlying claim of the instrumental aspect of stakeholder analysis is that the study of multiple and possibly conflicting stakeholder perspectives creates a better awareness of the electronic commerce diffusion context and therefore leads to more realistic and relevant information technology diffusion strategies. In this chapter stakeholder analysis has been used to reveal and analyse multiple stakeholder perspectives, interests and behaviours with the view to create a clearer picture about the electronic commerce diffusion process. This way and according to the objectives of the research some practical implications can be drawn for stakeholders acting at the provision of electronic commerce diffusion, while there are also consequences for stakeholders acting as diffusion receivers. In this section the stakeholder roles identified within the WeCAN project are analysed together with their relation to the achievement of the diffusion activities' aims.

- *Change agencies.* This group of stakeholders consists of policy makers acting at international or national level. They are present at the general awareness activities as initiators of wide awareness campaigns seeking to promote electronic commerce at a large scale. They also play the role of the sponsor for such events in order to help the attraction of a widest possible audience. Their interests are related to the application of policies supporting actors in promoting electronic commerce diffusion, as the latter is related to economic and social development. Thus, their interests are implicitly associated to the aim of general awareness activities, which is the support of SMEs to move from the initial to the later stages of the electronic commerce decision process. It is important for change agencies to have a holistic view of the stakeholders acting in the

field of electronic commerce. In this way they can be sensitive to the specific needs of different interest groups, they can be more effective in the application of their strategies and act proactively in a rapid technologically changing environment. Change agencies are not in direct contact with diffusion receivers and liaise with change agents in order to transfer their directives from international or national to local level.

- *Change agents.* This group of stakeholders have intermediary role, as they act between the change agencies and the diffusion receivers in order to influence the latter towards the adoption of an innovation. They are present in all categories of electronic commerce diffusion activities and their role is important as they are in direct contact with SME managers and can have a great influence on their decisions. There are a number of sub-roles related to change agents namely, speakers, organisers and tutors that are described in detail in the next paragraphs.
- *Speakers.* Speakers can play an important role for general awareness activities where they can influence a wide audience at the initial stages of the innovation decision process. They can come from the private or the public sector and need to use non-technical language in order to be comprehensible by novice audience. Their interests vary considerably depending on their backgrounds and positions and are not always directly related to the achievement of the general awareness activities aim. Thus, their activities should be monitored by the organisers of such events in order to guarantee their objectivity and efficiency towards the achievement of this aim.
- *Organisers.* This group of stakeholders takes the initiative to organise diffusion activities in all categories. They need to co-ordinate the tasks and make sure that diffusers and diffusion receivers work in line to the objectives of the activity. Although they can come from the private or the public sector the need for neutrality make professional bodies as the most appropriate organisations for such a role. The familiarity of those organisations with the local market and the low or zero cost related to their services makes them very popular among the SME community that can not usually afford the cost of private consulting.
- *Tutors.* They can be independent experts or representatives of IT providers and their role appears in focused SME support activities. Their technical skills should coexist

with their ability to speak the language of SME managers. Their interests can be different from the objective of focused SME support activities for that reason the organisers of such events should check apart from their neutrality apart from their efficiency.

- *Sponsors.* Organisations that are either central governmental institutions seeking to support change agents at a local level, or private companies that use diffusion activities as marketing outlets usually play the role of the sponsor. There are not grouped under the change agents' category, as their role is not as influential as that of speakers, organisers or tutors. Their role in general awareness activities is important for the attraction of a wide audience and they can be private companies or public bodies. Private companies are usually large IT vendors that seek to promote their products while public bodies are policy makers that need to promote their strategies. In both cases the organisers of events should select sponsors with care in order to guarantee the achievement of the event's aim (i.e. help SMEs move from initial to later stages on the innovation decision process).
- *Facilitators.* This role similarly to sponsors is less influential, although significant for the technical support of activities under the focused SME support category. Facilitators are in close co-operation with organisers and need to have a good link with the local business community. Their interests are mostly related to strengthening their contacts with local SMEs, which indirectly supports the original aim of SME support activities.
- *Diffusion receivers.* They are the targets of diffusion of any category of diffusion activities. They seek information in order to move from one stage to the other along the innovation decision process. Although individuals or companies are reported as the only diffusion receivers the analysis of the WeCAN case made obvious that employees of organisations acting as change agents need training before they are able to offer services to SMEs.

- *SMEs*. They are the main targets of the diffusion activities. They usually seek information and advice by organisations active at their local market. Customised support seems to be more appropriate for them as they have difficulties attending events due to their busy schedules. Practical advice about the necessary equipment, personnel and examples from their business sectors are the information needs they usually as for.
- *Prospective tutors*. Employees of organisations acting as change agents need information from experts coming either from the academia or the IT market in order to be able to serve SMEs better. They usually have basic knowledge about electronic commerce but need specialised training to offer focused SME support activities.

The description of the above stakeholders and roles gives each of the stakeholders involved the opportunity to form the basis of a better understanding of the electronic commerce diffusion context.

5.8Conclusions

In this chapter stakeholder analysis has been used in order to get an in-depth understanding of the electronic commerce diffusion process. Under the descriptive aspect of the theory, stakeholders involved in the process were identified in order to draw of a clearer picture about who is implicated and which is their role. The stakeholder identification was not independent from the identification of their views and interrelationships. The analysis of these explicitly or implicitly expressed views together with the identification of the diffusion activities' aim made the basis for drawing interesting instrumental implications for the electronic commerce diffusion process.

At a theoretical level the identification of stakeholders their views and interrelationships carried out in this chapter can contribute to innovation diffusion theory as this systematic examination of stakeholder issues can help to a better understanding of the innovation diffusion process. It was made clear that the groups of stakeholders and their roles in the

electronic commerce diffusion process extent the three roles of change agency, change agent and decision making unit reported in the literature. Specifically, the role of the change agent which according to (Rogers, 1995) is a person that transfers the message of a change agency to the client has been further divided to speakers and organisers for general awareness activities and organisers and tutors for focused SME and intermediary oriented activities. Additionally, two new roles that are not classified under the change agents' role are those of the sponsors and facilitators and who are apparent in focused SME and intermediary oriented activities.

A number of interesting issues emerged after analysing the 'stories' of stakeholders in the WeCAN case. The most predominant issue was the neutrality of IT vendors and commercial companies as their agendas were not usually compliant by the objectives of the diffusion activities. The burden was then put upon non-profit organisations acting as change agents to keep the participation of commercial companies at the necessary limits. The importance of decentralisation of the diffusion activities was another issue that came out of the instrumental analysis. As SMEs managers stated, they prefer to work in familiar environments and communicate their information needs to local centres where they have easy access. This phenomenon has implications for policy makers that need to realise that in order to convince SMEs to engage in electronic commerce diffusion activities, co-operation with local multipliers is very important. The orientation of the diffusion activities to specific business sectors was another issue frequently discussed by stakeholders in WeCAN. SMEs expressed the need to receive training and advice based on their industry sectors, creating the responsibility for change agents to take this issue under consideration when designing diffusion activities. All the above issues together with the stakeholder roles identified in the first phase of this research formed the basis for the research agenda used at the follow up case study of go-digital.

The diversity of the countries that participated in the WeCAN project made obvious that more advanced technological countries seem to perform diffusion activities addressed to companies at the last stages of the innovation decision process. It is noteworthy that activities of the focused SMEs support category were the most popular among the 14 case

studies. As the representative of the Paris chamber of commerce and industry commented: "We should nowadays move on from activities such as seminars and workshops to more customised support. This what our company-members need and ask for". This statement was not true for less technologically advanced countries such as Greece where the need for initial awareness creation among small companies is still important. The connection between the types of electronic commerce diffusion activities that need to be performed with the level of countries' "digitisation" is an interesting subject. It is related with the "digital divide" (OECD, 2001) between technologically advanced and less advanced counties bringing to fore the normative aspect of stakeholder analysis that will be further analysed in chapter 6.

CHAPTER

VI

**Analysis of the go-digital
initiative: Further instrumental
and normative implications**

6.1 Introduction

This chapter reviews how stakeholder theory can assist in a better understanding of the electronic commerce diffusion process through the in-depth study of an initiative for the promotion of electronic commerce to Small and Medium Enterprises (SMEs) in Greece. This initiative is called go-digital and consists the second phase of this research. Based on the findings of the previous chapter (phase 1) concerning stakeholder behaviour in a number of electronic commerce diffusion activities in Europe (WeCAN project), further analysis of the initial instrumental implications described there is made. During this second phase of the research an in-depth analysis of the go-digital initiative offered the opportunity to gain a better insight to electronic commerce diffusion. In the previous chapter the emphasis was on the descriptive aspect of stakeholder analysis with some reference to instrumental aspects giving initial thoughts about their implications for theory and practice. In this chapter, using the empirical material of the second phase of the research some conclusions are drawn based on the examination of the instrumental and normative aspects of stakeholder analysis. Stakeholder interests are strongly linked to the instrumental aspect of stakeholder theory, while stakeholder values are strongly related to the normative aspect of the theory.

The instrumental analysis is based on the examination of stakeholder views and ideas, which can be conflicting and this raise debatable issues, which in return can influence the electronic commerce diffusion process. Concerning the normative aspect, the examination of issues related with electronic commerce diffusion in less technologically advanced environments raises ethical issues related to bridging the "digital gap" between geographic areas at different socio-economic levels with regard to their opportunities to access telecommunication technologies. These issues are highlighted in this chapter in order to offer the basis for a more philosophical discussion around "haves" and "have-nots" (The Economist 2000) in cyberspace. Although this selective analysis cannot exhaust the instrumental and normative aspects of stakeholder analysis in the context of electronic commerce diffusion, it provides a broad basis for discussing its value and limitations.

The chapter is structured as follows. Following a brief introduction to the situation of electronic commerce in Greece, the context in which go-digital was initiated is presented and a classification of stakeholder roles is made based on roles identified in chapter 5. Then the instrumental and normative aspects of the analysis are carried out giving specific implications for theory, policy and practice in electronic commerce diffusion.

6.2 The situation of electronic commerce in Greece

Greece is the only member of the European Union that belongs geographically to south-eastern Europe, one of the less technologically advanced European regions. Historical changes in borders, political and economic systems led the area to stay at a less advanced position than other European countries. In order to overcome this situation, several efforts have started, aiming to assist the region to re-form at social, economic and political level. The stability pact, for example, is an initiative taken by the European Union and adopted in Cologne on the 10th of June 1999 (SCSP 1999) in order to: “achieve the objective of lasting peace, prosperity and stability for South Eastern Europe”. Greece plays an important role in the region; as member of the European Union with political and economical stability, Greece can act as an exemplar for good practice for its neighbouring countries, although there is a great scope for improvement regarding its current use of electronic commerce.

6.2.1 Current situation and future prospects

The statistics about Internet and electronic commerce adoption in Greece are not very positive but they show fast and steady growth. According to the European Commission (2001b) there were 7 Internet users per 100 inhabitants by the end of 1999 (EU average: 19), which shows an increase of 55% since the end of 1998 (EU average increase: 51%). Additionally, according to a later survey (European Commission, 2002) concerning electronic commerce use by small companies, 54% (EU average: 17.8%) of Greek SMEs had web access at the end of 2001 which presents an increase of 22% since the end of 1999.

According to a survey conducted by IDC (2000) concerning the "European Internet", Internet shopping is not widespread in Greece at the moment; however, a considerable cluster of users (40%) has or is willing to undertake on-line shopping activities in the

next year although only 6% of Internet users is willing to use credit cards for on-line shopping. Additionally, 50% of the adult population own a mobile phone and the fact that these users are quite advanced in using value added services for remote information retrieval of the cellular networks is a positive indication for the increased use of information and communication technologies in the future.

According to Merrill Lynch, as reported by a Greek consulting company (Kataras 2001), in 2000 \$17 million were spent on business to consumer electronic commerce in Greece and this amount is expected to reach \$474 in 2004. These statistics are impressive but on-line transactions represent only 0.024% of the domestic consumption (0.1% in Germany and France).

