



Chapter 9

A Four-Perspective Framework for Understanding SST Implementation

Table of contents

9.1 Introduction.....	356
9.2 Comparing the insights from actor-network and structuration theoretical frameworks....	356
9.2.1 Introduction.....	356
9.2.2 Insights gained from structuration theory	356
9.2.3 Insights gained from ANT	357
9.2.4 Similar insights gained from ANT and ST.....	359
9.2.5 Conclusions on the theoretical frameworks	359
9.3 Principles and guidelines for building a conceptual framework	360
9.4 A four-perspective framework for understanding self-service technology implementation	
9.4.1 Introduction.....	362
9.4.2 Meaning as the first perspective.....	364
9.4.3 Context as the second perspective.....	366
9.4.4 Process as the third perspective.....	367
9.4.5 Technology as the fourth perspective.....	368
9.4.6 Conclusion on the conceptual framework.....	373
9.5 Conclusion	373

9.1 Introduction

My objective in this chapter is to develop a conceptual framework that can be used to adopt a systemic approach towards understanding the crucial aspects of self-service technology (SST) implementation. I proceed by comparing the salient insights provided by structuration theory and actor-network theory (ANT) and by developing a synthesis using these findings to build a more general theory of SST and IS implementation. This is followed by some key principles and guidelines that were adopted in discovering the conceptual framework. Using the synthesis, the next section will then present a systemic model for understanding SST and IS implementation.

9.2 Comparing the insights from actor-network and structuration theoretical frameworks

9.2.1 Introduction

In this section, I will present a synthesis of the findings of structuration theory and actor-network theory in the analysis of the case study.

9.2.2 Insights gained from structuration theory

Structuration theory was particularly useful in shedding light on the contextual elements such as the impact of the healthcare environment and organisational discourses in the healthcare insurance industry in general and for UAG in particular. As compared with ANT, structuration was particularly useful at taking into account broader institution structures such as the South African healthcare and information and communication technology (ICT) environment, and the interpretive scheme of actors, by which actors make sense of the SST phenomenon. For example, the rational discourse of ‘reducing costs’ shaped the way that managers and designers of the private insurance firm interpreted the most appropriate use of the SST. In other words, structuration theory stressed the importance of understanding the ‘memory traces’ of the human actors and their implicit social structures.

The findings also showed that the SST implementation can lead to significant unintended or unanticipated consequences. For instance, many registered users discontinued using the SST

after a short period and persisted with the use of traditional channels. Ironically, despite claims that the Internet is ‘open’, security requirements severely constrained the use of the online channel. I also observed the telephone being well routinised into the day-to-day practices of health insurance members and playing a useful role in supporting interactions with call-centre staff. As a result, attempts to replace traditional channels with the SST were in most instances disregarded. Instead, users who have a higher servicing need appear to be using multiple channels in their interactions with the health insurer.

I also observed through the structuration lens that although the SST enabled wellness interactions and transactions at a distance, face-to-face interactions with wellness practitioners and interpersonal contact with call centre consultants cannot be easily emulated using impersonal online tools. Furthermore, design defects reduced trust in the SST. Surprisingly, and despite conventional beliefs to the contrary, this study reveals how older people had a higher propensity to use the online channel in a certain social context. I also observed how designers drew on local knowledge and client interactions in implementing these abstract systems. For instance, design changes were made to accommodate local adaptations of the nutrition centre in the UK market.

Although I used the concept of framing to account for the ahistorical nature of ANT, I found that structuration theory was still more effective in addressing the historical developments of social structures in this particular healthcare context and showing how these social structures affected the shaping of the SST. Nor was ANT as effective as structuration theory in taking into account broader social structures that influenced the local phenomena (Walsham, 2001). Nevertheless, ANT’s emphasis on understanding the arrangements of heterogeneous material was invaluable in developing a deeper understanding of the SST phenomenon.

9.2.3 Insights gained from ANT

Many researchers regard SSTs as neutral objects with no politics. ANT has demonstrated that SSTs are far from neutral or objective. An SST is a social construction, inscribed with many biased assumptions and notions of the designers. In the SST implementation process presented in the case study, the interests of various actors were shown to be inscribed into the technology. The first dominant notion that designers locked into the SST was that of substituting the call-centre consultant. While the use of the website as a replacement channel was in some respects a

rational decision based on internal efficiency goals, it neglected the socially rich context of the external user and already inscribed routines with traditional channels. Unlike internal users, who are subjects of the governing structures of the organisation, external users possess substantial discretion in their use of SSTs. This context of substantial ‘interpretive flexibility’ makes the process of attracting, converting and retaining external users a major challenge. Failing to see the intricacies of interacting with traditional channels as a social construction results in a misconception that an SST can somehow take on the role of traditional channels.

I also witnessed how the use of the channel as an online dietician reduced the patient to a set of measures, and by design had dismissed the other roles that are so essential in a dietician-patient interaction. There were several other attempts to black-box the notions of ‘consumer-driven healthcare’. The designers were attempting to present themselves as a solution to this notion. However, these notions of consumer-driven healthcare are not self-contained. They intertwine with the ideas of ‘others’. As a result, there was diversity in interpretation by different social actors, and therefore in what the SST ‘is’ to these actors. Therefore, although one may talk about self-service in the singular, the identity of the SST itself is dissolved into multiplicity. After all, the SST is performed by multiple objects and subjects. The translations of managers, developers, designers, users, analysts, marketing, traditional healthcare practitioners, application servers, software programming languages, browser versions, joint venture partners, the membership card, the telephone, traditional channels such as call centres, intermediaries, dieticians, clinicians all intertwine in translating the emergent outcomes of the SST. Therefore, we cannot talk about a single SST, since the SST itself is created relationally.

ANT also demonstrated how the tool had to be reconfigured to accommodate local adaptations. As such, SSTs are subject to their social contexts for their continuous adaptations. Designers of SSTs shape SSTs, but cannot control them in a deterministic way. SSTs that do not match the demands of their social contexts are unlikely to evolve in ways inscribed by designers. Furthermore, SST designers have to face internal business and traditional systems area interests and alignments that are often contingent and unstable. ANT also demonstrates that the implementation phenomenon is not just socio-political, but technical as well.

In other words, the SST demands or depends on the mobilisation of several SSTs. Thus ANT enables us to penetrate the SST phenomenon, not by using simplistic notions such as success or failure, but by tracing the socially rich and diverse translations.

9.2.4 Similar insights gained from ANT and ST

Both theories demonstrate that the range of interpretive flexibility in the use of SSTs is broader than for internally based systems, particularly in a socially rich, multi-channel context. Users modified the way in which they appropriated the SST, and the modified use often did not resemble the intentions of the designers. Furthermore, despite their beliefs and inscriptions, designers were shown to be more flexible in the way in which they followed their own interests. In both analyses, I witnessed that management – be it by acquiescence or coercion – were not ‘deterministically’ bound to their inscriptions of developing the ‘channel of choice’. Another important point is that both theories paid careful attention to the localities of the particular SST contexts, as opposed to offering generalised predictors of change. As a result, both theories demonstrated that universal solutions are unlikely to be immediately successful in multiple locations spanning different social, political, institutional and strategic contexts. Findings from both these theories also suggest that there is a need for a pragmatic balance between global standards and local needs. Furthermore, both analytical devices confirm that SST implementations are indeed context dependent. More specifically, SSTs operate in social contexts which design, use, adapt and modify them as tools for certain purposes. Thus the process of SST implementation is shown to be gradual and emergent. Moreover, the design and use of SSTs are subjected to improvisation. Accordingly, both theories were faithful in accounting for the gradual process of SST implementation and the tracing of divergent design and uses by way of multiple enactments and translations.

9.2.5 Conclusions on the theoretical frameworks

Structuration theory has offered a comprehensive approach to understanding SST implementation. It sensitised us to look at the macro and micro social issues with equal adeptness. On the other hand, through its emphasis on non-human actors, ANT offers a very enlightening perspective of design and use practices, shedding unique insights in answering the

research questions. However, structuration theory ‘naturally’ lends itself to observing broader processes and proves to be more adept at explaining the events that transcended the immediate ‘microworlds of the actors’ (Parayil, 1999). Nevertheless, by capturing the various interpretations and articulations of social and technological actors an in-depth and richer understanding of the SST phenomenon was attained. Jointly, these theories demonstrate how ‘meaning’ is bounded by context, process and technology, and consequently how both designers and users are enabled, as well as constrained in their actions. In the next section, I outline some key principles and guidelines that were applied in developing the conceptual framework from the above findings.

