The Making of Strategic Realities

An Application of the Social Systems Theory of Niklas Luhmann

Jan-Peter Vos

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Etten-Leur, April 2002 Jan-Peter Vos

Voor Siem, die keer op keer laat zien
dat je zonder nadenken veel kunt leren

Contents

1 Introduction to the Study 5

1.1 The Focus of the Study 5
1.2 Life and Work of Niklas Luhmann 7
1.3 Objectives of the Study 13
1.4 Outline of the Thesis 16

2 Making Sense of Strategy 19

2.1 Introduction 19
2.2 The Fallacy of Either/Or-Approaches to Strategy 20
2.3 The Blind Spot of the Paradigm of Adaptation 22
2.4 The Role of Self-Reference in Sensemaking 26
2.5 The Functional Analysis of Self-Referential Sensemaking 35
2.6 The Outline of a Both/And-Approach to Strategy 41
2.7 The Paradigm of Self-Adaptation 48

3 Functional Analysis of Strategic Content 51

3.1 Introduction 51
3.2 The Focus on Strategic Content 52
3.3 The Required Functionality of the Research Tool 53
3.4 The First-Order Observation of Strategic Content 55

3.4.1 The Working of the Research Tool 57
3.4.2 The Design of the Research Tool 71
3.4.3 Observing Contingent Strategies 75
3.5 The Second-Order Observation of Strategic Content 79
3.5.1 A Typology of Businesses 80
3.5.2 Configurations and Strategic Reality 86
3.5.3 A Configuration Theory on Strategic Reality 90
3.5.4 Observing Strategies Contingently 103
3.6 The Functionalities of the Research Tool 105

4 The Field Research 109

4.1 Introduction 109
4.2 Exploring Early Supplier Involvement 110
4.3 Empirical Research Design 112
4.4 Case Protocol 117
4.5 The First Case Study 121
4.5.1 The First-Order Observation of the ESI-Strategy 122
4.5.2 The Second-Order Observation of the ESI-Strategy 130
4.6 The Second Case Study 155
4.6.1 The First-Order Observation of the ESI-Strategy 155
4.6.2 The Second-Order Observation of the ESI-Strategy 164
4.7 The Validity of the 'Capability Trap' in Making Sense of ESI 185

5 Reflections 195

5.1 Introduction 195
5.2 Reflections on Either/Or-Approaches to Strategy 196
5.3 Reflections on Self-Referential Systems Theory 197

5.4 Reflections on the Both/And-Approach to Strategy 201
5.5 Reflections on the Functional Analysis of Strategic Content 203
5.5.1 The First-Order Observation of Strategies 203
5.5.2 The Second-Order Observation of Strategies 205
5.6 Reflections on the Field Research 207
5.7 Reflections on the Research Objectives 208
5.8 A Final Word on the Role of Self-Reference 210

Appendix: Self-Referential Systems Theory 213

1 Introduction 213
2 Describing Self-Referential Systems Theory 214
3 Self-Referential Systems and Identity 216
4 Self-Referential Systems and Adaptation 222
5 Self-Referential Systems and Structure 223
6 Self-Referential Systems and Meaning 225
7 Self-Referential Systems and Communication 228
8 Self-Referential Systems and Contradiction 232
9 Self-Referential Systems and Functional Analysis 234
10 The Unbearable Lightness of Being of Self-Referential Systems 235

References 237

Summary in Dutch 251

About the Author 255

Do you know what you are?
You are what you is
You is what you am
(A cow don't make ham . . .)
You ain't what you're not
So see what you got
You are what you is
An' that's all it 'tis

Frank Zappa, 'You Are What You Is'

Chapter 1

Introduction to the Study

1.1 The Focus of the Study

In strategic literature, the problems involved with the observation of the way companies and their environment constitute each other has been neglected for far too long. The inherent circularity between oneself and one's environment in defining strategies is often obscured by making *either* the environment *or* the capabilities of companies the point reference in defining successful strategies. According to Porter (1985), for example, companies should commence in defining strategies dependent on the environmental context at hand and not dependent on organisational issues. On the other hand, Prahalad & Hamel (1990) advise companies to start in defining strategies dependent on their organisational capabilities and to give environmental issues a lower priority. Both the former 'outside-in' and the latter 'inside-out' approach to strategy prove that they are not well equipped enough to deal with the fact that neither the environment nor organisational capabilities mean something on their own. That is, the environment means only something with respect to organisational capabilities and organisational capabilities mean only something with respect to the environment. This inherent tautological circularity is obscured by either/or-approaches to strategy, which has led to the denial that practicing strategy is foremost a matter of coming to terms with one's own preferences self-referentially.

Self-reference implies that contact with the environment is only possible through self-contact, which implies that to know yourself is to know your environment and to know your environment is to know yourself. In other words, you seem to be what your environment is not and your environment seems to be what you are not. The consequence of this apparent game of words is that self-contact is trapped within a chicken-and-egg problem. To make matters worse, in trying to overcome this endless circularity, by trying to observe the whole that constitutes yourself and your environment, you stumble upon paradox. That is because you try to observe this awkward situation as existing despite of yourself, whereas this situation only exists because of yourself. This paradoxical situation seems insurmountable. However, it can easily be shown that in everyday life we succeed in dealing with such paradoxes continuously.

Upon entering a bookstore, for example, it is a common experience to feel overwhelmed by the large amount of books offered. You know that in order to decide upon

the book you want to read, you need to ask yourself what you actually want to read. Suppose that you do not know yet which or what kind of book you want to read and decide to make the decision dependent on the books offered. You decide to go for a stroll through the bookstore and hope to stumble upon a book that speaks to you. Of course, you do not consider yourself a fool and know that a book cannot actually speak to you unless you let it speak to yourself. However, on closer inspection it appears this naïve foolishness, enables you to find a book you might like. That is, by just letting books speak to you, you have managed the impossible possibility that books can speak to you. By just doing something naïve, you have succeeded in making sense of the chicken-and-egg problem that the book you want is dependent on the interesting books offered and the books of interest offered are dependent on the book you want. In other words, in dealing with self-reference, naively doing something takes primacy above deliberately thinking to go into action.

This primacy of doing above thinking has far reaching implications for strategy research. Until now, strategic management is foremost understood as a phenomenon for which deliberateness is key and naivety is best avoided. As will be described in the thesis, focussing on self-referential aspects of strategy implies that all strategic reasoning is circular by nature and that only naivety instead of deliberateness can offer a way out. By denying the importance of self-reference, either/or-approaches to strategy obscure the empirical fact that strategic management thrives foremost on meaning instead of reason and that meaning comes into being both deliberately and naively. Giving meaning to strategy implies that organisational members cannot relate to the 'essence' of strategy by reason because by reasoning the essence of it becomes obscured. Just as the essence of live is to be found in the way one experiences it, the essence of a company's strategy is to be found in the way members of organisations experience strategic issues with respect to their environment and organisation.
The observation that existing approaches to strategy fail to grasp the specifics of strategic management does not stand on its own. Recent insights of for example Stacey (2000: 13-14), show that either/or-approaches to strategy are rarely effective in defining the specifics of the ways members of organisations deal with strategic issues. He assumes that both/and-approaches are more appropriate in uncovering hidden regularities in the ways members of organisations, for example, need to produce at the lowest but need to increase costs to provide quality also (Stacey, 2000: 13). However, until now, this observation has not led to an approach to strategy that centres on self-reference, at least not explicitly (see for example Lewis, 2000: 765). In this thesis, it will be illustrated that with a focus on self-reference it is possible to observe, on a theoretical and methodological level, the way organisations and their environment constitute each other reciprocally. For this, we will develop a both/and-approach to strategy to illustrate that companies need to make sense of *both* their environment *and* organisation in order

to do justice to the deliberate and naïve aspects of strategic management. This approach is grounded upon the theory of social systems as developed by the late German sociologist Niklas Luhmann[1] (1927-1998). This theory observes social systems as self-referential systems and offers theoretical and methodological guidelines to deal with the specifics of strategic sensemaking under the scrutiny of self-reference. As such, self-referential systems theory is expected to aid in the development of a both/and-approach to explore the ways organisations deliberately and naively deal with both their environment and themselves in defining successful strategies. The downside to Luhmann's theory of social systems is that it has not gained significant attention in organisation studies yet. In addition, the theory of self-referential systems is quite difficult to comprehend. Despite these obstacles, this theory is worthy of our attention as I hope to illustrate with this thesis.

1.2 Life and Work of Niklas Luhmann

During this study, more than once people have asked me to make clear the stance taken by Luhmann within his theory of self-referential systems with respect to reality as such, the possibility to obtain knowledge about reality and valid research methods to obtain real knowledge. The more I became familiar with the theory of self-referential systems, the less distinctions between objectivism and subjectivism, realism and relativism, modernism and postmodernism, functionalism and intentionalism, reductionism and holism seemed sensible to indicate Luhmann's philosophical stance, let alone if he had one altogether.

Luhmann is a difficult catch for those who try to typify contributions to organisation studies from the philosophical paradigmatic perspectives of Burrel & Morgan (1979). That is because, like other famous thinkers as Derrida, Foucault, Giddens, Habermas, Latour and Lyotard, Luhmann did not seek solid ground in theorising on social life in paradigmatic ways. For those men, only empirical perspectives matter in describing social phenomena and in explaining why we experience these phenomena as we do. This implies that despite the fact that the theory of self-referential systems seems highly abstract and meta-theoretical, this theory is grounded only upon an empirical perspective and not upon a paradigmatic one. Such paradigms are useful only when

[1] Perhaps, it would have been more obvious to embed the both/and-approach to strategy within the concept of sensemaking in organisations (Weick, 1979 & 1995). After all, Weick regards sensemaking as self-referential, which according to him suggests that self, rather than the environment, needs to be interpreted (Weick, 1995: 23). Unfortunately, the role of self-reference within sensemaking processes is not elaborated on much further by Weick and consequently a both/and-approach to strategy is quite difficult to embed within sensemaking literature. Notwithstanding this, throughout the thesis we use the term sensemaking to indicate processes that involve giving meaning to social phenomena in order to come to terms with these phenomena.

they aid in bringing to light new aspects of social life but their use may never lead to multiple incommensurable perspectives. If the latter is the case, this should be taken as an opportunity to reconcile these multiple perspectives in order to do more justice to the way we experience social phenomena. With this in mind, it can be argued that Luhmann's social systems theory is an attempt to offer us a more just perspective on social life. Therefore, it may seem that Luhmann was playing hard to get, whereas in fact he did this only to enlighten the already enlightened.
Notwithstanding this observation, the issue of sociological and/or philosophical paradigms has gained significant attention in organisation studies. There are many publications about this subject. Take for example Burrell & Morgan (1979), Astley & Van de Ven (1983), Poole & Van de Ven (1989), Gioia & Pitre (1990), Parker (1992), Tsoukas (1992), Weaver & Gioia (1994), Hassard (1994), Jeffcutt (1994), Alvesson (1995), Chia (1995), De Cock (1995), Van de Ven & Poole (1995), Knights (1997), Newton (1998), Scherer & Steinmann (1999), Deetz (2000) and Weiss (2000). These authors hardly ever use the empirical way out in the discussion of 'true' paradigms. The theory of self-referential systems can offer those involved with organisation studies the means to regard the complexity of social life from a new empirical perspective. Of course, Luhmann is not the only one offering such a perspective. Within the journal 'Organization Studies' such perspectives are described in the series of articles on 'Modernism, Postmodernism and Organizational Analysis' by Cooper & Burrell (1988), Burrell (1988a; 1988b), Cooper (1989) and Burrell (1994). In their 1988 paper, Cooper & Burrell announced an article on Luhmann also, besides articles on Foucault, Derrida and Habermas (Cooper & Burrell, 1988: 110). Until now, unfortunately, this article has not been published.

In an obituary written on the passing of Niklas Luhmann in 1998, the American Sociological Association stated that 'with his death came to close one of the most productive, wide-ranging, and profound scholarly careers of the Twentieth Century'. Similar remarks were made in newspapers in Germany, his native country. Many regarded Habermas and Luhmann as the two most influential sociologists of the era past the Second World War. His intellectual heritage offers us ironic compassion in the fight with a lost cause for knowledge of the one true world. Surprisingly, Luhmann was not graduated as a sociologist but as a jurist. In addition, he started his professional career not as an academic but as a public administrator of the State of Lower Saxony. In public administration however, he could only get interesting intellectually daring work if he became a member of a political party, which he did not want to do. Therefore, he eventually joined the academic community. In 1968, he became professor in sociology at the recently founded university of Bielefeld. Although he was offered several chairs of sociology at other universities throughout time, he remained at Bielefeld until his retirement in 1992. This, however, did not mean the end of his academic work. The

societal theory 'Die Gesellschaft der Gesellschaft' was published in 1997, only shortly before his final illness.
The work of Luhmann is impressive. His intellectual inheritance is enormous. Luhmann's own personal bibliography dated at January 1996 accounts for over 50 books and almost 400 papers[2]. Besides the magnitude of his work, the breadth of it is also breathtaking. From a perspective grounded in systems theory, Luhmann wrote, amongst other things, about law, love, risk, knowledge, organisation, art, education, trust, power, religion and society. Despite the enormous amount of subjects Luhmann took a deep and profound interest in, the love for radical theoretical speculation stands out most. In his work, the claim for sociological universalism goes hand in hand with the claim of epistemological constructivism. In his writings, Luhmann used a specific means of expression, of which several aspects are worth mentioning. In the first place, they are very erudite in the sense that he quotes with great ease familiar and unfamiliar authors alike, regardless of time. He is as comfortable with ancient philosophers as with scholars from the Middle Ages as with the rationalists of the Age of Enlightenment. Secondly, the writings of Luhmann are characterised by humour. Irony with respect to his own attempts and of those of others, gives his work a certain amount of lightness that makes it easier and from time to time even pleasant to read, despite the highly abstract theoretical considerations. Thirdly, the writings of Luhmann are radical. He found pleasure in provoking readers by uttering staggering different definitions, opinions and assumptions. This radicalism is expressed in the form of aphorisms that often make his lines of thought deceptively simple to comprehend. Finally, Luhmann had an anecdotic style of writing, which irritated many scholars. This anecdotic style is due to Luhmann's card-index system. He used to keep track of theoretical brain waves, quotes and literature references on cards, which he used to utilise in his work. Therefore, it seems as if his writings ramble from one subject to another. Consequently, it is often quite obscure what he actually wished to express, which forces the reader to turn to other primary and secondary literature publications for further clarification because his lines of thought rarely restricted themselves to a single work, which makes the comprehension of specific parts of his work even more difficult.

As a whole, the sociology of Luhmann has been typified as an enlightenment of the enlightenment. That is, enlightenment with one major difference: it is romanticism disposed of 'Sehnsucht' or craving for the unattainable (Luhmann, 1985: 162).

> "Es geht nicht um ein Anerkennungs- und Heilungsinteresse, auch nicht um ein Bestandserhaltungsinteresse, sondern zunächst und vor

[2] In the thesis of Blom (1997: 3), it can be found that the most complete bibliography of Luhmann accounts for no less than 1131 items. This bibliography can be found in K. Damman, D. Grunow, K. Japp, *Die Verwaltung des politischen Systems*, Opladen, 1994 on the pages 282-382.

> allem um ein analytisches Interesse: um ein Durchbrechen des Scheins der Normalität, um ein Absehen von Erfahrungen und Gewohnheiten und in diesem [...] Sinne: um phänomenologische Reduktion."

The sociology of Luhmann as 'Abklärung der Aufklärung' is a systems theory of social life that gives primacy to meaning above reason in describing the way social systems deal with reality. With respect to systems theory, he was most intrigued by theoretical problems that had to do with boundary maintenance. This class of problems relates to the question how social systems succeed in differentiating between themselves and their environment and which processes account for this differentiation. According to Luhmann, the systems constituting the world, face the problem how to deal with a 'Welt' that is measureless in its complexity (Luhmann, 1974: 114-115). The distinction between system and environment enables social systems to regard themselves as islands of reduced complexity (Luhmann, 1974: 116). For Luhmann, the explanation offered by the structural functionalism of the sociologist Talcott Parsons to explain how social systems succeed in reducing complexity, was fundamentally problematic. According to Parsons, the development of structures throughout time was the result of adaptive reactions of systems to changes in their external or internal environment. The fact that structural functionalism fixated upon the stability of the identity of social systems was taken by Luhmann as an indication that structural functionalism could not convincingly conceptualise the dynamic abilities of structured social systems (Luhmann, 1974: 118). After all, if the present structures were the result of changes in the environment, how could these structures be transformed into new structures to deal with environmental changes? The answer to this question inevitably resulted in a tautology: social systems succeed in maintaining themselves as islands of reduced complexity by reducing complexity. That is, *social systems are possible because they make themselves possible*. This contradicts, however, the point of departure of structural functionalism that the existence and differentiation of social systems is intermediated by the environment[3].

The fact that Luhmann accepted this tautology eventually drove him towards the conceptualisation of social systems as self-referential systems that thrive on phenomenological meaning instead of enlightened reason (Luhmann, 1975: 194-195). Within the framework of 'second-order cybernetics' (Von Foerster, 1981), self-reference has been elaborated extensively with respect to systems theory. However, Luhmann brought self-reference within the scope of social systems theory (Luhmann, 1985) and

[3] Luhmann: 'Die Wendung von der klassischen zur modernen Systemtheorie, nämlich die Kritik der Vorstellung vom selbstgenügsamen Ganzen, das den Teilen Perfektion vermittelt, betrifft also genau den Punkt, der zur Bildung selbstreferentieller Begriffe zwingt.' (Luhmann, 1975: 195).

organisation theory (Luhmann, 2000). Although Luhmann is regarded as a social systems theorist, he uses the vocabulary of the theory of general systems in his own way. This is a consequence of Luhmann's sociological theoretical starting points. He is rooted deeply in German philosophy, especially in the dialecticism of Hegel and the phenomenology of Husserl, which the theory of general systems ignores. In common with system sociologists like Parsons and general system theorists like Von Bertalanffy, Ashby, Boulding, Maturana and Von Foerster, Luhmann is interested in the way (social) systems reduce complexity. As a result, the particular stance of Luhmann towards problems involved with complexity relates to the way social systems give meaning to themselves in relation to their environment specifically in a universal way.

The transition from open systems to self-referential systems on the level of general systems theory was regarded by Luhmann as a paradigm shift in the sense of Kuhn (Luhmann, 1985: 15). Obviously, Luhmann commissioned himself to the job to deal with the implications of this paradigm shift for a meta-theory or 'Supertheorie' of social systems. This meta-theory is described in the classic 1984[4] book 'Soziale Systeme: Grundriß einer allgemeinen Theorie'[5]. This book is possibly the worst introduction to Luhmann's theory of social systems because the major part of this book deals with problems involved with the doctrine of sociology. As such, the reader is put up with some of the most difficult foundations of social theory and to make matters worse, the knowledge of these foundations is treated by him as readily available by the reader.
In addition, as mentioned before, Luhmann was a very productive author. A comprehensive study of his work is therefore practically impossible, at least within the scope of this study. In this study, we will restrict ourselves to the theoretical and methodological issues involved with self-reference. I started with 'Soziale Systeme' to find out that secondary literature is something that is not best avoided in the process to comprehend the theory of self-referential systems. Until now, the English reader experiences difficulties in taking this escape route because most useful secondary literature I found was not in English (there are some exceptions to this rule, e.g. Turner, 1998; Vanderstraeten, 2000). The German texts I used as an introduction were Krawietz & Welker (1992), Baecker (1993) and especially Baraldi et al. (1999). Fortunately, some Dutch (e.g. Blom & Haas, 1996; Blom, 1997) and Belgians (e.g. Braeckman, 1996; Laermans, 1996a & 1996b; Sels, 1996) have written about Luhmann also and they

[4] In this thesis, the second edition of 1985 is used. I started with the 1984 edition but left it in the train and never got it back. Therefore, I presume that at least one other person in the Netherlands found 'Soziale Systeme' worth having. If this is so, this person is most welcome to pay me the €30 I had to pay as a penalty to the library of my university.
[5] This book has been translated into English by J. Bednarz Jr. and D. Baecker as 'Social Systems', Stanford University Press, Stanford, California, 1995.

have been a tremendous help to me in entering the Luhmannian universe, especially the thesis of Blom (1997).

Luhmann took the tautology that social systems are possible because they make themselves possible as point of departure in his theory of self-referential systems. For this, he elaborated on the autopoiesis concept of Maturana & Varela (1980). The first paper of autopoiesis in English (1974) was based upon a book in Spanish by Maturana & Varela (1973). This 1973 book was published in English with an addendum by Maturana in 1980. Contrary to theories of self-organisation, the concept of autopoiesis located the reproduction of systems not on the level of structures but on the level of its elements or operations. With this literal elementary reproduction, Luhmann was able to develop a conception of social systems as fundamentally dynamic. According to Luhmann, a system can be defined as autopoietical or self-referential when the system succeeds in reproducing its elements with its elements and above that, when the system succeeds in giving all the relations between these elements a hint of the self they constitute and in this way are able to reproduce the self-constitution (Luhmann, 1984: 59). To put it in other words, self-referential systems constitute their 'selves' by means of the self-reproduction of their elements and remain only when they succeed in reproducing themselves throughout time. Social systems thus are fundamentally dynamic in the sense that they have no duration beyond the level of their operations.
For Luhmann, an important consequence of autopoiesis was epistemic by nature. After all, when the elements that constitute a system are reproduced by the system itself, the identity of a system cannot be determined from the outside but only by the system itself (Luhmann, 1985: 61). As a result, social systems are self-referential closed systems, which implies that each self-referential system experiences itself and its environment not as something 'an sich' but as something 'für mich'. This radical epistemological constructivism[6] implies that a self-referential system is only able to observe what it can observe and it cannot observe what it cannot observe. If this system tries to overcome this tautology by trying to observe what it cannot observe, it ends up in paradox because it needs to observe what it cannot observe, which seems logical impossible, but is necessary nonetheless. Tautology and paradox are the foundations of Luhmann's theory of social systems, which implies that all reflexive reasoning done by social systems has no firm ground because what is observed eventually points back to itself and is therefore characterised by either non-contradictory circularity in the form of tautology or contradictory circularity in the form of paradox[7].

[6] Luhmann: 'Wir gehen dabei mit einer sich neu entwickelnden Epistemologie von "naturalen" Operationen aus und nehmen für Beobachten, Beschreiben, Erkennen keine "metaphysische", subjektive Sonderstellung in Anspruch.' (Luhmann, 1985: 244-245).
[7] Luhmann: 'Die einzig mögliche Schließung, die auf der ebene der Selbstbeobachtung erreicht werden kann, benötigt den Schlußstein der Tautologie/Paradox.' (Luhmann, 1990b: 507).

1.3 Objectives of the Study

This thesis deals with a theoretical study on a both/and-approach to strategy. A both/and-approach implies that a strategic focus neither on the environment nor on the organisation can claim superiority as starting point in explaining strategic success. We will illustrate that with a focus on self-reference it is possible to observe theoretically and methodologically the way organisations and their environment constitute each other reciprocally. Such a both/and-approach is possible when strategic sensemaking is regarded as a process that involves dealing self-referentially with the reciprocal relationship between organisations and their environment. Consequently, making sense of the environment implies making sense of the organisation and making sense of the organisation implies making sense of the environment. Self-reference highlights the primacy of acting naively above thinking deliberately, to find a way out in commencing social action. Correspondingly, this study aims to achieve the following.

> "An approach to strategy that focuses on self-reference and does not give primacy to *either* the environment *or* the organisation in defining successful strategies but gives primacy to *both* the environment *and* the organisation in order to do justice to both the deliberate and naïve aspects of strategic management."

With the development of this both/and-approach to strategy, we aim to offer one possible solution to the theoretical and methodological problem of strategy research in observing the way organisations and their environment constitute each other reciprocally. This problem concerns the impossibility of either/or-approaches to strategy to deal with the paradox that human agency becomes human bondage because of the very nature of human agency (Dawe: 1979: 398). That is, human beings have succeeded during the course of their history in creating socially organised systems, which then limit further exercise of human agency, even to the point of determining human action (Child, 1997: 49). It appears to be very difficult, both theoretically and methodologically, to observe how organisations limit their agency because of their agency. The theory of self-referential systems offers us a way to address the theoretical and methodological problems in dealing with this paradox. However, because of the complexity involved with applying Luhmann's theory of self-referential systems to deal with the paradox of human agency in a universal way, it is not feasible to apply the both/and-approach to strategy in its full extent, at least within the scope of this study. The study only gives the initial impetus to studying the role of self-reference in strategic sensemaking. We do not have the ambition already to define 'better' strategies for companies. Instead, we aim to give a preliminary evaluation whether or not the both/and-approach makes it possible to describe and analyse the role of self-reference in strategic sensemaking.

In developing a both/and-approach to strategy, we need to avoid the conceptual mistakes of the either/or-approaches to strategy in observing the way organisations and their environment constitute each other reciprocally. In line with this, the following research question is formulated.

1. What are the shortcomings of either/or-approaches to strategy in explaining the way organisations and their environment constitute each other reciprocally?

The theory of self-referential systems will be used to indicate how social systems are able to deal with the tautological relationship between their environment and themselves. The study of this theory is aimed at establishing theoretical and methodological guidelines for a both/and-approach to strategy. For the development of such an approach to strategy, the following research question with respect to self-referential systems theory will be dealt with.

2. Which guidelines are offered by the theory of self-referential systems to study the way social systems deal with self-reference?

As Pettigrew (1987) has pointed out, the notion of strategy has various disguises. In this study, his distinction between strategy content, process and context will be used to differentiate between various forms of strategic sensemaking. As will be described, this distinction fits nicely with the distinction used within the theory of self-referential systems to indicate that sensemaking takes place on respectively the level of operations, processes and systems. In line with this, the following research question is formulated.

3. Which guidelines are offered by the theory of self-referential systems to study the way organisations and their environment constitute each other reciprocally by means of a both/and-approach to strategy that focuses on the content, process and context of strategic sensemaking?

The question whether the both/and-approach to strategy actually succeeds in overcoming the shortcomings of either/or-approaches, is an empirical one. As will be described in the thesis, the empirical research needs to illustrate that the both/and-approach to strategy grasps the specifics of the way members of organisations make sense of strategic content naively and deliberately. The reason that was chosen for a focus on the content of strategic sensemaking is foremost a pragmatic one. The field research was carried out in association with two Dutch organisations, SENTER and FME/CWM, which both took an interest in supporting small and medium sized enterprises in providing knowledge and support to them in answering strategic knowledge questions. Because of time and resource constrains, only the empirical exploration of

the way companies made sense of the content of their strategy was possible. However, this constraint was also an opportunity because, as will be argued in the thesis, no 'social mechanisms' (Hedström & Swedberg, 1998) could be found in strategy literature to aid us in the description and analysis of the way members of organisations commence in defining strategies.
SENTER and FME/CWM thought it wise also to explore the companies that were willing to co-operate in the field research by means of a standardised research tool that could be used by their consultants in the extension of future services. Therefore, it was chosen to select relevant strategic tautologies a priori. The corresponding research question is formulated as follows.

4. How can the both/and-approach to strategic content be deployed in a research tool to gain insights into the strategic reality experienced self-referentially by members of organisations involved with defining strategies?

From previous research, with respect to the empirical exploration of the strategies of small and medium sized enterprises, it turned out to be of key importance to make clear the way these companies do business with their customers (Vos et al., 1998). It will be described in the thesis that several types of businesses can be distinguished and that each way of doing business leads to a distinct experienced strategic reality. The following research question is formulated to address this.

5. How can the research tool be extended with theoretical considerations to regard the strategies defined by companies dependent on the way they have defined their business?

With respect to the empirical material at hand, we have decided to focus on the field of 'Early Supplier Involvement' or ESI that is currently regarded as an important development for innovation in supply chains. As will be described in the thesis, suppliers that wish to engage in ESI need to reorientate themselves strategically. Because this strategic reorientation implies that organisational members need to make sense of the content of the future ESI-strategy, ESI is of use to illustrate that defining strategies is a process that thrives foremost on meaning instead of reason and that meaning comes into being both deliberately and naively.
ESI is an offspring of 'Lean Production', which was the result of the worldwide study of manufacturing practices within the automotive industry (Womack et al., 1991). For suppliers involved with the manufacturing of product parts according to specifications of their customers, ESI implies that they cannot focus on the manufacturability of product designs alone. Instead, they need to consider the functionality of these designs also. Until now, there has been a predominant focus in literature on the perspective of

Original Equipment Manufacturers (OEM) involved with ESI (e.g. Wasti & Liker, 1997; Bonaccorsi & Lipparini, 1994; MacDuffie & Helper, 1997; Wynstra & Ten Pierick, 2000; Wynstra et al., 2001). Consequently, existing literature on ESI ignores the problems of suppliers in dealing with the functionality and manufacturability of product designs at the same time.

We will illustrate that dealing with the functionality as well as the manufacturability of product designs, implies that suppliers need to redefine their business in order to get involved with ESI successfully. Because of the assumed business redefinition with respect to ESI, organisational members need to redefine their company's environment and organisation. The chances, however, are big that suppliers try to make sense of ESI in the same way as they made sense of previous strategic issues. That is because the existence of meaningful self-referential preferences ('we do what we do') in dealing with such issues. Ironically, this 'dominant logic' (Prahalad & Bettis, 1986 and Bettis & Prahalad, 1995) causes that organisational members try to make sense of a situation that cannot be made sense of by means of the way they try to make sense of it. This inability to regard one's company differently is paradoxical because organisational members need to take a stance towards their company from the outside while they can only occupy a stance from the inside. Each attempt to deal with this paradox deliberately from within is doomed to fail and therefore can function as means to illustrate the shortcomings of an approach to strategy for which deliberateness is key and naivety is best avoided. Therefore, the sixth and last research question aims at the empirical exploration of the way suppliers try to make sense of their environment and themselves in defining ESI-strategies and may jeopardise their strategy because of that.