As a conclusion, although the number of enterprises that use traditional electronic commerce technologies in the country, mainly for business-to-business communications (i.e. traditional EDI), is stabilised at relatively low levels, there is a continuously growing interest on business-to-consumer applications and on-line transactions of products and services. The continuous changes in the IT industry have positively affected the electronic commerce market and there is a growing number of companies that invest in new technologies. They also interested in participating and taking advantage of the government's subsidies for new technologies and use e-government systems for their communication with the public authorities.

6.2.2. Policies for electronic commerce diffusion in Greece

The Greek government has recognised the importance in the exploitation of information technology for the economic growth of the country. According to the policy document "Greece in the information society" (The Greek Government 1999) the strategy for the Information Society in Greece is based on certain basic principles:

- *Innovation and entrepreneurship.* The information society will develop based on market mechanisms and rules, and the institutional and regulatory framework should facilitate the development of new entrepreneurial initiatives and of a culture of innovation.
- *Democracy and freedom.* The information society should strengthen democratic processes and safeguard the rights of citizens.

- *Equal opportunities and solidarity.* The information society should enable all citizens to have access to the opportunities; the knowledge and the markets opened up by the new technologies, and should show solidarity towards those who fail to become integrated.

A number of government authorities co-operate in order to implement an effective strategy for the promotion of the information society and electronic commerce in the country. A concentrated effort in this direction has started since 1996 with the participation of agents such as the general secretariat for research and technology of the Ministry of Development. In this framework a number of electronic commerce projects included in the business industrial program of the ministry of development (sectorial EDI projects, exemplary electronic commerce projects and electronic commerce centres) took place from 1996 until today.

The result of those activities has been a continuous growth in the Greek market of electronic commerce. Some relevant indicators include the high percentage of mobile phone users, and the expression of interest from companies to use the Internet as a tool for gaining competitive advantage or even setting up new virtual organisations according to international standards.

Apart from government “per se” there are a number of professional associations in the country that make a considerable effort to facilitate the Greek enterprises to successfully invest in electronic commerce. Some of these initiatives are:

- The development of a "National Electronic commerce infrastructure" by the National Association of Greek Trade, which will give the trading enterprises the opportunity to conduct business using electronic means, such as the search of business partners in Greece and abroad, or even the search and acquisition of employees.
- The initiatives of the Athens Chamber of Commerce and Industry (ACCI) for the set up of a secure environment for conducting electronic transactions in Greece (clearing centre, trusted third part) and
- The creation of a local electronic marketplace for the trading enterprises in Thessaloniki and other similar initiatives from other typical trading chamber organisations.

Finally, the co-operation of the government with professional associations and other key players in the market such as universities and telecommunication authorities has proved

very effective. For example the Greek ministry of development with the co-operation of the Hellenic organisation of SMEs and handicraft (the Greek acronym is: EOMMEX) has started an initiative called "go digital" within the framework of the "Information society" program of the European Union. The objective of "go digital" is the support of SMEs in order to familiarise them with the Internet and electronic commerce as presented in chapter 4 (section 4.2.4). In the next section some additional information about this project is presented.

6.3 The go-digital initiative

The go-digital initiative is presented by its organisers as an ambitious project that aims at helping SMEs all over the country to use Internet and electronic commerce and where appropriate to invest in adopting these technologies in their business. They also supported that the project is very important for the country, as it is part of the national policy for electronic commerce. Its main objective is to support small and medium sized enterprises (SMEs) to connect to the Internet and inform them of the benefits that will be obtained through its usage. The ultimate goal of the initiative is to raise the number of SMEs connected to the Internet from 10-15 % in 2001 to 40% in 2004 given that the first adopters will work as multipliers for other companies.

In order to cater for every geographical area, the country has been divided to 14 prefectures where consortia of local multipliers will train the SMEs with the help of 5.000 instructors. A certified instructor will visit each company two times, a general two-day visit and more focused one-day visit.

The response from the companies was overwhelming according to the organisers with more than 10000 companies expressing interest for participation after the first call. The call centre of the organisation responsible for collecting the applications (EOMMEX) reports that it was very busy and managers of companies showed genuine interest for the program. The companies that participated in the first phase were mainly small companies with an average of 3-4 employees each.

6.4 Identifying the objectives of go-digital

The objective of the go-digital initiative has been clearly described by the organisers as the facilitation of SMEs to move from through three maturity stages defined by them. For this purpose enterprises are divided in the following three categories:

- Enterprises with no infrastructure to connect to the Internet.
- Internet ready enterprises with access to the Internet and an active e-mail address.
- Enterprises that have a web site with the capacity of electronic transactions with customers and/or suppliers (B2C and B2B).

Go-digital supports the first two categories in order to facilitate their move to the next stage: from the first to the second or from the second to the third stage.

In order to associate this objective with the objectives defined by the WeCAN project, the go-digital initiative was “categorised” according to the three main diffusion activities categories of general awareness activities, focused SME support and intermediary oriented activities. The three WeCAN categories were presented to the organisers of the Greek initiative and there was a discussion about how go-digital can be classified.

Initially and according to the description of the project the low knowledge level of the companies that were eligible for funding by the project lead to the conclusion that go digital is a typical general awareness activity. Further conversations with stakeholders involved in its organisation made clear that the initiative presented characteristics from the other two activity categories (focused SME support and intermediary oriented activities). According to the co-ordinator of the project, a very important and innovative feature of the project is the customised training that is offered to companies on one-to-one basis. The certified instructors offer “on job training”, where they visit the company, sit together with the employees and help them familiarise with the Internet, e-mail and electronic commerce. This model does not comply with the common practice of seminars (as in the general awareness activities) was not selected by the organisers of go-digital because of their previous experience when SME managers are invited to attend such events but rarely do, due to their busy schedule. This customised approach was adopted following the example of a similar initiative in Canada and gives the go-digital initiative the characteristics of a focus SME support activity. Finally, go-digital can also be characterised as an intermediary oriented activity, as training the instructors is reported as an important part of the activities undertaken by the local organisers.

The above analysis demonstrates that although the go-digital initiative is addressed to a relatively less mature audience, it incorporates characteristics of more advanced diffusion activities such as those representing the focused SME support and intermediary oriented categories. This can be attributed to the evolution of the electronic commerce diffusion efforts and the availability of examples of other similar initiatives that the organisers of go-digital had access, through their connection with the European Union. Based on this observation and according to the findings of the first phase of this research the objectives of the go-digital initiative are summarised to:

- *The provision of information to SMEs, in order to help them pass from the knowledge stage to persuasion or later stages of the electronic commerce innovation decision process.*
- *The provision of customised support to SMEs, in order to help them pass from the decision to implementation or confirmation stage along the electronic commerce innovation decision process.*
- *The provision of training to advisors in order to enable them to offer training and advice to SMEs in all the stages of the electronic commerce innovation decision process.*

In the next section the empirical material collected during the go-digital case is analysed in order to identify stakeholders and their beliefs with the view to extend the discussion about the instrumental implications of stakeholder behaviour on the electronic commerce diffusion process.

6.5 Identifying stakeholders and their roles in go-digital

As go-digital presents characteristics of all three categories of diffusion activities it was interesting to examine if the stakeholder roles identified for these categories in the WeCAN project were present in the Greek initiative as well. Additionally, the stakeholder perspectives were examined with the view to draw further implications for electronic commerce diffusion.

These roles were:

- Change agencies

- Change agents (including speakers, organisers, tutors)
- Sponsors
- Facilitators
- Diffusion receivers (SMEs and prospective tutors)

The national character of the go-digital initiative with the aim to include as many small Greek companies as possible increased significantly the number of participating stakeholders at a national and local level. According to the description of the initiative the project is part of a community support framework of the European Commission, making this international organisation one of the main *change agency* and *sponsor* in the process. One of the interviewees gave also evidence about the relationship of the project not only with the central directive of the European Commission but also with initiatives with similar character in other countries. He stressed that people involved in the Greek go-digital initiative were in close co-operation with the policy makers at the European level in order to structure the strategy for the project. It is important to notice that the organisers also co-operate with the Portuguese go-digital, in order to exchange ideas and experience with a country at a similar economic and technological development stage.

The main *organisers* of the initiative at national level are two public organisations. The Greek Research and Development Network (GRNET), which is part of the general secretariat for research and technology of the Greek Ministry of Development and the Hellenic organisation of small and medium size enterprises and handicraft (EOMMEX). Both organisations are in close co-operation with the ministry of development, which is the public authority that mainly promotes the use of advanced telecommunication technologies to Greek companies. GRNET was selected by the ministry as the organiser of the educational part of the project, because of its previous experience in creating a technical and human network connecting all the universities, technical educational institutes and research centres all around Greece. The plan is to use these educational institutes as the regional nodes of the national diffusion network as it is presented in the next paragraph. EOMMEX was selected as responsible for the collection of applications and selection of companies that are eligible for funding, due to its access to information about SMEs in the country and its experience in communicating with managers of those companies.

GRNET and EOMMEX work at a national level following the directives of the European Commission and the Ministry of development. For the practical implementation of the projects objectives they depend on *local organisers* who are in direct contact with SMEs. As one interviewee from GRNET stated: "This is a huge effort which we cannot control centrally, we need the support of local organisers, people that are in everyday contact with the SME managers". According to the description of the project these *local organisers* acting between the national organisers and the companies are: "Consortia of academic and technological institutions, industry and commerce chambers of SMEs private educational institutions and companies will undertake the tasks of training the SMEs eligible for funding". In order to cover all the country, 14 consortia consisting of 3-8 partners were formed. They act as multipliers at a local level and are responsible to find and train the instructors, which will in return offer training and advice to the companies participating in the project.

The *tutors* that are involved at a practical level with the companies offering training and advice are referred as "certified instructors" in the description of the project. It is stated there that: "Certified instructors will undertake the training and technical support of the SMEs. Instructors will participate in training seminars in order to become familiarised with the use of the Internet services provided by the public sector". The instructors need to be on the one hand knowledgeable about Internet technologies and on the other hand familiar with the local market and the needs of the SME managers in a specific geographical area. As one of the interviewees from GRNET stated: "...they [the instructors] need to be familiar with Internet technologies; we are not looking for high technical skills, they can be students or even self-educated people, who nevertheless understand the needs of a small company and can use the right language with the managers of such companies."

The role of the *facilitators* is played by actors that are in the position to promote the go-digital initiatives to companies and help in the organisation of local events for that reason. According to the secretary of the project, organisations that act in such manner are Internet service providers that offer on-line advertisement space for promoting awareness events and openings for instructor positions and local business centres that can provide off-line promotion to companies and perspective instructors. The role of the business centres as facilitators that can offer their premises and training equipment for

seminars is limited in the context of go-digital as the training takes place in the premises of the companies participating in the project.

The diffusion receivers are Greek *SMEs* that are interested in introducing Internet and electronic commerce in their business and can use the assistance of a professional tutor who can advise them about the practicalities involved in electronic commerce adoption. The tutors are also receivers of information as their technical skills are not adequate for offering customised support to *SMEs*. For this reason a number of seminars and workshops for *prospective tutors* are organised by the local organisers in order to be able to cover *SMEs* training needs.

The role of the *speakers*, although not explicitly mentioned by the interviewees or the project description, was made evident during meeting of the national organisers with the local committees, where speakers representing the ministry of development and the European Commission were present. They were invited by the national organisers in order to: “prove their unfailing support to the local organisers”.

It is evident that the number of stakeholders involved in the case is large and as a result the interests and requirements involved in their effort to diffuse electronic commerce are multiple. These issues, having in mind the instrumental implications drawn in the previous chapter, are analysed in the next section in order to draw further conclusions and create a clearer empirically-based picture of the electronic commerce diffusion process.

6.6 Investigating the impact of stakeholders' views in the go-digital initiative

The sensitive issue of the *involvement of IT providers* in the process of electronic commerce diffusion that came out from the WeCAN project was a concern of the organisers of the go-digital initiative as well. Their involvement in this case has started since the beginning of the project, when the organisers invited the professional association of the IT industry in Greece during the design of the project. According to the initiate coordinator from GRNET the decision to offer two types of hardware and software packages “... influenced the marketing plan of all IT providers in the country”, which after that offered solutions similar to the ones defined by go-digital. Additionally, the cost of installing such packages has dropped, according to the same interviewee, as IT companies have adjusted their prices according to the directives of the project. The

neutrality of the project against the IT industry's interest for profit is clearly a great concern for the organisers, who advise the instructors to not interfere with the SME managers decision about the selection of the web hosting providers. Their role is according to one of the interviewees from GRNET to: "help the company employees to install and use whichever package they have decided to buy".