9.3 Principles and guidelines for building a conceptual framework

Eisenhardt (1989) points out two important concerns related to building theory from case studies. First, the intensive use of empirical evidence may result in theories that are too complex. The volume and richness of the data may give rise to theories that capture everything, but lack an overall perspective. Understanding the SST implementation phenomenon is complex, and the way I conceive it suggests the use of several perspectives and concepts. In this thesis I have focused primarily on developing a concept of SST implementation using key components of the analytical framework and associated conceptual elements (discussed in chapter 4). In doing so, the theoretical contributions are relatively parsimonious.

Second, Eisenhardt (1989) argues that building theory from case studies may result in concepts that are idiosyncratic to the case in hand. A primary aim of this thesis was to develop a conceptual framework of SST implementation for the commercial domain, and an extension to a more general IS implementation theory, thus making this concern less pressing. While I acknowledge that being embedded within this framework may be disadvantageous to the exploration of new concepts and theoretical ideas, I must remind the reader that all research theories have their inherent blind spots.

The main thread of the argument throughout this thesis has been directed at the drawbacks of mechanistic approaches to understanding the SST implementation phenomenon. As already alluded to, IS research approaches have been dominated by the Cartesian paradigm, and thus endless attempts to break up complex IS implementation phenomena into their smallest parts to

explain them in the form of predictable laws. However, more recently some IS researchers have been exploring ‘systems thinking’, which emphasises that parts can only be understood within the context of a larger whole (Checkland, 1999). In the words of Kwon and Zmud (1987), ‘most studies focus on small pieces of the implementation puzzle, without considering larger issues’.

Similarly, the main argument of this thesis is that understanding of social phenomena such as IS implementation can only arise out of understanding the interactions and relationships between the parts. Following this line of reasoning, an approach is proposed that emphasises the ‘contextual’ whole to understanding the implementation phenomenon rather than the analytical ‘sum of its parts’. This is aligned to the theoretical approaches already adopted in this thesis which emphasise that meaning develops within a set of other meanings, not in a vacuum, and which places human action in a stream of behaviour or events (process) to which it is related (context). Ignoring the context implies that social meaning and significance are distorted. (The importance of the social context in understanding the SST implementation phenomenon has already been shown.) The passage of time is also central to this type of approach, and so are paying attention to sequence of events and understanding how the SST phenomenon evolves, develops or emerges over time. After all, the SSTs can conjure different meanings in different cultural settings or historical epochs (dotcom vs dotbomb). And equally important are the day-to-day practices of users and designers, and the values, reasons or motives that shape their behaviour in particular ways. Of particular importance is how the stability of social practice is maintained or disturbed by interacting with others in ongoing processes of communication and negotiation.

However, what sets this conceptual framework apart from other similar attempts is the fundamental role that information technology is seen to play in shaping social action in specific ways. Information technology is influencing the very nature and direction of healthcare insurance. Therefore a truly systemic conceptual framework will include the technological artefact more prominently to improve the understanding of SST implementations (Orlikowski and Iocono, 2001). Furthermore, such a framework must be able to elicit a ‘socially rich’ perspective of social actors such as users and designers (Lamb and Kling, 2003). By supporting these two seminal studies, the envisaged conceptual framework will increase the applicability of its theory to other contexts (Carroll and Swatman, 2000). Moreover, by combining constructs and elements from ANT and structuration theory as ways of viewing the world, the conceptual

framework will not only allow for the understanding of the phenomenon from multiple lenses, but will also sharpen the definition of its high-level concepts and raise their theoretical level (Eisenhardt, 1989; Walsham, 1995). Furthermore, the development of concepts belonging to such a framework should be ‘generalisable’ enough to describe ‘tendencies’ (rather than predictions) in other IS settings, apart from SSTs (Walsham, 1995).

In chapter 4 I laid the groundwork by developing the initial conceptual framework for understanding the SST implementation phenomenon. In the next section, I attempt to unify concepts from structuration and ANT, based on the case study interpretation, so that such a synthesis can be extended to the SST and IS domain.

9.4 A four-perspective framework for understanding self-service technology implementation

9.4.1 Introduction

Because of their complex and abstract nature, structuration theory and ANT are very difficult to apply in the information systems context. A more parsimonious analytical framework is needed to understand the IS implementation phenomenon. In this section, a conceptual structure for such a model, inspired partly by earlier works from Walsham (1993), is proposed in the form of a tetrahedron.¹

This model is derived by combining insights from structuration theory and ANT from previous chapters. Unlike previous structuration theory approaches (Walsham, 1993; Pettigrew, 1987), in this approach meaning, process, context, and the technology artefact are intertwined, thus affording meaning and technology a more prominent role in understanding the SST implementation phenomenon. The concept of a non-human ‘actant’ (technology) – in this case the self-service technology and related technology allies influencing the social context and social

¹ A tetrahedron is a geometric shape belonging to a class of shapes referred to as polyhedrons. A tetrahedron is composed of four triangular faces, three of which meet at the vertex. These geometric shapes are often used in academia and business to depict the interrelationships between constructs. A well-known application is the Weberian pyramid. Famous interpretive sociologist Max Weber used a tetrahedron to depict the systemic nature of social systems containing three dimensions, which included political, socio-economic and ideological sides to discuss power (Craib, 1997). Similarly the form of a triangular pyramid is an appropriate way of illustrating the social dynamics of the four dimensions involved in the SST implementation phenomenon.

process on the basis of the interests and assumptions (meaning) inscribed within them – has an undeniable appeal in using ANT concepts for understanding the SST implementation process.

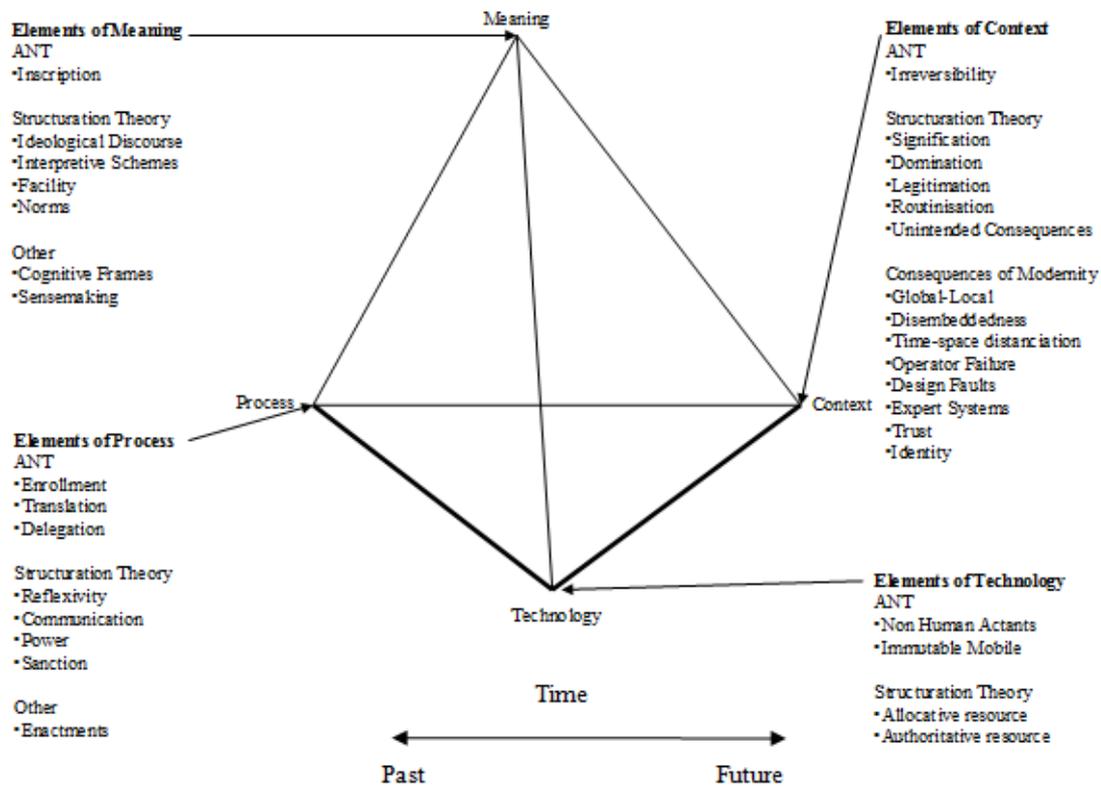


Figure 9.1 The four perspectives of SST implementation

In the conceptual model illustrated above, I indicate the interconnectedness between the four perspectives by representing them as corners of the tetrahedron. The analogy is similar to Swanson’s (1988) implementation puzzle in the flexible way it reflects on the perspectives and interrelationships that arise in implementation situations. However, Swanson’s formulation was limited to analysing the interaction of critical success factors of IS implementation. As the figure above illustrates, in order to develop a comprehensive understanding of SST implementation, such an analysis must incorporate the integration of four perspectives: meaning, process, context and the technology artefact. Integrating these perspectives means recognising that each dimension contributes significantly to understanding this social phenomenon. As I have shown, the meaning of the SST, while purposeful, was never fixed or static, but corresponded to local and broader contexts and responded to unanticipated or unintended consequences. The model also illustrates that the SST is implicated in a social context. Structuration theory adds a dynamic perspective by focusing on how social context enables and constrains interaction, and how the

interaction process, in turn, defines and redefines social context. Innovations such as SSTs should be viewed as continuous, as opposed to discrete (Kling and Scacchi, 1982). By incorporating time, this unitary model allows the plotting of changes in meaning, technology, context and processes over this longitudinal journey. This inclusion of time in the model does not imply that implementation should be viewed as a discrete or chronological process, but reinforces elements of past, present and future embedded in these four perspectives as another intrinsically important analytical dimension.