6. To what extent does the application of the research tool and the accompanying theoretical considerations succeed in illustrating the inability of suppliers to make sense of ESI because of the way they self-referentially try to make sense of it?

The empirical research is foremost carried out to make it possible to reflect upon the benefits of a both/and-approach to strategy that is grounded upon the notion of self-reference. As a possible side effect, the empirical research might also shed some preliminary new light upon the problems experienced by suppliers implementing ESI.

1.4 Outline of the Thesis

The first research question to describe the shortcoming of either/or-approaches to strategy will be answered in the second chapter of this thesis (see also Figure 1.1). The conceptual and methodological guidelines for the empirical exploration of the way social systems deal with self-reference will be summarised in this chapter also (second research question). It appeared that the theory of self-referential systems is quite

difficult to comprehend because of its almost 'unbearable lightness of being'. Therefore, with respect to problems involved with self-reference, a summary of this theory is presented in the appendix to this thesis. The guidelines offered by the theory of self-referential systems will be used to develop a both/and-approach to strategy that regards strategic management as thriving foremost on meaning instead of reason in order to do justice to the fact that strategies come into being both deliberately and naively. This both/and-approach to strategy involves a research outline to study the way members of organisations make sense of the strategy content, process and context self-referentially (third research question).

The third chapter deals with the fourth research question aimed at developing a research tool for the empirical exploration of strategic self-referential environmental and organisational problems. This tool will be accompanied by theoretical considerations to regard the strategies defined by companies dependent on the way they have defined their business (fifth research question).

The sixth and last research question will be answered in chapter four. A research design is presented to illustrate that suppliers need to redefine their business in order to make sense of ESI successfully. In addition, a case protocol is presented that aids in the rigorous description and analysis of the way suppliers try to make sense of ESI. Subsequently, relevant case studies will be presented and conclusions will be drawn with respect to our assumption.

Finally, in the last chapter, the study is evaluated and the findings of this research are presented. This implies that the researcher needs to come to terms self-referentially with the choices made to make the research possible. In addition, suggestions will be given for future research based upon the both/and-approach to strategy.

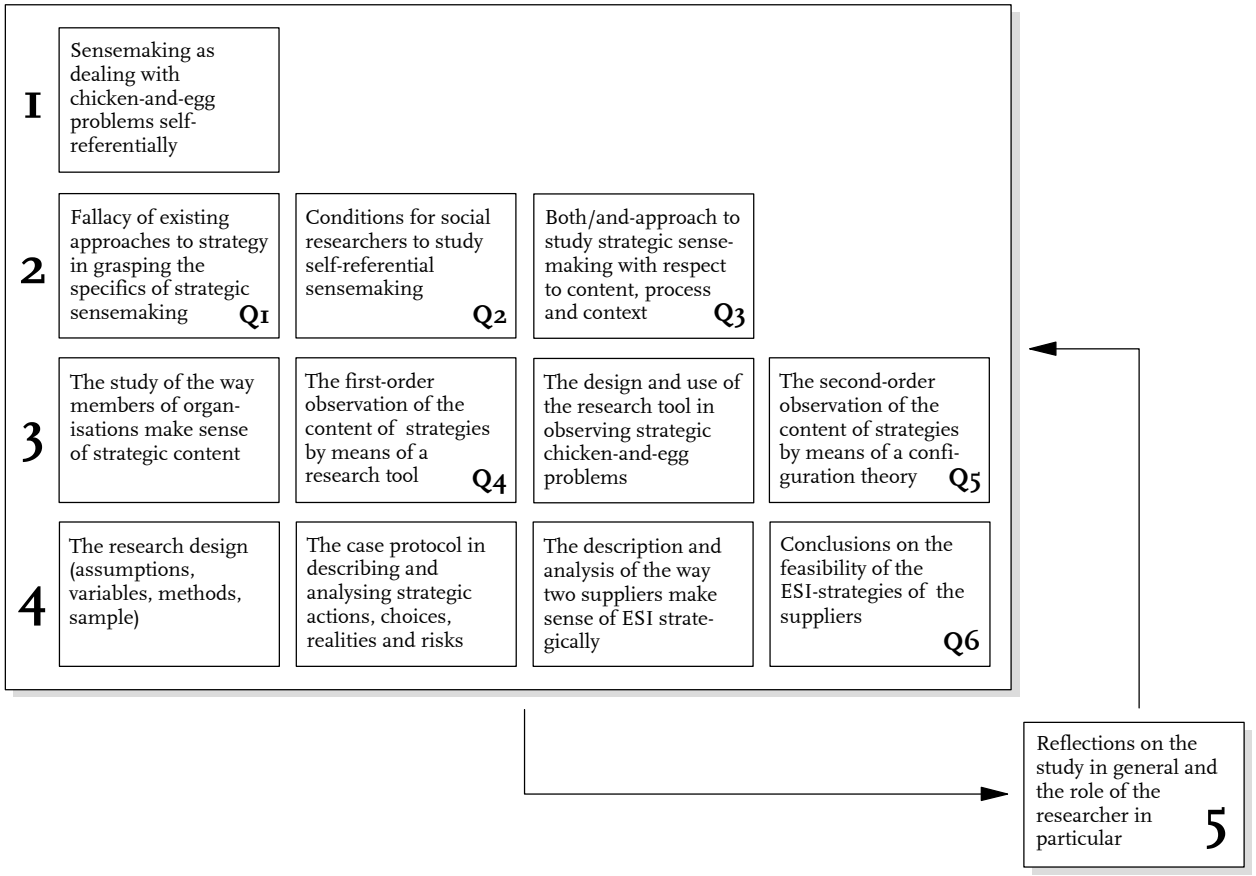


Figure 1.1: Outline of the Thesis

Chapter 2

Making Sense of Strategy

2.1 Introduction

In the first chapter, it was pointed out that this thesis should deliver a both/and-approach to strategy. This both/and-approach should make clear that making sense of one's environment and organisation strategically, is a process that thrives primarily on the creation of meaning instead of giving reason and involves both acting deliberately and naively. Before we give an outline of such an approach to strategy, first, the shortcomings of the more common strategic either/or-approaches will be presented (section 2.2). These approaches give primacy to either a company's environment or organisation in explaining successful strategic conduct. It will be shown that either/or-approaches are self-defeating in prescribing the way companies can obtain strategic success.

Next, within section 2.3, the focus is upon the 'blind spot' of either/or-approaches to strategy. This blind spot concerns the impossibility of these approaches to conceptualise that the environment and organisation of companies constitute each other reciprocally. It will be shown that the way of observation that leads to this blind spot, is due to the fact that the environment is regarded as the more encompassing whole of companies.

Subsequently, in section 2.4, another way of observing the distinction between the environment and organisation of companies will be presented. This perspective is grounded upon the system/environment-distinction as conceptualised within the theory of self-referential systems. By means of this distinction, it is possible to regard strategic sensemaking as dealing self-referentially with the situation that the environment and organisation of companies constitute each other reciprocally. This section aims at applying the guidelines offered by the theory of self-referential systems to explore strategic sensemaking empirically by means of functional analysis. Based upon this new the system/environment-distinction, an outline of a both/and-approach to strategy will be presented that involves the empirical exploration of functional equivalents with which members of organisations make sense of the content, process and context of strategy self-referentially (section 2.6).

Lastly, in section 2.7 an attempt is made to ground the both/and-approach to strategy on a new strategic paradigm.

2.2 The Fallacy of Either/Or-Approaches to Strategy

This is certainly not the first study that questions the reasoning behind the strategic management approaches or schools of thought that have drawn significant attention in the past. Several authors have criticised strategic management approaches for being overly rational (e.g. Daft & Weick, 1984; Mintzberg & Waters, 1985; Pettigrew, 1988; Knights & Morgan, 1991; Rajagopalan & Spreitzer, 1996; Barry & Elmes, 1997; Calori, 1998). Until now, however, the reasoning of the reasoning behind strategic management approaches has not been applied self-referentially. True, some authors have questioned the assumptions behind dominant strategic management approaches (e.g. Child, 1972; Weick, 1987; Knights, 1992; Stacey, 2000) but it was not explicitly sought out if the reasoning behind these approaches was self-defeating. As indicated in the first chapter, focussing on self-referential aspects of strategy implies that all strategic reasoning is circular by nature and that only naivety instead of deliberateness can offer a way out. In strategic literature, the role of self-reference and naivety to make sense of oneself and one's environment has been neglected for far too long. The inherent circularity between oneself and one's environment in defining strategies is often obscured by making *either* the environment *or* the capabilities of companies the point reference in defining successful strategies. By means of the outside-in approach of Porter (1985) and the inside-out approach of Prahalad & Hamel (1990), it will be illustrated that either/or-approaches to strategy are self-defeating. As a result, these approaches only seemingly offer certain points of departure in formulating successful strategies.

Porter (1985) states that sustaining competitive advantage involves dealing with competitive forces within a sector of industry to become distinct from your competitors. The sector of industry concerns the strategic players that have to deal with each other to gain competitive advantage. Porter regards these players as objective competitive forces that determine the rules of the game in doing business within a sector of industry. According to Porter, companies act wisely if they obey these strategic rules. This implies that within Porter's strategic reality it is not wise if companies try to change the strategic rules, for that leads to a stuck-in-the-middle position within the sector of industry. The only two ways of becoming distinct are by adopting a 'cost leadership' strategy or a 'strategy of differentiation'. Because Porter beliefs the strategic rules within a sector of industry can be determined objectively, this implies that all competitors will observe the same strategic rules and choose a strategy to become distinct accordingly. Paradoxically, this type of reasoning results in the fact that strategy no longer concerns becoming competitive by doing things differently than your competitors do, but by doing things the same as your competitors do. After all, if either all companies adopt a strategy of 'cost leadership' or 'differentiation', ironically, the

only way to become distinct from your competitors is to enact a 'stuck-in-the-middle' strategy that, according to Porter, should be avoided at all expense.
In addition, the most popular strategic management movement of the ninety-nineties is not preserved of self-defeating reasoning. In recent years, one of the most used 'buzzwords' in strategic management was the notion of 'core competence'. According to Prahalad & Hamel (1990), the founding fathers of this concept and who disputed the competitive advantage concept of Porter, the existence of core competences of companies is independent of the markets served by these companies. This means that a core competence can be applied in diverse independent markets. However, in their book 'Competing for the Future' (Hamel & Prahalad, 1994) they state that the capabilities of companies that need to be regarded as core competences eventually needs to be determined by customers. That is, market success determines the core competences of companies. Paradoxically, this type of reasoning results in the fact that core competences should be regarded as both dependent and independent of the markets served at the same time. This leads to the situation that the 'inside-out' approach to strategy as recommended by Prahalad & Hamel, ironically, needs to be accompanied by the 'outside-in' approach of Porter, which they so fiercely attack, in order to determine a company's core competences.

The either/or-approaches of both Porter and Prahalad & Hamel do not stand on their own. The reasoning behind most strategic management approaches appears to lean either on environmental issues (e.g. opportunities and threats) or on organisational issues (e.g. strengths and weaknesses). For instance, within the framework of Mintzberg's (1990) strategic schools of thought, the strategic management approaches described seem to be distributed evenly on both sides of the distinction. The design, planning, positioning, environmental and configurational school seem to be environmental or externally oriented and the entrepreneurial, cognitive, learning, political and cultural school seem to be organisational or internally oriented. Taking in account also the resource based view of the firm (Prahalad & Hamel, 1990; Prahalad, 1993; Leonard-Barton, 1995), the balance is slightly in favour of focussing on organisational instead of environmental issues to seek firm ground for the strategic manoeuvres of companies.
While all strategic schools highlight distinct relevant issues to be addressed, all strategic schools fail to address the fact that strategy is a complex phenomenon that relates to a multidimensional range of direct opposites. Strategy, for instance, is both an emergent and a deliberate phenomenon that involves both the cognitive and communicative aspects of human conduct. The fact that paradoxes can be brought to light within each strategic management approach should not be interpreted as a shortcoming of these approaches. After all, as will be illustrated later on in this chapter, paradoxes are omnipresent. Strategic management approaches can only be criticised for the denial of their paradoxical foundation. Denying this paradoxical foundation, as Porter (1985) and

Prahalad & Hamel (1990) have done, leads to either/or-approaches to strategy that fail to grasp the specifics of the ways members of organisations deal with strategy. The inability of strategy researchers adapting to an either/or-approach to strategy to comprehend this point of view can best be illustrated by means of a recent discussion with respect to the dynamic capabilities view (Teece & Pisano, 1994; Teece et al., 1997). Priem & Butler argue that the dynamic capabilities view is undermined by the tautology that 'competitive advantage is defined in terms of value and rarity, and the resource characteristics argued to lead to competitive advantage are value and rarity' (Priem & Butler, 2001: 28). Barney (2001: 41-42) replied to this observation by stating that 'It is important to recognize that, at this definitional level, all strategic management theories are tautological in the way Priem and Butler describe. [...] Thus, *the ability to restate a theory in ways that make it tautological provides no insights about the empirical testability of the theory whatsoever*. [...] Thus, the real theoretical challenge presented by Priem and Butler is not "Can the RBV [resource based view] [...] be restated in a way that makes it tautological?" but is, rather, "Are some aspects of this resource-based theory parameterized in ways that can generate testable hypotheses?".' (italics in original). While that may be true, Barney forgets that the tautological reasoning behind what should be regarded as valuable and scarce resources is what makes them valuable and rare is exactly the tautology members of organisations experience when they consider their valuable and scarce resources. Eisenhardt & Martin (2000: 1116) replied to Priem & Butler in the following way: 'Dynamic capabilities are not tautological, vague, and endlessly recursive [...]. Rather, they consist of many well-known processes such as alliancing, product development, and strategic decision making that have been studies extensively in their own right, apart form RBV.'. While it cannot be denied that we know more about these phenomena than we did ten years ago, Eisenhardt & Martin fail to see that the tautological ground-figure underlying strategic decision-making is *an empirical fact*. The problem is that the resource based and the dynamic capabilities view neglect this and therefore, fail to grasp the specifics of the way members of organisations deal with strategic issues, at least that is what we wish to illustrate in this thesis. In order to come up with a both/and-approach to strategy that does justice to its tautological and paradoxical origin and grasps the specifics of dealing with strategy more effectively, it seems helpful to find an explanation for the fact that either/or-approaches fail to acknowledge the tautological and paradoxical origin of strategy. This will be the subject of the next section.

2.3 The Blind Spot of the Paradigm of Adaptation

To look for an explanation for the impossibility of either/or-approaches to acknowledge its tautological and paradoxical origin is in fact the 'second-order' observation of its logic. This implies that we need to observe how the relationship between organisations and their environment is conceptualised. To put it differently, we need to locate the

'blind spot' of an either/or-approach to strategy with respect to its founding distinction between organisations and their environment. A blind spot relates to the point that cannot be observed because of the way observation takes place. This point can be traced when we take into consideration the statement of Igor Ansoff, the founding father of modern strategic thinking, about the phenomenon that according to him binds all strategic schools of thought: 'It concerns the logic which guides the process by which an organisation adapts to its external environment' (Ansoff, 1987: 501).

Despite the differences between the various strategic schools of thought listed in the former section, all schools of thought take the problem of adaptation as their starting point. That is because all schools of thought relate strategic management to the problem of defining strategies to deal with an environment that is ever changing. Consequently, it seems that the problem of adaptation functions as a paradigm for strategic researchers. The paradigm of adaptation is based upon the assertion that companies constitute their environment in the same way as parts together form a whole. This whole is thought to be relevant for all the companies constituting it and as such determines which strategies need to be regarded as successful and which strategies need to be regarded as unsuccessful. The problem of companies therefore is how to adapt to the environment such that successful strategies result. However reasonable this reasoning may seem at first glance, it is the very reason that all schools of strategic thought relate to either/or instead of both/and-approaches to strategy.

Within the paradigm of adaptation, the distinction between system and environment is conceptualised as if companies make part of their more encompassing environment. This implies that companies trying to observe their environment need to conceptualise their environment as something existing *despite* of their own existence. However, this cannot be true because the environment is nothing else as the sum of it parts and therefore the environment exists only *because* of the parts constituting it. This finding is the direct opposite of what was presumed. The paradox thus is that *the environment exists despite and because of the companies constituting it at the same time*. The only way to evade this paradox within the paradigm of adaptation is by giving primacy to either environmental or organisational issues and in the process denying the relevance of its counterpart to explain successful strategic conduct. Choosing the environment as some Archimedean point of reference, is exactly what Porter (1985) has done by modelling 'superior ways to gain competitive advantage in sectors of industry'. Prahalad & Hamel (1990) have given organisational issues primacy for defining 'strategies of stretch and leverage'. Porter's recommendations lead to the fact that organisational members need to describe their company's environment as something they do not make part of initially. Likewise, the recommendations of Prahalad & Hamel lead to the fact that members of organisations initially need to describe their organisation as something that exists independent of their company's environment. The blind spot of both these either/or-approaches relates to the impossibility to conceptualise that social systems

and their environment constitute each other reciprocally and that both points of reference are equally valid as starting points in defining strategies. Because of this blind spot, either/or-approaches to strategy fail to address that dealing with the tautology in defining one's environment and organisation is the very problem of strategic management.

In general, every strategic management approach that relates itself to the paradigm of adaptation, suffers from giving primacy to either environmental issues or organisational issues in explaining successful strategic conduct. The long discussion concerning 'strategic choice' (Child, 1972 & 1997) on the one hand and 'strategic contingency' (Donaldson, 1985 & 1997) on the other hand is illustrative in this respect. Within the theory of strategic choice, it is said that companies are able to choose their strategic context to a considerable degree, while within the theory of strategic contingency[8] it is said that the strategic context is highly determined by the situation, so that there is little choice. To put in other terms: the latter stresses environmental selection rather than selection of the environment (Child, 1997: 45). In a broader perspective, the discussion between strategic choice and strategic contingency has become known as the 'problem of human agency'. This problem concerns the paradox that human agency becomes human bondage because of the very nature of human agency (Dawe: 1979: 398). That is, human beings have succeeded during the course of their history in creating socially organised systems, which then limit further exercise of human agency, even to the point of determining human action (Child, 1997: 49).
Within organisation studies, several authors have tried to acknowledge the paradox of human agency by developing conceptualisations that explain how agency becomes structure and structure becomes agency. To name but a few: Whittington (1988, 1992 & 1993), Reed (1988 & 1997), Chia (1997) and Thiétart & Forgues (1997). Whittington (1988) and Reed (1997) both advocate a 'realist perspective' to human agency and for this they rely on the work of Roy Bhaskar (1978, 1979 & 1986). Others (e.g. Barley, 1990; Orlikowski, 1992; DeSanctis & Poole, 1994; Barley & Tolbert, 1997) relate to the theory of structuration of Anthony Giddens (1984). The realist perspective indicates that social structures are only produced and reproduced through the activities they permit. In addition, this concept of social structure precludes any model of human agents as if they were psychological autonomous. I have found that, Bhaskar's realist model of human agency shares a remarkable resemblance with the notions of Luhmann's theory of self-referential systems. This is because within the theory of self-referential systems, social structures are also enabling and constraining at the same time and, in addition, psychic systems and social systems cannot determine each

[8] Note that this concept of contingency is not in accordance to the conception of contingency within the theory of self-referential systems because for self-referential systems, contrary to structural contingency, contingency does not imply determinism (see section 2.4).

other's autopoiesis. Note that the latter seems not to be the case within the theory of structuration because Giddens regards actors as knowledgeable and intentional. Despite the various attempts of organisation researchers to apply the paradox of human agency positively, these authors have never explicitly questioned the paradigm of adaptation.

As indicated before, by maintaining the conception as if social systems make part of a more encompassing environment, it remains problematic how to conceptualise the way organisations and their environment constitute each other reciprocally. Within section 1.2, we have seen that the conception that social systems make part of a more encompassing environment leads to the tautology that social systems are possible because they make themselves possible. This tautology contradicts with the paradigm of adaptation because within this paradigm it is said that the environment mediates between successful and unsuccessful social conduct. The paradigm of adaptation thus is self-defeating and eventually leads us to the questioning of Ashby's famous 'Law of Requisite Variety'. It should be mentioned, however, that Ashby never intended cybernetics in general and his law in particular to be empirical valid (Ashby, 1956:2-3).
The 'Law of Requisite Variety' states that in order to be in control a system needs as least as many control-measures as there is external variety (Ashby, 1956: 206-207). Luhmann has indicated that if social systems succeed in establishing a point-to-point accordance with their environment, the distinction between the system and its environment would be cancelled out[9] (Luhmann, 1985: 48). That is, we would not be able anymore to discern between what is system and what is environment. According to Luhmann, the environment of social systems is much too complex to comprehend and therefore the environment needs to be observed by social systems as reduced complexity (Luhmann, 1985: 47). This implies that adapting to one's environment is something that is impossible because it leads to the question to what you are actually adapting. It cannot be the environment 'an sich' because of its incomprehensibility and it cannot be a reduction of the environment 'für mich' because then you would need to adapt to yourself. These considerations lead to oscillation in the sense that adaptation to your environment seems only possible by adapting to yourself and that, at the same time, self-adaptation seems impossible because there is an environment outside of yourself to which you need to adapt. The paradox thus is that for social systems *approving to the*

[9] Luhmann (1985: 47-48): 'Die Einrichtung und Erhaltung einer Differenz von System und Umwelt wird deshalb zum Problem, weil die Umwelt für jedes System komplexer ist als das System selbst. Den Systemen fehlt die 'requisite variety' (Ashby), die erforderlich wäre, um auf jeden Zustand der Umwelt reagieren bzw. die Umwelt genau systemadäquat einrichten zu können. Es gibt mit anderen Worten, keine Punkt-für-Punkt-Übereinstimmung zwischen System und Umwelt (ein Zustand, der im übrigen die Differenz von System und Umwelt aufheben würde).'

paradigm of adaptation is only possible by disapproving it. The paradox of adaptation proves it impossible for social systems to adhere to the 'Law of Requisite Variety' for it leads to oscillating indecision. In order to prevent this indecision from occurring, the system/environment-distinction needs to be conceptualised differently. That is, we need a conceptualisation of this distinction with which it is possible to describe that organisations and their environment constitute each other reciprocally. The theory of self-referential systems enables such a conceptualisation, as will be illustrated in the next section.

2.4 The Role of Self-Reference in Sensemaking

Embracing the notion that social systems can be observed as self-referential systems sheds new light on the relationship between social systems and their environment[10]. That is because within the theory of self-referential systems, each system has its own environment. This is a different conception of the system/environment-distinction because within open systems theory, on which the paradigm of adaptation is based, systems and their environment are inclusive, while within self-referential systems theory they are exclusive (Figure 2.1).

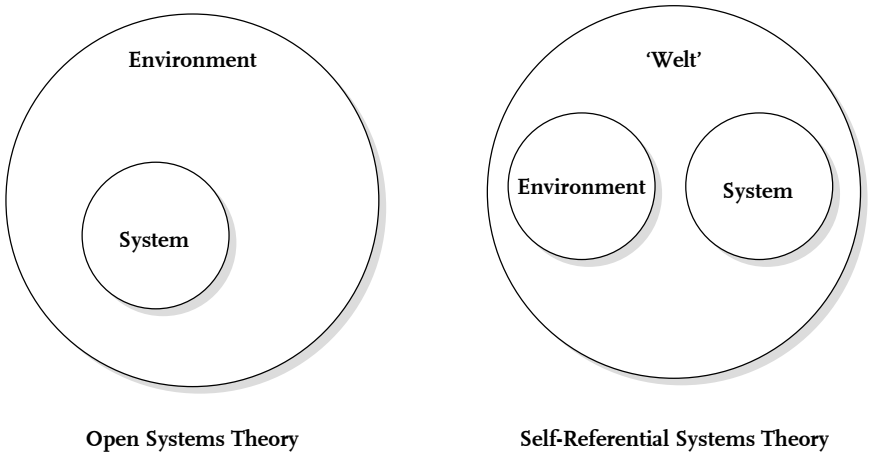


Figure 2.1: The System/Environment-Distinction in various Disguises

The implication of this new conception of the system/environment-distinction is that systems no longer are part of their environment. Self-referential systems have their own environment and the unity of the distinction between system and environment is regarded as 'Welt'. The unity of the system/environment-distinction can be seen as the point that cannot be observed from within, at least not under penalty of paradox, as will

[10] Those interested in a more detailed description of Luhmann's theory of social systems and the problems involved with self-reference, are advised to read the appendix to this thesis.

be illustrated later. For self-referential systems, 'Welt' relates to the ultimate form of complexity they need to deal with in becoming existent. It is important to note that within the theory of self-referential systems, the concept of 'Welt' does not refer to an all-embracing ontological concept of social reality because each social system has its own 'Welt' that is defined from within the system/environment-distinction. Therefore, 'Welt' is never a 'Welt' 'an sich' but always a 'Welt' 'für mich'.
Another important implication of this new conception of the system/environment-distinction has to do with the problem of adaptation. Self-referential systems are autonomous with respect to their environment, which means that the environment cannot influence a self-referential system causally, unless the system willingly co-operates. Adaptation towards the environment is therefore only possible by means of self-adaptation. For self-referential systems theory, the paradigm of adaptation, as used within open systems theory, should therefore be substituted by a paradigm of self-adaptation. It is important to note that the paradigm of self-adaptation also contains the paradigm of adaptation. After all, when a self-referential system naively decides to regard its environment as existing independent of itself, this system can adapt to this environment, notwithstanding the fact that it actually needs to adapt to itself to be adapted towards its environment. This implies that the 'Law of Requisite Variety' is only wrong from the perspective of an observer of social systems and not necessarily wrong from the perspective of the social systems adhering to this law. It is only a contingent, i.e. a *neither* necessary *nor* impossible solution to reduce complexity that may aid or not in becoming existent.

Self-Reference and Tautology

The fact that self-referential systems experience their environment exclusive to themselves implies that they can give primacy to *neither* their environment *nor* themselves in dealing with complexity. Instead, they need to make sense self-referentially of *both* their environment *and* themselves to become existent. As a result, sensemaking involves unfolding or 'asymmetrising' the perfect circularity between oneself and one's environment. Self-referential sensemaking is therefore grounded upon the following tautology (Figure 2.2).

> [...]
> (1) The existence of a self-referential system depends on its environment
> (2) The existence of the environment depends on the self-referential system
> [...]

Strategic sensemaking can be defined as seeking solutions self-referentially to solve this chicken-and-egg problem in making sense of the reciprocal relationship between one's environment and organisation. In order to deal with this tautology, self-referential

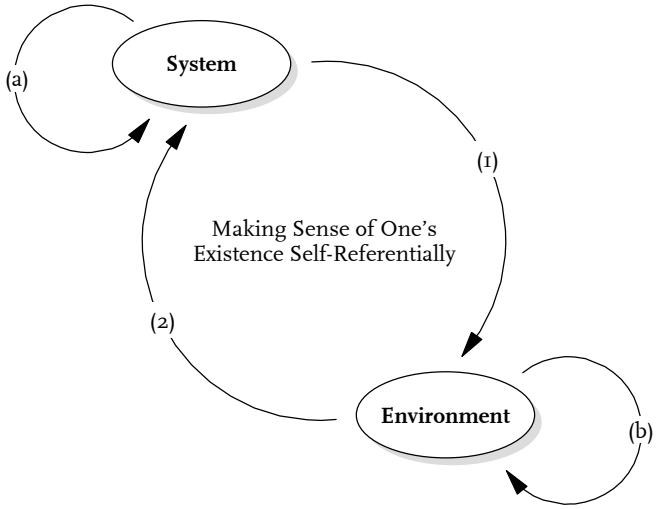


Figure 2.2: The System/Environment-Tautology

systems cannot relate to reason and, by means of communication, can only give meaning tautologically (a) to itself in the sense that it could be what it could be or (b) to the environment in the sense that it, again, could be what it could be (Figure 2.2). This implies that self-referential systems can chose two tautological asymmetries in solving twofold chicken-and-egg problems. Confronted with either of these tautologies, they experience an excess of opportunities to choose from in making the system existent, which may lead to an inability to choose. Therefore, the only way to do this is by naively doing something: 'just do it!'[11]. Dealing with self-reference thus involves acting naively to become existent because strictly speaking, self-referential systems cannot be defined without their environment and environments cannot be defined without their accompanying self-referential systems. As a result, each choice made by these systems to become existent, is contingent because they could have chosen otherwise in throwing themselves into the world. This world, however, is imperfect because it is impossible to fathom from within, at least not under the penalty of paradox.