The importance of local multipliers was another concern during the design of the go-digital initiative expressed as the *extent of decentralisation of activities*. The European Commission, one of change agencies in the project, supports the decentralisation of the diffusion activities, as an interviewee from GRNET explained: "There is this a directive from the European Commission called the reference centres. These are centres where the technical knowledge from university level research and the practical knowledge of SMEs everyday needs from professional associations will be gathered in order to serve companies better". These centres will be trusted entities where SME managers can seek information and advice. Professional associations and local business centres have been proposed as the most appropriate organisations for that purpose. The original idea was to use commercial IT providers, which was rejected due to their questionable neutrality as it has also been described above. Nevertheless, representatives from the other main organisers of go-digital (EOMMEX) supported that the central management is very important and the local consortia should be monitored very carefully. As an interviewee from this organisation stated: "The local multipliers may be well aware of the local needs, but can be very subjective and even selective when they offer advice and training to company managers, whom they know for years."

The differentiation in the provision of training according to the *business sector*, which came out as an important SME need from the analysis of the WeCAN project, turned out to be one of the most debatable issues in the go-digital initiative. The national organisers argued that they took the issue under consideration by involving professional associations representing various industrial sectors. Their role was the provision of requirements for training within their sectors. This subject was the source of a debate between the national and the local organisers. During the first meeting, between national and local organisers, where the local consortia presented their plans for training in their regions, they complained about the lack of directives concerning the way they should meet the training needs of companies from different industrial sectors. Some of them

declared that they are willing to offer sectorial training despite the absence of guidelines by the national organisers.

The above description of issues that came out as important and frequently controversial during both the WeCAN and go-digital case presents instrumental implications for electronic commerce diffusion if examined in parallel with stakeholder viewpoints. Stakeholders who have a strong view about an issue are more likely to participate in the debate as this gives them an opportunity to support and argue the case of their view. In the case of the electronic commerce diffusion the change agencies such as the European Union or the national governments value the building of knowledge about new technologies for less advanced companies in less advanced countries. Consequently, they have an interest in safeguarding this value in order to maintain a good relationship with their member countries and their citizens respectively. This value and this interest are explicitly voiced though technology policy documents and government announcements (see for example the strategy for the information society by the Greek government in section 6.2.2 of this chapter). However, such obvious, voiced stakeholder interests and values are only a part of the stakeholder behaviour as it was explained in chapter 5. The interpretive perspective, which has been adopted in this thesis recognises that stakeholder interests and values are more complex. They may be implicit or explicit, voiced or attributed by another group of stakeholders and possibly conflicting. Interpretive research can consequently be used in order to record and bring to the fore instances of such diversity.

This diversity becomes particularly interesting when the analysis of the empirical material reveals how stakeholders try to strengthen their position by questioning the interests or values of other stakeholders. For example, diffusion intermediaries such as universities and local chambers of commerce criticised the organisers of the go-digital initiative for providing educational material that is not tailored to cover the needs of different industry sectors. Subsequently, they stated that they plan to approach the education from a sectorial point, in order to serve companies better, although the national organisers did not foresee it.

Thus, in the resulting conflict, stakeholders attempt to change the views of other stakeholders by presenting a viewpoint that they relate to the interests and values of the latter. Such viewpoints can be recognised as *legitimate*. For example, in the go-digital

case, all stakeholders claim to act in the interest of the SMEs. Stakeholders also try to contest the viewpoints of other stakeholders with opposite views by attributing interests and values that may question the appropriateness and perceived legitimacy of their views or of their participation in the conflicting situation.

Mitchell et al. (1997) have identified *power*, *legitimacy* and *urgency* as important attributes that can be used to identify who is a stakeholder and how an organisation can wish to rank its stakeholders. Power in particular has been considered as key attribute alongside stakeholder interests for determining the visibility of certain stakeholders and to help identify supporters or opponents to management strategies (e.g. (Freeman 1984)). In the case of go-digital, greater power, legitimacy and urgency typically signifies greater involvement. Thus, the fact that the chambers of commerce and universities rather than private consultants or small IT providers participated in the debate about the use of sectorial approach to training can be attributed to their perceived greater power, legitimacy and urgency. That is power in influencing the ministry and the local public authorities, legitimacy as recognised official representatives of the companies at a local level and urgency as they are driven by the need to serve the companies better. On the contrary, SMEs while having a legitimate and urgent interest in receiving the best training and advice, they lack the power to express their needs and have to rely on their professional associations for representation. Furthermore, companies may also lack awareness about the issues at stake or may be unable to evaluate the diffusion models imposed on them.

The issues analysed in this section can be of interest for stakeholders involved in electronic commerce policy making at a national or local level, in the next section a higher level approach is taken in order to identify the normative aspects of policy making at international level.

6.7 Normative implications

The normative implications of the use of stakeholder analysis in the case of electronic commerce diffusion can be considered for the examination of issues related to who are the stakeholders that are the target of a diffusion strategy and why. Specifically, it is interesting to look at the rationale behind the application of electronic commerce policies

and the assumed responsibility of policy makers to take care of stakeholders in less advanced positions in terms of technology use.

The term “digital divide” has been used to describe the differences in the access of information about the use of Internet and other telecommunication technologies among and within countries. The ability of businesses to access basic telecommunication infrastructures varies significantly and is fundamental to any consideration of the issue as it is a prerequisite for access to and use of the Internet (OECD 2001). The so-called digital divide raises a number of questions in the examination of issues related with electronic commerce diffusion. Where does it occur and why? What are the diffusion strategies that can be used to alleviate it? Who are the stakeholders that mostly need information and advice?

In the next sections the phenomenon of the digital divide is analysed as an issue related to electronic commerce diffusion and can be better understood and investigated through the normative aspect of stakeholder theory. By identifying the needs for training and advice of less advanced stakeholders, the discussion leads to the consideration of what rights and responsibilities stakeholders have in such a context.

6.7.1 The digital divide

The initial euphoria about the power that the information superhighway can offer to support new services, which will empower citizens and enable their full participation in an emerging 'digital democracy' has been heavily debated. The 'digital democracy' is now threatened by the 'information aristocracy' (Carter 1997). There is always the concern that in the case that individuals and companies are not able to have access to on line services either because they don't have the means or the knowledge to do so, the result will be the reinforcement of existing patterns of inequalities.

There is a lot of debate about the cultural, gender and race gap in the use of Internet and the proportion of users with lower education and income (Hoffman and Novak 1999). The penetration of the Internet and electronic commerce in developing countries, which lag far behind North America and Europe, is also an outstanding issue in the existence of 'haves' and 'have-nots' in cyberspace, (e.g. (Bhatnagar 1997; Blanning et al. 1997; Clark and Lai 1998; Kim and Hong 1997)). Developed countries have more access to

information that is less expensive, easier and faster while less technologically advanced regions have to deal with problems of inadequate infrastructure, lack of awareness and lack of an appropriate legal framework.

The digital divide or digital gap is a term that is widely used lately in order to describe these inequalities between developed and non-developed countries. According to OECD (OECD 2001) “The term digital divide refers to the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities” (p.5).

The problem of the digital divide is related to electronic commerce diffusion, as policy making for its elimination is the result of effective national and international policies (e.g. (Boon et al. 2000; Bozeman 2000; Corbitt and Kong 2000; Damsgaard and Lyytinen 1998; GNCEC 1999)). The policy rationale is the social benefits to be derived from the positive externalities associated with diffusion and greater use of information and telecommunication technologies and related improvements to the skill base. Governments also recognise the economic activity that may result from electronic commerce by the increased competition in the telecommunication markets that can stimulate new investments and increased demand for communications access and services through falling prices and the offer of new innovative products.

In the next section the role of electronic commerce diffusion in the elimination of the digital divide is presented.

6.7.2 Electronic commerce diffusion as part of a ‘fair’ policy for eliminating the digital divide

In chapter 5, during the analysis of the descriptive aspect of stakeholder analysis, it was shown that the role of the change agencies is played either by national governments or international organisations. These stakeholders are responsible for the design and implementation of strategies for the diffusion of innovation such as Internet and electronic commerce.

At a national level the change agency is typically the national government which is concerned about the diffusion of innovations to less advanced groups of stakeholders such small companies and companies in rural areas. As described in an OECD report on the digital divide (OECD 2001): "All OECD countries have support programmes for small businesses, which in general are slower to adopt new technologies and which face particular information asymmetries, management and skills issues. Support for small businesses increasingly has a component aimed at increasing the rate of uptake and use of ICTs. Governments also assist some regions and rural areas owing to particular problems associated with lagging regions." (p. 6).

At an international level, change agencies act at a higher strategy level and their influence is very important especially in setting international standards and global commercial codes. National governments have to consider their directives very seriously if they want their policies to be compliant with those set by international organisations. Such organisations are for example the Organisation for Economic Co-operation and Development (OECD), the International Chamber of Commerce (ICC), the World Intellectual Property Organisation (WIPO), the International Organisation for Standardisation (ISO), the International Electrotechnical Commission (IEC), the International Telecommunications Union (ITU) and the World Trade Organisation (WTO).

These organisations offer directives about the application of diffusion strategies and are concerned about reducing inequalities between advanced and less advanced countries under their influence. OECD (OECD 2001) for example supports that multilateral co-operation is very important for reducing differences in international digital divides across countries and improving, by learning from others' experience, the efficiency of measures taken by other countries. The idea is that countries in less advanced position can gain from the co-operation with early adopters of Internet and electronic commerce by following examples of policies, which appear to be proving effective.

Figure 6.2 presents the efforts pursuit by policy makers (i.e. change agencies) for the minimisation of the digital gap at national and international level. Note that the figure refers to the diffusion of knowledge to companies and not individuals/citizens.

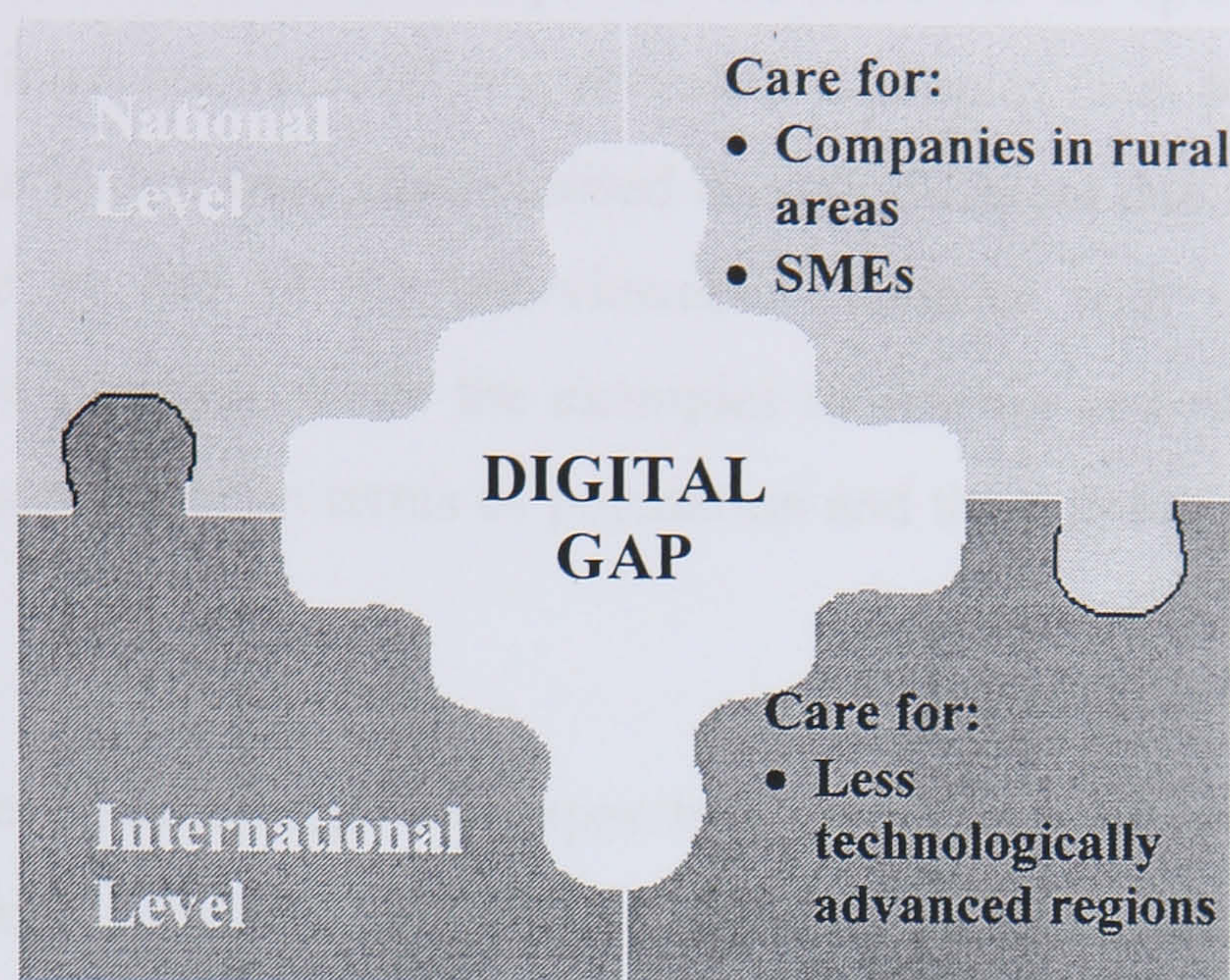


Figure 6.1 National and international diffusion policies for the minimisation of the digital gap