The implementation model also consists of design and use processes and draws out broader social actions in the recursive reproduction of the SST. Furthermore the model also responds to changes in the process, either designed or emergent. Although SST implementation involves relationships between processes that produce the material component of the SST, the SST implementation process itself is concerned with both material (eg Web browser) and non-material artefacts (eg loyalty scheme). Structural changes as suggested by structuration theory should be understood purely as a cognitive process. While meaning or understanding is a cognitive non-material phenomenon, using ANT concepts the unitary model above asserts that meaning is also shaped and inscribed in technology. Thus, implementation is never divorced from the technology, even though its essential characteristics – such as organisation, complexity, and processes – are non-material aspects. Indeed, disturbance in any one dimension affects each of the three sides of the implementation pyramid. In other words, jointly these dimensions can unravel the socio-technical complexity of SST implementation. For instance, the case study demonstrated that by not serving the interests of the majority of users and interest groups within the firm, the stability and the sustainability of the new technology as a ‘channel of choice’ were threatened. A new ideological constellation that aimed to ‘dazzle the customer’ emerged to rescue the technology that had been thrown into early crisis. The distinction of these four perspectives is therefore largely an analytical convenience, since these perspectives are mutually interrelated. In the next section I discuss the integration of the four perspectives – process, context, meaning and the technology artefact – in more detail.

9.4.2 Meaning as the first perspective

Social scientists have referred to the hermeneutic dimension to express how human action flows from the meanings that we attribute to our social context (Giddens, 1984; Habermas, 1976).

Accordingly, the above model postulates that the systemic understanding of SST implementation should incorporate meaning into the three other perspectives on implementation. The centrality of meaning in this model expresses the critical dimension of a human agent's reflexive (inner) consciousness of concepts, ideas and images that constitute social phenomena and language as the medium for understanding and agreement in a social, political and economic context (Butler, 1998). Following this line of thought, it is language that marks the coordinates of one's life in a social setting, and fills that life with meaningful objects (Berger and Luckman, 1967). The model emphasises that subjective insights and interests of human agents such as designers, users and other stakeholders are important if we are to understand human conduct in the implementation of innovative technologies. In other words, these practices unfold as an intersubjective reality involving a continual interaction and communication with others.

Understanding SST implementation is inextricably linked with the reflexive consciousness of users and designers and the social context. These mental blueprints enable users and designers to choose among alternative paths, which is necessary to formulate values and social rules of design and use behaviour. Conflicting interests structured on different values are also the bases for understanding relationships of power in a particular SST context. The concept of meaning implies that the SST phenomenon, while having been assigned or inscribed with specific objectives by designers, will lead to different or emergent meanings. For instance, we have seen in the case study how the SST team culture was created and sustained by a network (context) of media communications (process), in which meaning was generated. The SST culture's material embodiments (technology) included artefacts (such as presentations, reports and other written texts) through which meaning was passed on from the organising bodies, including management, software vendors and academics, to the design team. Several unintended or unanticipated consequences emerged as a result of inscribing these meanings into the SST. For instance, management eventually recognised that the role (meaning) of the SST as a dominant channel (intended outcome) was incongruent with the users' action (actual outcome) within a multi-channel context.

Many user social groups emerged, based on differing interpretations, varied access to channel resources, and norms that legitimated different 'orders' of use. In other words, the understanding of SSTs as a product of human action is subject to a 'circle of understanding' that includes the whole and the parts that constitute it (Butler, 1998). Orlikowski and Robey (1991:153) assert that

‘the content and form of an IT artifact tends to reflect the assumptions and objectives of its designers’, which was quite apparent in this case. However, meaning itself is a systemic phenomenon that is always shaped by and is implicated in shaping the social context. According to Berger and Luckman (1967:87), ‘this is done by various techniques of intimidation, rational and irrational propaganda, mystification and, generally, the manipulation of prestige symbols’. In the case, the designers interpreted the SST within a particular ideological context, beliefs and sets of circumstances perpetuated by various steering mechanisms during the dotcom era, whereas user groups were driven by different sets of norms. These unexpected patterns of use by these social actors led the designers to reconfigure the SST eventually to reflect ‘the way things are’ (Berger and Luckman, 1967). In this case, proponents of the SST had to concede to the definition imposed by user behaviour which supported the notion of a ‘complementary channel’. Therefore the SST has no meaning, that is, apart from the historical, organisational, political and economic context from which it emerges.

9.4.3 Context as the second perspective

Social context is considered both the medium and the outcome of interaction, therefore understanding interaction at moment requires taking the current and historical social context into account. Structuration theory adds a dynamic perspective by focusing on how social context enables and constrains interaction, and how interaction, in turn, defines and redefines social context. The unitary conceptual model avoids linear cause-and-effect relationships and emphasises that both users and designers interpret their social context to guide their actions. Furthermore, it suggests that human actions, while purposeful, are enabled and constrained by the social context, but not necessarily determined by it. In the case study, the context provided the external drivers for the SST implementation, and a number of internal organisational constraints that influenced the trajectory of the SST implementation outcomes. For instance, the strategic conduct of the senior managers of the dotcom initiative was shaped largely by how they interpreted the dotcom environment, positioned by the various steering mechanisms at the time.

Users, meanwhile, are also enabled and constrained by, but not determined by the context. This is not to suggest that users can be totally independent in the health insurance context, but merely to reinforce the notion that users can demonstrate a high level of autonomy over their channel preferences. This highlights one of the fundamental differences between users of Web-based IS and traditional IS systems. To understand the implementation of the SST, we need to relate it to

its historical context and in particular to review it in light of institutionalised and contemporary practices facing designers and users. Consequently, a more socially rich view of users and designers as multidimensional social actors emerged in the earlier analysis (Lamb and Kling, 2003). For instance, certain social user groups, such as loyal, polygamous, interpersonal and ideal types who were identified in the case, were selective about the use of the SST. Thus, the model can be extended to understand implementation at different contextual levels, and can account for societal, inter-organisational, organisational, group and user levels. However, as the above model demonstrates, context and use by social actors are not static. Instead, outcomes of SST use and strategies for SST implementation are clearly context sensitive. The dynamic process of action interweaving with the other three dimensions is also fundamental to understanding the SST implementation phenomenon.

9.4.4 Process as the third perspective

The social context continually and recursively coordinates the behaviour of human agents. Similarly, as the SST emerges, it enables and constrains human actions. In other words, social structures are produced and continually reinforced by the actions of agents in the process of instantiation. In understanding the implementation of the SST, both the ANT and structuration theory analyses uncovered a perplexing multitude of phenomena, rules, resources, goals, strategies, designs, and power relations that are essential to design and use practices. As a result, the emergent outcome of the SST arises from a complex, highly non-linear dynamic, combining rational and political processes. As Walsham (1993) has articulated in previous studies, ‘power, chance, and opportunism’ are as influential in shaping IS implementation processes as are ‘designed, negotiated agreements and master-plans’. The SST evolves out of a recursive process through which values, beliefs and rules of conduct are continually communicated, modified and sustained.