Self-Reference and Paradox

Paradox occurs when self-referential systems try to observe their 'Welt' *despite* of themselves, whereas it only exists *because* of them. In the comprehension of this situation, one resembles the Baron of Münchhausen who needed to pull himself out of the swamp by his own hair. Paradox leads to oscillating indecision, which means that if you start an argument with a certain conviction you have to conclude the direct oppo-

[11] This guideline to deal with the illogical logic of self-reference is offered by George Spencer Brown in his book 'Laws of Form', second edition, New York, 1972.

site at the end of the argument and vice versa. In observing a company's identity, for example, organisational members need to conclude that the essence of their company lies hidden in what it is not, i.e. their environment. Likewise, in determining the identity of the company's environment, organisational members need to conclude that its essence lies hidden in that what it is not, i.e. the company. All this leads to the situation that a self-referential system that observes itself does actually not observe itself, which is caused by the fact that during the self-observation, a self-referential system cannot observe that it is involved with the observation of itself. The fact that each observation has its blind spot leads to the situation that observation is a paradoxical operation, i.e. only when you close your eyes to something, you are able to see. This blind spot causes that the identity of a self-referential system is something that cannot be identified by the self-referential system. Ironically, in failing to observe a company's identity, organisational members find out that they stumble upon a problem that they have already solved, that is *the company's existence*. Therefore, the existence of self-referential systems is grounded upon the paradox that they cannot relate to a 'Welt' outside but need to do so nonetheless to become existent. Because paradox leads to oscillating indecision, within the framework of self-referential systems theory, paradox cannot be defined according to logical or apparent contradiction. Within this framework, paradoxes are not senseless or meaningless statements but statements that meaningfully indicate the limits of knowledge one can have about the nature of things.

Self-Reference and Problems to remain Existent

Self-referential systems are systems that make themselves possible and once they are existent by commencing naively in action, they can never observe the unity of their and environment and themselves, i.e. their 'Welt', despite of themselves. As a result, self-referential systems thrive foremost on meaning instead of reason in deliberating about their existence. Now that we have discussed the tautological and paradoxical foundations of the existence of self-referential systems, it is possible to illustrate the problems these systems should overcome to remain existent throughout time by means of the recursive self-reproduction (autopoiesis) of their operations. For this, the elemental sociological notions of *identity*, *adaptation*, *structure*, *meaning*, *communication* and *contradiction* are of importance to strategy research. Within self-referential systems theory, all these notions are grounded upon paradox, as will be illustrated next.

- *The identity paradox*: as indicated above, due to self-reference, the identity of social systems cannot be identified by social systems observing themselves. The distinction between system and environment guides the development of the identity of a social system. However, it turned out that identity is something a self-referential system cannot identify because the unity of the distinction ('Welt') that guides the operations of the system cannot be observed

by the system. With respect to the observation of one's identity, reasoning offers no way out because it eventually stumbles upon non-contradictory circularity, i.e. tautology, or contradicting circularity, i.e. paradox. The identity of a self-referential system becomes identifiable only by making use of time. That is, by start using distinctions naively to guide operations (e.g. 'let us assume for now that there is a need for this product') and by reflecting upon one's actions later. This implies that the existence of social systems is no longer a problem related to the possibility of observation, but primarily to the possibility of acting and adaptation.

- *The adaptation paradox*: due to self-reference, social systems are open only because they are closed. Self-referential systems can only be adapted to their environment when they are adapted to themselves. Therefore, they are closed for measures taken by their environment. Dealing with an environment implies dealing with external and internal complexity. Self-referential systems can deal with complexity by 'temporalising' it. That is, by relating operations to each other throughout time, e.g. 'first we will develop a new product and than we will pay attention to its market-potential'. Operations have no duration and to remain existent, self-referential systems need to reproduce their operations on a continuous basis. This implies that the existence of social systems is no longer a problem related only to the possibility of adaptation, but to the possibility of relating operations throughout time also.

- *The structure paradox*: due to self-reference, structures enable and constrain the operations of social systems at the same time. Structures enable that operations of self-referential systems can be recursively related to each other throughout time. That is because past operations function as stepping-stones for future operations, e.g. 'next year's market share is last year's plus 20%'. Despite the fact that past operations cannot determine future operations, i.e. between actions, one has the possibility to change one's course, these structures also hinder that the self-reproduction or autopoiesis of operations can take place differently. Structures, therefore offer a meaningful reduction of the options available to a social system to relate two subsequent operations. This implies that the existence of social systems is no longer a problem related only to the possibility of structuring or relating actions throughout time, but to the possibility of giving meaning to experiences also.

- *The meaning paradox*: due to self-reference, social systems need to experience 'real' things or symbolic generalisations that constitute their 'Welt', which only exist dependent of themselves as existing independent of themselves. Giving

meaning or sensemaking implies experiencing or observing, which implies the use of distinctions, e.g. profitable versus unprofitable. The distinctions that self-referential systems can use are related to three dimensions of meaning. The systemic dimension enables self-referential systems to experience things as different from each other. The temporal dimension enables self-referential systems to experience different time horizons in the present. The social dimension, lastly, enables self-referential systems to experience perspectives of other self-referential systems. For social systems, sensemaking involves communication. This implies that the existence of social systems is no longer a problem related only to the possibility of giving meaning to symbolic generalisations, but to the possibility of communication also.

- *The communication paradox*: due to self-reference, communication is possible and impossible at the same time. Communications can only be observed by social systems when they are attributed to persons, which is the social equivalent for psychic systems. However, psychic systems involved with communication have to deal with double contingency, i.e. dealing with the situation that a person cannot determine the way his communications will be interpreted by others and that this person realises himself that the others realise this too. In other words, hermeneutic 'verstehen' is impossible because one cannot observe the mind of others despite oneself. However, just because of that, communication the problem of double contingency is solved. That is, all utterings of a person will be regarded as meaningful information by another person in the process of understanding what it is that the former person wishes to express. All this leads to the situation that *both* despite *and* because of the obstacle of double contingency, persons are able to communicate by just doing it. This implies that the existence of social systems is no longer a problem related only to the possibility of communication, but to the willingness of persons to understand each other.

- *The contradiction paradox*: due to self-reference, for social systems contradiction is beneficial and unbeneficial at the same time. Contradictions foster innovation because they blow up meaningful structures of expectation of social systems during communication. The downside, however, is that contradictions may lead to persistent conflicts, e.g. the contradiction between labour and capital may lead to enduring strikes. The solutions to such a conflict cannot emerge from the autopoiesis of the communications that produced the conflict between two or more persons. This implies that the existence of social systems is no longer a problem related only to the possibility of understanding and misunderstanding, but to the possibility of the communicating persons to deal

> with their own personality, for example by means of a third party. This, at last, leads us back to the issue of identity because within self-referential systems theory, dealing with your personality implies self-observation, which provokes one to observe one's identity.

It appears dealing with one's existence is grounded upon paradox. Hence, the old adage of Descartes 'I think therefore I am' does not to apply because by reasoning your existence becomes obscured by either tautology or paradox. The adage should rather read as 'I act therefore I am'. Self-referential systems are systems that emerge from action. By means of action, these systems achieve the impossible, i.e. dealing with contradiction, communication, meaning, structure, adaptation and identity. Now that the problems are presented that social systems experience to remain existent, it is possible to indicate how the actions of social systems, which are communications attributed to persons, can be observed both theoretically and methodologically.

Self-Reference on Three Levels of Aggregation

The actions of social systems can be viewed on three levels of aggregation: the operational level, the level of processes and the systemic level. It is important to note that these levels do not relate to three distinct 'ontological' levels, i.e. the existence of each level is only dependent on the operations of self-referential systems. Each level, however, relates to a distinct aspect of relating the operations of self-referential systems to each other in order to remain the social systems throughout time (Figure 2.3).

- On the *operational level*, self-referential systems are able to create 'Realität' or reality by naively commencing in action and asymmetrising the tautology between system and environment in the process. The operations of self-referential systems are recursively related to each other, which implies that future actions of social systems will be based upon past actions. This implies that something can be regarded as *real* or *unreal* in the future, dependent on what is regarded as *real* and *unreal* in the present past. To give an example, once organisational members decide that their company has a financial problem, they enable the communication about operations to make this reality unreal in the future.

- On the *level of processes*, the self-reproduction or autopoiesis of operations or 'Realität' is dependent on the reproduction of structures or meaning in the sense of what is *possible* and *impossible* to regard as real and unreal. These structures of meaning or 'Sinn' deprive social systems from possibilities to regard their 'Realität' differently, without determining the way two subsequent operations will be related to each other. That is, social systems can reinvent

themselves continuously both despite and because of what they regard as possible and impossible to realise in the present past. To give an example, once organisational members decide that is possible to implement 'Enterprise Resource Planning' within their company, this theme of communication enables the communication about which operations of organisational members can be regarded as possible and impossible in the light of the ERP-software involved.

- On the *systemic level*, the self-reproduction of 'Realität' and 'Sinn' is dependent on the reproduction of the system/environment-distinction in the sense of what is regarded as *important* and *unimportant* by self-referential systems with respect to the meaningful constitution of their 'Welt'. To give an example, once organisational members decide that corporate governance is of importance to their company, corporate governance enables the communication about which parties in the company's environment are important and unimportant in this respect.

Due to the link between the 'Realität', 'Sinn' and 'Welt' of social systems by means of non-durable operations, these phenomena only exist as long as the operations of these social systems are reproduced by communication. Social systems have three types of self-reference at their disposal, i.e. *operational self-reference* on the level of operations, *reflexivity* on the level of processes and *reflection* on the level of systems. Strictly speaking, social systems do not need any form of self-referential reflection to become operational and to remain existent throughout time, i.e. they 'only' need to start operating and keep on operating. Self-reference, however, is necessary to deal with operational, processional and systemic contradiction. Operational contradiction relates to observing *unreal* asymmetries as *real* and vice versa, processional contradiction relates to observing *impossible* structures of meaning as *possible* and vice versa, finally, systemic contradiction relates to observing *unimportant* distinctions in observing oneself as *important* and vice versa. In being self-reflexive with respect to their 'Realität', 'Sinn' and 'Welt', social systems have but two forms of observation at their disposal, i.e. tautology and paradox. Tautology can be defined more specifically as short-circuited self-reference because *tautological reasoning is reasoning whereby the beginning and ending of a line of argument coincide*. Paradox can be defined more specifically as contradicting and oscillating self-reference because *paradoxical reasoning is reasoning whereby the enabling and constraining conditions of a line of argument coincide*. Now that we have described the types of self-reference social systems are provoked to, we can describe how they can be studied empirically. *Both* in the observation of the way they produce and reproduce asymmetries, structures and distinctions *and* in the way they reflect upon their operations, processes and system as a whole.

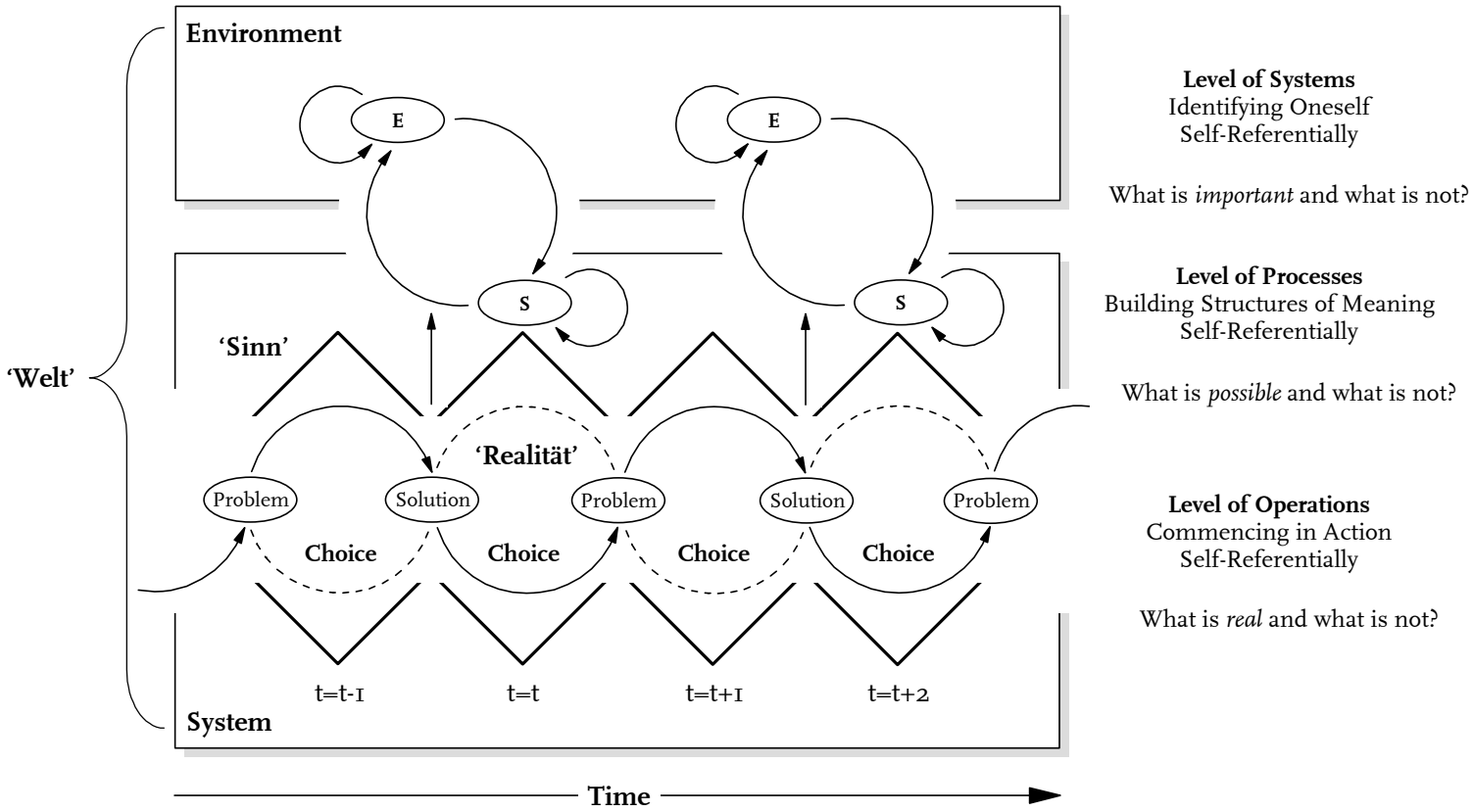


Figure 2.3: Self-Reference on the Level of Operations, Processes and Systems

2.5 The Functional Analysis of Self-Referential Sensemaking

Functional analysis is the empirical research method associated with the theory of self-referential systems. This functional method is aimed at relating specific problems and solutions to each other and tries to make understandable and verifiable that problems can be solved in various ways. Various alternatives to solve a problem are called functional equivalent. The contribution of functional analysis is to explain how the relation between problems and appropriate solutions can be specified narrower. Therefore, functional analysis can be seen as a means to compare various functional equivalents in solving a problem with each other on their merits. This leads to the paradox that *a functional analysis at the same time aims at enlarging and reducing the number of functional equivalents to solve a problem.* The enlargement of the number of functional equivalents is the result of the methodological stance that each functional equivalent is neither necessary nor impossible. In short, each functional equivalent is contingent. The reduction of the number of functional equivalents results from the attempt to prevent methodological relativism in the sense of 'anything goes'. In order to prevent methodological relativism, a functional analysis needs to be accompanied by the theory of self-referential systems.

The functional method and the theory of self-referential systems are mutual dependent in the sense that empirical theories aid in tracking down and comparing functional equivalents and the functional method aids in the development of theories. The fact that the functional method aids in developing theories has some serious consequences for the way theories need to be formulated. Theories cannot be based upon explanations between causes and effects that relate these causes and effects as necessary because this would contradict with the notion of contingent functional equivalence. This not implies that causal explanations are not useful for functional analysis; it only implies that causality is one of the means with which functional order comes into being. The functional method is not aimed at determining hidden causality but is aimed at determining and comparing functional equivalents in solving problems. The notion of function is a means to compare various functional equivalents from a specific functional point of view. As a comparative method, functional analysis makes it possible for an observer or social researcher to use distinctions that enable ways of observation, which the social systems under investigation cannot use in the observation of themselves. This implies that social researchers can consider the asymmetries, structures and identities that social systems deem necessary, to enable respectively their self-referential closed operations, processes and systems, as contingent.

The point of view offered by the functional method can be used recursively, i.e. problems can also be viewed as solutions and solutions as problems. In the first case, the focus is upon dysfunctional effects of a solution chosen in the past. Alternatively, in the second case, the focus is upon dysfunctional effects of a solution presently in use. In determining dysfunctional effects of functional equivalents, functional analysis aims

at theories that are able to explain the usual as being unusual or the ordinary as not so ordinary. Ultimately, this aim is the consequence of the methodological stance that functional equivalents are contingent. The benefits of this methodological stance are that *reality does not have to be explained tautologically in terms of what it is, but can also be approached paradoxically in terms of what it is not.* For an empirical focus on self-reference, two distinct ways of observation can be used. The first way of observation relates to first-order observations or observing the way social systems observe or act. From the stance of a social researcher, this implies that the reality as experienced by social systems will be described tautologically: *reality is what is regarded as real by social systems.* The second way of observation relates to second-order observations or observing the way social systems observe themselves. From the stance of a social researcher, this form of observation implies that the reality as experienced by social systems will be described paradoxically: *reality is what is not regarded as reality by social systems.* Note that researchers will also be trapped within self-reference, which implies that they can only observe what they can observe. Neither as the social systems under investigation, social researchers have a 'true' perspective on reality.

As indicated in the previous section, the theory of self-referential systems mentions three levels of systemic aggregation: operations, processes and systems. However, these levels of aggregation are not linked to the levels of observation, at least not explicitly. This seems like a great omission, especially when the empirical application of self-referential systems theory is considered. Nonetheless, relating the levels of aggregation and observation to each other leads to useful indications for the kind of knowledge that functional analysis aims at. For first-order observations, the following conclusions can be drawn in this respect (see Figure 2.3).

- On the *operational level*, social systems need to *asymmetrise* themselves despite the fact that they are self-referentially closed to become existent. For this, social systems need to start using 'symbolic generalisations' (e.g. customers, employees and computers) to create information about these symbolic generalisations, which may lead to new information, etc. This recursive or autopoietical process inevitably leads to contradictory information. Therefore, functional analysis aimed at the first-order observation of operations, relates to observing the way social systems deal with contradictory information about things that constitute their reality to find out what social systems regard as *real* and what as *unreal*. In short, the observation of operations leads to descriptions of the asymmetries chosen by social systems to create 'Realität'.

- On the *level of processes*, social systems need to *structure* themselves despite of the instability of their operations to become existent throughout time. For this,

social systems need to make selections regarding themes of communication (e.g. strategic management, human resource management and operations management) to create expectations about these themes of communication, which may lead to new themes of communication, etc. This recursive or autopoietical process inevitably leads to contradictory expectations. Therefore, functional analysis aimed at the first-order observation of processes, relates to observing the way social systems deal with contradictory expectations about themes of communication that constitute their structures of meaning to find out what social systems regard as *possible* and *impossible* to achieve. In short, the observation of processes leads to descriptions of the structures chosen by social systems to create 'Sinn'.

- On the *systemic level*, to remain existent, social systems need to *identify* themselves despite of the fact that their identity is unidentifiable. For this, social systems need to start using 'Leitdifferenzen' or founding distinctions (e.g. friendly/unfriendly, legal/illegal and profitable/unprofitable) to identify themselves, which may lead to new founding distinctions, etc. This recursive or autopoietical process inevitably leads to contradictory aspects of their identity. Therefore, functional analysis aimed at the first-order observation of systems, relates to observing the way social systems deal with contradictory aspects of their identity that constitute their being to find out what social systems regard as *important* and *unimportant*. In short, the observation of social systems leads to descriptions of the founding distinctions chosen by them to create their 'Welt'.

Within self-referential systems theory, contradiction provokes social systems to become reflexive. In doing so, social systems stumble upon self-reference. For social researchers second-order observations have to do with explaining why social systems can only see what they can see and why they fail to see what they cannot see. This leads us to the following conclusions with respect to the second-order observation of operations, processes and systems (see Figure 2.3).

- On the *operational level*, social systems are provoked to reflect upon their asymmetries in order to deal with operational contradiction. For social systems, this implies either the tautological or the paradoxical observation of their 'Realität' to make sense of these contradictions. In doing so, social systems are provoked to engage in the observation of the unity of the distinction between information and meaning, i.e. how can not-meaningful information be regarded as meaningful information and vice versa. From the stance of a social researcher, this implies regarding the asymmetries chosen by

social systems to create 'Realität' as contingent in order to explain why the asymmetries were chosen that were chosen. In doing so, the risks involved can be determined that are hidden from the view of the social systems under investigation because of the way there operations are asymmetrised.

- On the *level of processes*, social systems need to reflect upon their themes of communication in order to deal with processional contradiction. For social systems, this implies either the tautological or the paradoxical observation of their 'Sinn'. In doing so, social systems are provoked to engage in the observation of the unity of the distinction between process and structure, i.e. how can unexpected outcomes of processes be regarded as expected outcomes and vice versa. From the stance of a social researcher, this implies regarding the themes of communication chosen by social systems to create 'Sinn' as contingent in order to explain why the themes of communication were chosen that were chosen. In doing so, the risks involved can be determined that are hidden from the view of the social systems under investigation because of the way there processes are structured.

- On the *systemic level*, social systems need to reflect upon their identity in order to deal with systemic contradiction. For social systems, this implies either the tautological or the paradoxical observation of their 'Welt'. In doing so, social systems are provoked to engage in the observation of the unity of the distinction between system and environment, i.e. how can unpleasant aspects of one's identity be regarded as pleasant aspects and vice versa. From the stance of a social researcher, this implies regarding the self-descriptions as chosen by social systems to create 'Welt' as contingent in order to explain why the self was described as it was described. In doing so, the risks involved can be determined that are hidden from the view of the social systems under investigation because of the way they identify themselves.

Research aimed at first-order observations takes as it point of reference the things that can be observed by social systems and research aimed at second-order observations takes as it point of reference the things that cannot be observed by social systems. In the first case, in terms of second-order cybernetics (Von Foerster, 1981), a researcher can observe that social systems can observe what they can observe and in the second case, the researcher can observe that the observed social systems cannot observe that they cannot observe what they cannot observe. It is apparent that for second-order observation the researcher needs an observational-framework that is more comprehensive or complex than the framework in use by the observed social system. In both cases, however, the research is focused on the various ways or functional equivalents with

which social systems 'de-tautologise' and 'de-paradoxalise' themselves. The ultimate goal of functional analysis is to compare these functional equivalents in order to rule out risky and dysfunctional ones, as is illustrated below by means of the aphorism *that complexity leads to selectivity, selectivity to selections, selections to contingency and contingency to risk*.

- Functional analysis on the level of *first-order observation* is aimed at describing which selections are made by social systems in order to become existent and to remain existent throughout time. For this, the selections need to be determined that enabled social systems to evade the circular problems involved with self-reference.

- Functional analysis on the level of *second-order observation* is aimed at explaining why the selections of social systems to become existent and to remain in existence were made as they were made. For this, the selections made are considered contingent in order to determine the risks involved with these contingencies.

The various ways the first and second-order observations of social systems can be applied empirically are summarised in Table 2.1. In this table, the rows indicate the three levels of aggregation; the first two columns stand for the level of observation and the third column indicates the function of social inquiry. In the label of the third column, the term critical in critical social inquiry is placed between brackets. This is done to indicate that depending on the goals the researcher wishes to achieve, the research can be aimed at treating social systems as systems to be explained tautologically as that what they are or at treating social systems paradoxically as that what they are not in order to make them more efficient, effective, pleasant, etc.
It is important to note that what we have called first-order empirical observations are in fact second-order observations and what we have called second-order empirical observations are in fact third-order observations. This is because with first-order empirical observations, we do not observe what social systems observe, but we observe how social systems observe. Likewise, with second-order empirical observations, we do not observe how social systems observe – for that is first-order empirical observation – but we observe what social systems cannot observe because they do not observe as we do. From a methodological stance the implications of these considerations are that first-order empirical observations need to be characterised as hermeneutic 'verstehen' and that for second-order empirical observations some frame of reference is necessary to regard the functional equivalents chosen contingently, whether this frame of reference is available beforehand or is the result of empirical explorations.

	First-Order Observations	Second-Order Observations	(Critical) Function of Social Inquiry
Operations	Research aimed at observing the way social systems use asymmetries in order to become operational with a focus on operational contradiction	Research aimed at observing the asymmetries used by social systems as contingent in order to explain why the asymmetries were chosen that were chosen	To track down functional equivalents in becoming operational and to evaluate them critically in order to rule out risky and dysfunctional ones
Processes	Research aimed at observing the way social systems use structures in order to become existent throughout time with a focus on structural contradiction	Research aimed at observing the structures used by social systems as contingent in order to explain why the structures were chosen that were chosen	To track down functional equivalents in becoming structural existent and to evaluate them critically in order to rule out risky and dysfunctional ones
Systems	Research aimed at observing the way social systems use distinctions in order to become identifiable with a focus on systemic contradiction	Research aimed at observing the distinctions used by social systems as contingent in order to explain why the distinctions were chosen that were chosen	To track down functional equivalents in becoming identifiable and to evaluate them critically in order to rule out risky and dysfunctional ones

Table 2.1: Functional Analysis of Self-Reference in Social Systems

In addition, these considerations highlight that social researchers eventually need to come to terms with the risks involved with the way they have 'de-tautologised' and 'de-paradoxalised' themselves with respect to the contingent way they make the hermeneutic 'verstehen' of respondents possible and with respect to the contingent way they make it possible to regard functional equivalents as useful equivalents. The former tautology relates to the impossible situation that making truly sense of the meaningful actions and selections of members of organisations implies rising above one's own meaningful actions and selections in making sense of the meaningful actions and selections of the organisations under investigation. The latter tautology relates to the impossible situation that making truly sense of functional equivalents implies rising above one's own functional equivalents in making sense of the functional equivalents of the organisations under investigation. In the last chapter, we will reflect upon the contingent way we have asymmetrised these tautologies and the possible risks involved. For now, in the next section, we proceed in the development of a both/and-approach to

strategy with which strategic sensemaking processes can be explored empirically by just doing it naively.

2.6 The Outline of a Both/And-Approach to Strategy

The main lesson that can be learned from the previous sections is that companies are possible because their organisational members make them possible. In addition, it appears that the existence of companies is grounded upon paradox, i.e. they cannot regard their 'Welt' as existing despite of them but need to do so naively to become existent. Therefore, it becomes clear that self-referential systems thrive primarily on meaning instead of reason to come into existence and to remain existent throughout time. The social world they live in is imperfect, which forces organisational members to deal deliberately with environmental and organisational complexity in order to keep their company existent. Due to this complexity, they need to address their ability to deal with contradiction on the level of *operations*, *processes* and *systems* (Figure 2.4).

- On the *level of operations*, organisational members can be forced strategically to alter the way they have *asymmetrised* their company's environment and organisation. This implies that organisational members need to be able to reflect upon the *strategic concepts* (e.g. added values) in use to make sense of the company's *strategic operations* (e.g. gaining competitive advantage). In dealing with their strategy, therefore, members of organisations need to find out what is real and unreal with respect to the strategic problems and solutions they experience in their 'Realität'.

- On the *level of processes*, organisational members can be forced strategically to alter the way they have *structured* their expectations regarding the company's environment and organisation. This implies that organisational members need to be able to reflect upon the *strategic routines* (e.g. strategic sessions) in use to make sense of the *strategy process* (e.g. developing a strategic plan annually). In dealing with their strategy, therefore, members of organisations need to find out how their 'Sinn' enables and constrains them in communicating about what is possible and impossible to achieve strategically.

- On the *systemic level*, organisational members can be forced strategically to alter they way they have *identified* their company's environment and organisation. This implies that organisational members need to be able to reflect upon the *strategic roles* (e.g. employer) in use to make sense of the company's *strategic context* (e.g. acquiring new personnel). In dealing with their strategy, members of organisations, by means of communication, need to find out what they regard as important and unimportant in the constitution of their 'Welt'.