The need to consider stakeholders in the implementation of technology diffusion strategies is obvious in policy documents, where the welfare of consumers, citizens and companies appear as the main aim of those strategies. For example in OECD's policy document about electronic commerce it is stated (OECD 1998): "It is recognised that OECD's work in electronic commerce should be carried out in a co-operative and complementary fashion with work under way in organisations, labour and consumer organisations, social interests and the private sector". Additionally, in the report titled 'Joint EU-US statement on electronic commerce' (EU-US 1997) published by a joint committee from American and European policy makers, the need for the consideration of the widest number of stakeholders during the application of an electronic commerce diffusion strategy is explicit. It is stated that: "Global electronic commerce should take into account the interests of all *stakeholders* in particular of consumers, libraries, schools and other public institutions, as well as the need to ensure the widest use possible of new technologies".

In the case of the go-digital initiative, where the role of the national change agency is played by the Greek ministry of development, the directives of the European Union as an international organisation that cares for the less technologically advanced members such as Greece have been followed. Additionally, in the discussion about the difficulties faced

by organisers of electronic commerce diffusion activities to develop the appropriate educational material for small companies the need for co-operation and exchange of information at international level was revealed. Examples from other countries-members of the European Union were characterised as very different due to their advancement in technology use by one of the interviewees. Countries with similarities which were mentioned were Portugal, while the examples of Austria and Australia were also used due of their resemblance in terms of population and the number of SMEs in the country respectively.

At a national level, according to the speech of the minister of development at a meeting among the local consortia responsible for the go-digital training, the transfer of knowledge to less advanced rural areas of the country is one of the main objectives of the go-digital initiative. The geographical particularities of the country (e.g. isolated islands) and the fact that the vast majority of the companies are small (4-5 employees) justifies the application of a diffusion policy that tries to eliminate inequalities within the country. The elimination of inequalities in the use of telecommunication technologies is an important aspect of electronic commerce diffusion and the consideration of the widest range of stakeholders when applying diffusion strategies has been identified as a major normative concern of policy makers at all levels.

6.8 Implications for policy and practice

Following the above description of the descriptive, instrumental and normative aspects of the stakeholder analysis for the go-digital initiative, this section considers their implications for policy and practice. As it has been stated in chapter 1 (section 1.3) the aim of this research is the examination of the process of electronic commerce diffusion to SMEs in order to draw some conclusions for stakeholders acting as diffusion providers and consequently to diffusion receivers (SMEs). In line with that in this section includes implications and consequences of this research for all stakeholders in the electronic commerce diffusion process are described.

The use of the stakeholder analysis in information systems has been primarily used as it was demonstrated in chapter 2, to help planning and strategy formulation for such systems. The underlying claim of these instrumental approaches is that the study of multiple and possibly conflicting stakeholder perspectives creates a better awareness of

the information systems context and therefore leads to more realistic and relevant applications. In the case of electronic commerce and the process for its diffusion this thesis demonstrates that stakeholder analysis can be used to reveal and analyse multiple stakeholder perspectives, interests and behaviours in this specific context.

This research has shown that the two basic levels of diffusers and diffusion receivers can be further divided as new roles have been identified in the diffusers end. In line with that a hierarchy of roles and related activities can be formed from the high level of strategy formulation at international and national level to the application of these strategies by local multipliers and their supports in order to meet the needs of the diffusion receivers. The next issues appear to be of importance for stakeholders acting at all levels of this hierarchy, even though they could prove significant for other groups that would like to change their role in the future.

- *Strategy formulation at high policy level*

Policy makers working at either a national or international level can benefit by considering the widest spectrum of stakeholders in the field. Thus they can identify the needs of less advanced groups of stakeholders and promote co-operation to support them. Co-operation at international level helps change agencies at national level (national government agents in their majority) to follow directives that incorporate the expertise of multiple national constituencies, which have been tested. The early electronic commerce experience of high-digitised countries can benefit stakeholders acting as change agencies in countries at the initial stage of electronic commerce adoption. It is important to learn from previous mistakes and best practices followed in order to avoid the former and learn from the latter. The influence is in some cases mutual. National change agents may have the power to play a vital role in the definition of national standards having strong influence to entities international policy making in electronic commerce diffusion. The definition of global strategies at a high policy level leads to a “chain reaction” when governments by selecting the most efficient international directives can advocate them to change agents who in return can apply effective diffusion mechanisms for SMEs.

- *The importance of local multipliers*

Organisations acting between policy makers at a higher level and diffusion receivers seem to play a very important role in the electronic commerce diffusion process. Any organisation that has direct links with companies or is in a position to offer professional

training and advice can play that role. Small companies have the tendency to seek for advice within a local scope, which adds responsibilities to professional bodies such chambers of commerce and industry or trade associations. The knowledge of the market and companies' needs that these organisations possess can be very useful for applying effective electronic commerce diffusion mechanisms. Change agencies at a higher level of policy making can benefit from taking into consideration ideas and recommendations of diffusion intermediaries acting at lower levels of decision making. The 'good intention' of national governments is not always enough for making companies to invest in new technologies corresponding to government's policy settings.

- *Passing the message to SME managers*

The application of effective diffusion strategies strongly depends at stakeholders who come in contact with diffusion receivers offering training and advice. They are tutors, advisors or instructors and they are called to apply electronic commerce diffusion in practice. The transfer of their knowledge to SME managers is very important and is the essence of the diffusion effort. Their training on supporting small companies is also very essential, as technological knowledge is not enough when dealing with managers of small companies with limited technical skills. The good understanding of the position of their audience along the innovation decision process (knowledge, persuasion, decision, implementation, and confirmation) is a factor that can guide them in their efforts. The change agents need to be neutral and independent of commercial influences, which makes the act of this role by IT providers a questionable issue.

- *Supporting forces*

Organisations with less influence on the diffusion activities can play a supportive role although highly dependable on official organisers of diffusion activities. Their link with the local markets can be useful when playing the role of the facilitator as they can help with various organisational issues such as marketing, technical support and hosting of events. They are usually in close cooperation with local multipliers and their interest in supporting diffusion activities can develop to prospective change of their role to organisers. In the case of sponsors, although their objectives can be different from that of the organisers (e.g. product promotion) the application of good practices from the latter can help in ensure they only play a supportive role.

- *The receiving end of electronic commerce diffusion*

In the case of this research diffusion mechanisms addressed to SMEs was examined, as this group of companies are predominantly the targets of the policies for electronic commerce diffusion. Their particularities in terms of lack of skilled personnel, limited budget and technical knowledge make them a group of stakeholders with increased needs for awareness, training and advice. The fact that they represent a very large part of the economy has attracted the interest of change agents at national and international level. SMEs can gain from better policies for electronic commerce, not by necessarily adopting it by any means but by gain knowledge that will allow them to make informed decisions.

The above description of important issues concerning stakeholder roles in the electronic commerce diffusion field can be useful for all actors, as they can get a better understanding of their own position as well as that of other stakeholders in the context. Consequently, they can be aware of issues that they have an interested in, position themselves in the diffusion context and importantly make strategic plans and take action to enhance their position. Each of the stakeholders involved in electronic commerce diffusion can benefit from the rich picture that emerges, as this can form the basis for a detailed understanding of the process. In the case of the go-digital initiative, the stakeholders by becoming aware of others and their views can gain a better understanding of the strategy followed by the change agencies and take a stand alongside emerged issues. Similarly, the change agencies, as stakeholders responsible for electronic commerce policy making at national or international level can gain from a holistic view of the stakeholders acting in the field of electronic commerce diffusion. This is because they can become sensitive to the specific needs of different interest groups and therefore become more effective in the application of their strategies and act proactively in a rapidly technologically changing environment.

In the next section the implications of this research for theory is presented in detail.

6.9 Implications for theory

It was argued in chapter 2 that the instrumental layer of electronic commerce diffusion has been neglected in the literature. This thesis has provided a systematic approach for the examination of issues related with the participation of entities that can affect the

diffusion by shaping the interaction between actors such as technology providers and potential users and thereby promote the use of the technology.

The increasing number of entities involved in the electronic diffusion process and the lack of a structured approach for their identification in the innovation diffusion theory led to the use of stakeholder analysis as means for the investigation of their interests. After the analysis of a multiple case study a richer picture of the stakeholders involved in the process was designed and presented in chapter 5. The instrumental and normative aspects of stakeholder analysis brought to the fore other interesting issues related with the innovation decision process and the normative implications involved in the design of an electronic commerce diffusion strategy. These issues have been analysed in this chapter using the empirical material of a diffusion initiative in Greece with the view to gain an in-sight to electronic commerce diffusion.

The contribution of this research to the literature of electronic commerce, innovation diffusion and stakeholder theories is detailed described in table 6.1. This table is based on the summary of current research limitations as they have been presented at the end of chapter 2 (section 2.4).

Table 6.1 Theoretical contributions of this research

Research area	Existing research	Contribution of this research
Electronic commerce	Technology and application driven	Examination of the process of electronic commerce diffusion
Innovation diffusion	Focused on organisational and industry layers, neglecting the institutional layer.	Examination of entities affecting the diffusion of innovation and their interactions, defining a hierarchy of roles creating a clearer picture of the institutional layer of electronic commerce diffusion.
	Three groups of entities are reported to participate in innovation diffusion, namely change agencies, change agents and decision making units	Introduction of further important groups of stakeholders, neglected in the literature and more detailed analysis of roles for the previously identified entities
	The decision making units reported as the only receivers of innovation diffusion	Change agents identified as a group of stakeholders that also needs support and training

	The innovation decision process is described as a linear process	The innovation decision process is not linear and there is a need of application of specific activities at specific decision stages
Stakeholder theory	Has been used in the context of a single organisation or interorganisational systems	Use of the theory to analyse electronic commerce diffusion phenomena that transcend not only organisational but even country borders
	The identification of stakeholders involved in innovation diffusion has not been done in a structured manner	Use of the descriptive aspect of stakeholder theory to identify stakeholders and their roles in electronic commerce diffusion
Stakeholder and innovation diffusion theories		Synthesis of the two theories for the examination of electronic commerce diffusion

The last point is particularly important as it summarises the main novelty of this research, which is the synthesis of innovation diffusion and stakeholder theories as a way to bridge the gaps identified in the literature of both theories. The theoretical, practical and methodological contributions of this research are reviewed in detail in chapter 7 (section 7.2).

6.10 Conclusions

The use of the stakeholder analysis to understand the process of diffusing innovations such as electronic commerce may result in very rich information about the behaviour of different stakeholders and the underlying reasons for their behaviour. The identification of a broad range of stakeholders can be useful for understanding their complex roles and relationships along the innovation diffusion process.