The case revealed how the SST emerges from a network of communications among designers and how, as it emerges, it produces constraints on their actions. In other words, the rules of conduct that constrain the actions of designers are produced and continually reinforced by their own network of communications. Consequently designers also produce a shared body of knowledge, including information, ideas and skills, that shapes their distinct practices in the implementation process. As a result, they shape their own cultural identity, which in turn

reinforces their own sense of belonging. This unique identity can sometimes alienate them from other systems areas. As already alluded to, the action of design agents is also implicated in the production of structures. These structures are a means by which designers attempt to inscribe and thereby embody meaning into the SST. Furthermore, through the process of translation, the designers of the SST attempt to enrol a group of allies, both human and non-human. It is important that allies share the same interests and through their actions demonstrate that they are willing ‘spokespersons’ of the SST. Therefore social systems produce material and non-material structures. To a large extent, SSTs are material structures that embody the shared meanings of designers. Similarly, in interacting with the health insurer, users draw on their patterns of signification, domination, and legitimation to interpret the role of the SST in the multi-channel environment, and enact the appropriate social practice according to their personal framework of norms. One of the limitations of structuration theory is that it does not specifically elucidate the relationships between the social aspects of the organisation and information systems such as SSTs. Thus, to understand the implementation of SSTs within a social system, it is also important to study SSTs from a material perspective.

9.4.5 Technology as the fourth perspective

In contrast to structuration theory concepts only, the model above explicitly incorporates technology in the four implementation perspectives. Human action, it is suggested, is not absolute, but responds to and itself shapes and is shaped by technology. In other words, technology is implicated in the regularity of social relations, and specifically in the way that interests are inscribed in them.

Consider the analogy of a speed bump (material structure) used by Latour (1999). It has certain inscriptions embedded in it, but it is not just in the mind (non-material structure) of the road user (human agent). The speed bump will interact with the reasonable road user and convince the user to slow the vehicle down, owing to its physical presence and real effect inscribed in it, not just as a mental effect. Similarly, in the case the designers enrolled the electronic newsletter and frequently asked questions (FAQs) as technology allies of the SST in attempting to enable the SST to interact more like a real-world wellness practitioner. While one can concur with ANT that social actions or intentions can be delegated to technical artefacts, one must still exercise caution so as not to overstate the importance of technological properties. After all, human actors,

via social interpretation and actions, can modify or ignore the inscribed or intended configurations of the technology. Staying with Latour's analogy, one needs only consider the examples of some drivers who in their day-to-day practices ignore the virtues embedded in speed bumps to challenge Latour's strong objectivist notions. For instance, despite the presence of the 'speed bump', some drivers may draw on their structures of signification which emphasise a 'get to the destination fast' discourse, dismissing the 'slow down so as not to endanger pedestrians' inscription embedded in the speed bump. In other words, it is only through human action, more specifically through the process of instantiation, that these inscriptions take any effect when interacting with material artefacts.

A number of IS studies using structuration theory have attempted to incorporate technology more explicitly in their models. Berg (1998) argues that most structurational accounts offer undue privilege to human agency, causing 'technology to vanish from their accounts, appearing only as an occasion for structuring, without any activity or specificity of its own'. More recently, Rose, Jones and Truex (2005) proposed the 'double dance of agency' model, as a more intermediate account of human and machine agency. However, as has been shown in the SST context, it is not only the technology that plays a central role in SST implementation, but other non-human actors as well, such as the loyalty programme and the telephone in the case study. ANT's symmetrical treatment of actors helps us to trace the role of other important actors in the implementation process, which may not be necessarily be an information technology.

Unlike ANT, however, the conceptual framework above does not treat technology and its non-human allies and human agency as equivalent. After all, technology does not have the capacity to reflexively evaluate its own purposes and actions or those of others in an autonomous fashion, unlike human agents. Despite the interactive nature of SSTs, these technologies are not aware in the same way that humans are of themselves and their social context. Furthermore, while humans can interpret meanings of technology, technology does not have the ability to interpret human action. Another important feature of being human is the intentionality that humans can direct towards achieving certain outcomes, despite these actions being prone to unintended outcomes. As Rose *et al* (2005) point out, technology does not have the capability to decide what actions to take outside those parameters established by their designers. Following this logic, it appears that technology does not deserve symmetrical treatment with human agency.

Similar to Rose *et al* (2005), the implementation model above gives prominence to the role of technology, and recognises the mutually dependent and intertwined relationship between human and technology actors. The model acknowledges the presence of and the alliances among technological artefacts (Web browser, Web server, Web software, national ICT infrastructure) and assumes that technology is influential upon meaning, process and context. However, the model, while giving prominence to technology, does not treat technology artefacts and human agency as equivalent. The model accounts for the different properties composing human and technology agency, and the emergent rather than predetermined outcome of human-technology interaction. Yet, at the same time technology is not treated as something that is neutral. Instead, technologies such as SSTs – through the inscriptions of the norms, values and rhetoric (that is, meaning) that they carry – can recursively shape or alter process, context and meaning dimensions in specific ways. In this way non-human actors, like human actors, are decisive in the outcomes of the SST implementation process. Since the model offers a comprehensive framework for understanding the dynamics of SST implementation, the applicability of its high order concepts and elements is equally relevant to other IS implementation phenomenon.

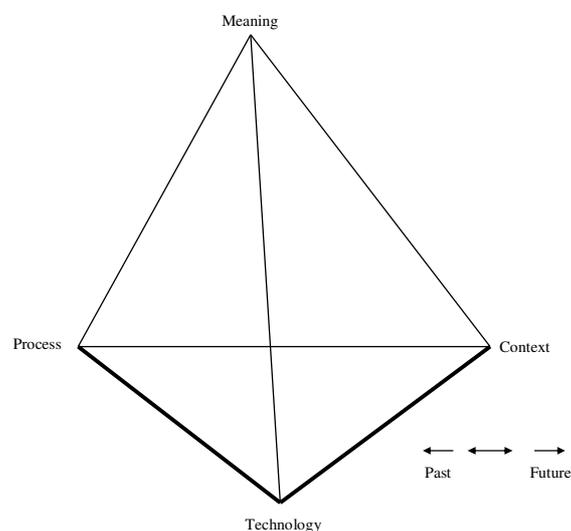


Figure 9.2 A unitary model for interpreting IS implementation

Figure 9.2 represents this relationship in the form of a unitary model of IS implementation. Therefore the analysis of the four interconnected perspectives – meaning, process, context and technology – makes it possible to establish a unified understanding of IS implementation phenomena. In this model I attempted to stay clear of any formulas, dogmas, or prescriptions for

IS implementation success. Instead of basing a conceptual framework on *what* to think (that is, a catalogue of factors or some hallowed postulates), I have based it on *how* to think about IS implementation. It is only through creative understanding that we can uncover the IS implementation phenomenon from moment to moment.

Table 9.1 presents some fundamental examples to illustrate the efficacy of the conceptual framework in uncovering the complex and interdependent issues in the implementation of Internet-based self-service technology that were evident in the case.

Table 9.1

Applying the four perspectives of the unitary IS implementation conceptual model

Model dimensions	Some related themes	Sample illustrations from the case study
Meaning	<ul style="list-style-type: none"> • Interpretive schemes • Facility • Norms • Inscription • Cognitive frames • Sense making 	<p>The SST discourse inscribed in promotional devices such as magazines and electronic newsletters to users drew on a signification structure which contained the notions of ‘convenience’ as a rationale for SST use</p> <p>Despite majority of the users not following the inscribed intentions of the designers, the SST remained a symbolic force signifying the ability of the consumer-driven healthcare movement to empower customers</p> <p>During the ‘channel of choice’ episode, the SST reflected a substitution claim. Thus the institutional values and interests that the insurer drew upon and attempted to inscribe in the SST were biased towards an operating efficiency logic</p> <p>As an autonomous SBU and as an ally of senior executives, the SST artefact was strengthened during processes of negotiation with competing institutionalised system practices, interests and norms</p>
Process	<ul style="list-style-type: none"> • Communication • Power • Sanction • Enrolment • Translation • Enactments • Delegation 	<p>The prevailing interests within the local health firm, employing strong images of consumer-driven healthcare during the ‘channel of choice’ episode summed up the existing power structure that facilitated the opportunities for radically ‘loose’ systems development practices</p> <p>Drawing on loyalty points while effective at <i>interesting</i> and enrolling many users were ineffective at sanctioning the intended behaviour of external users. Users displayed</p>