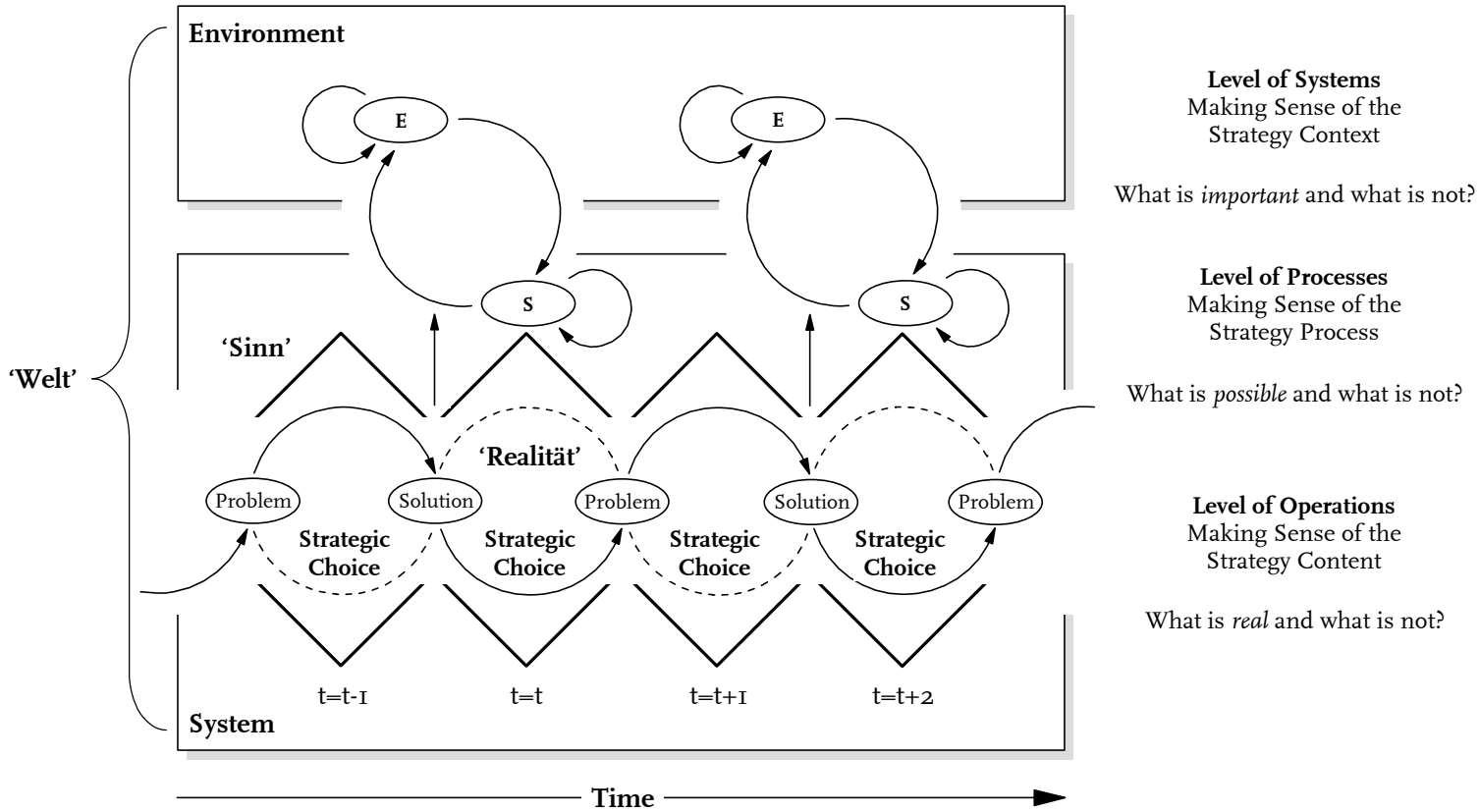


Figure 2.4: Self-Reference and Strategy Content, Process and Context

From the stance of organisational researchers, functional analysis makes it possible to use the theory of self-referential systems for empirical research. For a functional analysis of strategy, this means that strategy research could aid in exploring the way organisational members make contingently sense of their company's *strategic content*, *process* and *context* (Pettigrew, 1987; De Wit & Meyer, 1994) by means of first-order observations. In addition, the risks involved with the way organisational members 'de-tautologise' and 'de-paradoxalise' themselves with respect to their company's strategic content, process and context could be identified by means of second-order observations. Within Table 2.2, the both/and-approach of strategic sensemaking based upon self-referential systems theory and the functional analysis is presented. Not surprisingly, this table looks very similar to Table 2.1.

The notions of strategic content, process and context can be used synonymous with the notions of operations, processes and systems as they appear in self-referential systems theory. That is because without making sense of strategic content there would be no strategic process and no strategic context. The functional analysis of strategic sensemaking processes by means of first-order observation is aimed at exploring the way members of organisations give self-referentially meaning to their company's strategic content, process and context both deliberately and naively to make the company existent and to remain it throughout time. In addition, by means of second-order observation, functional analysis is aimed at observing how companies may jeopardise their existence because of the way they try to remain existent. In the remainder of this section, the both/and-approach to strategy will be described in more detail.

Making Sense of Strategic Content by Means of Strategic Concepts

It is far from controversial to distinguish between strategic content on the one hand and strategic process on the other hand, for instance, Weick (1987) indicated that strategy most of the time involves acting first and thinking later. Strategic content as it is used here, does not refer to the planning of strategies but to the concepts used within the process. This implies that when we focus on the content of strategies, we can uncover the use of management concepts or symbolic generalisations like 'core business', 'core competence', 'added value', 'leverage', etc. While the rise and fall of management concepts such as these is a phenomenon worthy of further critical exploration (e.g. Johnson, 1990; Karsten & Van Veen, 1998; Collins, 2000), it cannot be denied that they aid in organisational sensemaking processes (e.g. Duimering & Safayeni, 1998). Apparently, it seems not of importance what management concepts mean, it is what you can make them mean. Take for example the notion of 'core competence' (Prahalad & Hamel, 1990). Throughout their entire book, Prahalad & Hamel (1994) remain vague about what core competences actually are. Notwithstanding this, since the launch of the core competence concept, several authors have made

checklists that enable managers to determine if their company has core competences (e.g. Stalk, Evans & Shulman, 1992; Bartness & Cerny, 1993; Weggeman, 1997).

In strategic literature, many strategic management concepts can be found that should aid companies in formulating competitive strategies. Ansoff (1965), for example, stresses the importance of decisions about which combinations of products and markets companies should or should not engage in. Miles & Snow (1978) stress the importance of decisions concerning the various ways companies are able to make the future happen. The importance of 'added value' and ways it can be sustained is stressed by Porter (1985). The strategic importance of decisions concerning the structure of organisations is stressed by Mintzberg (1979). Strategic resources and their importance were stressed by Pfeffer & Salancik (1978) and recently by Kaplan & Norton (1996) and several authors about human resource management. The strategic importance of operational excellence appeared from the concept of 'lean production' (Womack et al., 1991). While it is easy to condemn the validation of strategic concepts, it is less easy to condemn their validity. After all, these strategic concepts are used by managers, consultants and researchers to highlight issues about organisational life that remained underexposed before they used them. From the perspective of self-referential systems theory, it could be said that strategic concepts function as means to become operational. In other words, strategic concepts asymmetrise tautologies like that the markets to be served depend on the products offered and the products to be offered depend on the markets served. Because each asymmetry is arbitrary per definition, a strategic concept is neither necessary nor impossible to make sense of strategic issues. The latter indicates that strategic concepts or asymmetries may actually aid in strategic sensemaking and the former indicates that no strategic asymmetry can claim superiority in strategic sensemaking because that would contradict with its in-necessity. Therefore, somehow, all the 'strategists' cited above seem right and wrong at the same time. They are right in formulating various ways to become competitive and wrong in their one-sided preference for highlighting specific ways to become competitive[12].

[12] It is striking that almost all strategic asymmetries found in literature relate to concepts successfully launched by 'Harvard Business Review', 'California Management Review', 'Sloan Management Review', etc. Apparently, only strategic management theorists are interested in formulating strategic reference points that should aid companies in gaining competitive advantage. Therefore, strategists conducting empirical research after strategic content merely seem to restrict themselves by only testing the relationships between strategic content and strategic performance as hypothesised by strategic management theorists. Readers of for example 'Strategic Management Journal' are regularly confronted with this type of research (with respect to competences see for example Henderson & Cockburn (1994) and recently Wilcox King & Zeithaml (2001)).

	First-Order Observations	Second-Order Observations	(Critical) Function of Social Inquiry
Strategic Content	Observing the way *strategic concepts* are used to make sense of the strategy content with a focus on *contradictory information*	Observing the strategic concepts used as contingent in order to explain why the strategy content is chosen that was chosen	Comparing and evaluating functional equivalents in making sense of *strategic content* in order to rule out risky and dysfunctional ones
Strategic Process	Observing the way *strategic routines* are used to make sense of strategic processes with a focus on *contradictory expectations*	Observing the strategic routines used as contingent in order to explain why the strategy process is structured as it is structured	Comparing and evaluating functional equivalents in making sense of *strategic processes* in order to rule out risky and dysfunctional ones
Strategic Context	Observing the way *strategic roles* are used to make sense of the strategic context with a focus on *contradictory identities*	Observing the strategic roles used as contingent in order to explain why the strategy context is identified as it is identified	Comparing and evaluating functional equivalents in making sense of *strategic context* in order to rule out risky and dysfunctional ones

Table 2.2: The Both/And-Approach to Strategy

For the functional analysis of strategic operations within the framework of self-referential systems theory, the above leads us to the conclusion that *strategic content relates to decisions concerning the use of strategic concepts that aid in making sense of the strategy content*. The use of strategic concepts functions as a two-edged sword for members of organisations because they enable and constrain the strategy process at the same time. They enable sensemaking regarding strategic content because the strategic concepts asymmetrise strategic tautologies. However, they constrain the sensemaking of strategic content also because they prohibit asymmetrising strategic tautologies in other, perhaps strategically more useful ways. The social inquiry is aimed at comparing and evaluating functional equivalents in the way organisational members make sense of the content of their company's strategies. The theoretical relevance of this perspective is *to uncover the way organisational members of companies deal with contradictory information regarding strategic concepts in use*. In addition, *the inability of organisational members to cope with contradictory information regarding the used strategic concepts can be uncovered*. The former relates to the first-order observation and the latter to the second-order observation of the use of strategic concepts (see Table 2.2).

Making Sense of Strategic Process by Means of Strategic Routines

Just like strategic content, the strategic process has gained significant attention of strategic researchers in the past. Regarded first as a dominantly rational process by the likes of Chandler (1962), Cyert & March (1963), Ansoff (1965) and Hofer & Schendel (1978), later the concept of unintended strategies emerged (e.g. Quinn, 1978; Mintzberg & Waters, 1985; Weick, 1987, Johnson, 1988) and now we have stumbled upon chaotic strategies (e.g. Fitzgerald & Van Eijnatten, 1998; Brown & Eisenhardt, 1998; Stacey, 2000). The cited authors predominantly focus upon the decision processes concerning strategy. Others have adopted a post-modern perspective and are focused upon power and political issues influencing the strategy process (e.g. Knights & Morgan, 1991; Knights, 1992; Barry & Elmes, 1997). The notion of strategic process as used here combines both perspectives and aims at discovering the mechanisms that keep the self-reproduction or autopoiesis of strategic routines going. This implies that when we focus on the strategic process, we can uncover the strategic routines that structure the communication processes concerning the way strategies are formulated, implemented, evaluated, etc. One possible subject of research could be to explore the way companies make sense of their strategy process by means of the use of rational strategic decision models like The Boston Consulting Group's 'Business Portfolio Management' or Porter's 'Value Chain Analysis'. In other words, the focus could be on the way such methods aid in creating frames of reference in the sense of a 'dominant logic' (Prahalad & Bettis, 1986 and Bettis & Prahalad, 1995). In general, interesting research subjects would be to explore how knowledge, power, money, trust, ethics etc. structure the strategic routines of companies.

For the functional analysis of strategic structures of meaning within the framework of self-referential systems theory, the above leads us to the conclusion that *strategic processes relate to decisions concerning the use of strategic routines that aid in making sense of the strategy process.* The use of strategic routines functions as a two-edged sword for members of organisations because they enable and constrain strategic processes at the same time. They enable sensemaking regarding strategic processes because the strategic routines structure the expectations of the communicating participants. However, they constrain the sensemaking of strategic processes also because they prohibit the expectation of other, perhaps strategically more useful expectations. The social inquiry is aimed at comparing and evaluating functional equivalents in the way organisational members make sense of their company's strategic process. The theoretical relevance of this perspective is *to uncover the way organisational members of companies deal with contradictory expectations regarding strategic routines in use*. In addition, *the inability of organisational members to cope with contradictory expectations regarding the used strategic routines can be uncovered.* The former relates to the first-order

observation and the latter to the second-order observation of the use of strategic routines (see also Table 2.2).

Making Sense of Strategic Context by Means of Strategic Roles

In addition to content and process, strategic context has drawn significant attention in the past. One specific research area relates to 'corporate governance' or 'stakeholder theory'. Since the publication of the landmark book of Freeman (1984), the idea that companies have stakeholders has become commonplace in both organisation studies (e.g. Alkhafaji, 1989; Brummer, 1991; Donaldson & Preston, 1995; Jones, 1995; Frooman, 1999; Henriques & Sadorsky, 1999; Jones & Wicks, 1999; Scott & Lane, 2000; McWilliams & Siegel, 2001; Tirole, 2001) and management literature (recently e.g. Cummings & Doh (2000) and Waddock & Smith (2000)). According to Freeman, the stakeholder approach is about groups and individuals who can affect an organisation and, in addition, is about managerial behaviour taken in response to those groups and individuals (Freeman, 1984: 48). Sensemaking about stakeholders concerns three questions (Frooman, 1999: 191): 'Who are they?', 'What do they want?' and 'How are they going to try to get it?'. Our notion of strategic context primarily focuses upon the role expectations stakeholders have with respect to companies and how the sum of these role-expectations can be used as a measure of corporate identity (see also Gioia & Thomas (1996) and Scott & Lane (2000)). This conception of corporate identity highlights that companies have to make sense of several distinct environments dependent on the stakeholders thought to be of relevance. Identity thus is a multidimensional construct and does not have to be a coherent whole. On the contrary, due to environmental complexity it is to be expected that dealing with one's identity strategically leads to contradictions between several dimensions of identity.

For the functional analysis of strategic identity within the framework of self-referential systems theory, the above leads us to the conclusion that *strategic context relates to decisions concerning the use of strategic roles that aid in making sense of the strategic context*. The use of strategic roles functions as a two-edged sword for members of organisations because they enable and constrain the strategic context at the same time. They enable sensemaking regarding strategic context because the strategic roles codify the boundaries of systemic identity. However, they constrain the sensemaking of strategic context also because they prohibit the identification of other, perhaps strategically more useful identities. The social inquiry is aimed at comparing and evaluating functional equivalents in the way organisational members make sense of their company's strategic context. The theoretical relevance of this perspective is *to uncover the way organisational members of companies deal with contradictory identities regarding strategic roles in use*. In addition, *the inability of companies to cope with contradictory identities regarding the used*

strategic roles can be uncovered. The former relates to the first-order observation and the latter to the second-order observation of the use of strategic roles (see also Table 2.2).

Some Methodological Remarks

It should be stressed that for the functional analysis of strategic sensemaking processes distinct research methods can be used, whether they are quantitative or qualitative. The only restriction imposed on these research methods, is that they should be able to deal with *both* the structural aspects of social life that seem to exist despite of social systems *and* the coincidental aspects of social life that seem to exist because of social systems. That is, research that focuses solely on the structural contingencies and refrains from addressing issues of human agency and vice versa, cannot be regarded as functional analysis of social or organisational phenomena. Functional analyses of social phenomena should adhere to the paradox that human agency becomes human bondage because of the very nature of human agency (see section 2.3), which implies in our case that the focus should be on the way organisational members are involved with sensemaking self-referentially. In studying this, both social systems and researchers need to adhere to the laws that dealing with self-reference impose on them, as will be illustrated next.

2.7 The Paradigm of Self-Adaptation

While making sense of the content, process and context of strategy, organisational members need to asymmetrise tautologies to make a strategy happen. Once strategies are existent, members of organisation will be confronted with contradiction regarding the strategic concepts, routines and roles in use. Social systems have three types of self-reference at their disposal to deal with contradiction, i.e. *operational self-reference* on the level of operations, *reflexivity* on the level of processes and *reflection* on the level of systems. It turned out that social systems, strictly speaking, do not need any form of self-referential reflection to become operational, i.e. they 'only' need to start operating. However, it appeared that self-reference is necessary to deal with operational, processional and systemic contradiction. While being self-referential, social systems have two distinct forms of observation at their disposal, i.e. tautology and paradox.

It appeared that tautology could be regarded as short-circuited self-reference because *tautological reasoning is reasoning whereby the beginning and ending of a line of argument coincide*. Paradox could be regarded as contradicting self-reference because *paradoxical reasoning is reasoning whereby the enabling and constraining conditions of a line of argument coincide*. Paradoxes turned out to be oscillating contradictions that lead to indecision. Not only are tautology and paradox are unavoidable for self-referential systems, they are meaningful phenomena associated in coming to terms with self-reference as well. The three types of self-referential reflection, i.e. operational self-reference, reflexivity and reflection relate to the tautological and paradoxical experience of phenomena on three

distinct levels of aggregation. On the level of operations, operational self-reference leads to observation of the 'Realität' as experienced by self-referential systems. Likewise, on the level of processes, reflexivity leads to the observation of 'Sinn' as experienced by these systems. On the systemic level, lastly, reflection by social systems leads to the observation of the 'Welt' of these social systems. Strategic sensemaking implies asymmetrising tautologies on the level of operations, processes and systems in defining one's 'Realität', 'Sinn' and 'Welt' by means of strategic concepts, routines and roles (see Figure 2.4 on page 42).

With respect to the sensemaking of *strategic content* on the operational level, organisational members of companies are confronted with the following tautology in dealing with their 'Realität' self-referentially.

1. What can be regarded as *real* and *unreal* by organisational members is dependent on the *strategic concepts* they have in use.
2. The *strategic concepts* they use are dependent on what these organisational members regard as *real* and *unreal*.

With respect to the sensemaking of *strategic processes* on the structural level, organisational members of companies are confronted with the following tautology in dealing with their 'Sinn' self-referentially.

1. What can be regarded as *possible* and *impossible* by organisational members is dependent on the *strategic routines* they have in use.
2. The *strategic routines* they use are dependent on what these organisational members regard as *possible* and *impossible*.

With respect to sensemaking of *strategic context* on the systemic level, organisational members of companies are confronted with the following tautology in dealing with their 'Welt' self-referentially.

1. What can be regarded as *important* and *unimportant* by organisational members is dependent on the *strategic roles* they play.
2. The *strategic roles* they play are dependent on what these organisational members regard as *important* and *unimportant*.

The fact that members of organisations succeed in asymmetrising these circular arguments by just doing it does not imply that companies are able to find Archimedean points of reference for making sense of their 'Realität', 'Sinn' and 'Welt'. On the contrary, everything that is observed (i.e. that is regarded as real, possible and

important) directly points back to the observer. When an observer tries to observe something as something else, the tautological observation is transformed into a paradoxical one, i.e. something unreal needs to be observed as real or vice versa, something impossible needs to be observed as possible or vice versa and something unimportant needs to be observed as important or vice versa. The relating paradoxes are that something becomes respectively real *and* unreal, possible *and* impossible and important *and* unimportant. The only way to evade this paradox is by choosing another way of observation with which the blind spot of the former way of observation can be observed.

These considerations lead to the conclusion that there is nothing awkward or mind puzzling about tautologies and paradoxes for self-referential systems. For self-referential systems, tautology and paradox are omnipresent. This implies that everywhere social researchers look for these illogical phenomena, they will be found. The point of carrying out a functional analysis of strategic sensemaking processes therefore is not to bring to light strategic tautologies and paradoxes empirically. The point is merely to illustrate the contingent nature of organisational life by analysing how members of organisations 'de-tautologise' and 'de-paradoxalise' the strategies of their companies and may bring their company in jeopardy in the process due to the risks involved.

Because of self-reference and the paradigm of self-adaptation, dealing with the contingent nature of social and organisational life can be translated into the 'Law of Requisite Reflexivity': *in order to stay in control a social system needs to be able to observe what it cannot observe*. This law states that social systems should be able to develop new perspectives on their 'Realität', 'Sinn' and 'Welt' dependent on the situation at hand. As indicated in section 2.4, this new paradigm of self-adaptation includes the old paradigm of adaptation and the related either/or-approaches to strategy. After all, social systems can contingently choose to asymmetrise the environment as apparently existing despite of them, to find out and that they are able to adhere to the 'Law of Requisite Variety'. However, while being self-reflexive these social systems need to conclude that the resulting 'Welt' only exists because of them and is neither necessary nor impossible.

Naturally, the 'Law of Requisite Reflexivity' applies to social researchers also. Neither as the social systems under investigation, social researchers can have an uninjured perspective on social life. This implies that social researchers are forced to question their premises also in the pursuit of knowledge, which leads to the situation that one can only offer knowledge to the world if one is willing to learn the world within oneself. By becoming reflexive, social researchers are dared to uncover the asymmetries, structures and distinctions that enable and constrain the way they are doing research.

Chapter 3

Functional Analysis of Strategic Content

3.1 Introduction

Now that we have developed a both/and-approach to study strategy as a phenomenon that involves self-referential sensemaking, it is time to apply this approach empirically. In order to illustrate that the both/and-approach to strategy is capable in observing the role of self-reference in strategic sensemaking, empirical research needs to be carried out. This empirical research needs to illustrate that strategic management thrives foremost on meaning instead of reason and that meaning comes into being both deliberately and naively. As will be described, due to pragmatic reasons, we have chosen to focus this empirical research on the way organisational members make sense of the content of their company's strategy (section 3.2). To describe the way organisational members do this, a research tool will be developed. This research tool should aid in the first as well as in the second-order observation of the way members of organisations 'de-tautologise' themselves in defining strategies.

For the research tool, in section 3.3, functional requirements will be presented to observe strategies both on the level of first and second-order observation. Within section 3.4, first a working-definition is given of strategic sensemaking with respect to strategic content. After that, the working of the research tool is presented grounded upon two social mechanisms involved with self-referential problem solving. It will be shown that making sense of strategic content can be modelled as a recursive process in solving various strategic chicken-and-egg problems. In addition, it will be described how social researchers can explore empirically the way members of organisations deal with environmental and organisational complexity in defining their company's strategic content self-referentially.

For the second-order observation of the way members of organisations make sense of strategic content, a configuration theory is presented (section 3.5). This theory describes four ideal-typical strategic realities. Each strategic reality comes into being when the strategic chicken-and-egg problems are solved self-referentially dependent on the way companies do business with their customers. This configuration theory aids also in the hermeneutic 'verstehen' of the respondents in describing the strategy of their company. Lastly, in section 3.6, it will be evaluated if the research tool developed has met its functional requirements.

3.2 The Focus on Strategic Content

In making sense of the strategic problems as experienced by companies, by means of self-referential systems theory and functional analysis, a social researcher is confronted with the question which parts of the both/and-approach presented in the previous chapter need to be applied. For the empirical application of the both/and-approach, several options present itself. That is, we could focus on the strategy content, process and/or context as experienced by members of organisations busy with making sense of strategy. The reason that was chosen for a focus on strategic content is foremost a pragmatic one. The field research was carried out in association with two Dutch organisations, SENTER and FME/CWM, which both took an interest in supporting small and medium sized enterprises in providing knowledge and support to them in answering strategic knowledge questions. Because of time and resource constrains, only the empirical exploration of the way companies made sense of the content of their strategy was possible.

It can be argued that sensemaking with respect to strategic content has been under explored within organisation studies. Surprisingly, in conducting a literature review, not one single reference was found to a model to describe how members of organisations need to make sense of the content of strategy because of some inherent social mechanism (Hedström & Swedberg, 1998) involved. In the previous chapter, it appeared that scientifically most attention has been given to issues involved with the strategy process (see Mintzberg et al., 1998 for an overview) and context (e.g. Freeman, 1984). Within management literature, on the other hand, the focus is primarily upon the content of strategies in the sense that models are presented that managers should use to define successful strategies. Unfortunately, these models are not grounded upon knowledge about social mechanisms involved with defining strategies. Notwithstanding these observations, it should be mentioned that the content of strategies has been explored empirically with respect to mental models of managers. An excellent overview of this line of research has been made by Walsh (1995). However, social research on this subject should engage in describing, analysing and explaining how members of organisations make sense of strategic content by means of communication, at least from a perspective grounded in self-referential systems theory [13].

[13] Within self-referential systems theory, psychic and social systems belong to each other's environment (see section 6 and 7 of the appendix), which implies that social systems can only get access to psychic systems through communication. This leads to the situation that the personality of psychic systems relates to the expectations others can have of about the communicative actions of these humans/persons. These expectations may lead to psychological insights regarding persons in the sense that what one does may reflect how one thinks.

Because strategic content appears to be somewhat undervalued within organisation studies, the pragmatic constraint in time and resources offers us the opportunity to present new empirical insights to the field of strategic management with respect to social mechanisms involved with the use of strategic concepts in making sense strategic content. This implies that by means of functional analysis, the strategic 'Realität' as experienced by the organisational members of companies involved with strategic sensemaking will be explored (see Table 2.2 on page 45). For this, a research tool was developed, which will be presented in the subsequent sections.

3.3 The Required Functionality of the Research Tool

In developing a research tool to observe how organisational members make sense of the content of their company's strategy, it is useful to make choices with respect to the functionality of the tool, the working of the tool and the design of the tool (Roozenburg & Eekels, 1991: 92-96; Vliegen, 1993: 46-47). For now, we refrain from the working and design of the tool. These issues will be dealt with later on in this section. Instead, we focus upon the research tool's functionality with respect to the strategic concepts necessary to make sense of strategic content from the perspective of both the companies to be investigated and the social researcher carrying out these investigations. The following functional criteria were chosen with respect to the application of self-referential systems theory in making sense of strategic content from the perspective of the social researcher. These aspects relate to the first-order observation of the way organisational members try to make sense of strategic content (section 2.6).

- The research tool should contain strategic concepts that relate to environmental as well as organisational strategic issues. After all, defining the content of strategies involves making sense of both the environment and the organisation at the same time. Therefore, from the stance of the social researcher, the research tool should make clear how the methodological problem is solved with respect to what can be regarded as environmental and organisational issues by organisational members busy with making sense of strategic content.

- The research tool should aid in the gathering of empirical data on the way members of organisations asymmetrise or 'de-tautologise' chicken-and-egg problems in making sense of strategic content by means of strategic concepts. After all, besides the chicken-and-egg problem with respect to the environment and organisation of companies, each strategic concept is trapped within a chicken-and-egg problem also. Therefore, from the stance of the social researcher, the research tool should make clear how the methodological problem is solved with respect to what can be regarded as real and unreal by organisational members busy with making sense of strategic content.

In general, the first-order observation of strategic content should impose at least as possible restrictions on the description of the various ways members of organisations can make strategically sense of their strategy. That is, the tool should enable the hermeneutic 'verstehen' of several distinct ways with which strategies can be defined by members of organisations. For the development of the research tool, in order to meet this first-order research-functionality, two distinct options present itself. The first option relates to the *a priori* deductive selection of strategic concepts considered relevant for the description of strategies from the perspective of the social researcher. As opposed to this, the second option relates to the *a posteriori* inductive selection of strategic concepts based upon the concepts in use by the members of organisations that are busy with making sense of strategic content. In selecting one of these options, a chicken-and-egg problem emerges. This problem relates to the tautology that the relevant strategic concepts from the stance of the social researcher depend on the concepts used by members of organisations and that the concepts used by members of organisations in making sense of strategic content depend on the strategic concepts in use that are thought to be of relevance by the social researcher. Confronted with the complexity as brought forth by this tautology, the deductive a priori option was selected on pragmatic grounds. That is because the parties involved with the field research, SENTER and FME/CWM, thought it wise to explore companies by means of a standardised research tool that could be used by their consultants in the extension of future services.

With respect to the second-order observation of the way organisational members try to make sense of strategic content, the following functional criteria were chosen. These functional criteria should aid in explaining why the selections were made that were made by organisational members to make their strategy existent and to remain this strategy throughout time (see section 2.6).

- The research tool should aid in the second-order observation of the way members of organisations have made sense of strategic content contingently. After all, in order to explain why organisational members have chosen the functional equivalent to make sense of their strategy that was chosen, it is necessary to compare this functional equivalent with other functional equivalents. Therefore, from the stance of the social researcher, the research tool should make clear how this methodological problem is solved with respect to what can be regarded as real and unreal in the way organisational members have made sense of the content of their strategy.

- The research tool should aid in the second-order observation of the way members of organisations have made sense of strategic content with respect

> to the risks involved that may jeopardise the strategy. After all, in order to evaluate various functional equivalents on their risks it is necessary to define when functional equivalents can be regarded as feasible. Therefore, from the stance of the social researcher, the research tool should make clear how this methodological problem is solved with respect to what can be regarded as functional and dysfunctional functional equivalents in the way organisational members have made sense of the content of their strategy.

In general, with respect to the second-order observation of strategic content, the research tool should encompass a more comprehensive frame of reference than the frame of reference in use by members of organisations busy with making sense of their strategy. That is, the tool should enable the *contingent* observation of several distinct ways with which strategies can be defined by members of organisations. For the development of the research tool, in order to meet this second-order research-functionality, two distinct options present itself. The first option relates to the *a priori* deductive development of such a more comprehensive framework based upon existing knowledge considered relevant for the understanding of strategic content from the perspective of the social researcher. As opposed to this, the second option relates to the *a posteriori* inductive development of such a more comprehensive framework based upon the frameworks in use by organisations that are busy with making sense of the content of their strategy. In selecting one of these options, a chicken-and-egg problem emerges. This problem relates to the tautology that the relevant framework from the stance of the social researcher depends on the frameworks in use by members of organisations and that the frameworks used by members of organisations in making sense of strategic content depend on the framework that is thought to be of relevance by the social researcher. Confronted with the complexity as brought forth by this tautology, the deductive a priori option was selected. From previous research, it turned out to be of key importance with respect to the empirical exploration of the strategies of small and medium sized enterprises to make clear the way these companies do business with their customers (Vos et al., 1998). This assumption is related to the insights offered by 'the strategic function typology' of Simon[14] (1989) and 'the typology of business identities' of Van Gunsteren (1987), as will be explained later on in this chapter.

3.4 The First-Order Observation of Strategic Content

In the both/and-approach to strategy, as presented in the pervious chapter, it appeared that strategy literature offers many strategic concepts that should aid companies in defining successful strategies. These strategic concepts function as asymmetries or way

[14] Note that this Simon is not *the* Simon, i.e. Herbert Simon, but the Dutch Martin Simon.

outs in making sense of chicken-and-egg problems strategically. It appeared to be of less importance what strategic concepts mean, it is more important what organisational members can make them mean. Before we proceed in presenting strategic concepts that are relevant to gain insights in the problems experienced by companies involved with strategic sensemaking, it is useful to define strategy with respect to strategic content (see also Table 2.2 on page 45).

> "On a specific point in time, for organisational members defining strategies involves making sense of strategic concepts to deal with operational contradiction in the strategic reality of the company in becoming *both* distinct *and* indistinct at the same time with respect to other companies in the company's strategic reality."