In this chapter the perception of stakeholders involved in the diffusion of information about electronic commerce to SMEs helped the illustration of a rich picture in the field bringing into the fore interesting and frequently debatable issues in the process. However, as perceptions differ, the image revealed may be very complex. Issues are revealed but not necessarily solved. Thus, the use of stakeholder analysis in the case of the go-digital initiative has led to the identification of a number of critical issues. This analysis can be useful to all stakeholders involved in the diffusion of electronic

commerce, assisting them to better understand the moves of others and the broader context within which conflicting viewpoints may be exposed and new issues raised.

As co-operation at local, national and international level seems to be a key issue for electronic commerce diffusion, awareness about the roles and potential roles of stakeholders in the field can be particularly useful to policy makers. Additionally, as electronic commerce is a relatively new phenomenon, stakeholders who are traditionally involved in training and consultancy for companies need to redefine their role as new stakeholders may explore the opportunity and enter the market and even question the "raison d'être" of traditional players.

The discussion about the normative implications of stakeholder analysis in the electronic commerce diffusion was centred on the key issue of the digital divide between small and large corporations and advanced and less advanced countries. The consideration of groups of stakeholders in less advanced positions in terms of access to information about new technologies becomes a major issue during the design of an electronic commerce diffusion policy.

Conclusively, the interrelation between the descriptive, instrumental and normative aspects of stakeholder analysis can promote a more inclusive, realistic and thus effective approach to electronic commerce diffusion.

7.1 Research overview and findings

CHAPTER

VII

**Conclusions and further
research directions**

7.1 Research overview and findings

This thesis started with an overview of the motivation for the research and its objectives in **chapter 1**. It has been identified in the literature and empirically confirmed that the adoption of electronic commerce by companies, especially small and medium size enterprises (SMEs) has been stabilised at relatively low levels. Although electronic commerce can be beneficiary for companies, SMEs seem to hesitate to invest in electronic commerce with the most frequently reported barriers the lack of awareness and concerns about security, human resources and cost. These barriers are mostly related with socio-economic rather than technical issues indicating problematic design and/or implementation of *electronic commerce diffusion* mechanisms pursued by policy makers at national or international level. Diffusion practices hence present complexities, which are partly attributed to the increasing number of *stakeholders* involved in the process as their views, interests and frequently conflicting requirements can influence the implementation of an electronic commerce diffusion strategy. Chapter 1 then states the aim of the research which is the *identification of various groups of stakeholders involved in the process of electronic commerce diffusion with emphasis on analysing their roles, interests and relationships with the view to get a better understanding of this process*. Chapter 1 also presented in introduction to the methodology of the research and its potential contribution to theory and practice and concluded with the overview of the dissertation outline.

Chapter 2 offered a detailed overview of the existing literature in the two research areas where this research is based, namely stakeholder and innovation diffusion theories. Description, analysis and developments in the field of both research areas were presented with the view to position this research in relation to existing work. Additionally, research studies related with the application of innovation diffusion and stakeholder theory in information systems and electronic commerce were analysed in order to differentiate this research from similar studies. Rogers's theory of diffusion of innovations was presented as the most dominant and authoritative work in the literature, especially his work on the innovation decision process which consists of the stages of knowledge, persuasion, decision, implementation, confirmation. Concerning the diffusion of the information technology innovation the classification of (Damsgaard 1996) dividing the diffusion process in three layers, namely organisational, industry and environmental (including institutional and regulatory layer) was adopted. The limitations of the literature in examining the institutional

within the environmental layer was made evident together with the intention to investigate this layer by this research as an important aspect of electronic commerce diffusion.

The stakeholder theory was then presented as a structured way to investigate issues related with the participation of various entities in the electronic commerce diffusion process. The notion of the term stakeholder as it is used in the management literature where it originates was presented with emphasis on the framework developed by Donaldson and Preston that identifies three aspects of the stakeholder theory (descriptive, instrumental and normative) as a useful tool for studying stakeholder behaviours. The use of the term in the information systems literature was also presented while the lack of reference in the innovation diffusion literature was stressed. The stakeholders that are implicitly mentioned are those of the *change agencies* and *change agents* with no reference of other organisations that may act between those two. In order to move beyond the limitations of current innovation diffusion approaches and consider the application of stakeholder theory in the investigation of electronic commerce diffusion, chapter 2 concludes by proposing a framework that synthesise the two theories. This framework comprises the blueprint of the fieldwork presented in chapters 4, 5 and 6.

Chapter 3 presented the ontological and epistemological assumptions of the interpretive research methodology, which formed the basis of this research. The justification for the selection the particular methodological stand were presented together with the reasons for selecting a qualitative research approach within the case study strategy. The chapter also presented the research design and process. Particular emphasis was given to the techniques for the collection of the empirical material such as interviews and unofficial meetings with the stakeholders, which were supported by a variety of relevant resources. Chapter 3 additionally, discussed the role of the interpretive researcher as a person who becomes an involved rather than an objective observer of phenomena arguing that this can be an advantage of the research design rather than an impediment. Finally, the chapter discussed the issue of generalisation from interpretive case studies focusing of issues related with the justification the validity, reliability and triangulation of the results of this research.

Chapter 4 serves the principal of *contextualisation* of an interpretive research and gives a detailed description of the empirical context of this research. Doing so the European project WeCAN (Wide ElectroniC Awareness Network) that served as the empirical base for this research was briefly described. The project aimed to define best practice models in the diffusion

of electronic commerce in Europe. It is also explained how this research has emerged working along with the WeCAN project by presenting the settings of the multiple case studies, reasons for their selection and the conditions under which they have been performed. Under the same structure the follow up research, which was contacted for the examination of the go-digital initiative in Greece was presented.

In **chapter 5**, stakeholder analysis was used in order to understand the electronic commerce diffusion process. Under the descriptive aspect of the theory, and following the identification principles defined by Pouloudi and Whitley, stakeholders involved in the process were described in order to draw of a clearer picture about who is implicated and which is their role. Additionally, using the categorisation of the diffusion activities made by the WeCAN project (general awareness activities, intermediaries oriented activities and focused SME support) initial conclusions about stakeholder participation in the various stages of innovation decision were made. Finally, the identification of stakeholders made in this chapter helped at the expansion of the descriptive part of the theoretical framework proposed in chapter 2 adding two groups of stakeholders not previously mentioned in the literature namely *diffusion intermediaries* and *facilitators*.

Chapter 6 used stakeholder theory as a vehicle for the better understanding of the electronic commerce diffusion process through the in-depth study of an initiative for the promotion of electronic commerce to Small and Medium Enterprises (SMEs) in Greece. Based on the findings of the previous chapter concerning stakeholder participation in a number of electronic commerce diffusion activities in Europe, a further analysis in the context of a less technologically advanced environment was made. The go-digital initiative provided an opportunity to gain an insight to electronic commerce diffusion as stakeholder analysis helped to the revealing of less obvious stakeholders and issues, political battles and conflicts in the innovation diffusion process. While in chapter 5 the emphasis was on the descriptive aspect of stakeholder analysis, chapter 6 made some conclusion about stakeholder participation in electronic commerce diffusion using the instrumental aspect of the theory. Concerning the normative aspect of stakeholder analysis, ethical issues related with bridging the "digital gap" were highlighted in this chapter in order to offer the base for a more philosophical discussion around inequalities in the access to information and communication technologies. Finally, the findings of the interrelation between descriptive, instrumental and normative aspects of the analysis led to the revision of the theoretical framework proposed in chapter 2, summarising the research findings and contribution.

7.2 Research contributions

This research set out to meet a number objectives described in chapter 1, which have been accomplished as follows.

- *Identification of various groups of stakeholders involved in the provision of electronic commerce diffusion to SMEs, with emphasis on their roles*

Using stakeholder analysis and in particular its descriptive aspect the roles identified in the innovation diffusion literature have been expanded to present a richer picture of who is involved and which is his role.

- *Investigation of the impact the various interests and views of stakeholders providing electronic commerce diffusion to SMEs has on the achievement of the diffusion activities aims.*

The interests and views of stakeholders identified during the analysis of the descriptive aspect have been analysed in order to define important issues involved in the electronic commerce decision process. The impact of those issues on the process led to a number of instrumental implications for electronic commerce diffusion.

- *Examination of the relation of electronic commerce diffusion with the elimination of inequalities in the use of information technology between stakeholder groups.*

The examination of policy documents related to electronic commerce diffusion made obvious the relation between the use of electronic commerce and the elimination of the digital gap between large and small corporations as well as technologically advanced and less advanced countries.

The accomplishment of the above objectives have been made possibly after the synthesis of innovation diffusion and stakeholder theories developing a framework for the examination of issues related to the diffusion of information technology innovations. This was demonstrated by its application in the diffusion of electronic commerce. Aiming to overcome limitations in the literature of innovation diffusion and address open issues in the practice of electronic commerce diffusion, this research contributed to both theory and practice. The individual elements of the contribution made by this work stem from different components in this dissertation. From the contextual information provided in chapters 1 and 2 to the research methodology reported in chapter 3 through the design and the description of the cases reported in chapter 4 and finally the empirical analysis of the cases and the revision of the framework presented in chapters 5 and 6. In

the next sections the contribution of this thesis will be detailed presented in terms of theoretical, methodological and practical contributions.

An important issue related to the contribution of any research is how the results of a particular study can be generalised and prove useful in other research contexts. In other words it is important for future researchers to be able to use the conclusions of a particular piece of research to study a similar subject in a different geographical, political or social setting. For this research it is interesting to examine the relevance of its conclusions to other innovations rather than electronic commerce or other geographical areas.

As presented in chapter 3 (section 3.5.4), following the principles of Walsham (1995) for generalisation from interpretive case studies, this research can claim to offer generalisation to theory, as it has developed a theoretical framework that can guide future studies in the same research areas. More specifically, the theoretical framework developed in this study can be used as a guide for the examination of other innovations such as mobile commerce and ubiquitous computing. These innovations, similarly to electronic commerce, have been introduced to the business community rapidly before potential users were adequately familiarised with them. Thus, the creation of a critical mass of users heavily depends on the effective diffusion of these technologies and can benefit from the current study's contribution to the area of innovation diffusion.

In this thesis there are no specific details about the content of the educational material used in the diffusion of electronic commerce. Thus the developed framework can be used to identify relevant stakeholders and their views in the of diffusion mobile services. Additionally, although the stakeholder groups and their ideas might be different from those identified for electronic commerce in this research the conclusions made here can offer a basis for a better understanding and further examination of the mobile commerce phenomenon. The latter relates to the type of generalisation refer by Walsham (1995) as "drawing of specific implications" and implies the provision of tendencies which may prove a useful insights for related work in other contexts.

Additionally, the results of this research can prove useful for researchers studying or stakeholders involved in the diffusion of electronic commerce outside the EU geographical region. It was discussed in this thesis that the maturity level of the audience is one of the main characteristics that lead change agencies to select specific diffusion strategies. Thus, the experience of countries

where electronic commerce has been introduced earlier can guide policy makers in less technologically advanced countries in their electronic commerce strategy formulation. The example of south Eastern Europe where network technologies are not well established and the use of Internet and electronic commerce is relatively low, the results of this research can help policy makers in their strategy making learning from the experience of neighbouring countries. The results of this research have already been presented to policy makers and organisers of electronic commerce diffusion activities in the region. These stakeholders have expressed their interest for them, as they believe that change agents at government level are sympathetic about electronic commerce but lack the knowledge to apply the necessary strategies for its diffusion. Additionally, the results of surveys in the area show that the problems Small and Medium Size Enterprises face are similar to those identified as critical by this research. Specifically, lack of awareness, uncertainty for issues such as cost and personnel are present making studies about the diffusion of electronic commerce useful. Results from the application of the theoretical framework of this thesis to the area of south Eastern Europe have already been published (Papazafeiropoulou et al. 2002).

In the next sections the contribution of this thesis will be detailed presented in terms of theoretical, methodological and practical contributions.

7.2.1 Contributions to theory

The theoretical and one of the most important contributions of this research stems from the limitations that were identified in the current research on electronic commerce adoption and innovation diffusion. These relate to the study of stakeholders in the context of electronic commerce diffusion. By introducing and developing the stakeholder concept in this research context the thesis made theoretical contributions for two research domains, stakeholder and innovation diffusion theories.