Table 9.1*Applying the four perspectives of the unitary IS implementation conceptual model*

		greater discretionary power over their choice on modes of interaction with the healthcare insurer. Nevertheless the SST emerged as a new structure for interaction with the healthcare insurer
		The ‘real-world’ dietician often has to play the role of a psychologist, part coach, part friend, and part dietician. The analysis exposes the limitations of delegating the social actions of the dietician to technical artefacts such as the self-service tool
Context	<ul style="list-style-type: none">• Signification• Domination• Legitimation• Unintended consequences• Global-local• Routines• Irreversibility	<p>The spate of regulatory reforms and rapid membership growth intertwined with local firm practices and priorities of lowering administration costs using the new channel</p> <p>The SST was legitimised by ongoing shifts and recasting of its role and reorganisation efforts. From the mini-crisis of not being able to replace traditional channels, the SST’s place was eventually strengthened as a complementary channel. From operating under the banner of an autonomous SBU, the SST was eventually fully integrated into the firm</p> <p>Owing to prevailing structures of domination, the international development team was initially forced to implement their SST using the inscription of a servicing structure bias although they required a structure that could gear online sales</p> <p>One of the established norms that legitimated the deployment of the SST as a service channel was ‘call reduction’. An unanticipated consequence of the SST was the marked elevation in calls that occurred closer to the proximity of an SST use event</p> <p>Out of the development of the SST an extensive stock of experience for developing and exploiting global ICT infrastructures emerged which was subsequently used to support the international growth strategy</p>
Technology	<ul style="list-style-type: none">• Non-human actants• Immutable mobile	By taking the material properties of technology into account, we observed that the SST is implicated in a highly fragile, contingent and improvised mode of forging relationships with other technical allies or foes such as the Web browser (eg Netscape vs Explorer), software development

Table 9.1

Applying the four perspectives of the unitary IS implementation conceptual model

languages (eg Magic vs Java), middleware, internal databases and server architecture, the telephone, call centre and so on with their inscriptions sometimes containing contradictory values and interests

Note: As the brief yet systematic analysis in the illustrations above indicates, the distinction of these four perspectives and their conceptual elements is largely an analytical convenience, since all four perspectives are mutually interrelated

9.4.6 Conclusion on the conceptual framework

By incorporating ANT concepts, the structuration theory model was extended to incorporate technology in ‘a four-perspective framework for understanding IS implementation’. Using the interpretive philosophy underpinning this research that values the multiple perceptions of actors more directly, it is shown how ‘meaning’ is bounded by context, process and technology, and consequently how designers, users and other stakeholders are enabled as well as constrained in their practices. Investigating the interrelationships, dependencies and mutual configurations of these four dimensions provides a more perceptive lens for understanding the SST implementation journey. The application of this framework and its accompanying high-order concepts and elements is equally germane to other IS implementation phenomena.

9.5 Conclusion

The important goal of this chapter was to synthesise structuration theory and actor-network theory (ANT) understanding and develop it into a systemic framework for understanding SST and IS implementation. I developed a conceptual framework that integrates meaning, context, process and the technology dimensions. This unitary model was also used to briefly demonstrate some of the complex and interdependent issues and their implications for Internet-based self-service technology implementation in the healthcare case context. Orlikowski and Iacono (2001) asserted that the IT artefact is shaped by the interests, values and assumptions of designers and users; that the IT artefact is embedded in a historical context, and therefore must consider cultural and organisational discourse that shape the implementation journey; that the IT artefact is composed of a multiplicity of fragile and fragmentary components; and that the IT artefact

emerges from ongoing social, political and economic practices. More recently, Lamb and Kling (2003) have called for a ‘socially rich’ perspective of the user. The conceptualisation of the SST implementation practice as comprising four salient dimensions makes a significant contribution towards these research calls to understand the ‘ubiquitous, interdependent, and emergent’ journey of implementing an IT artefact and equally to sharpen our perceptions of the ‘socially rich user’. With these ends in mind, I have shown how structuration theory and ANT concepts can be combined into a comprehensive theory of IS implementation without losing the inner logic of either.

In the final chapter (presented next), the research effort is concluded. Towards this end I will conduct a brief analysis of the contribution of each chapter towards addressing the research questions. This chapter also discusses the salient contributions of the research. This is followed by a brief evaluation according to certain key criteria for competent interpretive research. Finally, I will provide a brief exposition of the limitations of this research, which will be followed by reflections for further research work.

Chapter 10

Conclusions and Evaluation of Contribution

10.1 Introduction.....	376
10.2 Addressing the research questions	376
10.3 Contribution to knowledge.....	379
10.3.1 Theoretical contributions	380
10.3.2 Methodological contributions	382
10.3.3 Practical contributions.....	383
10.4 Assessing the contributions.....	386
10.5 Related publications	390
10.6 Limitations and suggestions for future research	390
10.7 Conclusion	392

10.1 Introduction

The main aim of this research has been to develop a conceptual framework to contribute towards the understanding of Internet-based self-service technology (SST) implementation. To this end, I adopted an interpretive stance and an in-depth single case study strategy. The derived conceptual framework in the previous chapter demonstrates that in order to develop a comprehensive understanding of SST implementation, such an analysis must incorporate the interconnectedness of four perspectives – meaning, process, context and the technology artefact – and the respective conceptual elements that make up these dimensions from structuration and actor-network theories.

At the start of this research a set of research questions were posed (*cf* chapter 1). In the first part of this chapter these questions are addressed. The next section discusses the research contributions and implications. Following this, I assess the contributions of this study, using criteria formulated by Atkins and Sampson (2002). The final section discusses the limitations of this study, and offers suggestions for future research.

10.2 Addressing the research questions

Revisiting the research questions formulated in chapter 1

Various questions were tabled in chapter 1 in order to understand the dynamic interplay between self-service initiatives within the individual, group, organisational, inter-organisational and broader social context. The main objective of these questions was to meet the overall objective of this thesis, which is to understand the opportunities and challenges of implementing SSTs in the healthcare insurance services context. In this subsection, the research questions are revisited in light of the results of the case studies.

How has the social, political, economic and technological environment shaped the healthcare insurance services context?

Although this question has been addressed throughout this thesis, particular attention was paid to it in chapters 6 and 7. In one instance it was discovered that intermediaries such as the broker played a dominant role in the firm's economic interests in the South African market, given the

strong ties between brokers and employers. Key members of senior management voiced their reluctance over the potential use of the Internet channel to sell products directly to this market using SST, as it could destabilise these relationships. Conversely, given the different structures in the UK market, it was interpreted differently and a direct-to-consumer approach (D2C) was deemed acceptable. In another instance, the traditional systems staff attempted to draw on their structures of domination (arising from their powerful position within the firm) and resisted participation in developing the SST capability that was attempting to replace traditional channels. Furthermore, one of the primary motives in deploying the SST was to lower administrative costs, particularly by reducing the number of calls made to the call centre. Call savings was one of the norms the SST team had to demonstrate to maintain their legitimacy. Despite its questionable performance in one of its key inscriptions, the SST became a spokesperson for the organisation's innovativeness and for consumer-driven healthcare. These salient examples illustrate the intricacies involved in fusing technological innovations with social, organisational and commercial concerns.

What contributions can SSTs make to healthcare insurance services in the context of traditional service channels?

This question was answered partially in chapter 3. However, chapter 7 provided deeper and richer insights into it. The study shows that relying on Internet-based self-service technology alone to improve healthcare service delivery is a channel strategy fraught with hazard. Traditional channels are well institutionalised in day-to-day practices and show strong symptoms of irreversibility. Thus, a more appropriate strategy may be to position the SST as complementary to other channels, and as one that supports less complex service encounters. Indeed, a convergence strategy that maps the role of each of the channels, both traditional and contemporary, based on its applicability and appropriateness, can produce better results than an approach in which channels attempt to compete with one another for the users' attention.

While self-service technology is applicable and appropriate in certain contexts, chapter 7 reveals that the subtle roles of service consultants and wellness practitioners such as dieticians and stress counsellors that are acted out in face-to-face or interpersonal encounters cannot be completely delegated to technology. Furthermore, both theories revealed that many users still adopt institutionalised practices such as the call centre, and prefer interpersonal engagements for

complex or sensitive matters. Granted, there are some users who prefer to use only the online channel, but in this case they did not form a critical mass that is sufficient to justify the spend on the technology. Even then, some encounters are simply more effectively serviced by traditional channels. As such, the SST did not radically alter the way services were provided in the case study. At best, the SST is more effective at supporting other channels than replacing them. More surprisingly, despite questionable performance, the SST has become a noteworthy rhetorical device to drive the ‘consumer-driven healthcare movement’ and the inscription that the individual should be responsible for his or her own healthcare.

What contributions can social theories make to understanding the implementation of SSTs in healthcare insurance services?

This conceptual model was derived from structuration theory and actor-network theory (ANT) in chapter 4. Unlike previous structuration theory approaches (Walsham, 1991), in this approach meaning, process, context and the technology artefact are intertwined, thus affording meaning and technology more prominent roles in understanding the SST implementation phenomenon. The concept of a technology artefact influencing the social context and social process on the basis of the inscriptions (meaning) within them is one of the major benefits of using ANT concepts for understanding the implementation of SSTs. I also augmented the structuralist conceptual model established in chapter 4 with key concepts from Giddens’ (2003) later work on the consequences of modernity. Jointly, these concepts served to uncover important implications for organisations implementing SSTs.