The fact that strategy paradoxically involves becoming distinct and indistinct at the same time is to highlight that distinctiveness can never be an absolute goal, nor is distinctiveness positive *per se*. Sometimes it is wiser to become indistinct than distinct, e.g. in retrospect it would have been wiser for Philips to accept the VHS-standard than to develop a new distinctive standard of video recording. Several strategic concepts may aid in making sense of environmental and organisational complexity and, therefore, strategies need to be considered as multidimensional phenomena. By using several strategic concepts, organisational members can make the paradox in becoming distinct and indistinct at the same time disappear. After all, whereas it is logically impossible to become distinct and indistinct at the same time with respect to one strategic concept, it is possible to become distinct and indistinct at the same time by means of more than one strategic concept. This implies that the paradox can be 'solved' by sequencing or relating several strategic concepts throughout time.

Operational contradiction causes that members of organisations need to redefine strategies (see section 2.6). While dealing with this environmental and organisational complexity, companies are confronted with the temporality of their strategies to become distinct and indistinct at the same time. This implies that depending on the time-scale used, each positive distinction eventually becomes negatively indistinct and each positive indistinction eventually becomes negatively distinct. As a result, strategies are temporal. Due to this temporality of strategies, making sense of strategic content also concerns that members of organisations need to choose how to bridge the gap between the company's present and future strategic operations. It is important to note that the notion of future as used here, is a relative measure. Not only can it refer to some point in time several years from now, but also to the next day from now or even to the next subsequent strategic operation. The point is that the future is used to indicate that a fundamental gap exists between the strategic actions of the present and the future, i.e. one's future strategic operations cannot be determined by one's past

strategic operations. In other words, the future is whatever members of organisations wish to make happen, if only their structures of meaning or 'Sinn' would allow them.

To relate one's present and future strategic operations, the strategic choices to solve strategic chicken-and-egg problems deal with the steps necessary to be able to make the future happen. If companies exist only throughout time when they succeed in maintaining the autopoiesis of their strategic operations, the question arises what actions need to be regarded as the elements that need to be reproduced. In order to gain understanding in the problems experienced by organisational members busy with making sense of strategic content, it is useful to regard the individual orders or assignments from customers as the elemental strategic operations that need to be reproduced. The reproduction of assignments causes that companies can become existent throughout time and assures their 'raison d'être' or reason for existence. That is because without assignments, the daily operations of companies would come to a halt and there would be no reason to continue the company. Doing business relates to the operations necessary to acquire assignments. It is apparent that due to the autopoietical nature of doing business, a business only exists as long as its elemental operations or constituting assignments are reproduced. It is important to note that two subsequent assignments do not have to be the same in order to be within the same business. After all, that would contradict with the existence of the fundamental gap between present and future actions. Note that the elemental operations of self-referential system are recursively related to each other by means of operational self-reference (see section 2.4). This implies that self-reproduction takes place when future strategic operations refer to past strategic operations. Take for instance a sales director who specifies the sales targets for next year by adjusting the figures of last year's sales plan. If doing business is considered as the elemental operation of companies, it leaves one wonder, which strategic concepts can be used by members of organisations to define business-strategies dependent on the assignments they wish to get hold of. This is the issue of the next subsection.

3.4.1 The Working of the Research Tool

The problem we face in deciding upon the working of the research tool relates to the situation how to be able to have a meaningful conversation with organisational members about the content of their company's strategy. For this, we regard defining strategies as self-referential problem solving. That is, as dealing with chicken-and-egg problems self-referentially.

Social Mechanisms involved with Strategic Operations

In choosing the strategic concepts, the 'scientific design cycle' of Vliegen (1993) was used to distinguish distinct strategic choices aimed at solving chicken-and-egg

problems with respect to environmental and organisational issues. This scientific design cycle is an extension of other problem solving models. It tries to capture the steps involved with designing an artefact. The four design states distinguished in the scientific design cycle relate to the *functions, tasks, properties* and *final conditions* of an artefact (Vliegen, 1993: 30-32). When we take into consideration also that this artefact should be realised, also the *functions, tasks, properties* and *final conditions* of the means of realisation can be distinguished (Vliegen, 1993: 46-47). When we take the four design and realisation states together, seven and not eight distinct design states result. That is because the state of the artefact's final conditions is the same as the function-state of the means of realisation. The scientific design cycle, however, does not make explicit that the connection between the various design states, involves problem solving *self-referentially*. In other words, designing artefacts and means of realisation is not regarded as dealing with tautological problems and therefore the importance of selectivity or choice in relating design states to each other is neglected. This is because the scientific design cycle assumes that functions can be defined independent of tasks, tasks independent of properties and properties independent of final conditions. The theory of self-referential systems would indicate that functions are tautological related to tasks, that properties are tautological related to the unity of functions and tasks and that final conditions are tautological related to the unity of properties and the unity of functions and tasks. This indicates that with self-referential systems theory *designing can be modelled as self-referential problem solving in relating design states to each other recursively*. Our extension of the scientific design cycle concerns relating each design state recursively to each other by means of choice. The resulting general scientific design cycle consists of seven design states and six design choices[15].

Despite its apparent simplicity, this newly grounded scientific design cycle aids in establishing a 'truer' description the way people deal with complexity and how they resolve this complexity than was possible with other perspectives on problem solving. That is because, by means of self-referential systems theory, the black box of social action can be opened, in the sense that the theory of self-referential systems enables us to observe how social action is possible *both* despite *and* because of its impossibility. It is impossible because deliberating on commencing in social action is trapped within circular reasoning. Just because of the complexity involved in dealing with this endless circularity, social action becomes possible because it provokes a naïve choice to solve the chicken-and-egg problem self-referentially. This social mechanism in reducing

[15] The choice to asymmetrise the function/task-tautology relates to the choice of a 'solution-principle' (Roozenburg & Eekels, 1991: 85) of a design. The choice to asymmetrise the tautology of properties and the unity of functions and task relates to the choice of demands for use. Lastly, the choice to asymmetrise the tautology of final conditions and the unity of properties and the unity of functions and tasks relates to the choice of specifications of the design with respect to its form and use of material.

complexity makes it possible to observe how social action originates from paradox, in the sense that *we can now observe how social systems can succeed in making something out of nothing*.

In addition, the newly grounded scientific design cycle aids in describing and explaining how people involved with problem solving are able to make something real dependent on what is already real and therefore both *enable* and *constrain* themselves in creating reality. The inventions that are already real, enable people to create new inventions, e.g. because of the existence of records and turntables, the compact disc and its accompanying player could be invented. At the same time, the already existent inventions constrain the possibility of inventing radical different perspectives on the reproduction of sound. This what has become known within complexity theory as the great dependency on initial conditions or the 'Butterfly Effect': a butterfly that flaps his wings somewhere in the world may cause a tornado on the other end of the world (Gleick, 1987). Within organisation studies, Nelson & Winter (1982) label this phenomenon 'path dependency'. This path dependency in creating reality recursively throughout time can be modelled by means of self-referential systems theory also. That is because within self-referential systems theory, operations of social systems are related to each other by means of operational self-reference (see section 2.4). In terms of the scientific design cycle this implies that with respect to each design choice, people need to consider all previous choices made earlier also. In other words, the design states need to be related to each other by means of operational self-reference. Consequently, the scientific design cycle enables us to observe the stepwise reduction of the complexity involved with creating reality as a recursive process that is enabled and constrained by the reality created thus far at the same time. That is, social systems need to deal with the distinction between what is possible and what is impossible, i.e. 'Sinn' (see section 2.4). This implies that in creating 'Realität', social systems create 'Sinn' also. Because there is meaning involved with bringing to terms what is possible and what is impossible, we are forced to take account of the fact that the reality we have created and which we recreate continually, is going to live a life on its own, for the better or for the worse. This social mechanism makes it possible to observe how the reproduction of social action originates from paradox, in the sense that *we can now observe how social systems constrain themselves by the way they enable themselves*.

Modelling Strategic Realities

Now that we have defined two social mechanisms that structure the creation of reality, it is time to design a strategic management model that enables us to have a meaningful conversation with members of organisations about the strategic reality they experience.

In designing or defining the content of strategies, by means the scientific design cycle, each design state of this cycle relates to a strategic concept. In the former chapter, we have seen that strategic management literature offers many strategic concepts or

asymmetries that should aid companies in making sense of the content of their strategies. In addition, it appeared that the strategists offering these strategic asymmetries often claim the superiority of their own strategic concept in prescribing how companies can commence in defining successful strategies. Here a different approach will be used. As point of departure is taken that defining strategies implies the simultaneous use of many strategic concepts at the same time and that no strategic concept can claim superiority above others. As mentioned in section 3.3, these strategic concepts were selected *a priori* to the field research.

- *Demand*: the first design state relates to the function of the artefact (Vliegen, 1993: 46). For our strategic management model, it was chosen to use the notion of function synonymous with the strategic concept of demand. That is because functions also relate to needs, just as demands of customers.

- *Supply*: the second design state relates to the task of the artefact (Vliegen, 1993: 46). For our strategic management model, it was chosen to use the notion of task synonymous with the strategic concept of supply. That is because tasks relate to the solutions to fulfil functions, in the same way as supplies fulfil demands.

- *Added value*: the third design state relates to the properties of the artefact (Vliegen, 1993: 46). For our strategic management model, it was chosen to use the notion of property synonymous with the strategic concept of added value. That is because properties relate to the distinctive characteristics of artefacts, in the same way as added values relate to the distinctive characteristics in selling the unity of supply and demand, i.e. a good or service.

- *Competitive move*: the fourth design state relates to the final condition of the artefact (Vliegen, 1993: 46). For our strategic management model, it was chosen to use the notion of final condition synonymous with the strategic concept of competitive move. That is because final conditions relate to the specifications of the forms and materials of artefacts, in the same way as competitive moves relate to the shaping of strategic moves in realising the added values to sell a good or service offered.

- *Capability*: the fifth design state relates to the task of the artefact that should be designed to realise the designed artefact (Vliegen, 1993: 46). The task of this 'means of production' relates to the realisation of the final conditions of the designed artefact. In other words the final conditions of the artefact, relate also to the function of the means to realise the artefact. For our strategic

management model, it was chosen to use the notion of this type of task synonymous with the strategic concept of capability. That is because the task of a means of production relates to the technology to be used to realise the artefact, in the same way as capabilities relate to the social technology in realising the competitive moves to realise the added values to sell a good or service offered.

- *Resource*: the sixth design state relates to the properties of the means to realise the designed artefact (Vliegen, 1993: 46). For our strategic management model, it was chosen to use the notion of this type of property synonymous with the strategic concept of resource. That is because the property of a means of production relates to the production factor to be used to realise the artefact, in the same way as resources relate to the production factors in actualising the capabilities necessary to realise the competitive moves, to realise the added values to sell a good or service offered.

- *Operating procedure*: the seventh design state relates to the final conditions of the means to realise the designed artefact (Vliegen, 1993: 46). For our strategic management model, it was chosen to use the notion of this type of final condition synonymous with the strategic concept of operating procedure. That is because the final condition of a means of production relates to the deployment of the production factors to be used to realise the artefact, in the same way as operating procedures relate to the deployment of the way the resources should be managed to actualise the capabilities necessary to realise the competitive moves to realise the added values to sell a good or service offered.

These seven states of strategies can be linked to each other by means of six strategic choices (Figure 3.1). The first, second and third choice deals with the reduction of environmental complexity and the fourth, fifth and sixth strategic choice with the reduction of organisational complexity.

1. The choice to connect the strategic concepts of demand and supply to each other can be labelled *the business choice*, which relates to the way companies choose to do business while planning to sell their goods or services to customers.

2. The choice to connect the strategic concept of added value to the unity of a supply and a demand, i.e. a business, can be labelled *the vision choice*, which relates to the way companies choose to make their business appealing while planning to sell their goods or services to customers.

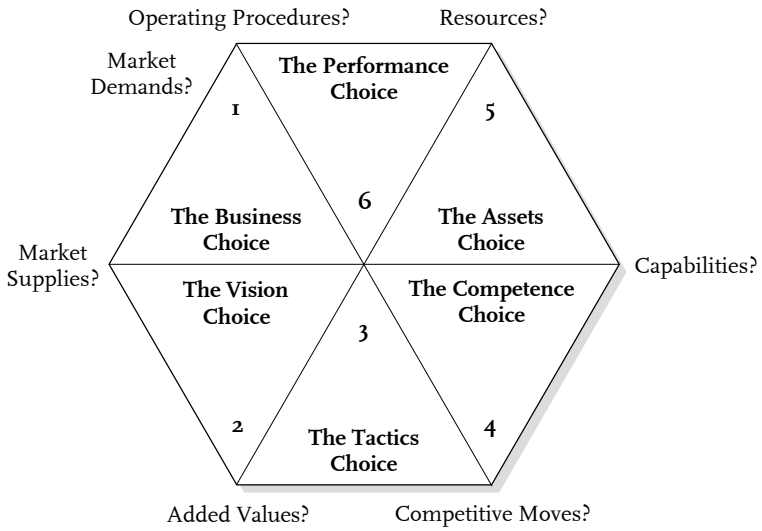


Figure 3.1: Strategic Management Model to observe Reality

3. The choice to connect the strategic concept of competitive move to the unity of an added value and a business, i.e. a vision, can be labelled *the tactics choice*, which relates to the way companies choose to make their visions come true while planning to sell their goods or services to customers.

4. The choice to connect the strategic concept of capability to the unity of a competitive move and a vision, i.e. a tactic, can be labelled *the competence choice*, which relates to the knowledge & skills companies ought necessary to make their tactics succeed while planning to realise their goods or services.

5. The choice to connect the strategic concept of resource to the unity of a capability and a tactic, i.e. a competence, can be labelled *the assets choice*, which relates to the assets companies choose to actualise their competences while planning to realise their goods or services.

6. The choice to connect the strategic concept of operating procedure to the unity of a resource and a competence, i.e. an asset, can be labelled *the performance choice*, which relates to the way companies choose to deploy and manage their assets while planning to realise their goods or services.

This strategic management model can describe the complexity involved with the creation of reality both despite and because of the social mechanisms involved. The business choice is dependent on the social mechanism that explains the impossibility and possibility of the creation of reality or strategic content. The other choices are dependent on the social mechanism that explains that what is already real constrains and enables the further creation of reality or strategic content. As such, these social mechanisms aid in a 'true' description of the way members of organisations deal with environmental and organisational complexity and how they resolve this complexity. In modelling the way members of organisations make sense of strategic content by means of strategic concepts, the notion of operational self-reference becomes of importance.
Operational self-reference implies that members of organisations need to consider all previous choices made earlier also. In other words, all strategic concepts need to be related to each other by means of operational self-reference. This operational self-reference comes into being by means of strategic choice. When, for instance, the performance choice is under consideration by organisational members, operational self-reference relates to the following situation.

1. Each operating procedure relates to at least one resource
2. Each resource relates to at least one capability
3. Each capability relates to at least one competitive
4. Each competitive move relate to at least one added value
5. Each added value relates to at least one supply
6. Each supply relates to at least one demand

In making clear how the strategic management model works with respect to the various chicken-and-egg problems, an example of the way the business and vision choice are related to each other is given (Figure 3.2). First, one needs to make sense of the business choice. Solving the chicken-and-egg problem involved with this choice is dependent on the social mechanism that explains the impossible possibility in creating reality. Therefore, to define a business, one eventually must naively asymmetrise what is supplied on t=1, i.e. 'what is supplied is what is supplied' or 'what is supplied is not what is demanded', and what is demanded, i.e. 'what is demanded is what is demanded' or 'what is demanded is not what is supplied'. When this chicken-and-egg problem with respect to the business choice is solved, one has defined a business self-referentially. Subsequently, the vision choice presents itself on t=2. Solving this chicken-and-egg problem is dependent on the social mechanism that explains that what

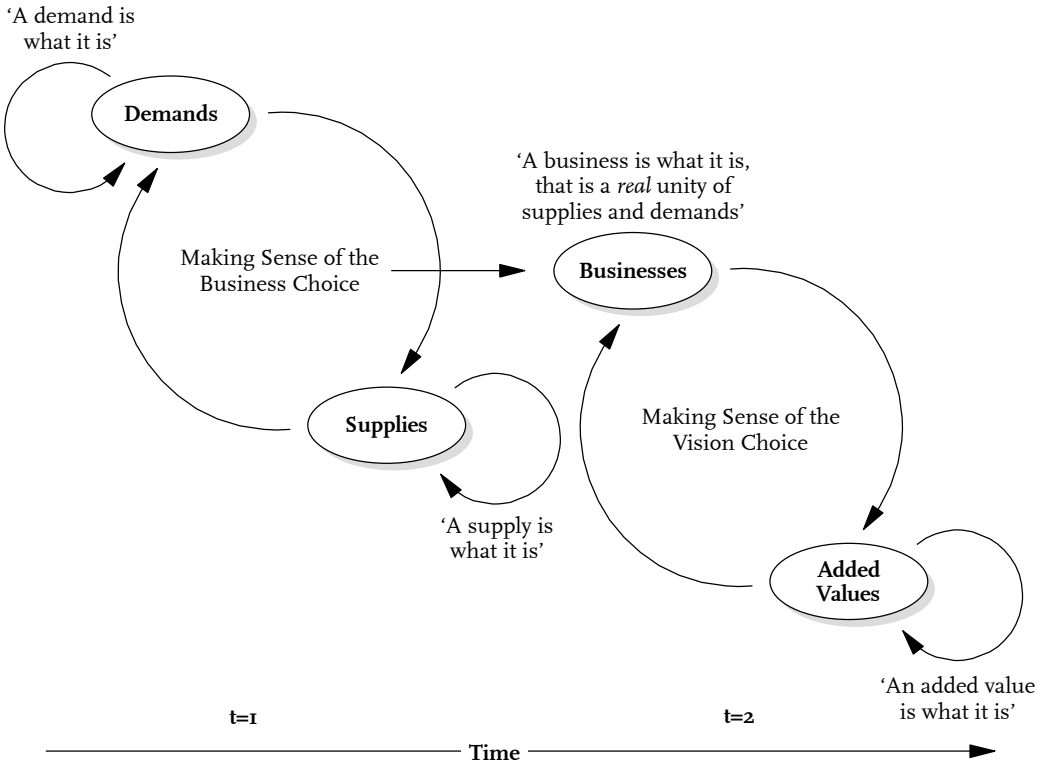


Figure 3.2: Example of how to solve related Strategic Chicken-and-Egg Problems

is already real enables and constrains the further creating of reality. To define a vision, one 'only' needs to asymmetrise the tautology that 'an added value is what it is'. That is because the tautological relationship between businesses and added values is already asymmetrised on t=1, which implies that there are existing or 'real' businesses on t=2. The same logic applies to the remaining choices, which implies the following procedure.

- On t=1, businesses need to be defined self-referentially to commence in defining strategies despite and because of its impossibility.
- On t=2, visions need to be defined self-referentially for the already existing 'real' businesses, which constrain and enable the definition of added values for these businesses.
- On t=3, tactics need to be defined self-referentially for the already existing 'real' visions, which constrain and enable the definition of competitive moves for these visions.

- On t=4, competences need to be defined self-referentially for the already existing 'real' tactics, which constrain and enable the definition of capabilities for these tactics.
- On t=5, assets need to be defined self-referentially for the already existing or 'real' competences, which constrain and enable the definition of resources for these competences.
- On t=6, performances need to be defined self-referentially for the already existing 'real' assets, which constrain and enable the definition of operating procedures for these assets.

Because time forces members of organisations to make the strategic choices one after another, the complexity in making a strategy existent or *real*, becomes stepwise reduced in time. This implies that when members of organisations naively define a new business, the circularity of the strategic management model becomes asymmetrised in the sense that the circle becomes a line that, imaginarily, points ahead in time. It was mentioned earlier that strategy has to do with becoming distinct and indistinct at the same time. This paradox can now be 'solved' by unfolding the strategic choices in defining strategic concepts one at a time. In this way, it is possible to become distinct with certain strategic concepts and indistinct with others. Note that if all competitors of a company choose to become distinct with a specific strategic concept, the company's indistinctiveness transforms into distinctiveness. In becoming distinct and indistinct, the strategic concepts of supplies, demands, added values, competitive moves, capabilities, resources and operating procedures can be used (Figure 3.1). Next, it will be described how social researchers can observe how members of organisations solve the six strategic chicken-and-egg problems self-referentially to reduce environmental and organisational complexity.

	Strategic Content	Strategic Concepts	Strategic Asymmetries	Strategic Dilemmas
1. Business Choice	Asymmetrising the tautology that a business is what is defined as a business	(t=1) Making sense of businesses by relating supplies and demands to each other (e.g. Ansoff, 1965; Abell, 1980)	To determine *real* supplies and demands a social researcher may use the business-dimensions (Abell, 1980) to emphasise with respondents	Facing the dilemma whether to specialise or diversify in order to become distinct or indistinct with respect to the businesses defined
2. Vision Choice	Asymmetrising the tautology that a vision is what is defined as a vision	(t=2) Making sense of visions by relating *real* businesses to added values (e.g. Porter, 1984)	To determine *real* added values a social researcher may use the DESTEP-factors (Botter, 1988) to emphasise with respondents	Facing the dilemma whether to lead or to follow in order to become distinct or indistinct with respect to the visions defined
3. Tactics Choice	Asymmetrising the tautology that a tactic is what is defined as a tactic	(t=3) Making sense of tactics by relating *real* visions to competitive moves (e.g. Porter, 1984; Brandenburger & Nalebuff, 1995)	To determine *real* competitive moves a social researcher may use strategic players (Brandenburger & Nalebuff, 1995) to emphasise with respondents	Facing the dilemma whether to attack or to defend in order to become distinct or indistinct with respect to the tactics defined

	Strategic Content	Strategic Concepts	Strategic Asymmetries	Strategic Dilemmas
4. **Competence Choice**	Asymmetrising the tautology that a competence is what is defined as a competence	(t=4) Making sense of competences by relating *real* tactics to capabilities (e.g. Prahalad & Hamel, 1994)	To determine *real* capabilities a social researcher may use internal functions (Woodward, 1965) to emphasise with respondents	Facing the dilemma whether to make or buy in order to become distinct or indistinct with respect to the competences defined
5. **Assets Choice**	Asymmetrising the tautology that an asset is what is defined as an asset	(t=5) Making sense of assets by relating *real* competences to resources (e.g. Kaplan & Norton, 1996)	To determine *real* resources a social researcher may use production factors (Weggeman, 1997) to emphasise with respondents	Facing the dilemma whether to dispose or to acquire in order to become distinct or indistinct with respect to the assets defined
6. **Performance Choice**	Asymmetrising the tautology that a performance is what is defined as a performance	(t=6) Making sense of performances by relating *real* assets to operating procedures (e.g. Womack et al., 1991)	To determine *real* operating procedures *a* social researcher may use performance indicators to emphasise with respondents	Facing the dilemma whether to improve or to consolidate in order to become distinct or indistinct with respect to the performances defined

Table 3.1: Making Sense of Strategic Content

Observing Strategic Concepts Grounded in Reality

Adopting another strategic course, most often implies that companies need to redefine their business. Due to self-reference, in choosing how to redefine their business, companies involved with such a strategic reorientation, stumble upon the tautology that a business is what is defined as one. When we define a business dependent on the distinction between supply and demand (Ansoff, 1965; Abell, 1980), this tautology is transformed into a chicken-and-egg problem. This chicken-and-egg problem relates to the situation that what could be defined as the demands of customers depends on what could be supplied to them and what could be supplied to customers depends on what they demand. In making sense of this situation, by just defining a demand or a supply naively, this chicken-and-egg problem can be solved. In doing so, the unity of supply and its accompanying demand emerges as an operational unity that can be labelled strategically as a business. Notwithstanding the fact that the strategic concepts of supply and demand can be made operational, the identity of the relating business cannot be identified without stumbling upon a paradox. This paradox occurs when organisational members try to observe this unity despite of them, whereas this unity exists only because of them. While making sense of the business choice, companies should consider whether their business should be redefined or not in making the future happen. In redefining a business, organisational members face the dilemma whether to *specialise* or *diversify* in order to become distinct or indistinct with respect to a business.

From the stance of social researchers, making sense of the business choice of companies involves relating supplies and demands in such a way that they are justified empirically or grounded in data. The business-dimensions of Abell (1980) were chosen to make the strategic concepts of supply and demand operational. The business-dimensions relate to the following three questions.

- *Who?* An answer to this question should result in the definition of customers, market segments, etc.
- *What?* An answer to this question should result in the definition of the needs of customers.
- *How?* An answer to this question should result in the definition of the solutions offered to fulfil the needs of customers.

With the business-dimensions, a social researcher is able to asymmetrise the tautology that supply and demand is what is defined as supply, respectively demand by companies from his point of view. However, in determining whether the business-dimensions relate to *real* or *unreal* supplies and demands in defining businesses, he or

she should empathise with the organisational members involved. The social researcher needs to establish empirical proof for the way the tautological relationship between supplies and demands is asymmetrised by organisational members. Only when empirical fact is established, the chicken-and-egg problem is solved successfully in the sense that the facts gathered are considered meaningful by the organisational members involved. For the other strategic choices, the same routine can be used to define *real* added values, competitive moves, capabilities, resources and operating procedures, as will be described next.

- To define real *added values*, social researchers may use environmental trends to asymmetrise the tautology that an added value is what it is. For this the DESTEP-factors can be used (Botter, 1988: 95-96). The word DESTEP is in fact an acronym, within which D relates to demographic issues, E to economic issues, S to social issues, T to technological issues, E to ecological issues and P to political issues. While making sense of the vision choice, companies should consider whether their visions should be redefined or not in making the future happen. In redefining a vision, organisational members face the dilemma whether to *lead* or to *follow* in order to become distinct or indistinct with respect to a vision.

- To define real *competitive moves*, social researchers may use the extension of the model of competitive forces by Porter (1985) of Brandenburger & Nalebuff (1995) to asymmetrise the tautology that a competitive move is what it is. The latter have used game theory to determine competitive moves to outplay or use specific strategic players. The strategic roles distinguished by them, besides companies, are customers, suppliers, substitutors and complementors (Brandenburger & Nalebuff, 1995: 60). While making sense of the tactics choice, companies should consider whether their tactics should be redefined or not in making the future happen. In redefining a tactic, organisational members face the dilemma whether to *attack* or to *defend* in order to become distinct or indistinct with respect to a tactic.

- To define real *capabilities*, social researchers may use three internal functions are frequently brought up with respect to the structures of organisations: research & development (R&D), production and sales (e.g. Woodward, 1965: 125) to asymmetrise the tautology that a capability is what it is. While making sense of the competence choice, companies should consider whether their competences should be redefined or not in making the future happen. In redefining a competence, organisational members face the dilemma whether

to *make* or to *buy* in order to become distinct or indistinct with respect to a competence.

- To define real *resources*, social researchers may use the production factors to asymmetrise the tautology that a resource is what it is. According to Weggeman (1997), knowledge is the one important production factor besides the traditional production factors such as capital, ground and material. In the 'networked-society', also relationships are an important strategic production factor companies can invest in strategically. While making sense of the assets choice, companies should consider whether their assets should be redefined or not in making the future happen. In redefining an asset, organisational members face the dilemma whether to *acquire* or to *dispose* in order to become distinct or indistinct with respect to an asset.

- To define real *operating procedures*, social researchers may use the performance indicators to asymmetrise the tautology that an operating procedure is what it is. On the operational level, three important performance indicators can be used: time, quality and costs. Time relates to the throughput time of processes, quality to the presence of required characteristics and costs to the offers brought to realise the output of processes. On the business level, three other performance indicators can be used: productivity, effectivity and efficiency. Productivity relates to the proportion of turnover and offerings realised, effectivity to the proportion of planned turnover and realised turnover and efficiency to the proportion of offerings realised and offerings planned. While making sense of the performance choice, companies should consider whether their performances should be redefined or not in making the future happen. In redefining a performance, organisational members face the dilemma whether to *improve* or to *consolidate* in order to become distinct or indistinct with respect to a performance.

The strategic concepts chosen to make sense of the content of strategies are summarised in Table 3.1 on page 67. We have sought evidence in strategic management literature for the relevance of the various strategic concepts. It appeared that the strategic concepts chosen, were all thought of relevance by strategists for defining strategies. During the history of strategic management, the business choice has always been regarded as the 'starting point of strategic planning' (e.g. Chandler, 1960; Ansoff, 1965; Abell, 1980). The business choice is, however, not the only possible alternative in commencing successful strategies. From the automotive studies of Womack et al. (1991), it appeared for instance, that Japanese car manufacturers were able to supply a divers range of cars because of their distinctive performance in manufacturing. In

addition, Prahalad & Hamel (1992) have shown that the use of distinctive competences can be used to define successful strategies in divers markets. Despite these other alternatives, the business choice appears to be a reasonable starting point in describing strategies empirically. That is because each other choice is linked to the business choice in the sense that added values, competitive moves, capabilities, resources and operating procedures only have meaning when one is in business.
It is important to make clear that despite the important role of strategic choice or selectivity in making sense of strategic content by the use of strategic concepts, the conception of strategy as presented here should *not* be regarded as an intentional concept in explaining strategic manoeuvres. That is because theories considering strategic operations as intentional or purposeful are not well equipped enough to deal with the empirical fact that strategic operations not always relate to purposes[16]. After all, lots of company's do what they do because they do what they do and continue in doing that even when it leads to their demise. Therefore, the conception of strategy as presented here, should be regarded as *both* intentional *and* unintentional at the same time. In doing so, we can make clear that strategy involves acting naively and deliberately.