In the case of *innovation diffusion theory* this research offered the introduction of the stakeholder concept in the study of diffusions of information technology innovations. Looking at the existing trends in the study of electronic commerce diffusion and policy making the systematic identification of stakeholders and their roles in the diffusion process provided the starting point for further developments in these research areas. The stakeholder concept have not been explicitly used in the literature of diffusions of innovations and this research provided a review of its

implicit use and identified some weaknesses in addressing issues related with stakeholder participation. In particular, it became apparent that the two entities of change agency and change agent reported in the innovation diffusion literature are not the only ones working for the provision of training and advice to small companies. There are a number of other groups of stakeholders, overlooked in the literature, which act between those two and play a very important role in transferring the message of technology innovation. Particularly the group of stakeholders named by this research as "*diffusion intermediaries*" seem to play a key role in organising diffusion activities, come in close contact with companies at a local level and offer education to change agents.

Another aspect of the innovation diffusion process that has been neglected in the literature and became obvious during this research is the process of the training the change agents the so-called by this research "train the trainers" process. This group of stakeholders needs training in terms of technical skills and treatment of individual needs of small companies, which makes them receivers of innovation diffusion activities, role typically played by the companies (or decision making units). This change the view encountered in the innovation diffusion literature of the simplified scheme of change agencies using change agents to diffuse an innovation to a decision-making unit. Another contribution of this research in the innovation diffusion theory was related with the innovation decision process. While it has been identified from previous research in the field the drawback of considering the innovation decision process as a linear one, this research has particular diffusions activities for each stage of the innovation decision process.

Contribution to stakeholder theory is mainly related with the use of the concept in a new and much different domain of the organisational management. Previous research has shown that the theory can be applied to interorganisational systems where the number of stakeholders that need to be identified and studied increase dramatically in comparison to those existing in a single organisation. In the case of electronic commerce diffusion the stakeholders acting in the field can be transcend the boundaries of a country like for example change agencies working with diffusion policy making at international level.

The use of the descriptive, instrumental and normative framework suggested by Donaldson and Preston was a useful tool for the exploration of issues related with stakeholder participation not only from a managerial point of view, as proposed by the authors and debated by stakeholder literature, but for considering different implications of stakeholder analysis. This research has

demonstrated, taking further previous work on the study of the stakeholder notion in the interorganisational systems phenomena that the three aspects are useful for considering multiple stakeholder viewpoints and responsibilities within the same scope of activities. An interesting contribution of this research in the use of the three aspects of stakeholder analysis is the consideration of the normative aspect as a vehicle for the investigation of the issue of the digital divide between companies with unequal opportunities in the access to information and telecommunication technologies. Digital divide is a complex issue with global implications and its consideration within this research was a useful starting point.

7.2.2 Contributions to methodology

The main methodological contribution of this research has been the use of the case study strategy in a multi-organisational, multi-national context. As it was analysed in chapter 2 the majority of the studies for electronic commerce diffusion are limited to a single organisation or an industry sector. This research by investigating the institutional layer of the electronic commerce diffusion process, which inherently includes a large number of organisations, offered a higher level approach to the case study strategy. In line with that, the unit of analysis was diffusion activities with the participation of a number of organisations and individuals, which gives a new dimension to the typical case studies where the focus is either on individuals or groups or a single organisation.

On an effort to evaluate the methodological approach made in this thesis the framework by (Benbasat et al. 1987) for the evaluation of case studies is used to prove the quality of the research approach. The authors surveyed a number of major IS journals and conference proceedings and evaluated the presentation of case studies in them based on some evaluation criteria. These criteria are examined below in the case of this research.

- *Research objectives.* The authors argue that the clear specification of the research objective although very important is usually missing from case studies descriptions. The objective of this research as an exploratory case study was clearly described at the first chapter of the thesis (section 1.3) in order to justify the purpose of this research.
- *Unit of analysis and site selection.* The authors report the lack of provision of information concerning the unit of analysis for a case study and reasons for the selections of particular sites. In this thesis it was clearly described in chapter 3 that the unit of analysis was individual

diffusion activities and the rationale behind the selection of the specific sites is extensively described in chapter 4 (section 4.4.1).

- *Data collection.* The authors claim that the clear description of data sources is defined as an important aspect of the reliability and validity of the findings. This thesis includes a detailed description of the data collection method in chapter 3 (section 3.5.2).

The selection of the stakeholder theory as a tool for the interpretation and analysis of the empirical material is another contribution to methodology. Previous research has shown that interpretive research and stakeholder theories are compatible and their synthesis can be proved useful for the understanding of issues related with the use of information technology. Its application to the electronic commerce diffusion context is an important methodological contribution with implications for policy and practice, as it will be demonstrated in the next section.

7.2.3 Contributions to policy and practice

The most obvious practical contribution of this research is the rich insight it provided to the context of electronic commerce diffusion offering recommendations to electronic commerce diffusion providers, mainly policy makers and organisers of diffusion activities. Consequently, SMEs can also gain some practical advantages when receiving training and advice from better diffusion practices. The identification of the stakeholders' roles made in this research can be proved useful for each group involved in the diffusion process as it was clearly presented in chapter 6 (section 6.7). In line with that stakeholders by becoming aware of others and their views can gain a better understanding of strategies followed by policy makers, while the latter can be more considerate in meeting other stakeholders needs. As strategy building for electronic commerce diffusion is a relatively new subject for policy makers at regional, national and international level, any scientific investigation on the matter can be a useful guidance for them.

The investigation of cases in different national settings could help beneficiaries of this research in less technologically advanced regions to learn from the experience of initiatives tested before. The significance of the findings of this research for practice became obvious during the contact with the organisers of the go-digital initiative. They expressed their strong interest in the results of the multiple European case study (WeCAN project) because they believed that could be very

useful for their work. They have also invited the researcher to give a presentation of the findings and receive a copy of this thesis.

7.3 Limitations of the research approach

It was analysed in chapter 3 that interpretive research is often criticised for the subjective influence the researcher's interpretation might have on the findings. This possible pitfall has been acknowledged in this research by using material from multiple case studies, various recourses and stakeholder views. The main limitation in an interpretive stakeholder analysis research is that the collection of the data and consequently the empirical results will depend heavily on the extent of the access the interviewees give to the researcher. However, if the stakeholders participating in the research don't see the research process as legitimate they can either hide important information or even decide to not provide any information at all. The acquaintance of the researcher with the stakeholders participating at the European case study and the strong interest of stakeholders of the go-digital initiative in the research findings proved as very positive factors in the minimisation of the above problem.

Nevertheless, the importance of the go-digital case for the country's national strategy for technology might have led stakeholders to play political games, which can influence the research findings. As the participation in a research study can help stakeholders to voice their concerns and express their views they can use this opportunity to put forward views they wish to present to other stakeholders using the researcher as an intermediary. The collection of multiple perspectives and the study of how stakeholders react to the opinions expressed by other stakeholders have been used in this research to mitigate or record this 'suspicion'.

7.4 Areas for further research

This research contributed to a rich understanding of the electronic commerce diffusion process using of the stakeholder concept. This context is particularly interesting due to the great number of interrelated stakeholders and its importance for development of efficient technology use strategies at regional, national and international level. Further research could investigate further the normative aspect of the stakeholder theory in electronic commerce diffusion that has been

related with the phenomenon of the digital divide. The digital divide is a problem with implications at a global level and its resolution should be major priority of policy makers world wide.

At a lower level of analysis the generic groups of stakeholders identified by this research in the field of electronic commerce diffusion can be divided further according to their scope of activity, for example change agencies can be separated to local, national or international ones. Additionally, the examination of other national settings that those within the European region can be proved vary useful for drawing further conclusion about stakeholder participation in the diffusion process. Other technology innovations with common to electronic commerce characteristics such as mobile commerce would be also be studied following a similar stakeholder approach.

Furthermore the examination of electronic commerce adoption from large enterprises could also be interesting as although they seem to face fewer problems in adopting information technologies and their experience might proved useful for smaller companies. Finally, the development of a framework for the format evaluation of diffusion activities based on stakeholders expectations can be a practical tool that can help the everyday work for organisers of diffusion activities.

List of Abbreviations

ACCI: Athens Chamber of Commerce and Industry

B2B: Business to Business electronic commerce

B2C: Business to Consumer electronic commerce

EDI: Electronic Data Interchange

EOMMEX: Hellenic organisation of Small and Medium Enterprises and handicraft
(Greek acronym)

GRNET: Greek Research and Development Network

ISP: Internet Service Provider

IT: Information Technology

NII: National Information Infrastructure

SMEs: Small and Medium Size Enterprises

SWOT: Strengths Weaknesses Opportunities Threats

TAM: Technology Acceptance Model

WeCAN: Wide Electronic Awareness Network

APPENDIX

A

Topic guide for interviews taken during the first phase of the research (WeCAN project)

This appendix contains the semi-structured list of subjects-questions that served as basis for the interviews carried out during the first phase of this research along with the WeCAN project.

- **Interview details**

Date of interview:

Interviewee:

Position:

Organisation:

Role in the diffusion activity:

- **Diffusion activity details**

Organiser(s):

Other organisations involved:

Diffusion activity category:

Short description:

Aim of the activity:

Target group:

- **Indicative questions/subjects**

1. Which organisations were involved in the activity and which was there role?
2. Why was your organisation involved in the activity?
3. How do you see the role of your organisation in the promotion of electronic commerce in your region/country?

4. Did you encounter any problems of conflicting interests between the organisations involved in the activity?
5. How did you select the instructors and was their training/expertise adequate?
6. What kind of support if any, did you get from government agencies?
7. How do you believe the directives of international organisations such as the European Union have influenced your work in the diffusion of electronic commerce
8. Did you find it difficult to attract SMEs to the activity?
9. What was the knowledge level of the audience?
10. How did you incorporate the particularities (e.g. knowledge level, industry sector, size of the company) of your audience in the activity?
11. Have you planned any follow up activities? If yes what would you change to improve your activities?

APPENDIX

B

Topic guide for interviews taken during the second phase of the research (go-digital project)

This appendix contains the semi-structured list of subjects-questions that served as basis for the interviews carried out during the second phase of this research along with the go-digital project.

- **Interview details**

Date of interview:

Interviewee:

Position:

Organisation:

Role in the diffusion activity:

- **Diffusion activity details**

Organiser(s):

Other organisations involved:

Diffusion activity category:

Short description:

Target group:

- **Indicative questions/subjects**

1. Which is your role (and your organisation's role) in the program
2. Do you have similar experience in awareness creation about electronic commerce?
3. How the idea was firstly formulated (by whom)?
4. Are there any existing models that the program has been based on?
5. The initial marketing campaign was centralised or local multiplier had the responsibility to inform the local business community?
6. What is the relationship with the European go-digital or other national initiatives?

7. Does the program include any kind of activities such as:
 - General awareness (Awareness material, prize award, road-show, seminars and workshops, exhibitions)
 - Intermediaries oriented (Intermediaries networking, training the trainers, trust and confidence)
 - Focused SME support (community networking, customised support, hands on trials, tools assessment, training courses)
8. Which organisations work as local multipliers for the program (chambers of commerce, universities, local authorities) and why?
9. Does the program work identically in all Greek regions. Are particularities of the region are taking under consideration?
10. Is the industry sector of the company is taken into account?
11. Who will receive the education in the company? Is the awareness level of the employees in the company are taken into account (apart form the main categorisation of type A, B, C).
12. When do you expect to have the first results?
13. What are the expected results in terms of companies satisfaction, employment for trainers, economy in general.
14. Are there structured evaluation procedures or inticators?
15. Who are other important stakeholders that we can contact about the event?
 - Organisers from EOMMEX
 - Ministry of development
 - Trainers (when??)
 - Participating companies (when??)

This appendix contains the description of the diffusion models defined by the WeCAN project and a matrix that can be used by professional organisers of diffusion activities for the selection the appropriate for their organisation models.

Category 1: General awareness activities. This category includes typical activities performed at the initial stages of the diffusion process. During this stage the aim is the delivery of information to the widest possible audience. "Marketing" strategies and means are widely used to support awareness creation about electronic commerce, the benefits related with its adoption and best practices for its implementation. Diffusion models included in this category are awareness material, prize award, road show, seminars and workshops and showrooms and exhibitions.