This thesis also addresses how these two social theories compare in assessing the implementation of the SST, and elucidates the different insights they bring to the case. This aspect was addressed in chapter 4 and more specifically in chapter 7. It was found that both theories demonstrate that the range of ‘interpretive flexibility’ in the use of SSTs is broader than for internally based systems, particularly in a socially rich, multi-channel context. Users modified the way in which they appropriated the SST, and the modified use often did not resemble the intentions of the designers. Furthermore, despite their beliefs and inscriptions, designers were shown to be more flexible in the way in which they followed their own interests. For instance, in both analyses, management – be it by acquiescence or by coercion – were not ‘deterministically’ bound to their inscriptions of developing the ‘channel of choice’. Another important point is that both theories

paid careful attention to the localities of the particular SST contexts, as opposed to offering generalised predictors of change. As a result, both theories demonstrated that universal solutions are unlikely to be immediately successful in multiple locations, spanning different social, political, institutional and strategic contexts. Findings from both theories also suggest that there is a need for a pragmatic balance between global standards and local needs. Furthermore, both analytical devices confirm that SST implementations are indeed context dependent. More specifically, SSTs operate in social contexts which design, use, adapt and modify them as tools for certain purposes. In addition, the process of SST implementation is shown to be gradual and emergent. Moreover, the design and use of SSTs are subjected to improvisation. Accordingly, both theories were faithful in accounting for the gradual process of SST implementation and the tracing of divergent design and uses by way of multiple enactments and translations.

As compared to ANT, structuration was particularly useful at taking into account broader institutional structures, such as the South African healthcare environment and the interpretive scheme of actors by which actors make sense of the SST phenomenon. However, ANT revealed different insights by challenging the notion that SSTs can be viewed as neutral objects with no politics. As ANT has illustrated, an SST is a social construction inscribed with many biased assumptions and notions of the designers. ANT was more adept at revealing how the interests of different actors were inscribed into the technology. ANT was also more informative about the negotiations, alliances and roles of those human and non-human actors that are involved. Nevertheless, it is in their joint application that a richer insight about the implementation phenomenon emerged.

This discussion will be extended in the next section, which focuses on some of the major contributions made by this thesis.

10.3 Contribution to knowledge

This section focuses on the contributions of this thesis. It addresses three areas of contribution: theory; methodology; and practice.

10.3.1 Theoretical contributions

The mainstream SST researchers have been adopting a strong positivistic stance, using variance theories and factor-based approaches to create new knowledge about the SST phenomenon. These approaches assume that cause-and-effect relationships are clear and pervasive when studying SSTs. Other researchers are suggesting that the study of SSTs is a relatively new field that should be informed by a broader set of research approaches. More specifically, researchers have been calling for the use of multiple theories, concepts, principles and methods to be used in the understanding of SST-related problems and issues.

Towards this end, this study has used process theories underpinned by an interpretivist framework to better understand the complexity of implementing online services. As opposed to using popular deterministic approaches to understand the implementation, adoption and use of SSTs – such as the theory of diffusion, the theory of reasoned action (TRA) and the technology acceptance model (TAM) – this study explored alternative theoretical lenses. This study introduces SST and e-service researchers in particular to structuration theory and ANT as useful theoretical frameworks for understanding the relationships between technologies, the social actors such as designers and users who interpret them, and the patterns of use that stem from that interpretation. In sharp contrast to variance theories, this study emphasises the individual's subjective experience and the interpretive lenses that give meaning to that experience. Using this approach, the study revealed that the interplay between broader social, cultural, political and economic issues (many of which were not directly controllable by the SST project team) was more influential on the outcome of the implementation than the more narrowly focused factors suggested by the factor research approaches.

Furthermore, most IS studies using structuration theory and ANT have been limited to users in the workplace context, where few systems alternatives are available. In this study, both theories were applied to external users who conduct their day-to-day lives in a more dynamic social context consisting of multiple channels. Nor have previous studies considered the influence of competing and institutionalised actors such as the telephone, call centre, and intermediaries in the implementation phenomenon. Moreover, most IS studies neglect the study of contemporary forms of IS innovations in developing countries. This study described the issues of the 'digital divide' between those people who have access to self-service technologies, and the ability to use

them effectively, and those who do not. The study also emphasised the importance of quality telecommunications infrastructure in supporting SST applications.

A major issue in this study was to enhance our understanding of the complexities of SST implementation. By using theories like structuration alone, one runs the risk of concealing the roles played by some of the key actors. While some simplification was necessary in this study, by using ANT, I was able to reveal those actors that mattered – in other words, those actors that made their presence ‘individually felt’ (Callon, 1986a). As such, I was able to provide a more holistic account of the SST implementation phenomenon. Moreover, ANT was used to describe both internal translations and external translations, in other words how internal groups (such as the staff) were mobilised and how different user groups were mobilised. Consideration of the negotiations, alliances and roles of those involved revealed how fragile the SST innovation was during certain stages. The shifts in the way the SST was employed also provided a useful approach to trace the progress of the SST implementation. Research of this kind is scant in the literature and for SSTs in particular is non-existent, making this study significant.

The research also addresses the limitations of structuration theory by augmenting it with Giddens’ later ideas on the consequences of modernity. Moreover, the study demonstrates how one can combine theoretical lenses with different ontological perspectives, to develop better understanding of social problems. By combining these two theories, a stronger but more parsimonious model of implementation was developed.

Using ANT and ST jointly also offers an assessment of which theory is more powerful in developing and understanding of the SST implementation process. Since there are numerous debates in the IS literature as to which of these theories is more suitable for IS research, this thesis compares them in an actual case. While it is my contention that the two theories are equally valid and somewhat compatible, other researchers can review the findings offered here to clarify their own thoughts on the ST vs ANT debate (Whetten, 1989). To a certain extent, this thesis has responded to Monteiro and Hanseth’s (1996) call to be more specific about technology, and Orlikowski and Iacono’s (2001) concerns about the under-theorisation of the IT artefact.

Previous conceptualisations of IS implementation failed to provide a ‘socially rich’ view of the user. In this study many user social groups emerged, based on their differing interpretations, varied access to channel resources, and norms that legitimated various ‘orders’ of use. The analysis revealed social practices of four user segments, specifically polygamous users, low servicing need users, interpersonal users, and the ideal type user, thus addressing calls by Lamb and Kling (2003) for a ‘socially rich’ perspective of the user. This research also addresses the lack of attention paid to contextual and historical reasons outside the firm by focusing on the context of interaction and differentiating between the firm and the healthcare environment.

In summarising, the way for academics to analyse future self-service implementation is by taking account of the interconnected perspectives of meaning, context, process, and technology.

10.3.2 Methodological contributions

Only a few studies have attempted to appropriate and assess structuration and ANT in the same study. This study promotes a pluralistic theoretical approach to understanding macro- and micro-level social contexts of SST implementation. In addition, the application of a case study strategy may be useful for other studies attempting to gain an in-depth understanding of the implementation of self-service technologies. Furthermore, the study combined quantitative and qualitative data to describe the case, a rare encounter with interpretive research.

The empirically rich insight provided by the case study is another major contribution of this study. Other researchers who wish to employ a case study strategy may be able to glean knowledge into how to apply an interpretive approach in data collection and analysis procedures. The use of the website feedback was shown to be a very innovative and useful approach to collecting and analysing information to understand user perception and evaluation of Internet-based self-service technology. Website feedback data retains information about the user and the date of the feedback. This then gives us a historical perspective of user experiences. Users are expressing themselves in a ‘real context’, and not an artificial context created by researchers. Consequently, future researchers intending to understand Internet-based self-service technology should consider website feedback as part of their data collection strategy.

To structure the analyses, major shifts in the enactments and translations of the SST were presented as cognitive and technological frames. These shifts were understood as a series of episodes involving the various actors, and proved to be a useful method for overcoming the complexity of presenting the longitudinal process information of the case.

10.3.3 Practical contributions

The study's in-depth analysis of broader social and organisational issues will resonate with practitioners. Most implementation studies, even case studies, tend to neglect these broader issues within which the technology is implicated, and overemphasise the technology and user dimensions. The main practical contribution of this study is the finding that in this particular healthcare insurance services context, self-service technologies are most appropriately positioned as a complementary service channel. The study showed that existing embedded relationships between stakeholders such as the health insured member and the call-centre agent were in the main irreversible or resistant to change. Many health insured members prefer to use the human interface, as opposed to the Web interface, to manage complex or sensitive queries. Therefore practitioners should not underestimate institutionalised features of social practices like the use of the telephone or intermediaries such as brokers. The study therefore provides an understanding of current routines and practices, and how these routines may remain stable or change. In this way, the study draws the attention of practitioners to focus on relational aspects to the same extent that they emphasise rational and economic goals of self-service technology implementation.