3.4.2 The Design of the Research Tool

This description thus far of the research tool related only to its working with respect to the first-order observation of strategic content. Now, it is time to pay attention to the design or styling criteria of the tool. As indicated before, the field-research was carried out in conjunction with SENTER and FME/CWM. It was of significance to these parties that the efforts of the participating companies were kept to a minimum with a maximum of one daily period of four hours and one period of two hours. The first period could be used to gather data and the second period to present and discuss the findings. It was mentioned before also that SENTER and FME/CWM thought it wise to explore the companies involved by means of a standardised research tool that could be used by their consultants in the extension of future services. From previous research, it appeared that the tool should meet the following styling requirements in order to be able to operate as effectively as possible within the time constraints (Vos et al., 1998).

- *Focus on several businesses at the same time*: it turned out that most companies were active in more than one business. Consequently, the instrument should enable the description of more than one business strategy. This functionality is fulfilled by the use of tables or matrices because matrices enable the

[16] Luhmann: 'Wer einen Zweck in die Welt setzt, muß dann mit dem Zweck gegen die Welt spielen und das kann nicht gut gehen oder jedenfalls nicht so wie er denkt.' (Luhmann, 1989: 330).

description of various demands, supplies, added values, competitive moves, capabilities, resources and operating procedures at the same time.

- *Focus on present and future strategies at the same time*[17]: it turned out that the future strategies defined by respondents could differ in level of ambition to a considerable degree. Therefore, in order to get insight in the impact of proposed strategic changes it was chosen to describe both the present and future business strategies. This is done by means of the matrices described above also. The upper left corner of a matrix is used to describe the present strategies and the lower right corner to describe the strategies of the future. The tables resulting therefore resemble the so-called 'diagonal matrices', i.e. matrices whereby the upper right and lower left corner of the tables are empty.

- *Focus on strategic concepts that are of 'real' strategic imperative to the company*: it turned out that the limited time available should be used as productive as possible. Therefore, the tool should aid in focussing the respondents in addressing the issues that are key in the success of their company's strategy from their point of view. To fulfil this requirement, each business, vision, tactic, competence, asset and performance is scored on its level of distinctiveness, respectively indistinctiveness. The measuring-scale chosen for each cell of the various matrices has an even amount of measuring points (*very distinct, not so distinct, not so indistinct and very indistinct*) in order to enforce the respondents a verdict.

The design of the research tool or the Quick Scan is depicted in Figure 3.3. As can be seen, each strategic chicken-and-egg problem is represented by means of a matrix. A chicken-and-egg problem needs to be asymmetrised with respect to the strategic concepts that indicate whether a company is distinct or indistinct. Take, for instance, the vision choice whereby the added values of a company's businesses need to be defined tautologically with respect to their corresponding environmental trends. Within the corresponding matrix, a company's businesses are listed in the rows and the relevant environmental trends in the columns. Each added value to be defined is rendered at the point of intersection of the relating business and environmental trend. Subsequently, as will be explained in the next subsection, cohesive groups of added values need to be scored on their level of strategic importance.

[17] Another reason why both the present and future strategy of a company was described will be elaborated on further in the next chapter (section 4.3), when the research design is presented.

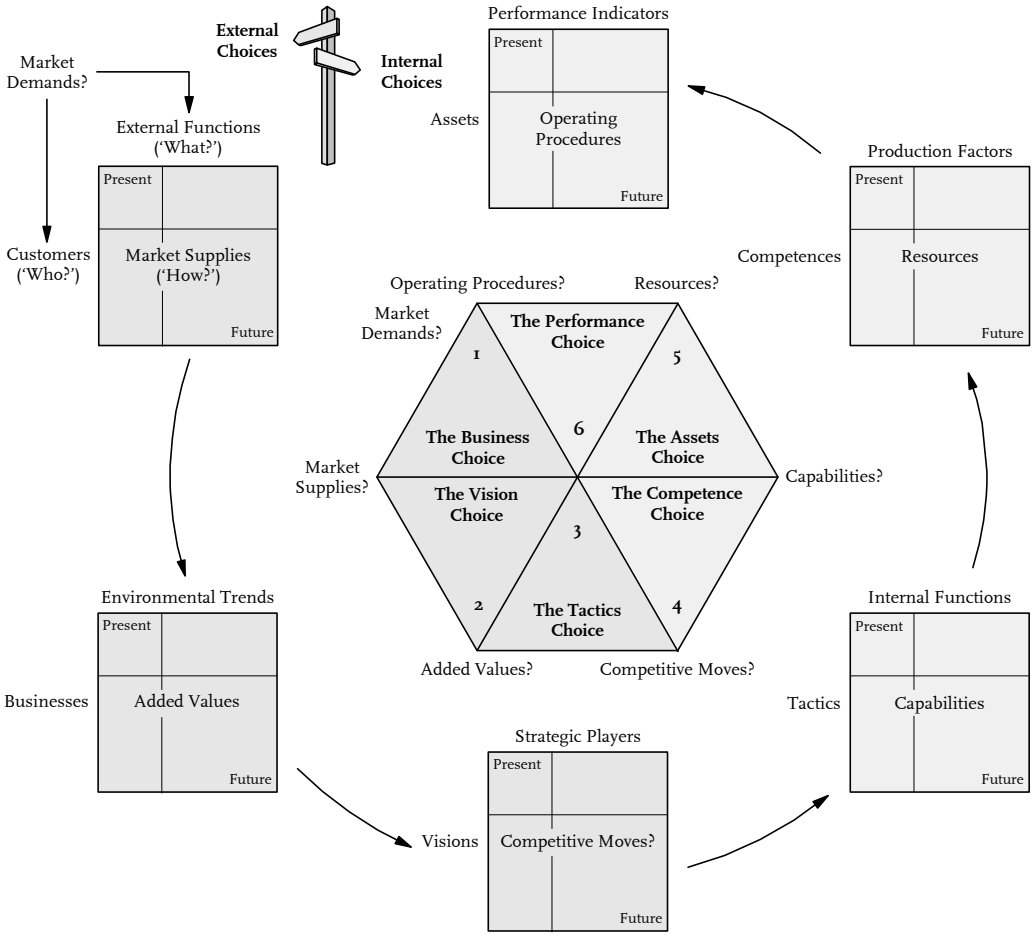


Figure 3.3: The Design of the Research Tool (Matrices)

The same logic behind the representation of the vision choice, applies to the other strategic choices. The one exception to this rule is the matrix with respect to the business choice. Here, the strategic concept of demand is split up in two in order to function as the starting rows and columns of the research tool. Note that this first table is in fact three-dimensional. This three-dimensional presentation is reduced to a two-dimensional presentation by projecting the 'how?'-dimension on the plane constituted by the 'who?' and 'what?' business-dimensions. This reduction may lead to the situation that the same market supply needs to be enlisted several times due to the way the customers and external functions are defined by a company's respondents. Note also that the difference between external and internal choices is made comprehensive by means of applying different shades of grey in the picture. In addition, for each

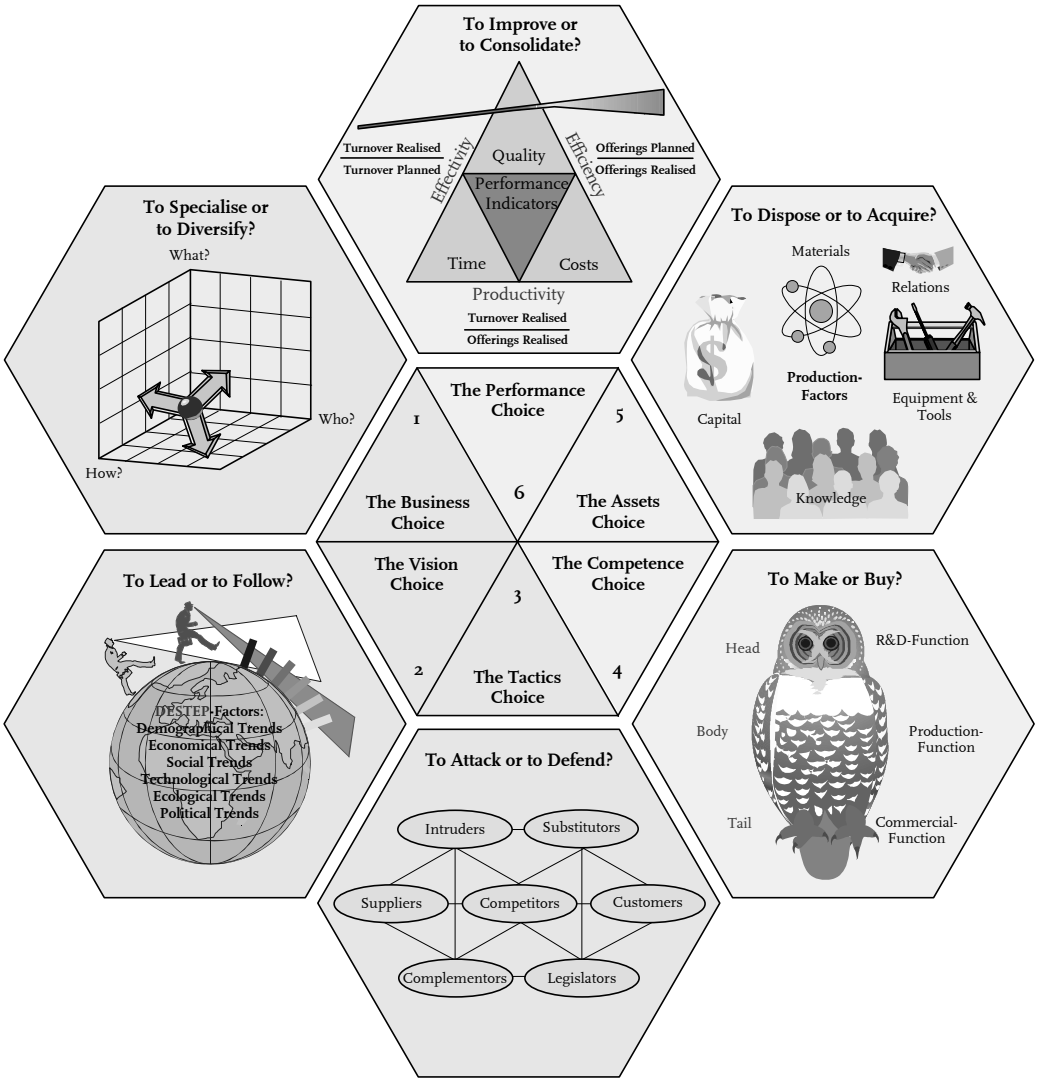


Figure 3.4: The Design of the Research Tool (Pictograms)

strategic choice, the strategic gap between the present and the future is made comprehensive in each matrix of the Quick Scan.

In order to asymmetrise each strategic chicken-and-egg problem from the stance of the social researcher, as described in section 3.4.1, some indicators were used to track down, for instance, environmental trends and strategic players relevant to the company. For the Quick Scan, it was chosen to visualise these indicators by means of pictograms that aid in making clear to the respondents the logic behind filling the various matrices

with meaningful data (Figure 3.4). As can be seen, within each pictogram[18], also the corresponding strategic dilemma is included. Note that the choice for these indicators is in fact highly contingent (see also Table 3.1 on page 67). The main reason to choose exactly these indicators is merely convenience. That is, the use of these issues as strategic rules of thumb is quite common. The more detailed instructions for use of the research tool for describing the strategies of companies will be presented next.

3.4.3 Observing Contingent Strategies

With the research tool as presented above, we are able to describe the way members of organisations solve the six strategic chicken-and-egg problems and define their strategy or create their strategic reality in the process. In Figure 3.5, the various strategic chicken-and-egg problems that need to be solved during the interviews are depicted. With this different representation of the strategic management model, we are able to give instructions about the way the various matrices of the Quick Scan should be filled with empirical facts.

In modelling the complexity of the strategic reality experienced by members of organisations, the strategic management model can aid in the description of a vast amount of empirical grounded strategic concepts. When organisational members, for instance, have defined only one empirical grounded strategic concept per strategic choice, they need to define $1^6 = 1$ operating procedures. In the case of two businesses and but two added values for each business and but two competitive moves for each vision and but two capabilities for each tactic, etc, these organisational members need to define $2^6 = 64$ operating procedures. Likewise, in the case of three empirical grounded strategic concepts per strategic choice, $3^6 = 729$ operating procedures need to be defined. Because it is to be expected that organisational members do not find it very sensible to deal with enormous amounts of operating procedures, let alone of they are able to do so, the model should aid also in describing the way organisational members reduce the complexity involved in dealing with their strategic reality as a whole. That is, the strategic management model should be able to describe how organisational members try to combine several added values for distinct businesses, several competitive moves for distinct visions, several capabilities for distinct tactics, several resources for distinct competences and several operating procedures for the deployment of distinct assets. In doing so, the social researcher can determine how the organisational members meaningfully have asymmetrised or solved the chicken-and-egg problems related to each strategic choice.

[18] Some pictures of the pictograms are taken from 'MKB-Vlechtwerken'© of the Dutch Innovation Network or Syntens, as it is nowadays called.

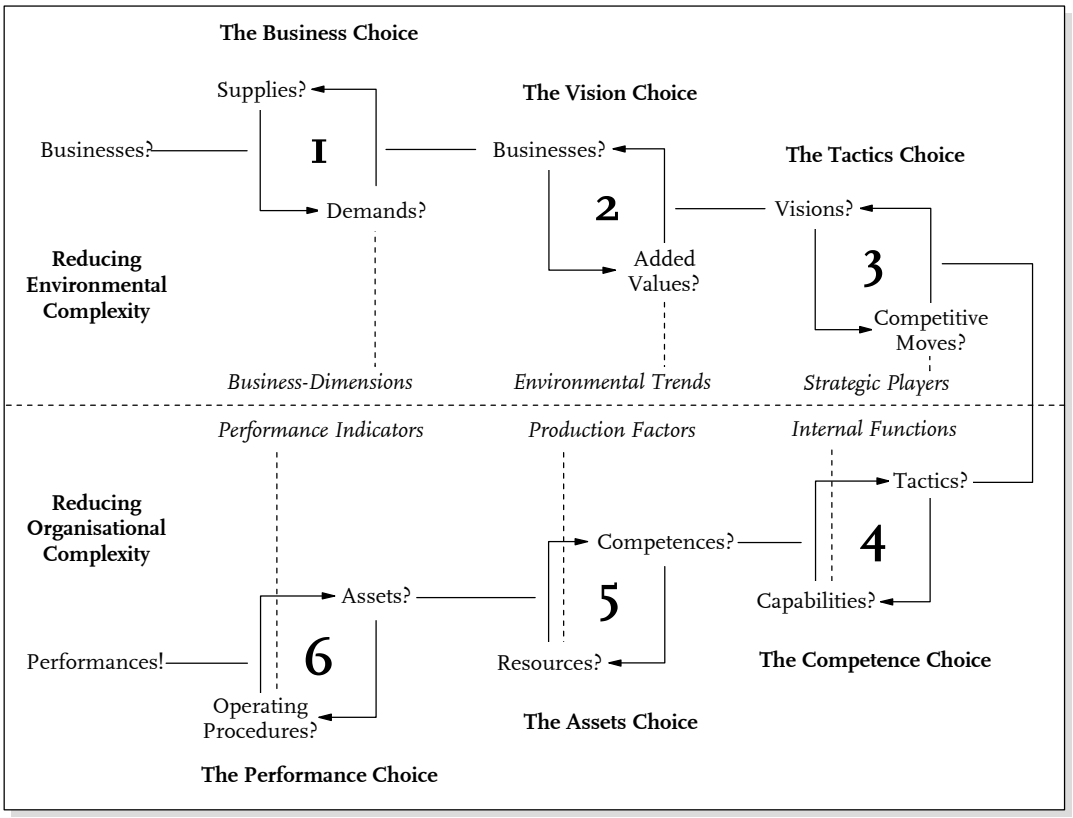


Figure 3.5: The Model for the Exploration of Sensemaking with respect to Strategic Content

In order to observe how a social researcher can observe the way organisational members have meaningfully asymmetrised the various chicken-egg-problems in defining businesses, visions, tactics, competences, assets and performances, the following instruction can be followed (Figure 3.6). Take for example the vision choice. At this point during the Quick Scan, there already are real businesses defined. As a result, the 'only' tautology that needs to be asymmetrised by both the respondents and the social researcher concerns the reciprocal relationship between added values and environmental trends. In discovering the visions of the respondents that are imperative in the creation of their strategic reality, the social researcher should first list the company's businesses in the rows of the vision-matrix. Subsequently, the social researcher should incite the respondents in listing relevant environmental trends that they wish to start ('to lead') or are aware to exist ('to follow') for their businesses. For both the company's present and future strategy, the respondents and social researcher should define how the company tries to take advantage of the relevant environmental trends for their businesses. After that, if possible, the social researcher should try to bring some 'system in the madness' by trying to relate several cells in the matrix, i.e.

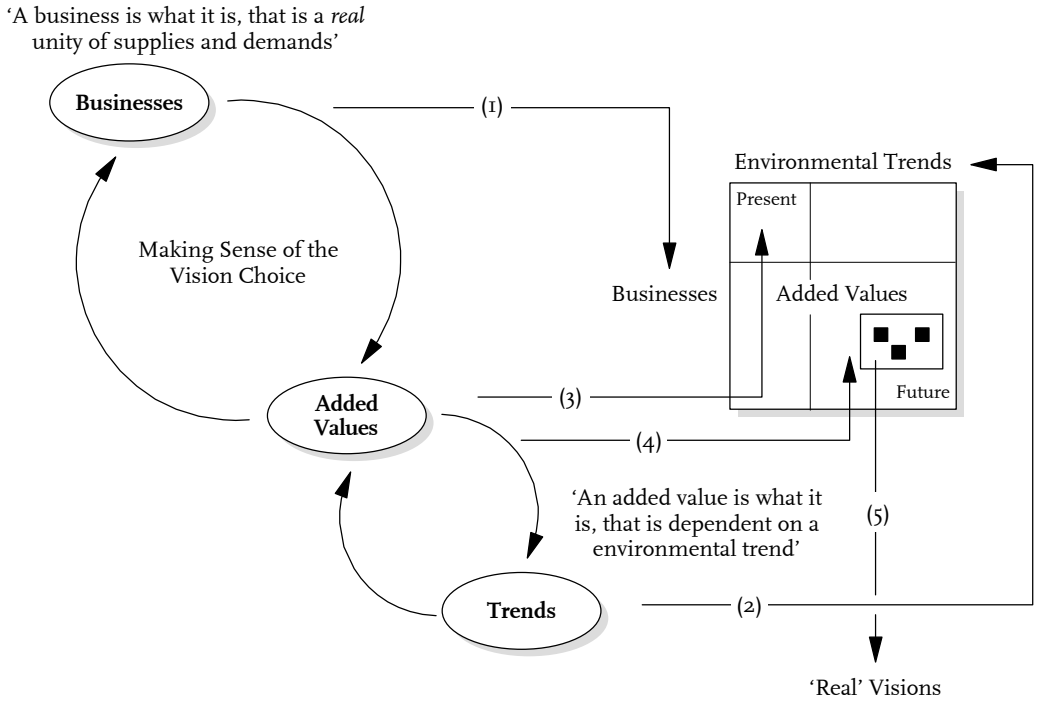
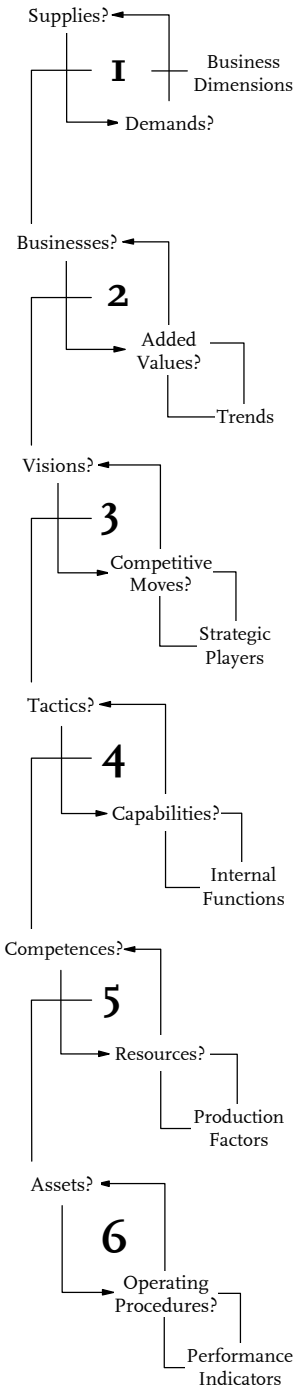


Figure 3.6: Filling the Vision-Matrix with Meaningful and Grounded Empirical Data

added values, to each other in a way that is meaningful to explain the strategic actions of the company trough the eyes of the respondents. If this succeeds, the resulting visions are 'real' in the sense that they are imperative to the respondents in making their company's future happen. The social researcher should, however, double check whether these visions are grounded empirically. If the social researcher and respondents cannot come to a meaningful reduction of the added values, they should all be regarded as distinct strategic visions and be presented as such in the subsequent tactics-matrix. During the empirical research, it has appeared often that the conversations about the company's competitive moves, the 'real' visions of the company emerged.

The same way of action can be followed for the other strategic choices in filling the matrices that correspond to the other strategic choices with meaningful empirical data. Within Box 3.1, the procedure is presented to guide the social researcher through this process.

Steps	Explanation
	**The Business Choice** Find meaningful unities of external functions ('what?'), customers ('who?') and solutions ('how?'). For this, let the respondents list specific customers, the specific needs of these customers and the goods or services offered to them. After that, try to relate the cells in the matrix, which the respondents strategically treat the same ('to specialise or diversify?'). Check again if the businesses are real and if they are distinct or not. **The Vision Choice** Find meaningful unities of businesses and added values. For each real business, let the respondents list relevant trends. After that, determine how the company takes advantage of these trends to make the planned businesses more appealing. Lastly, try to relate the cells in the matrix that the respondents treat the same strategically ('to lead or to follow?'). Check again if the visions are real and if they are distinct or not. **The Tactics Choice** Find meaningful unities of visions and competitive moves. For each real vision, let the respondents list relevant strategic players. After that, determine the company's countermoves to outplay these players in realising the planned visions. Lastly, relate the cells in the matrix that the respondents treat the same strategically ('to attack or to defend?'). Check again if the tactics are real and if they are distinct or not. **The Competence Choice** Find meaningful unities of tactics and capabilities. For each real tactic, let the respondents list relevant internal functions. After that, determine the company's knowledge & skills to enable the realisation of their planned tactics. Lastly, relate the cells in the matrix that the respondents treat the same strategically ('to make or buy?'). Check again if the competences are real and if they are distinct or not. **The Assets Choice** Find meaningful unities of competences and resources. For each real competence, let the respondents list relevant production factors. After that, determine the company's investments to actualise their competences. Lastly, relate the cells in the matrix that the respondents treat the same strategically ('to acquire or dispose?'). Check again if the assets are real and if they are distinct or not. **The Performance Choice** The aim is to find meaningful unities of assets and operating procedures. For each real asset, let the respondents list relevant performance indicators. After that, determine the company's procedures to deploy their assets. Lastly, relate the cells in the matrix that the respondents treat the same strategically ('to improve or consolidate?'). Check again if the performances are real and if they are distinct or not.

Box 3.1: The Procedure to describe Contingent Business Strategies

3.5 The Second-Order Observation of Strategic Content

In the both/and-approach to strategy, as presented in the pervious chapter, it appeared that the second-order observation of strategic content deals with the observation of the strategic concepts used by organisational members contingently. This implies that the strategies defined by organisational members should be regarded as but one of other possible functional equivalents in making sense of their strategic reality. In this way, the risks involved can be determined that may jeopardise the strategy defined. To be able to determine these risks, however, a more comprehensive framework is needed than the framework in use by organisational members busy with making sense of strategic content. It was chosen in section 3.3 to ground this framework upon existing knowledge considered relevant for the understanding of business strategies from the perspective of the social researcher. This option was chosen because it appeared to be of key importance from previous research to make clear how companies do business with their customers (Vos et al., 1998). This assumption is related to the insights offered by 'the strategic function typology' of Simon (1989) and 'the typology of business identities' of Van Gunsteren (1987). Before we give more details on these typologies, it may be useful to recall that the strategic choices considered in this research deal with the steps necessary to be able to make the future happen.

From the both/and-approach, with respect to the strategy process, it appeared that strategic decision processes are enabled and constrained by the strategic framework or structures of meaning in use. This means that despite the fact that there is a fundamental gap between the present and the future and that therefore, the present cannot determine future actions, the way the gap between the present and the future is bridged by organisational members is neither arbitrary nor random. That is because the strategic framework in use functions as a 'dominant logic' (Prahalad & Bettis, 1986 and Bettis & Prahalad, 1995) in the way members of organisations make sense of environmental and organisational issues. This dominant logic may hinder organisational members to observe what they cannot observe because of the way they observe, i.e. the 'blind spot' of the strategic framework in use. For companies this may ironically lead to the situation that the present, besides as being the present, can become the undesirable future at the same time. That is, while doing what they do, members of organisations can fail to recognise the need for observing their 'Realität' or strategic reality from a different, perhaps more useful perspective in making sense of strategic content. Next, a typology will be presented that aids in the hermeneutic 'verstehen' of the way members of organisations experience their strategic reality dependent on the way they do business with their customers.

3.5.1 A Typology of Businesses

We have seen that a company that wishes to define its businesses is confronted with the business-tautology. However, business definitions asymmetrise the notion of doing business from the viewpoint of the company and not from the viewpoint of customers. When the focus is upon the social interaction between a customer and a company while doing business, it is clear that the customer and company both alike need to make sense of the unity of what is supplied and is demanded. That is, both parties are confronted with the following tautology[19] (Figure 3.7).

[...]
(1) What a company supplies depends on what a customer demands
(2) What a customer demands depends on what a company supplies
[...]

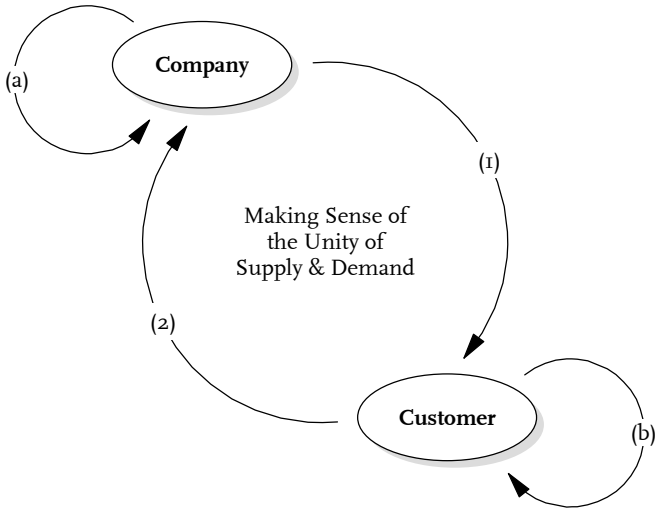


Figure 3.7: The 'Doing Business'-Tautology

Supply and demand are tautological related to each other and therefore they form two sides of the same coin: *supply is what it is, that is not demand and demand is what it is, that is not supply*. In this study, it is assumed that doing business involves some kind of communication process between a customer and a company and that this process is characterised by double contingency. The latter assumption indicates that, due to self-reference, customers and companies cannot determine independently of themselves

[19] Note that this 'doing business'-tautology is not the same as the business-tautology. The latter name was already reserved for the tautological relationship between supply and demand (see also section 3.4).

what is supplied, respectively demanded, at least not in a direct way. This implies that the communication involved with doing business involves the hermeneutic 'verstehen' of each other. However, due to self-reference, communication involves asymmetrising the tautologies that you can only understand what you can understand and that you cannot understand what you cannot understand. Mutual understanding or hermeneutic 'verstehen', therefore, is an emergent order that comes into being indirectly. The fact that both parties have the wish to understand each other, makes it possible that the communication process emerges towards some kind of order. When customers and companies are inclined to do business with each other, each party will have insights on what the other demands, respectively supplies. For example, someone who wishes to buy a bicycle will probably know that he/she has the best chance to buy bicycles at a bicycle shop. Because of these insights, the 'doing business'-tautology (Figure 3.7) will not be asymmetrised arbitrarily or random by both parties but dependent on some sort of social mechanism reproduced by both parties in the process. In strategic literature, several of such social mechanism can be found, as will be demonstrated next.

According to the Dutch Martin Simon, companies can fulfil only two types of external functions, i.e. product-functions and capability-functions[20] (Simon, 1989). A company is said to fulfil a product-function when goods or services are offered that are specified by the company itself and a company fulfils a capability-function when goods or services are offered that are specified by the customers (Simon, 1989: 50). In short, products relate to standard-made goods or services and capabilities to custom-made goods or services[21]. Recently, Van Asseldonk questioned the strategic relevance of the distinction between standard-made and custom-made goods and services. Nowadays, according to Van Asseldonk, companies face the challenge to deliver custom-made goods and services at a price that is similar to standard-made products and services (Van Asseldonk, 1998: 66). While the relevance of the distinction between standard-made and custom-made may be questioned rightly, contrary to Van Asseldonk, however, we belief that the product/capability-distinction is all but insignificant; it merely needs to be conceptualised differently. That is, the way that the specifications of

[20] Simon actually used the term 'capacity' instead of 'capability'. The term capability was preferred here because capacity, as opposed to capability, indicates foremost the supply and demand of 'time' instead of the more accurate supply and demand of 'knowledge & skills'.