- **Awareness material.** This model covers all types of activity that rely on using awareness material to encourage SMEs to adopt electronic commerce. Typical examples of the material are: books, newsletters, brochures, CD-ROMs, magazines, articles, videotapes, web sites, presentations, roadmaps, guidelines and case studies.
- **Prize award.** This model is based on increasing awareness through the public recognition of exceptional work undertaken by selected SMEs in respect of their use of electronic commerce. Different award categories could include web site design originality and creativity, good web based marketing strategy, well presented and useful web site content, innovative on-line business processes etc.
- **Road show.** This model is focused on the provision of best practice examples and information on electronic commerce to SMEs located in rural areas. The participants of such events are usually unaware of the advantages of electronic commerce but they are willing to learn about new ways of doing business or even have immediate plans to invest in electronic commerce.
- **Seminars and workshops.** This model is one of the most widely used and aims at raising initial awareness for SMEs and motivating them in order to invest on electronic commerce. Through this model SMEs gain the necessary information that will help them describe on the possible suitability of electronic commerce to their business.

- **Showrooms and exhibitions.** This model is based on the concept of an exhibition centre for new technologies that includes electronic commerce applications. The centre is organised into various specialist areas, where different live presentations take place. There are separated stands and visitors can move freely between them.

Category 2: Intermediaries oriented activities. This category includes diffusion actions that are not directly targeted to SMEs but aim at educating intermediaries that can in return transfer this knowledge to SMEs. Diffusion models included in this category are Intermediaries networking, training the trainers, trust and confidence.

- **Intermediaries Networking.** This model describes how a network can be organised amongst intermediaries in order to create a favourable environment for increasing electronic commerce activities. A “virtual” centre linking together all intermediaries can be created at a local, regional, national or even international level.
- **Training the trainers.** This model is aimed at educating intermediaries who in turn will raise awareness and provide support within the SME community. Through the use of this model local intermediaries can get the necessary know-how and skills to help SMEs in the field of electronic commerce without the need for outside support.
- **Trust and confidence.** This model covers the activities of intermediary bodies positioned as Trusted Third Parties (TTPs), guaranteeing and/or validating the content of an on-line information, offer or transaction. The model can cover simple awareness raising for the need for trust and confidence tools or support awareness among intermediary bodies to help them position themselves as TTPs and help create the necessary co-operative consortia to develop these activities.

Category 3: Focused SMEs support. This category includes models that work further that offering awareness electronic commerce to SMEs. Specifically, it includes activities that support SMEs by offering advice and consulting services and caring for individual company needs. Models in this category are community networking, customised support, hands-on-trials, tool assessment and training courses.

- **Community networking.** This model consists of bringing together SMEs from a specific industry sector or geographical location, providing them with appropriate knowledge and subsequently implementing various electronic commerce solutions, which meet the needs of the group. The group can then promote electronic commerce to other SMEs.
- **Customised support.** This model is based on providing SMEs with customised advice that meets individual companies' specific requirements. It provides an informed and impartial sounding board for different groups of SMEs, typically those who need extra help and support before taking a new step in electronic commerce.
- **Hands-on trials.** The model is based on the concept that SMEs awareness activities can be significantly improved by the use of relevant best practice examples. These can gain even more credibility if they are related to local or regional companies. This model is consists of working with groups of SMEs, typically 15-20, in a defined area in order to develop the experience and knowledge that can subsequently become best practice examples.
- **Tools assessment.** This model is aimed at helping to increase the uptake and integration of electronic commerce tools within user-companies. It could include dissemination of tools test results, demonstrations of new tools and negotiations for special offers to SMEs with tool providers.
- **Training courses.** This model is aimed at increasing the awareness of SMEs about electronic commerce and training them in a range of specific topics. As a result SMEs should acquire the necessary know-how and skills to start planing and implementing electronic commerce application themselves. This model is useful for a more mature audience and companies that have a basic understanding about electronic commerce and need further guidance in their effort to implement it.

PARAMETER MODEL	Business Functions Focus	Geographical coverage	Target audience awareness	Effectiveness & potential	Potential reach	Time & Resources	Comments
Category 1 – General awareness activities							
Awareness Material	Specific	Local to National	Any	Low	High	Low to Medium	Easy deployment. Appropriate for support to other models
Prize Award	Specific	Local to national	Not aware	Low	High	Low to Medium	Excellent for wide media coverage
Roadshow	Wide	Local to national	Not aware Willing to implement	Low	High	High	Appropriate for large unaware audiences
Seminars and Workshops	Wide	Local	Any	Low	Medium	Medium	A starting point to establish relationships with SMEs
Showroom and Exhibition	Wide	Local to international	Full range	Low	Medium	Medium to High	Ideal for demonstrating e-Commerce to a wide range of users
Category 2 – Intermediaries oriented activities							
Intermediaries Networking	Wide	National to International	Aware	Medium	High	Medium	Support measure for transfer of experience and knowledge
Training the Trainers	Wide	Local to Regional	Aware	Medium	High	Medium	Increases reach and effectiveness of e-Commerce awareness activities

PARAMETER	Effectiveness (% SMEs actually implementing after action)	Potential Reach (no. of SMEs)	Time & resources (Cost)
VALUE			
Low	< 5%	<50	< Euro 20K
Medium	5% to 30%	50 to 300	Euro 20 to 200K
High	> 30%	>300	> Euro 200K

APPENDIX

D

The 14 case studies conducted within the WeCAN project

This appendix contains a detailed description of the 14 case studies that took place during the first phase of the research, along with the WeCAN project.

- **Case 1**

Case 1 was a representative of two diffusion models, namely customised support and training courses. It was a 3-day event that took place in Linz, Austria. It was prepared for 2 months and as a result 25 local SMEs received training.

This activity was a combination of training courses with tailor made advice for a very specific target group: automotive suppliers in Upper Austria (SMEs in the steel industry and their suppliers). It included a 3-day training course and was structured in 5 specific modules (organisation, marketing and management, law, technique and project management) related to the implementation of electronic commerce. The goal of these training courses was that the participants are trained as experts who will be able to start an electronic commerce project in their SME organisation afterwards. During these projects ODE provided individualised counselling and consultancy.

- **Case 2**

Case 2 was a combination of two diffusion models, namely seminars and workshops and customised support. It was one-day event that took place in Vienna, Austria. It was prepared for 20 days and 20 SMEs received advice during its performance.

This one day event combined various aspects and models with each other: Presentations in the morning, a workshop in the afternoon with concrete case studies and customised advice in the evening, where SMEs are consulted on a case to case basis. The idea was to expand previous activities of seminars by combining three forms of activities:

- A seminar (for general information purposes)
- A workshop (where a specific case-study was analysed and the necessary steps for a successful electronic commerce implementation were presented)
- Personal consulting (when SMEs had the chance to get individual advice on their specific case).

- **Case 3**

Case 3 was a combination of the seminars and workshops and showroom and exhibition models. It was one-day event called "electronic commerce soiree" that took place in Vienna, Austria as part of a European commission awareness event. It was prepared for 20 days and attracted an audience of 300 SMEs.

The "soiree" was a special evening event within a big conference, aiming at attracting SME managers that were conference participants. The objectives of the Soiree was to help networking between companies and intermediaries within European Union member-countries in the field of electronic commerce. This special event could not have attracted so many people without the clear conjunction to the IST conference in Vienna. Normally there would be only a handful of people attending such a seminar, but with innovative marketing and PR activities in the countries of the target group combined with a new approach of a social evening event, the number of participants was improved significantly.

- **Case 4**

Case 4 was a typical example of the customised support model. It was carried out during an elapsed time of 4 months in West Wales, UK. It was prepared for a short period of time (1-2 days) and two SMEs received extended support during the implementation of electronic commerce applications.

This activity was organised in rural West Wales areas with the aim to inform SMEs of the benefits of electronic commerce through both general awareness activities such as seminars but more particularly through customised support known as "eCommerce Audits". These informed SMEs want they should do which technologies they could use and which business processes might be impacted. The assistance was continuing also during the implementation period. The support was advice only, leaving the SMEs responsible for any technology implementations or links with suppliers. This would be done remotely on most occasions by phone or e-mail and occasional visits to the SMEs if in the area.

- **Case 5**

Case 5 is an example of the training the trainers model. It was performed during an elapsed time of 4 months in West Wales and Southern Ireland, UK. It was prepared for 15 days and as a result 8 trainers in West Wales and 6 in Southern Ireland were trained.

This initiative started after the observation that previous training of intermediaries in rural West Wales was insufficient. The topic was moving at a rapid pace and further training was required. During the case the university tried to determine the impact of improved levels of training provision. Issues such as the type of training and training material which are considered by such staff to be most appropriate for their needs in dealing with SMEs was investigated.

- **Case 6**

Case 6 was a representative activity of the training courses diffusion model. It took place in a period of 3 months in the Paris region. It was a follow up of previous seminars that intended to offer general knowledge about electronic commerce. The idea was to further support the participants of the seminars to implement and master the techniques taught during the seminars. This activity needed a 20 days preparation and as a result 40-60 SMEs were educated. The participating companies were already aware about electronic commerce and needed further support in order to move to implementation.

The chamber took the initiative to perform this activity after the success and continues interest of the participants from the previous organised seminars. A new idea that was implemented in this case was the "hotline", which allowed participant SMEs to have a reliable contact who would help them to implement a specific electronic commerce solution. This "on line support" was limited to an orientation and advisory activity and it was not include consultancy or the implementation itself.

- **Case 7**

Case 7 was a type of training the trainers activity. It was a 1 and half day event organised in Paris. The activity was prepared for 15 days and as a result 40 members of staff from various French chambers were trained. The chamber took the initiative after the success of

previous seminars on electronic commerce and the growing interest not only from SMEs but also from chambers' staff members. The idea was to train them in order to be able to answer questions coming from their members-companies. Thus, the focus of the activity is to present real case studies from various industry sectors. Two to five examples of business to business and business to consumer applications from 40 industry sectors were presented. The participants had to comment them in terms of content, quality and user friendliness.

- **Case 8**

Case 8 is the performance of a tools assessment diffusion model. It is worth mentioning that this model was firstly introduced by the Paris chamber of commerce and industry and it is worth mentioning that it has been designed as an answer to lack of competitive software solutions in the electronic commerce market. The activity was an ongoing process that lasted more than one year with various events in between in the Paris region. The activity took 2 months of preparation and as a result 1000 SMEs were trained. The knowledge level of the audience was average to advanced. In their majority they were companies with a web presence that were willing to implement integrated electronic commerce systems.

During each session, software suppliers of electronic commerce solutions were presenting their products to SMEs. In cases of high demand for a product the organisers of the activity would negotiate a better price for the interested companies. This is an interesting approach that allows:

- Providers to have a much larger user base and thus better answer customised demands from their potential customers
- User-companies to overcome the financial impediment and speed up the integration of specialised tools.

- **Case 9**

Case 9 was a customised support activity. It was a one-day event that took place in Duisburg, Germany as part of a big technology exhibition-fair called Media-Mit and it was

prepared for almost 4 months. The chamber took this initiative after the increasing demand from companies to get advice on electronic commerce implementation. The Media-Mit exhibition is an annual event that aims at the presentation of local best practice examples. The experience from this event gave the organisers the possibility to get feedback from SMEs about their needs for information. As a result a stand was established in the exhibition where local SMEs had the chance to:

- Discuss their problems with other SMEs that have already implemented electronic commerce successfully
- Get a free-of-charge consultancy on the spot and later, if wanted, in their companies.

- **Case 10**

Case 10 was an example of the community networking model. It was a long-term activity that offered on line services to SMEs in the area of Rome, Italy. It was prepared for 2 months and around 1500 local SMEs used it.

CE consulting was in close co-operation with the chamber of commerce of Rome for the design and implementation of an on-line tool that would offer electronic services to local SMEs. The main services offered by this tool were aiming to:

- Provide companies with the tools which will help them become familiar with electronic commerce and the Internet
- Offer information and assistance services;
- Streamline Chamber of Commerce procedures (certificates on line);
- Conduct studies of economic trends on specific themes of particular topicality, using the network;

Additionally, an electronic catalogue linked to search engines of foreign companies was offered to the members of the chamber. Through this catalogue a significant number of Roman firms had the possibility to promote information on their activities, products and services. The presence of these firms on the Internet network would facilitate contacts and business with other firms at an international level.