For instance, the study showed that inter-organisational relationships between brokers and health insurance partners can be strained if attempts are made to remove the broker from the health insured member / health insurance organisation relationship. It was also found that most private healthcare insurers should preserve their work practices. For instance, the manual submission of claims that has become well routinised could not be easily replaced by electronic submissions by health insured members. Neither can the multiple roles played by the wellness practitioner in a face-to-face encounter be easily delegated to a self-service technology. Generally, the study confirmed that embedded relationships in the healthcare insurance context remain important, despite the introduction of self-service innovations.

The case study points out that firms attempting to implement SSTs should adopt a holistic approach that includes social and technical factors. Apart from developing a complex data infrastructure to support a comprehensive online self-service strategy, firms must seek to understand what technologies are most appropriate and applicable in which situations, and how these technologies can be effectively and efficiently utilised, based on decisions supported by external and internal information as well as improvisation. Certainly, practitioners need to balance their perspectives of efficiency and effectiveness with perspectives such as appropriateness and applicability. Furthermore, it may be wiser to work as a collective and combine skills to work on and improvise on new-age futuristic service designs.

Firms should accept that for low-involvement products like health insurance, most customers in the post-purchase phase will not find the product interesting (unless they are very ill). Firms should also note that most customers are only interested in ‘grudge purchases’, like healthcare insurance products, when they encounter an event (eg visit the doctor) which implicates the product. Therefore practitioners should tailor services around customer events instead on products and piecemeal processes, across multiple channels. Moreover, unlike in the online banking context, the call-centre consultant cannot be substituted by technology in the healthcare insurance context. Whereas concepts in banking are well routinised in a user’s day-to-day practice, concepts promoted in consumer-driven health plans are often unfamiliar, thus influencing a higher servicing need. Instead of having an actuarial bias in the design of product concepts, health insurance firms should identify what language and terminology will make the most sense to their members.

This study showed how reward schemes can artificially inflate registration numbers of users, but observed no major effect on their ability to retain users or sustain usage. It also showed how the use of loyalty schemes can lead to unintended consequences. Many users used the SST to gain loyalty incentives – ‘point chasers’. Therefore there was no change in behaviour towards adopting the online channel. Instead, the loyalty scheme had the unintended effect of increasing the use of the traditional channels. Firms should exercise caution when implementing a loyalty scheme.

Furthermore, the study highlighted how internal definitions of the user that are based on a policy perspective are deficient at enabling use of the self-service channel. For instance, the firm had shifted from a policy-driven approach to access control and failed to consider the social practices of users such as the spouse. Practitioners should also pay attention to social roles in establishing the rules for identity management.

The study contributed by observing other contexts in which particular self-service functionalities work and provided an analysis and explanations for those outcomes. For instance, from a globalisation perspective, the case study highlights the differences and idiosyncrasies that are concealed beneath apparent homogeneity between the local and international contexts. In the case of the online nutrition tool, the designers had to modify and adapt the tool to accommodate another set of social practices. In implementing SSTs globally, the assumption that ‘one size fits all’ can certainly be a misnomer, and therefore adaptation to the local social context is crucial. Therefore understanding diversity and the interplay between local and global practices is crucial. Practitioners also need to reflect more actively on the contradictions inherent in introducing a new channel such as an SST. An eclectic of ideas is needed through more intense collaboration with potential users. It calls for brave management to create more discourse on ideas that are alternatives to presiding ‘regimes of truth’. It calls for management to understand the limits of their changing organisational metaphors. In the case, the shift from ‘dazzle the customer’ (innovative) to ‘nuclear power plant’ (bureaucratic) created a new focus on change with unanticipated consequences. The paradox of SST implementation is that convincing users to use impersonal technologies for servicing calls for closer collaboration internally among management, designers and other systems areas and staff members.

From another practical standpoint, the findings emphasise the priorities for practitioners, in the context of competing and alternative channels, of assessing where to focus their development efforts and on what end-user requirements. For instance, since firms can be more prescriptive with their partners than with consumers, prioritising the implementation of B2B practices may be more appropriate than B2C initiatives.

Therefore this thesis argues that a narrow focus on the expected outcomes of self-service initiatives such as productivity gains and increased service responsiveness is misplaced without the necessary sensitivity to existing embedded relationships within the different contexts. Other

instrumental objectives such as use and critical mass should also be complemented with notions of appropriateness and applicability. Therefore relying on Internet self-service technology alone to improve healthcare service delivery is a channel strategy fraught with hazard.

Consequently, many late implementers of SSTs can benefit from considering the implementation of the SST within a broader framework that focuses on the convergence of multiple channels. Since convergence represents a unified goal, as opposed to, say, a divisive ‘channel of choice’ goal, apart from ensuring tighter integration between systems implicated in the process, a convergence approach may lead to lower resistance, and hence the mobilisation of multiple interest groups within the organisation. More importantly, this will enable consumer empowerment in a true sense of the word, since customers can ultimately choose to use the channel that best suits their circumstances at a particular moment. In summarising, the way for practitioners to introduce these self-services – in other words, how to do it better than in the past – is by taking the interconnected perspectives of meaning, context, process, and technology into account during the SST implementation.

10.4 Assessing the contributions

Atkins and Sampson (2002) developed critical appraisal guidelines for assessing the validity of the interpretive research findings for single case studies through a synthesis of existing best practices (Klein and Myers, 1999; Walsham, 1995; Yin, 1984). The guidelines are organised in a framework which suggests five classification elements: way of thinking; way of working; way of controlling; way of supporting; and way of communicating. Using the evaluation criteria established in chapter 3, this section attempts to demonstrate that this research fulfils, at least to some degree, competent interpretive case study research (see table 10.1).

Table 10.1

Some key examples of compliance to the Atkins and Sampson (2002) guidelines for undertaking case study research

Element	Evidence of compliance
Way of thinking	<p>In chapter 1, the intent to use an in-depth case study approach was signalled to the reader. Chapter 2 provided an appropriate argument for a case study being the most appropriate research strategy. The strengths and weaknesses of a case study approach were also elucidated in chapter 3. In the early parts of chapter 8, the reasons for success of the case study approach were highlighted by summarising some of the rich insights gained from this research</p>
	<p>Chapter 2 also reflected on the philosophical stance adopted in the thesis, and demonstrated how these assumptions affected every other facet of this study, from how the evidence was collected to how it was interpreted. Chapter 2, Chapter 7 and chapter 8 also took into account bias when performing data analysis. The principle of suspicion (Klein and Myers, 1999) was applied when biases from interviewee narratives became apparent. For instance, some participants regarded the ‘streamlining’ of the e-commerce department as a cost-cutting initiative, while others viewed it as a performance improvement initiative. Since these opposing interpretations influenced the day-to-day practices of individuals, as a researcher I sometimes had to be faithful to both stories. To overcome other forms of bias, I often had to cross-reference the information. For instance, the respondent perceptions of usage statistics were compared with results recorded in the management reports</p>
Way of controlling	<p>Chapter 2 defined the form of quality-control measures implemented during this research. These included different sources of evidence including documentation, archival records, interviews, focus groups, management reports, direct observations, and physical artefacts. Software tools such as Microsoft Office and ATLAS.ti were used to store and protect the data</p>
	<p>To ensure that the results were credible, a case study database was created using Microsoft applications in conjunction with ATLAS.ti. For instance, this was used to cross-reference documents during the analysis phase. Furthermore, I discussed the case study narratives with some of the key participants for confirmability and with academics to get a view of their interpretations of my interpretations. Moreover, throughout the case study narrative in chapter 6 and analysis in chapter 7 and chapter 8 all quotes were indexed and given appropriate descriptions, so that they could be easily traced. In appendix C, a detail list of all the interviews and source documents is outlined. Furthermore, a sample transcript is provided in appendix C, illustrating how the transcripts were captured and documented to support the analysis process. In drawing conclusions from the data I collected, I was continually aware that the analytical frameworks I was using, while providing rich insights, were creating potential blind spots. In some instances, the initial conceptual framework had to be revised to account for new ideas</p>