[21] The notion of external function is said to combine characteristics of both supply and demand (Simon, 1989: 49). As such, similar to our conception of business, the notion of external function is used by Simon as a means to indicate the operative unity of supply and demand. In order to prevent misinterpretations from happening, after all Simon also uses the notion of external function solely as a means to indicate demand, we refer to product-functions as products and capability-functions as capabilities.

goods and services come to pass cannot be the right defining characteristic of businesses because specifying goods or services is a process of negotiation between companies and customers. Therefore, specifications are not *given* by customers or companies but are *produced* during social interaction. A more useful approach therefore is to focus on the way the specifications of goods and services are produced.

Suppose that a customer and a company's sales representative meet and that both are not fully aware of what they demand, respectively supply. Note that this is the worst case possible. The customer, by means of communication aims at answering the question 'How do I know what I demand, until I know what you supply?'. Likewise, the sales representative aims at an answer to the question 'How do I know what we need to supply, until I know what you demand?'. Dependent on the type of goods or services asked, the 'doing business'-tautology will be asymmetrised accordingly, as will be shown below.

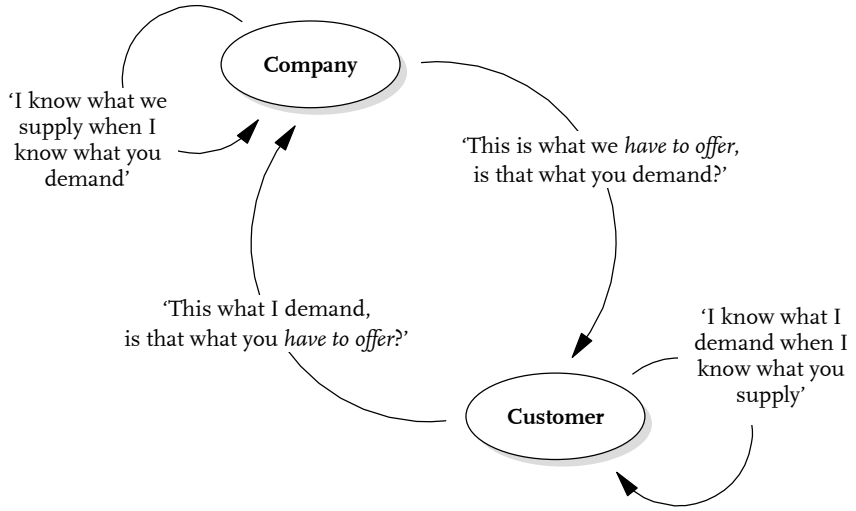


Figure 3.8: The 'Doing Business'-Tautology in the Case of Products

With respect to products, the communication process deals with characteristics of the products needed, respectively offered. That is, the communication is about the characteristics of the product as such, e.g. a bicycle's shape, dimensions and colours. This means that the 'doing business'-tautology will be asymmetrised mainly by means of verbs that relate to the verb 'have', e.g. 'Does this bicycle *have* a bell?' (Figure 3.8). Of course, customers will also be interested in the performance in bringing about the products offered. That is, customers will be interested in the reliability of the delivery time, quality, etc. of the processes employed to deliver the bicycle. However, these characteristics relate mainly to the products the company has to offer and not so much

to for example the designing, manufacturing and assembling capabilities of the company as such.
In the case of capabilities, the communication process deals with the characteristics of the capabilities needed, respectively offered. That is, the communication is about the characteristics of the capabilities as such, e.g. methods, knowledge and skills to design bicycles. This means that the 'doing business'-tautology will be asymmetrised mainly by means of verbs that relate to the verb 'can', e.g. '*Can* you solve this problem in speeding up my bicycle?' (Figure 3.9). Of course, customers will also have an interest in the result to be obtained with the capabilities offered. That is, customers will be interested in the shapes, dimensions, colours, etc. of the resulting solution to the speeding-problem. However, these characteristics relate mainly to the capabilities the company has to offer and not to so much to the solution wanted as such.

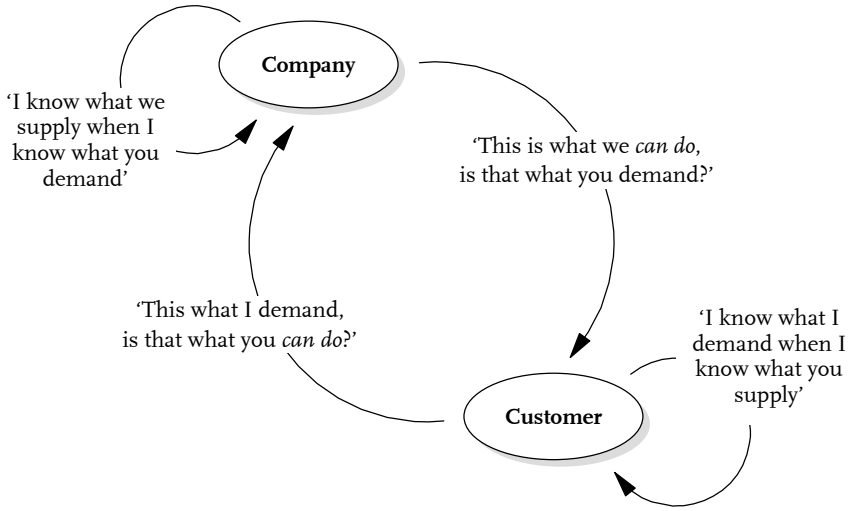


Figure 3.9: The 'Doing Business'-Tautology in the Case of Capabilities

The fact that communication processes are characterised by double contingency accounts for the event that customers and companies consciously or unconsciously talk at cross-purposes or misunderstand each other. However, supposing that mutual understanding between the two parties results and an emergent order about the deliverables is reached, it is possible to typify the subject of the business-conversation as such. This means that the focus is no longer on how the communicators express themselves but on what is communicated, i.e. the subject of communication.

Despite the fact that goods and services can have uncountable instances, they can have but a few different forms. When goods and services relate to products, two different forms can be distinguished dependent on the state of the goods and services. Products

can take the form of either *designs* or *realisations*. In the first case, whether goods or services are concerned, supply and demand of designs takes place, e.g. patents, licences and inventions. The second case deals with the supply and demand of realisations, whether it concerns goods or services, e.g. toothpaste, respectively insurance policies.
Goods or services that relate to capabilities can also take the form of only two different forms dependent on the state of the goods and services. Capabilities can have to do with either *capabilities in designing* or *capabilities in realising*. In the first case, whether goods or services are concerned, supply and demand of capabilities in designing takes place, e.g. capabilities in designing houses, respectively capabilities designing corporate strategies. The second case concerns the supply and demand of e.g. manufacturing capabilities when goods are involved and, for instance, capabilities in hairdressing when services are involved.

From the above it appears that doing business can be typified by means of the product/capability-distinction on the one hand and the design/realisation-distinction on the other hand. The juxtaposition of both these distinctions results in four business-types (Figure 3.10):

- *Supply and demand of designs*: buying and selling inventions, patents, concepts, etc. Within industrial sectors, companies involved with this type of business are mostly referred to as 'inventors', 'research labs', 'technology brokers', etc. They make money by e.g. collecting licence-fees for the design of a good or product.

- *Supply and demand of realisations*: buying and selling products, production equipment, insurance policies, domain names, etc. Within industrial sectors, companies involved with this type of business are mostly referred to as the 'archetype' in strategy literature. The make money by e.g. collecting an amount of money per standard unity of a good or service

- *Supply and demand of capabilities in designing*: buying and selling capabilities in engineering, consulting, surgery, etc. Within industrial sectors, companies involved with this type of business are mostly referred to as 'engineering-firms' or 'consulting-engineers'. They make money by charging an amount of money equivalent to the hour rate and the amount of hours spend to design a good or service.

- *Supply and demand of capabilities in realising*: buying and selling capabilities in contracting, jobbing, copy writing, etc. Within industrial sectors, companies involved with this type of business are mostly referred to as 'jobbers'. They

make money by charging an amount of money equivalent to the hour rate and the amount of hours spend to realise a good.

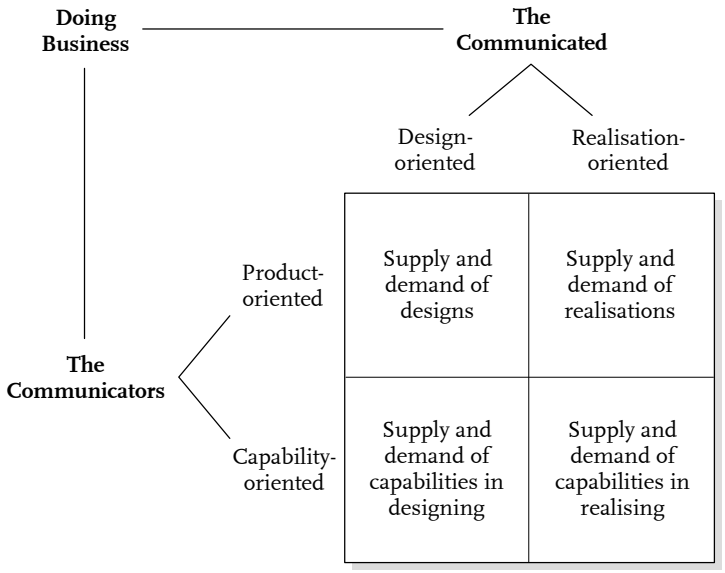


Figure 3.10: The Business-Typology

It is important to note that a particular good or service can be employed in various types of businesses. Take for example insurances. With respect to the first business-type, you could sell a revolutionary insurance-concept to a large insurance company. With respect to the second business-type, you could sell your own insurance contracts to private persons. With respect to the third business-type, you could offer your capabilities to design insurance solutions that solve insurance problems of private persons or companies. Lastly, with respect to the fourth business-type, you could offer your capabilities to realise insurance contracts for third parties. These examples are given with a special purpose because it highlights the difficulties that companies experience while defining their business. Should an insurance broker, for example, regards his business as selling insurances or as selling his capabilities in contracting insurances? In the first case, this broker makes money by collecting money from the insurance company involved. In the second case, this broker makes money by charging the customer that utilises the broker's capabilities in contracting insurances.

In addition, it is important to note that the business-typology relates to the first choice of the strategic management model (Figure 3.5). This is the main difference between the business-typology presented here and 'the typology of business identities' of Van Gunsteren (1987). Based upon the distinction between product/capability on the one hand and thinking/doing on the other hand, Van Gunsteren distinguishes four

business identities: (1) license givers, (2) license takers, (3) consultants and (4) jobbers. Despite the resemblance between his and our typology, there is an important difference. Van Gunsteren's conception of business identity is based upon the unity of business operations and internal operations, whereas our business-typology is solely based upon the operative unity of supply and demand in doing business. Therefore, ironically, Van Gunsteren's business-identity typology is actually not a business-typology but a typology of companies. Seen in this light, the typology of Van Gunsteren has some serious shortcomings because it fails to recognize that the business of companies can stay the same even when these companies contract out all their internal operations, e.g. R&D, manufacturing and sales.

It is assumed that the recursive self-reproduction of assignments dependent on the business-type involved, leads to a distinct strategic reality. That is, the autopoiesis of similar business operations results in a self-defined system/environment-boundary. This system/environment-boundary represents a strategic framework or dominant logic in defining strategies. Due to this self-referentially defined boundary, the business-types belong to each other's environment. This means that each business-type is what the others are not and vice versa. In addition, the business-types are structural coupled to each other, which implies that a company operating in one type of business presupposes the existence of other business-types. To illustrate this second point, imagine a trading company that makes money by selling realisations of a specific good. This trading company can only become operational if there is (1) a design of the good or (2) someone is willing to design the good and if there is (3) someone willing to realise the good. However, business-wise, these operations are not of strategic importance to the trading company. The reason for this relates to the fact that it is possible for this company to respectively (1) licence a design, (2) contract out the design-process and (3) contract out the realisation-process and at the same time being successful in the trading business.
The assumption that the recursive self-reproduction of assignments results in distinct strategic realities dependent on the business-types involved will be used to develop an ideal-typical configuration theory based upon the six strategic choices of the strategic management model depicted in Figure 3.5 on page 76. Before this configuration theory is presented, however, the focus is upon the way these strategic realities need to be conceived theoretically in order to use them for the second-order observation of the 'Realität' as experienced by suppliers involved with making sense of strategic content.

3.5.2 Configurations and Strategic Reality

Recall that the notion of strategic reality as used in this study relates to the strategic concepts used to make sense of the content of strategies (see section 2.6). In the empirical part of this study, the focus is on the way the types of businesses of compa-

nies structure the way these companies make sense of the six choices of the strategic management model. It is assumed that the interplay between the business-types on the one hand and the choices of the strategic management model on the other hand, result in different strategic realities. These strategic realities can be regarded as configurations. In the remainder of this subsection, we successively give attention to the notion of configuration as such, the way configurations can be defined and how they relate to classifications like typologies and taxonomies.

The Case for Configuration

Configurations or 'gestalts', 'archetypes', 'generic-types' and 'ideal-types' are said to be predictively useful in that they are composed of tight constellations of mutually supportive elements (Miller, 1986: 235-236). According to Miller, there are three interrelated arguments for configuration (Miller, 1986: 236-237). The first argument draws on the population ecology view of organisations. There are only a limited number of possible strategies and structures feasible in any type of environment. Companies must therefore begin to move toward the superior strategies, or perish. In either event, the repertoire of viable strategic and structural configurations is reduced. A second argument relates to the fact that organisational features are interrelated in complex ways. In other words, organisations may be driven toward a common configuration to achieve internal harmony between its strategy and structure. Cohesive configurations reduce the number of possible ways in which the elements combine. They make it much more likely that common configurations will be found empirically. The third argument for the prevalence of common configurations relates to the fact that organisations tend to change their elements in a manner that either extends a given configuration throughout time, or moves it quickly to a new configuration that is preserved for a very long time. Only when change is absolutely necessary or extremely advantageous will organisations be tempted to move from one configuration to another.

The Way Configurations can be defined

According to Miller & Friesen (1984), the leading thinkers about configuration theories, there are two different ways to establish configuration theories: 'Two approaches have been used to discover configurations. The first identifies configurations or types exclusively on the basis of conceptual distinctions. The resultant typologies are, in a sense, of an a priori nature; they are generated mentally, not by any replicable empirical analysis. The second approach seeks taxonomies of organizations. These are derived from multivariate analyses of empirical data on organizations. Typically, organizations or aspects of their structures, strategies, environments, and processes are described along a number of variables. Attempts are then made to identify natural clusters in the data, and these clusters, rather than any a priori conceptions, serve as the basis for the configurations. Typologies and taxonomies can

both identify predictively useful configurations. The former have been by far more common, however.' (Miller & Friesen, 1984: 31-32). Elsewhere: 'We use the term typology to refer to classification schemes or sets of configurations that have been derived without a formally collected and quantitatively analyzed database. Typologies are exclusively the products of the concepts and intuitions of theoreticians. [...] When we use the term taxonomy, on the other hand, we refer to a classification scheme or set of configurations that has been derived from a formal database using replicable, quantitative techniques. [...] The major difference between taxonomies and typologies is simply that only the former are replicable by other researchers.' (Miller & Friesen, 1984: 64-65).

The approach of Miller & Friesen raises the question if it useful to distinguish between typologies and taxonomies in the way that the former are the result of conceptual thinking and the latter of rigorous empirical research. Just like taxonomies, typologies should be grounded in data. Otherwise, typologies cannot be the subject of rigorous empirical investigation. A more useful distinction between typologies and taxonomies is therefore to be found in the way scientific knowledge about a particular phenomenon is obtained. With respect to typologies a more deductive approach is taken and for taxonomies a more inductive one. Miller & Friesen also state that taxonomic configurations should be based upon statistically significant clusters of variables: 'The essence [...] is that there exists clustering among organizational variables that is statistically significant and predictively useful, and that reduces the variety of organizations to a small number of richly defined types. An excellent way of establishing this is by performing empirical studies that uncover predictive regularities in organizational data-regularities that lead to the discovery of truly common types.' (Miller & Friesen, 1984: 34). Elsewhere: 'Because they [taxonomies] are constructed by searching for statistically significant patterning in the data, they go beyond simple impressions. There is an attempt to achieve scientific rigor. Whereas the typologist can always come up with a scheme of one sort or another, taxonomists will often be frustrated by an absence of meaningful or significant clustering in their data.' (Miller & Friesen, 1984: 65). While it is true that statistical significance is important, the fact that a variable or a cluster of variables is statistically significant does not necessarily imply that significant relationships exist in 'reality'. There is a serious danger in relying too heavily on statistical significance. Studies that isolate variables, in the absence of a solid conceptual framework, are bound to confuse. Statistical significance is useful only when it is backed up by explanations of the phenomenon of interest. To put it in the words of Kimberley: 'What theory there is may be more a function of the multivariate techniques used than of an understanding of the phenomenon.' (Kimberley, 1976: 590; citated in Mintzberg, 1979: 226). The main difference between typologies and taxonomies therefore is that the former come to be because of *a priori* explanations and

a posteriori empirical investigations and the latter because of *a priori* empirical investigations and *a posteriori* explanations. The fact that for this study, a deductive approached is used should not be interpreted as if we think the inductive approach is of less significance.

Configurations as 'Ideal-Types'

In literature, typologies mostly are referred to as 'ideal-types' in the sense of Weber. Especially, in Anglo-American literature, there seems to be a persistent misconception on Weber's ideal-type. According to Mintzberg, Weber's description of a bureaucracy as an 'ideal-type' means 'pure' and not 'perfect' (Mintzberg, 1979: 84). While that may be true, Mintzberg misses the mark (see also De Leeuw, 1997: 95) when he asks himself (Mintzberg, 1979: 85): 'But how well do all these defining characteristics hold together in real organisations? In other words, does Weber's "ideal-type" really exist or are there, in fact, different types of bureaucratic structures, each exhibiting some but not all of these characteristics?'. Mintzberg is not alone in this conception. In a special issue of the 'Academy of Management Journal' on configurational approaches to organisational analysis, the same type of reasoning can be found. As Meyer et al. (1993: 1182) put it in the introduction: 'Typologists generally follow the Weberian logic of ideal-types, accentuating key characteristics so as to draw a priori distinctions between organisations. [...] Nevertheless, the allocation of organisations to types is not clear-cut. Because of their a priori nature and frequent lack of specified empirical referents and cut off points, typologies are difficult to use empirically'. Weber never meant an ideal-type to relate to something 'real'. Ideal-types are merely logical expedients and they do not have to be empirically valid (Rogers, 1969: 42). The main purpose the ideal-type serves is that it offers a means to measure and compare concrete occurrences of the phenomenon under investigation (Rogers, 1969: 42). Ideal-types seem to offer a specific methodological stance in the development of social theories. To clarify this methodological stance further, we focus on the most expressed critique with respect to typologies. That is, there imputed simplicity.

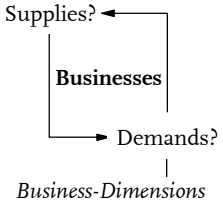
Meyer et al. criticise typologies based upon only one or two dimensions because they fail to reflect the complexity of organisational life (Meyer et al., 1993: 1181-1182). While that may be true, they fail to realise that the diversity of regularities in the acting of social systems is not so much *described* by classifications but rather *explained*. Classifications (deductive typologies or inductive taxonomies) have to do with social mechanisms (Hedström & Swedberg, 1998) that explain observable social regularities. As such, a classification is not to be disturbed with the variables that describe the way social systems act. A configuration theory thus consists of (1) a classification that aids in explaining the actions of social systems and (2) of a more dimensional model that aids in describing the actions of social systems. To put in terms of Pawson & Tilley (1997:

71): 'The basic task of social inquiry is to explain interesting, puzzling, socially significant regularities (R). Explanation takes the form of positing some underlying mechanism (M), which generates the regularity and thus consists of propositions about how the interplay between structure and agency has constituted the regularity. [...] there is also investigation of how the workings of such mechanisms are contingent and conditional, and thus only fired in particular local, historical or institutional contexts (C)'. In line with this type of reasoning, classifications as used here account for the mechanisms that explain social action and more dimensional models account for the description of socially significant regularities as experienced by the social systems under investigation.

3.5.3 A Configuration Theory on Strategic Reality

The configuration theory as presented here is an ideal-typical description of the strategic reality depending on the types of businesses employed by companies. This implies that it is not important if the descriptions relate to strategic realities of 'real' companies. The ideal-typical descriptions only function as starting points for empirical investigations. This means that the methodological merit of these ideal-typical descriptions relates not so much to the *similarities* but foremost to the *differences* of the strategic realities of 'real' companies. In doing so, the *a priori* configurations have two functions. Firstly, they enable empathising with members of organisations in describing their strategic reality. This implies that the configuration theory aids in discovering what these organisational members regard as real and unreal supplies, demands, added values, competitive moves, capabilities, resources and operating procedures. Secondly, the configurations function as means to enable the second-order observation of the dominant logic in use by members of organisations busy with making sense of strategic content. This implies that the functional equivalents in use by companies can be regarded as contingent.

THE BUSINESS CHOICE



To define businesses, members of organisations need to make sense of supplies and demands relevant to their company self-referentially. The business-dimensions 'who?', 'what?' and 'how?' may aid to asymmetrise the business-tautology. For each of these dimensions, when redefining a business, organisational members face the dilemma whether to specialise or diversify. It does not matter in what sequence the business-dimensions are defined as long as companies realise that depending on the business-type they wish to employ, some business-dimensions are of more strategic importance than others. The whole set of supplies and demands defined, is called the company's business strategy.

Dependent on the business-type, other issues will be considered with respect to this strategic choice, as will be described below.

- The businesses of company's that offer *designs* strategically centre on inventions and the goal is to make money out of them. This implies that for a single *distinctive* invention ('how?'), it is reasonable that *diverse* functionalities can be fulfilled ('what?') and therefore *diverse* customers can be served ('who?'). An illustrative example for the fact that the 'how?'-dimension is leading for this type of business, relates to the problems experienced by inventors in defining customers and demands for their inventions. Therefore, it is not so surprising that the subject of 'market-oriented-innovation', which is in fact a contradiction in terms, is high on the list of research laboratories like Philips Natlab.

- The businesses of company's that offer *realisations* strategically centre on markets and the goal is to make money out of them. This implies that for a single *distinctive* market ('who?'), it is reasonable that *diverse* functionalities can be fulfilled ('what?') with *diverse* products ('how?'). An illustrative example for the fact that the 'who?'-dimension is leading for this type of business, relates to the problems experienced by trading companies and resellers in defining new functionalities and products. Therefore, it is not so surprising that the subject of 'product-innovation' has gained a lot of attention in the context of companies involved with this type of business.

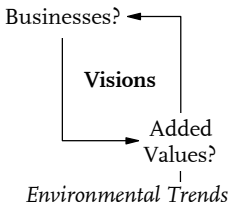
- The businesses of company's that offer *capabilities in designing* strategically centre on problems and the goal is to make money out of them. This implies that for a single *distinctive* problem ('what?'), it is reasonable that *diverse* solution-principles can be used ('how?') and *diverse* customers can be sought ('who?'). An illustrative example for the fact that the 'what?'-dimension is leading for this type of business, relates to the problems experienced by consultancy firms in defining new solution-principles and acquiring new customers. Therefore, it is not so surprising that most specialised journals for consultancy firms are solely focused on new tools and that these firms have a preference to stick to their present customers.

- The businesses of company's that offer *capabilities in realising* strategically centre on solutions and the goal is to make money out of them. This implies that for a single *distinctive* solution ('how?'), it is reasonable that diverse systems can be realised ('what?') of diverse customers ('who?'). An illustrative example for the fact that the 'how?'-dimension is leading for this type of business, relates to the problems experienced by jobbers and building

contractors in defining new systems to be realised and acquiring new customers. Therefore, it is not so surprising that manufacturers of automobiles have launched development-programs for their suppliers in this respect.

The examples given above to illustrate each business-type, highlight that it is possible that companies counter-intuitively prefer to focus on the business-dimensions that are of less strategic importance. When confronted with the situation to redefine one's business strategy, tautological respectively paradoxical lines of reasoning result. Tautologies occur, for instance, when customers are regarded as customers because they always have been regarded as such and just because of that, the planned demands can be fulfilled. Paradoxes occur, for instance, when consultancy firms that maintain a profound interest in their present customers, need to come to terms with the fact that they become of less interest to these customers because of their inclination towards these customers. That is, by making themselves dependent on their customers, they become less independent in addressing problems.

THE VISION CHOICE



To define visions, members of organisations need to make sense of the businesses and added values relevant to their company self-referentially. When redefining a vision, organisational members face the dilemma whether to lead or to follow in making use of trends in defining added values. For each business of a company, several added values can be defined and for each of these added values, companies need to consider if they want to be ahead or not in using trends to define added values. The whole set of added values defined for a company's business, is called the company's vision strategy. Dependent on the business-type, other issues will be considered with respect to this strategic choice, as will be described below.

- The added values of company's that offer *designs* are strategically related to inventions. If a company chooses to be leading in making use of trends to define added values, this implies the screening of environmental trends to indicate the most preferred future that lies ahead. If a company chooses to follow, this implies copying the future as defined by others. In either case, the futuristic view defined is subsequently to be used to define the decisive factors of the inventions offered to realise this futuristic view. In other words, the future relates to a radical break with the present and as such functions as a meaningful apparent Archimedean point of reference in asymmetrising the strategic concept of added value for this type of business.

- The added values of company's that offer *realisations* are strategically related to markets. If a company chooses to be leading in making use of trends to define added values, this implies the screening of environmental trends to indicate the most likely future. If a company chooses to follow, this implies copying the future as defined by others. In either case, the futuristic view defined is subsequently to be used to redefine the market in such a way that the willingness of customers is enlarged to make use of the goods or services offered. In other words, the future relates to an extrapolation of the present and as such functions as a meaningful apparent Archimedean point of reference in asymmetrising the strategic concept of added value for this type of business.

- The added values of company's that offer *design capabilities* are strategically related to problems. If a company chooses to be leading in making use of trends to define added values, this implies the screening of environmental trends to indicate the problems of the future that lies ahead. If a company chooses to follow, this implies copying the future as defined by others. In either case, the futuristic view defined is subsequently to be used to redefine the problems experienced by customers in such a way that they will ask for advice in dealing with their problematic future. In other words, the future relates to a necessary break with the present and as such functions as a meaningful apparent Archimedean point of reference in asymmetrising the strategic concept of added value for this type of business.

- The added values of company's that offer *realisation capabilities* are strategically related to solutions. If a company chooses to be leading in making use of trends to define added values, this implies the screening of environmental trends to indicate the solutions to deal with future problems. If a company chooses to follow, this implies copying the future as defined by others. In either case, the futuristic view defined is subsequently to be used to redefine the 'market after the market' to ensure that customers will contract out the realisation of their goods or services. In other words, the future relates to an incremental step forwards from the present and as such functions as a meaningful apparent Archimedean point of reference in asymmetrising the strategic concept of added value for this type of business.

When confronted with the situation to redefine one's vision strategy, tautological respectively paradoxical lines of reasoning result. Tautologies occur, for instance, when specific technological trends are regarded as irrelevant because they always have been regarded as such and just because of that, the planned supplies can be offered success-

fully. Paradoxes occur, for instance, when technological trends that have always been regarded as irrelevant by organisational members need to be regarded as relevant in defining future added values for their company's business. This implies that these members are forced to regard the trends observed previously as existing despite of them, whereas these trends only exist because of them.

THE TACTICS CHOICE

To define tactics, members of organisations need to make sense of the visions and competitive moves relevant to their company self-referentially. When redefining a tactic, organisational members face the dilemma whether to attack or to defend in outplaying relevant strategic players. For each business of a company, several competitive moves can be defined and for each of these competitive moves, companies need to consider if they want to attack or defend in outsmarting others. The whole set competitive moves defined for a company's business, is called the company's tactics strategy. Dependent on the business-type, other issues will be considered with respect to this strategic choice, as will be described below.

- The competitive moves of company's that offer *designs* are strategically related to inventions. If a company chooses to be defensive in dealing with the strategic manoeuvres of other players in making an invention a success, this implies harming yourself against the opportunism of others. If a more aggressive approach is chosen, this implies being opportunistic in bringing harm to others. In either case, to make an invention a success, technological standards are a necessity and therefore most often patents are requested. Unfortunately, having a patent does warrant success because it does not rule out opportunism. Customers for instance can use license-agreements to prevent the invention to reach their market where it offers a threat to their own products. Intermediaries can assist in requesting a national patent for an invention and can subsequently use a 'third person' to request a worldwide patent for the invention.

- The competitive moves of company's that offer *realisations* are strategically related to markets. If a company chooses to be defensive in dealing with the strategic manoeuvres of other players in exploiting a market successfully, this implies defending their share of the market. If a more aggressive approach is chosen, this implies trying to make your share of the market bigger at the expense of others. In either case, controlling the distribution channels assures a control of the market. In securing the distribution channels, in order to

prevent others to reach the market several competitive moves can be used. Franchising can be used to secure that competing products can be bought at the same reseller. Realising joint ventures, mergers and/or acquisitions can be done to acquire the channels of distribution of competitors.