- **Case 11**

Case 11 is a typical example of the training courses model. It took place in an elapsed time of 2 months and was offered on line to companies in Mataró, Spain. Its preparation was made in 35 days and 20 SME managers were trained in every session.

CETEMMSA took this initiative as a means to test a "virtual campus" tool to educate SME managers of the textile sector in the region. This tool has been used in the past for educating managers in other technical or managerial subjects with success. The courses available during the performance of case 11 were focused on the use of the Internet while best practise examples from the textile sector were presented.

- **Case 12**

Case 12 has the characteristics of two diffusion models namely the customised support and community networking models. It was an on going process that lasted for 3 months and was addressed to the SME community in Mataró, Spain. It was prepared for 2 months with the participation of 16 local companies.

CETEMMSA initiated this activity following a French model of community networking (Signe. Paris). Initially, 16 companies from the textile/clothing sector of the Maresme region were selected as members of the network. Then a logo, a web site, a virtual fair and some other networking activities were made available to the network. Companies could also get customised advice about electronic commerce implementation through their contacts with other companies and advisors in the network.

- **Case 13**

Case 13 was an example of the showroom and exhibition model. It was a 4-day event that took place in Athens, Greece. It was prepared for 2 months and attracted 10,000 visitors. The activity was part of an exhibition of innovative electronic commerce applications to be used specifically by companies engaged in the retailing sector. The event took place in a central hotel, and it aimed at presenting applications already available to the Greek market

to retailing companies. Top technology providers demonstrated the applications that referred to the whole +retailing value chain. There were also a number of parallel events included in this forum, such as seminars and workshops. Additionally, social events were taking place, where SME managers could get in contact with other companies and technology providers.

- **Case 14**

Case 14 was a typical example of training the trainers diffusion model. It was an ongoing activity that took place in the elapsed time of one year in various events in Veenendaal, Netherlands. Each event was prepared for 5 days and around 200 consultants had been trained. EDIFORUM took this initiative through its close co-operation with Syntens that is a national organisation with the aim to promote electronic commerce to SMEs. Syntens has 15 subsidiaries in all regions in The Netherlands with each subsidiary being in direct contact with local SMEs. During the performance of case 14, a central programme organised by EDIFORUM trained consultants working in this organisation. In this program EDIFORUM provided training by making them familiar with electronic commerce technologies. A typical session lasted 2 hours with some additional time for discussions.

APPENDIX

E

Organisations involved in the WeCAN project

This appendix contains a detailed description of the 8 organisations involved in the case studies that took place during the first phase of the research, along with the WeCAN project.

- **Paris chamber of commerce and industry (PCCI), France**

The Paris chamber of commerce and industry is the largest Chamber of Commerce in the world. The chamber represents 286,000 manufacturing, commerce and service offering companies in Paris and neighbouring regions of Hauts de Seine, Seine-Saint-Denis and Val de Marne. The policy priorities of the chamber as have been described by its president are co-operation with the other European countries, business training under the influence of globalisation and exploitation of new technologies.

The "business information department" which employs 120 people and is responsible for the production and distribution of business information and the main actor in the electronic commerce diffusion activities. This information material is distributed to the members of the chamber and chambers in other geographical areas in France. The department is heavily involved in the diffusion of information about Internet and electronic commerce, thus it:

Is one of the four main nodes of the worldwide network of chambers of Commerce on the Internet (worldchambers.com) and the founder of the French association for electronic commerce.

One of its main activities is conducting wide awareness, training and experiment actions to prepare SMEs to use electronic commerce;

The researcher was in contact with two members of the staff in that department:

- The deputy director who is in charge of research and development for electronic commerce and marketing
- A member of the staff responsible for international relationships.

The Paris chamber of commerce and industry was the organiser of cases 6,7 and 8. The large number of cases that this organisation was involved during the case study period shows, according to the two interviewees, the interest of the department on electronic

commerce diffusion as well as the need of the French industry to exploit the opportunities offered by electronic commerce.

- **German association of chambers of industry and commerce (DIHT), Germany**

The German Association of Chambers of Industry and Commerce, commonly known as the DIHT, is the central organisation of 83 Chambers of Commerce and Industry and has its headquarters in Bonn. The chambers of commerce members of the association are public entities but are free from government influence. All enterprises in a particular region are members of the local chamber as membership is mandatory in Germany. One of the main responsibilities of the chambers is the development of the regional economies and the representation of their interests. In short the most important functions of the DIHT are:

- Opinion leader/advisor at local, state, federal and European Level
- Important role in the dual training system (vocational training). Within the internet-based database of the “Further-Training Information System (WIS), the DIHT gives access to 40.000 courses and a large number of instructors in Germany
- Information and public relation
- Industry, environmental protection
- Financing and taxes
- External trade and international relations
- Infrastructure, telecommunication
- Legal affairs
- Evaluation of domestic and foreign Business statistics

In order to support the efficiency of enterprises, the DIHT especially support concentrated initiatives in the field of Electronic Commerce Technologies. The coherent and efficient multimedia information strategies within the DIHT are the core element of the information department. Whenever needed, these activities are supported by affiliated companies, as there is the DE-Pro GmbH, a society for the simplification of Trading Procedures and the Promotion of the Use of Electronic Data Interchange”. Its aim is creating awareness for

electronic transactions and international negotiations for the simplification of trading procedures. With its activities, the DIHT shows a keen interest in electronic commerce and recognise its responsibility with regard to raising awareness, training and facilitating electronic commerce towards its members.

The researcher was in contact with two staff members of the "information" department of the German association of chambers of commerce and industry. Both interviewees were responsible for training and technical support of SMEs through the local chambers of commerce and were heavily involved in the organisation of case 9.

- **EDIFORUM, The Netherlands**

EDIFORUM is the national competence centre on EDI, but broadening its scope towards electronic commerce. EDIFORUM is a network organisation with 125 participants. It provides the network for The Netherlands and is Head of Delegation for EDI/EC matters in Brussels and Geneva. EDIFORUM is also one of the founding organisations of the "Electronic Commerce Platform in Netherlands".

One of the main activities of the organisation is creating awareness about electronic commerce by informing a broad public about its impact. Means used by EDIFORUM for that purpose are congresses, seminars, conferences, the Internet, helpdesk, training and electronic newsletters. For example, every year ECP.NL organises the National Electronic Commerce Congress & Expo, where during two days important speakers discuss the developments of electronic commerce.

The researcher was in contact with two members of staff of the organisation:

- The director who had a long history in organisational and juridical aspects of electronic commerce
- An advisor who had long experience in standardisation about EDI.

EDIFORUM were the organisers of case 14 that is presented in detail in the next paragraph.

- **CETEMMSA, Spain**

Centre de Tecnologia Empresarial Mataró-Maresme (CETEMMSA) is a society formed by professional associations, enterprises and public administrations, whose main objective is to make easier the technology innovation process for the firms and local administrations. It is located in Mataró, in the Maresme area. This area is characterised by a vast industrial network formed by SMEs of the textile and other sectors like tourism, food and agriculture.

CETEMMSA offers to its member's assessment, training, information and the use of the most suitable equipment and technology to optimise their competitiveness. CETEMMSA tailors its services to the specific technical and training needs of the SMEs regardless of the sector they belong to. The main activities of the organisation are:

- *Consultancy.* One of the main services that CETEMMSA offers is consultancy by assessing firms for the establishment of strategies or for the implementation of new technologies, in the fields of informatics and computer science, advanced manufacturing technology, advanced telecommunications systems, productivity, quality, continuous improvement and management issues and market research studies.
- *Training.* Through its training department CETEMMSA offers training services to SMEs. The training is flexible and it covers a number of technical (such as: CAD, fashion design, telecommunications and desktop publishing) and management areas (such as: foreign trade, accounting, finances, marketing and administration).

The researcher was in contact with two members of staff in the organisation that were heavily involved in the organisation of cases 11 and 12:

- The manager of the research and development projects
- A project manager

- **ODE, Austria**

The "OÖ Datenhighway Entwicklungs-GmbH (ODE)" has been founded in 1995 on behalf of the Upper Austrian Government. ODE is a public/private partnership consisting of

several very potential associated partners. The aim is to provide and promote telematics and electronic commerce applications in Upper Austria.

ODE is involved in promotion activities on how to improve the business of small and medium enterprises (SMEs) especially in rural areas. In line with that it has performed various road show activities (information SMEs about the benefits, consulting, test pilots, etc.) in rural Austrian areas. At a national level ODE is in close co-operation with the Austrian government supporting it on subjects such electronic commerce, public procurement, teleworking and various other issues of Information Society.

The researcher was in contact with two members of the staff in ODE:

- The managing director who had many years of experiences in European project management and in organising awareness and dissemination events for SMEs.
- The head of the international affairs who had long experience in telecommunications

ODE was the organiser of cases 1,2 and 3.

- **CE Consulting, Italy.**

CE Consulting s.r.l. belongs to the Altran group of independent consulting companies, operating in Europe in support to industry, mainly in aerospace and defence, telecommunications, transports and automotive, information technology and energy. Within the Altran Group, CE Consulting focus is on business process innovation and application of concurrent engineering tools and methodologies, with services focused at system level and addressing hardware, software and human aspects.

CE Consulting has successfully supported the effort of several Industrial Organisations and is a recognised innovator in concurrent engineering and innovative business operation paradigms based on:

- Exploitation of the Information Technology as the integrating element of the new development process;
- Use of international technical and functional standards;
- Business process reengineering, adapted to co-operative approach.

CE Consulting is involved in a number of projects devoted to facilitate the participation of SMEs in the construction and operation of virtual Enterprises, through the exploitation of electronic commerce opportunities.

The researcher was in contact with two members of the staff in CE Consulting:

- The managing director, who is involved in the development and dissemination of electronic commerce in the European industry.
- The co-director, who is also heavily involved in electronic commerce diffusion in the Italian and European market.

CE consulting were the organisers of case 10.

- **Athens University of Economics and Business**

Athens University of Economics and Business (AUEB) is a dynamic institution of higher education in Greece, which was founded in 1920. The academic staff of the University is about 150 and the total number of students in the University approximates 5,000.

Research, both theoretical and applied, is mostly implemented through the Research Centre-Athens University of Economics and Business (RC-AUEB). The purpose of RC-AUEB is to co-ordinate research by members of the University's faculty, in collaboration with other university institutions, public entities and organisations, international organisations, etc. The area of research includes economics, management of European studies, finance, accounting, marketing, informatics, and Statistics.

At the Research Centre of the University there is a research centre on electronic commerce that is involved in electronic commerce diffusion for SMEs, by giving seminars, workshops and speeches in various events. Through its contact with chambers of commerce in various cities in Greece, members of the group had the chance to make more than 1000 SME managers familiar with Internet technologies.

The researcher, who was a former employ of the organisation, was in contact with a number of researchers involved in electronic commerce diffusion. More specifically, she received data from:

- The director of the research centre, who is a professor in information systems with speciality in electronic commerce.
- Five researchers that were involved in the organisation of activities related with electronic commerce diffusion

The research centre of the Athens University of Economics and Business was heavily involved in the organisation of case 13.

- **Cardiff University, UK. Cases 4,5**

Cardiff University has been involved in the world of electronic commerce since 1987. It originally established an EDI (Electronic Data Interchange) Research Centre to foster the development and implementation of EDI within the logistics, distribution and transportation industries. The centre was renamed as electronic commerce research centre and working to establish standards, is involved in a number of EDI and electronic commerce projects, including:

- Assessment of the use of EDI in European Ports
- Multi-sectorial EDI implementations;
- Study of impact of EDI on the European transport sector;
- A cost justification of EDI in the shipping industry
- Development of electronic commerce teaching material
- Teaching electronic commerce to undergraduate and postgraduate students.
- A feasibility study in electronic commerce with the Scottish Local Enterprise Council;
- Advice to the Department for Education on its use of EDI for statistical returns;
- The development of standards relating to interactive EDI;
- The establishment of a scheme that provides independent advise to companies in South Wales who wish to move into the world of EDI
- EDI strategy study in retail supply
- Internet access for seafarers

The researcher was in contact with a development manager and researcher at the electronic commerce research centre in Cardiff, who was also responsible for the organisation of cases 4 and 5.



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