	<p>The study included finer-grain conceptual elements from ANT and structuration theory to develop a broader level conceptual framework for self-service technology implementation. The network representation in ATLAS.ti was used to handle the complex relationships between concepts. By using codes, this facilitated the retrieval of quotations and other information related to the key concepts (see figure C1). In doing this, I drew attention to the fact that the distinctive ontology and epistemological underpinnings of ANT and structuration means that they are not strictly compatible. Nevertheless, it was argued that certain conceptual elements of ANT, for instance, could be appropriately used with structuration theory to give greater prominence to the technology artefact (Walsham, 2001)</p>
	<p>There is a lack of in-depth case study material that provides rich insights into e-commerce implementation phenomenon. In chapter 1, I constructed clearly formulated questions that other eminent researchers in the IS field have confirmed to be important issues or problems of interest in the area of e-commerce (Walsham, 2001). The research questions, which deal with contemporary issues, were devised to appeal to the interests of practitioners just as much as academics. They were shaped by issues that are managerial as well as academic, behavioural as opposed to merely technical. It is envisaged that exploring high-order constructs such as meaning, process, context, technology artefact and social actors will be of particular interest to other researchers attempting to understand the implementation phenomenon</p>
<p>Way of working</p>	<p>To avoid information overload, specifically since using grand social theories such as ANT and structuration theory can be overwhelming, chapter 4 created first-cut conceptual frameworks for ANT and structuration separately in the form of illustrations, accompanied by brief explanations of their key conceptual elements. These were revised many times. The initial conceptual frameworks were later extended in chapter 7 and chapter 8. For instance, particular concepts from Giddens' later works on the consequences of modernity were deemed relevant to this study, hence the extension to structuration concepts. In chapter 9, a synthesised framework is presented which includes ANT and structuration concepts. A table is used to briefly demonstrate how the implementation conceptual model can be applied. Throughout this process I was supported by the network representation in ATLAS.ti to handle the complex relationships between concepts</p>



	<p>Interview questions were initially devised from the research proposal and the first-cut research questions. The emphasis was to understand the day-to-day practices of designers. The initial fieldwork was limited to discussions with business analysts as a form of a pilot case study to test the initial research instrument. This was later refined, based on lessons learnt from the pilot study (see appendix B). These questions served as a guideline during the interview as often I had to respond to the situation at hand, to the emerging worldview of the interviewee. For instance, many of the respondents were keen to discuss the restructure/streamlining initiative because it was the most pressing issue at the time. Since these issues were of relevance to the study, I often had to be more flexible in the asking of questions. Furthermore, one of my objectives was to get divergent viewpoints on the implementation phenomenon. Therefore I engaged with various groups of designers, including business analysts, systems analysts, architects, marketing representatives, community heads and other senior managers. I also made specific attempts to interview the nutrition and stress experts to get a first-hand view on the implementation of wellness tools. Press releases and annual reports played a significant role in providing the background information for the case. Using the ATLAS.ti knowledge workbench and the directory structure created in Windows Explorer facilitated access to the large quantities of unstructured qualitative data. Using coding methods derived from the initial conceptual frameworks also facilitated this process</p>
<p>Way of supporting</p>	<p>As mentioned in chapter 2, interviews were the primary data source used to elicit accounts from those responsible for implementing the technology. A detail record of interviews conducted appears in appendix C, table C2. I also examined the firm's financial reports, press releases and internal magazines as alternative sources of data. A detail inventory of this documentation is recorded in table C1. The use of the website feedback in chapter 7 and chapter 8 was shown to be a very innovative and a useful approach for collecting and analysing information to understand user perception and evaluation of Internet-based self-service technology. Since the website feedback retains information about the user and the date of the feedback, this provided a historical perspective of user experiences. Users were expressing themselves in a 'real context', and not an artificial context like the interview process created by researchers. A sample of key internal reports that were used and ad hoc studies that were conducted appear in appendix D</p>

<p>Way of communicating</p>	<p>The design of the final report was established in chapter 1. The report started with an introduction of the research problem and aims and objectives of the study. This was followed by the philosophical assumptions underpinning this research, as well as the research strategy and research approach followed as described in chapter 2. The reasons for selecting the healthcare insurance organisation, data sources, units of analysis, data collection and analysis are discussed. In chapter 3, a literature review on IS implementation, specifically self-service technology implementation, was conducted. Building on this, chapter 4 was devoted to describing the theoretical frameworks that guided the analysis of this research. Chapter 5 presented the first set of empirical data central to this research by describing the broader social and organisational context of the case, while chapter 6 provided a description of the case organisation with the thrust of this chapter being devoted to describing the events related to the implementation of the Internet-based self-service technology. Chapter 7 and chapter 8 analysed and discussed findings from the case study, using the initial conceptual frameworks. Building on these discussions, chapter 9 presented a parsimonious model for understanding SST and IS implementation (Whetten, 1989). This framework may be applied in other settings in which researchers wish to understand IS implementation. Finally in chapter 10, I discuss some of the limitations of the study. Thus, throughout the chapters I have attempted to provide a logical chain of evidence. It is envisaged that a number of academic papers or articles will be derived from this thesis so that this case study can be made accessible to a broader audience of academics and practitioners</p>
------------------------------------	---

10.5 Related publications

Some parts of the literature review, specifically the discussion of variance-based theories such as service quality, relationship marketing, technology acceptance model (TAM) and theory of reasoned action (TRA) in chapter 3 and loyalty-based incentives in chapter 7 to understand the continuance behaviour of users using Internet-based self-service technologies, can also be found in Naidoo and Leonard (2007).

10.6 Limitations and suggestions for future research

In empirical terms, insufficient time was spent with actual users, despite the use of online feedback as well as internal surveys and reports as an appropriate surrogate for the user. Directly interacting with the users might have enlivened the accounts of the users, and possibly have led to added interpretive depth.

A theoretical limitation is the converging of two different theories with different epistemological and ontological perspectives. It was not the intention of this research to reconcile these discrepancies, but to allow the different theoretical ‘flowers to bloom’, so as to contribute to the development of the conceptual framework (Walsham, 2005).

Furthermore, critical researchers may argue that this thesis was not sufficiently critical in its interpretation. For instance, in this study the systematic exclusion and systemic neglect of the poorer population became institutionalised in the new consumer-driven healthcare economic system. Ironically, trends in private sector healthcare driven by profits continue to reinforce and deepen certain apartheid ideologies in the South African healthcare context, even though the apartheid system has formally ended. Many IS researchers examining the South African context tend to ignore the historical context and the impact of apartheid in the implementation of IS. Thus critical researchers may want to challenge the use of the Web as a rhetorical device to drive the ‘consumer-driven healthcare movement’ and the inscription that individuals should be responsible for their own healthcare, especially in a developing country context. In this thesis, I chose to adopt more of an amoral and passive view while making these findings explicit. Critical researchers may want to take a strong value position and follow up on the potential false illusions perpetuated by ideologies such as consumer-driven healthcare and the complicity of information systems in enabling these ideologies.

On the other hand, positivist researchers may claim that the evidence for this thesis is not credible from an objective standpoint. They may dispute that facts are distinct from the ideas, values and theories held by participants in the research process. However, in interpretive research, understanding of a phenomenon is achieved by interpreting how people conduct their daily lives and not by a maze of interconnected causal laws. Instead, patterned and regular social behaviour is created out of evolving meaning systems that social actors generate as they interact. Perhaps it may interest the positivist researcher to derive low-order constructs from the conceptual framework to test different interactions between such variables.

10.7 Conclusion

There is one facet of the Internet-based technologies where consensus can be shared: it is growing rapidly. Each day, corporations are expanding their online products and services, governments are disseminating information to citizens; academics are publishing their lecture notes and working papers; and surviving dotcom companies are enticing users to purchase their products online. Albeit more measured nowadays, firms are still making substantial investments to create a presence online to link to their network of customers, suppliers and other partners. Internet-based self-service technologies in particular are now starting to change the way customers interact with firms. The increasing depersonalisation of services through self-service technologies – as with all human designs – is prone to errors and failures. Despite the inevitable malfunctions and unintended consequences of SSTs, as the case illustrated, this new channel has showed a high degree of robustness and sustainability. It is rooted in inscriptions and values that are fundamental yet alarming features of our society and economy. The SST's resilience, despite its vulnerability, is rooted in an interwoven social web of politics and values that are beyond the Internet or the user (Introna and Whitley, 1999). Therefore, instead of trailing in the shadows of superfluous notions such as success or failure, social scientists should pursue those social webs that often elude us in order to develop a better understanding of SSTs.

'But I will stop here. The ongoing dialogue permits no final conclusion. It would be a poor hermeneuticist who thought he could have, or had to have, the last word' (Gadamer, 1975:581).