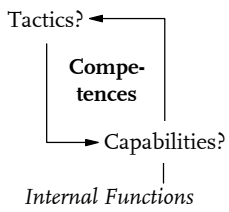
- The competitive moves of company's that offer *capabilities in designing* are strategically related to problems. If a company chooses to be defensive in dealing with the strategic manoeuvres of other players in exploiting their capabilities in defining problems, this implies securing one's credibility from attacks of those that want to focus on the same problems. If a more aggressive approach is chosen, this implies assaulting the credibility of others. In either case, to exploit one's capabilities in defining problems, image building is used to assure customers that their problems are safe and the company is credible. To build a credible image, several competitive moves can be used. Companies can distinct themselves from the general approach towards solving problems by means of profiling. In addition, companies can use a house-style for written communication to inform customers in a credible way. Programmed socialising at receptions, meetings, lectures, speeches, etc. can be used to get in touch with new customers in a preferred way.

- The competitive moves of company's that offer *capabilities in realising* are strategically related to solutions. If a company chooses to be defensive in dealing with the strategic manoeuvres of other players in exploiting their capabilities in applying solutions, this implies securing one's trustworthiness from attacks of those that want to focus on the same solutions. If a more aggressive approach is chosen, this implies assaulting the trustworthiness of others. In either case, to exploit one's capabilities in applying solutions, this implies dealing with the moves of relevant strategic players that could use the same solutions trustworthy. To become trustworthy, several competitive moves can be used. Maintaining a record of accomplishment can be used to impress new customers. Becoming trustworthy foremost involves doing jobs for customers trustworthy. In addition, a strategy of acquiring small jobs first lest bigger jobs can be acquired in the future, is another competitive move to produce and reproduce trustworthiness.

When confronted with the situation to redefine one's tactics strategy, tautological respectively paradoxical lines of reasoning result. Tautologies occur, for instance, when competitors are regarded as enemies because they always have been regarded as such and just because of that, the planned added values can be realised. Paradoxes occur, for instance, when competitors need to be regarded as enemies and friends at the same

time because without them it would not be possible to accomplish the planned added values.

THE COMPETENCE CHOICE



To define competences, members of organisations need to make sense of the tactics and capabilities relevant to their company self-referentially. When redefining a competence, organisational members face the dilemma whether to make or buy in acquiring specific capabilities. For each business of a company, several capabilities can be defined that are key to accomplish the necessary internal functions and for each capability, companies need to consider if they want to make or buy in getting hold of them. The whole set capabilities defined for a company's business, is called the company's competence strategy. Dependent on the business-type, other issues will be considered with respect to this strategic choice, as will be described below.

- The competences of company's that offer *designs* are strategically related to inventions. If a company chooses to either make or buy specific capabilities in making an invention a success, this implies that the internal functions need to be considered that are of strategic importance to offer inventions. Company's that recursively offer inventions throughout time, can become competent in determining breakthrough functionalities for customers independent of the designs offered in the here and now. Companies can choose whether the R&D, production and/or commercial function are carried out internally ('make') or externally ('buy'). Note that the production function in this context relates to for instance the operations necessary to realise a prototype of the design offered. There is no obligation to carry out all operations internally to fulfil these functions (i.e. these operations are to a large extent contingent). Technology brokers, for instance, are companies that offer inventions that solely focus on the commercial function. Inventors often solely focus on the R&D function and leave all production and commercial operations to others. If internal functions are contracted out on a structural basis, it is important however, that competences are developed in working together with other companies.

- The competences of company's that offer *realisations* are strategically related to markets. If a company chooses to either make or buy specific capabilities, in exploiting a market successfully, this implies that the internal functions need to be considered that are of strategic importance to serve markets. Company's that recursively serve markets throughout time, can become competent in

determining functionalities latently wanted by customers independent of specific realisations offered in the here and now. Companies can choose whether the R&D, production and/or commercial-function are carried out internally ('make') or externally ('buy'). There is no obligation to carry out all operations internally to fulfil these functions. New designs for products can be bought from, for instance, inventors; the production of these products can be contracted out to specialised production firms like jobbers and the logistics can be left to freight carriers. Even most of the commercial operations can be contracted out to resellers like trading companies, shops and stores. If internal functions are contracted out on a structural basis, it is important however, that competences are developed in working together with other companies.

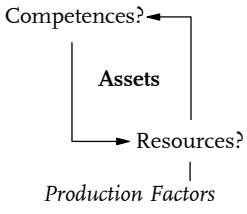
- The competences of company's that offer *capabilities in designing* are strategically related to problems. If a company chooses to either make or buy specific capabilities in defining problems, this implies that the internal functions need to be considered that are of strategic importance in this respect. Company's that recursively define design-problems throughout time, can become competent in applying solution-principles independent of the specific goods or services designed for customers in the here and now. Companies can choose whether the R&D, production and/or commercial-function are carried out internally ('make') or externally ('buy'). Note that the production function in this context relates to the operations necessary to design systems. There is no obligation to carry out all operations internally to fulfil these functions. To acquire assignments to design goods or services, for instance, sales-agents can be used. The design of specific subsystems can be contracted out and research activities can be held to a minimum when well-known solution-principles are chosen or when these principles are licensed. If internal functions are contracted out on a structural basis, it is important however, that competences are developed in working together with other companies.

- The competences of company's that offer *capabilities in realising* are strategically related to solutions. If a company chooses to either make or buy specific capabilities in applying solutions, this implies that the internal functions need to be considered that are of strategic importance in this respect. Company's that recursively realise solutions throughout time, can become competent in applying realisation-principles independent of the specific goods or services realised for customers in the here and now. Companies can choose whether the R&D, production and/or commercial-function are carried out internally ('make') or externally ('buy'). There is no obligation to carry out all operations internally to fulfil these functions. To acquire assignments to realise goods or

services, for instance, sales-agents can be used. Specific production-operations can be contracted out and research activities can be held to a minimum when well-known realisation-principles are chosen or when these realisation-principles are licensed. If internal functions are contracted out on a structural basis, it is important however, that competences are developed in working together with other companies.

When confronted with the situation to redefine one's competence strategy, tautological respectively paradoxical lines of reasoning result. Tautologies occur, for instance, when R&D is regarded as an internal function because it always has been regarded as such and just because of that, the planned operations can be realised. Paradoxes occur, for instance, when R&D needs to be regarded as an internal and external function at the same time because collaboration is necessary to accomplish some technological world-standard. To give another example, imagine the situation that a specific capability developed throughout time needs to be regarded as a business. The paradox is that this capability besides being a capability needs to be regarded as a business at the same time. This occurs when a company that offers realisations of a good and produces these goods internally, considers the offering of their manufacturing capabilities to third parties. That is, alongside the current business, the company's management chooses to define another type of business.

THE ASSETS CHOICE



To define assets, members of organisations need to make sense of the competences and resources relevant to their company self-referentially. When redefining an asset, organisational members face the dilemma whether to acquire or to dispose specific resources. For each business of a company, several investments will be done in getting hold of strategically important resources and for each resource throughout time, companies need to consider if they want to acquire or dispose of them. The whole set of resources defined for a company's business, is called the company's assets strategy. Dependent on the business-type, other issues will be considered with respect to this strategic choice, as will be described below.

- The resources of company's that offer *designs* are strategically related to inventions. If a company chooses to either acquire or dispose scarce resources in making an invention a success, this implies that organisational members need to consider the strategic importance of these resources. Of strategic importance to this type of business is the ability to determine breakthrough functionalities for customers. The determination of these functionalities needs

to be done recursively with respect to various designs of goods or services, lest competence results independent of the designs offered. In acquiring resources with respect to these competences, it is important to invest in the *stimulation of innovativeness* by means of enhancing lateral thinking, acquiring promising researchers, applying new materials, commencing relationships with other research labs, etc. In addition, disinvestments with respect to specific resources could take place. For example the withdrawal of funds of less promising research projects, aborting patent requests, etc.

- The resources of company's that offer *realisations* are strategically related to markets. If a company chooses to either acquire or dispose scarce resources in exploiting a market successfully, this implies that organisational members need to consider the strategic importance of these resources. Of strategic importance to this type of business is the ability to determine latent functionalities wanted by customers with respect to the markets served. Depending on the competences defined, this implies that the production factors need to be considered that are of strategic importance to determine these functionalities. The determination of these functionalities needs to be done recursively with respect to various realisations of goods and services, lest competence results independent of the realisations offered. In acquiring resources with respect to these competences, it is important to invest in the *stimulation of entrepreneurship* by means of offering career paths for specific brands, applying internet-technologies to serve customers, extending the dealer-network, etc. In addition, disinvestments with respect to specific resources could take place, for example the disposing of brand names, production-facilities, dealers, etc.

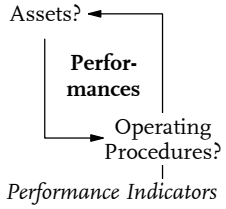
- The resources of company's that offer *capabilities in designing* are strategically related to problems. If a company chooses to either acquire or dispose scarce resources in defining problems successfully, this implies that organisational members need to consider the strategic importance of these resources. Of strategic importance to this type of business are the solution-principles in use with which goods and services can be designed. Depending on the competences defined, this implies that the production factors need to be considered that are of strategic importance to define design-problems. The definition of these problems needs to be done recursively by means of applying solution-principles with respect to various designs, lest competence in applying them results independent of the systems designed. In acquiring resources with respect to these competences, it is important to invest in the *stimulation of professional skills* by means of obtaining new design-software, enhancing the

administration of drawings, offering permanent education to engineers, requesting patents, etc. In addition, disinvestments with respect to specific resources could take place, for example selling design-knowledge that has become of less strategic importance, dismissing engineering-personnel that falls short of expectations, etc.

- The resources of company's that offer *capabilities in realising* are strategically related to solutions. If a company chooses to either acquire or dispose scarce resources in applying solutions successfully, this implies that organisational members need to consider the strategic importance of these resources. Of strategic importance to this type of business are the realisation-principles in use with which goods and services can be realised. The realisation of these goods or services needs to be done recursively by means of applying realisation-principles with respect to various realisations, lest competence in applying them results independent of the systems realised. In acquiring resources with respect to these competences, it is important to invest in the *stimulation of craftsmanship* by means of acquiring state-of-the-art universal production-equipment, dedicated tools, highly skilled personnel, etc. In addition, disinvestments with respect to specific resources could take place, for example selling less state-of-the-art production equipment, disposing of older technologies, etc.

When confronted with the situation to redefine one's assets strategy, tautological respectively paradoxical lines of reasoning result. Tautologies occur, for instance, when people are regarded as a valuable resource because they always have been regarded as such and just because of that, the planned competences can be maintained. Paradoxes occur, for instance, when people need to be regarded as valuable and invaluable resources at the same time because downsizing seems necessary to accomplish the return-on-investments with respect to the investments strategy as a whole.

The Performance Choice



To define performances, members of organisations need to make sense of the assets and operating procedures relevant to their company self-referentially. When redefining a performance, organisational members face the dilemma whether to improve or consolidate the company's performance. For each business of a company, several operational targets will be defined to bring the performance of the operations necessary in developing, manufacturing and selling goods or services on the level desired. Therefore, for each operation procedure, companies need to consider if they want to improve or consolidate the performance.

The whole set of operating procedures defined for a company's business, is called the company's performance strategy. Dependent on the business-type, other issues will be considered with respect to this strategic choice, as will be described below.

- The operating procedures of company's that offer *designs* are strategically related to inventions. If a company chooses to either improve or consolidate a performance of an invention, this implies that organisational members need to consider the strategic importance of this performance. Companies that offer inventions are known for their *inclination to perfectionism*. Consequently, a trade-off needs to be made between productive and unproductive levels of perfectionism. This trade-off implies assessing the importance of the functionality of the invention against the importance to offer the invention in time, against reasonable costs and acceptable levels of quality. Strategies to improve the performance relate for instance to shortening the time-to-market by defining an end-point of the development process. In addition, the costs of the invention can be held under control by means of tight budgeting. The quality of a design can be measured in terms of the performance of its functionalities but of equal importance is the manufacturability of the design.

- The operating procedures of company's that offer *realisations of systems* are strategically related to markets. If a company chooses to either improve or consolidate a market performance, this implies that organisational members need to consider the strategic importance of this performance. Companies that serve markets are known for their *inclination to opportunism*. Consequently, a trade-off needs to be made between productive and unproductive levels of opportunism. This trade-off implies assessing the importance of opportunities to raise turnover against the importance of the offers to be made to serve markets in time, against reasonable costs and acceptable levels of quality. Strategies to improve the performance relate for instance to optimising the delivery time by means of balancing the stock in the distribution-chain, the systematic optimisation of cost prices by means of comparing realised results per standard unit against standard results of materials, labour, etc. With respect to enhancing quality, concepts like the 'product-life-cycle' and the 'learning curve' can be used to optimise both alike the functionality of the product-realisations throughout time and their manufacturability.

- The operating procedures of company's that offer *capabilities in designing* are strategically related to problems. If a company chooses to either improve or consolidate a performance with respect to defining problems, this implies that organisational members need to consider the strategic importance of this

performance. Companies that offer inventions are known for their *inclination to individualism*. Consequently, a trade-off needs to be made between productive and unproductive levels of individualism. This trade-off implies assessing the importance of shared professionalism against the importance of individual routines to solve complex problems in time, against reasonable costs and acceptable levels of quality. Strategies to improve the performance relate for instance to make more explicit individual knowledge with respect to the way problems can be solved by means of for example knowledge management and introducing design-standards in order to reduce design-time. The design-costs can be controlled by means of comparing and optimising cost estimations and cost re-calculation of design-times per assignment. The quality of the design-process can be enhanced by means of realising better communication between the various engineers, consultants, etc.

- The operating procedures of company's that offer *capabilities in realising* are strategically related to solutions. If a company chooses to either improve or consolidate a performance in applying solutions, this implies that organisational members need to consider the strategic importance of this performance. Companies that offer solutions are known for their *inclination to professionalism*. Consequently, a trade-off needs to be made between productive and unproductive levels of professionalism. This trade-off implies assessing the importance of flexibility of the workforce to realise tailor-made systems against the importance to standardise offered solutions to realise systems in time, against reasonable costs and acceptable levels of quality. Strategies to improve the performance relate for instance to reducing the delivery-time by means of balancing the workload of the production-system as a whole. Costs can be reduced by means of optimising the manufacturing times of the various production-steps. Quality can be enhanced by means of drawing up and introducing manufacturing-instructions.

When confronted with the situation to redefine one's performance strategy, tautological respectively paradoxical lines of reasoning result. Tautologies occur, for instance, when turnover is regarded as a valuable operational target because it always has been regarded as such and just because of that, the planned operation procedures can be implemented that seem necessary to implement. Paradoxes occur, for instance, when turnover needs to be regarded as an important and unimportant operational target at the same time because the high level of ambition in this respect ironically results in the fact that the ambitions can never be accomplished due to excessive constrains laid upon other operational targets like efficiency. A summary of the configuration theory with respect to each strategic choice is given in Table 3.2 on page 104.

3.5.4 Observing Strategies Contingently

With the description of the four ideal-typical configurations, we are able to observe ESI-strategies of companies contingently. As indicated before, these configurations may aid in empathising with organisational members in the first-order description of the strategy of their company as well as observing the business strategy of a company as but one of possible alternatives in making sense of the content of their strategy.

In empathising with members of organisations to describe their company's strategy as meaningful as possible, the configuration theory should enable a meaningful conversation with the respondents to support them to bring into words what is difficult to bring into words with respect to their strategic reality. For this, the social researcher should continue in asking questions until the truth is discovered behind the utterings of the respondents.

To aid in this process, the things to expect with respect to a specific business strategy of a company and that were described within the configuration theory can be used as points of reference. Box 3.2 lists these points of reference for product-oriented businesses and Box 3.3 for capability-oriented businesses. The statements given in both procedures can be used to ask respondents for clarification when the social researcher has trouble to comprehend the answers of respondents. As such, these statements function as means to keep the autopoiesis or self-reproduction of the operations of the interview, i.e. answering and questioning, going (e.g. 'I thought with respect to this business that you would develop views on the market of your customers or does that not make any sense in your case?').

To observe the business strategies of companies as but one functional equivalent in making sense of strategic content, the configuration theory may aid also. For this, however, the social researcher should acknowledge the social mechanisms involved with defining strategies.

For the research tool, we have made the business choice the first choice, which implies that this choice is dependent on the social mechanism that explains how organisational members can make something out of nothing. The subsequent strategic choices are dependent on the social mechanism that explains how the reality created thus far enables and constrains the way these choices will be made.

Within the configuration theory we have developed a third social mechanism to explain how companies communicate with their customers dependent on the way they do business with each other. This implies that the strategic reality of these companies is made dependent on the business types deployed.

	Offering Designs	Offering Realisations	Offering Capabilities in Designing	Offering Capabilities in Realising
1. **Business Choice**	Aimed at making money by means of defining inventions that offer breakthrough functionalities	Aimed at making money by means of defining markets for products	Aimed at making money by means of defining problems to be able to design systems	Aimed at defining well-proven solutions to realise the systems of customers
2. **Vision Choice**	Aimed at defining the most preferred future	Aimed at defining the most likely future	Aimed at defining the problematic future of others	Aimed at defining the solutions needed to solve future problems of others
3. **Tactics Choice**	Aimed at defining technical standards by means of patents	Aimed at defining access to markets by means of distribution channels	Aimed at defining credibility by means of image-building	Aimed at defining trust-worthiness by means of a record of accomplishment
4. **Capabilities Choice**	Aimed at defining breakthrough functionalities independent of the designs of systems offered in the here and now	Aimed at defining functionalities wanted by markets independent of realisations of systems offered in the here and now	Aimed at defining design-problems independent of the solution-principles applied in the here and now	Aimed at applying realisation-principles independent of the specific systems realised in the here and now
5. **Investments Choice**	Aimed at defining programs to stimulate innovativeness	Aimed at defining programs to stimulate entrepreneurship	Aimed at defining programs to stimulate professionalism	Aimed at defining programs to stimulate craftsmanship
6. **Performance Choice**	Aimed at defining methods to reduce the inclination to perfectionism	Aimed at defining methods to reduce the inclination to opportunism	Aimed at defining methods to reduce the inclination to individualism	Aimed at defining methods to reduce the inclination to professionalism

Table 3.2: Strategic Choices, Business-Types and Ideal-Typical experienced Strategic Realities

The above means that the strategic reality as experienced by members of organisations is made dependent on the business choice, whereas in fact this choice is dependent of the strategic reality experienced also. This situation highlights that observing strategies contingently is a paradoxical observation because we need to regard strategic realities as both dependent and independent of the business choice at the same time. How we can deal with this paradox from a methodological stance will be one of the subjects of the next chapter where we use the research tool to explore the strategies of 'real' companies.

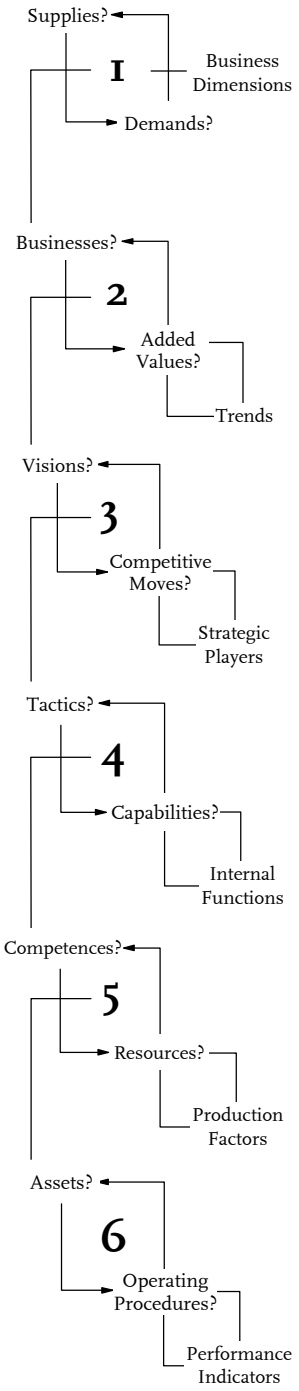
3.6 The Functionalities of the Research Tool

Within section 3.3, the required functionalities of the research tool to be developed were presented. Now that this tool with its accompanying configuration theory has been developed, it is time to evaluate whether we have succeeded in meeting the requirements to observe contingent strategies by means of first-order observation and to observe strategies contingently by means of second-order observation.

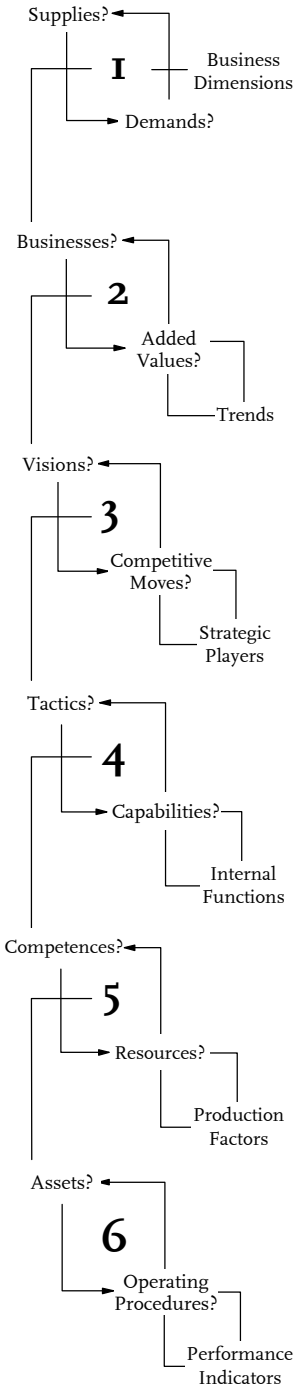
The First-Order observation of Strategies

For the first-order observation of strategies, the first required functionality of the research tool related to the fact that the tool should contain strategic concepts that relate to environmental as well as organisational strategic issues. In developing the research tool, it appeared that the 'scientific design cycle' of Vliegen (1993) was helpful to distinguish between strategic choices aimed at solving chicken-and-egg problems with respect to both environmental and organisational issues. By means of self-referential systems theory we were able to model the design process as a problem solving process that involves solving tautological problems self-referentially. Based upon this general model, a strategic management model could be developed that consists of three strategic chicken-and-egg-problems related to environmental strategic issues and three to organisational strategic issues. As such, it can be concluded that the first functional requirement has been met.

The second required functionality of the research tool related to the fact that the tool should aid in the gathering of empirical data on the way members of organisations asymmetrise or 'de-tautologise' chicken-and-egg problems in making sense of strategic content by means of strategic concepts. By modelling the way strategies become existent when the business choice is regarded as the first chicken-and-egg problem to be solved, we were able to make clear how members of organisations asymmetrise or 'de-tautologise' chicken-and-egg problems in making sense of strategic content by means of strategic concepts, dependent on two distinct social mechanisms involved. Matrices were used to gather empirical data in describing the way members of organisations have created strategic reality. As such, it can be concluded that the second functional requirement has also been met.

Steps	Explanation
	**The Business Choice** • Companies offering *designs* will emphasise the character of inventions offered. Therefore, the 'how?'-dimension is leading and relates to inventions. • Companies offering *realisations* will emphasise the character of market segments served. The ' who?'-dimension is leading and relates to markets. **The Vision Choice** • Companies offering *designs* define futuristic views to define or redefine the decisive factors of the inventions offered. • Companies offering *realisations* define futuristic views to define or redefine the market such that the willingness of customers is enlarged to buy the goods or services offered. **The Tactics Choice** • Companies offering *designs* aim to realise technological standards by means of patents and/or license-agreements. • Companies offering *realisations* aim to realise access to their markets by means of controlling distribution channels. **The Competence Choice** • Companies offering *designs* become capable in defining breakthrough functionalities independent of the designs offered in the here and now. • Companies offering *realisations* become capable in defining functionalities wanted by markets independent of specific realisations offered in the here and now. **The Assets Choice** • Companies offering *designs* try to invest in the stimulation of innovativeness by means of enhancing lateral thinking, acquiring promising researchers, etc. • Companies offering *realisations* try to invest in the stimulation of entrepreneurship by means of offering career paths for specific brands, extending the dealer-network, etc. **The Performance Choice** • Companies offering *designs* are known for their inclination to perfectionism. Counter-moves are taken to bring this perfectionism to acceptable levels. • Companies offering *realisations* are known for their inclination to opportunism. Counter-moves are taken to bring this opportunism to acceptable levels.

Box 3.2: Observing Product-Oriented Business Strategies Contingently

Steps	Explanation
	**The Business Choice** • Companies offering *capabilities in designing* will emphasise the characteristics of the problems that can be solved. Therefore, the 'what?'-dimension relates to problems. • Companies offering *capabilities in realising* will emphasise the characteristics of the realisation-principles used. Therefore, the 'how?'-dimension relates to solutions. **The Vision Choice** • Companies offering *capabilities in designing* define futuristic views to define or redefine the problems experienced by their customers. • Companies offering *capabilities in realising* define futuristic views to define or redefine the 'market after the market' to ensure that customers will offer assignments. **The Tactics Choice** • Companies offering *capabilities in designing* make use of image building to assure customers that their problems are safe and the company is credible. • Companies offering *capabilities in realising* make use of record of accomplishment to assure that their solutions are trustworthy. **The Competence Choice** • Companies offering *capabilities in designing* become capable in defining design-problems independent of the design-principles applied in the here and now • Companies offering *capabilities in realising* become capable in applying realisation principles independent of the goods or services realised in the here and now **The Assets Choice** • Companies offering *capabilities in designing* try to invest in the stimulation of professional skills by means of obtaining new design-software, offering permanent education, etc. • Companies offering *capabilities in realising* try to invest in the stimulation of craftsmanship by means of acquiring universal production-equipment, dedicated tools, etc.. **The Performance Choice** • Companies offering *capabilities in designing* are known for their inclination to individualism. Counter-moves are taken to bring this individualism to acceptable levels. • Companies offering *capabilities in realising* are known for their inclination to professionalism. Counter-moves are taken to bring this professionalism to acceptable levels.

Box 3.3: Observing Capability-Oriented Business Strategies Contingently

The Second-Order observation of Strategies

The first required functionality of the research tool with respect to the second-order observation of strategic content related to the fact that the research tool should aid in observing the way members of organisations have made sense of strategic content contingently. It was chosen to develop such a framework beforehand because of the assumed importance of business types. From previous research, it turned out to be of key importance with respect to the empirical exploration of the strategies of small and medium sized enterprises to make clear the way these companies do business with their customers (Vos et al., 1998). With the configuration theory on the experienced strategic realities dependent on the business-types involved, the hermeneutic 'verstehen' of organisational members is enabled in describing the contingent functional equivalent they have chosen to make sense of the content of their company's strategy. That is, the configuration theory enables us to have a meaningful conversation with members of organisations to describe that their company's strategy is what it is. As such, it can be concluded that the first functional requirement has been met.

The second required functionality of the research tool with respect to the second-order observation of strategic content related to the fact that the research tool should aid in observing the risks involved that may jeopardise a contingent defined strategy. In order to evaluate various functional equivalents on their risks, it is necessary to indicate when functional equivalents can be regarded as feasible dependent on the business-types involved. The configuration theory developed aids in comparing 'real' business strategies with ideal-typical business strategies. By means of this comparison, it is possible to discover the risks involved with the strategic functional equivalent as chosen by organisational members. That is, the configuration theory enables us to explain why a business strategy may not realise what it is expected to realise. As such, it can be concluded that the second functional requirement has also been met.

Chapter 4

The Field Research

4.1 Introduction

In this chapter, the field research is presented that was carried out in order to illustrate the role of self-reference in dealing both deliberately and naively with environmental and organisational issues. The empirical research tries to determine the problems experienced by suppliers that are busy with making sense of 'Early Supplier Involvement' or ESI by means of functional analysis (section 4.2). This functional analysis aims at the first and second-order observation of problems involved with making sense of ESI. The first-order observation aims at describing an ESI-strategy and the problems associated with this strategy as experienced by members of organisations. The second-order observation aims to determine the risks involved with the ESI-strategy, which are unobservable by organisational members because their company's strategic reality is self-referentially closed.

For these first and second-order observations of ESI, in section 4.3, the research design is presented. We try to illustrate that suppliers involved with ESI do wise to regard the manufacturing and design capabilities offered to their customers as independent and distinct types of businesses, in order to prevent paradoxical strategic indecision with respect to these capabilities from happening. For this, a relationship is defined that can be explored empirically. In addition, considerations will be given to explore this relationship by means of a case study design.

Section 4.4 focuses on the case study protocol for the first and second-order observation of ESI-strategies. This case protocol centres on the research tool as presented in the previous chapter and aids in the empirical exploration of the strategic risks involved with the way members of organisations have made sense of ESI.

Within the subsequent sections 4.5 and 4.6, the case studies are presented. Based upon a description of a supplier's present and future strategy, the strategic reality as experienced by organisational members with respect to ESI will be reconstructed. Subsequently, the risks involved with the ESI-strategy will be determined. Lastly, in section 4.7, the assumption will be evaluated. If the assumption holds, this could have implications for the way suppliers need to focus on both the functionality and manufacturability of the product designs of their customers by means of ESI.

4.2 Exploring Early Supplier Involvement

With respect to the empirical material at hand, we have decided to focus on the field of 'Early Supplier Involvement' or ESI that is currently regarded as an important development for innovation in supply chains. Ever since the publication of the automotive studies carried out by researchers of the Massachusetts's Institute of Technology (Womack et al., 1991), the management of the contribution of suppliers to the product development process of Original Equipment Manufacturers (OEM), whether automotive-oriented or not, has gained significant attention of both academics and practitioners. The automotive studies showed that Japanese car manufacturers that managed the contribution of their suppliers successfully, were able to bring new automobiles to the market in shorter times, with more innovative features and with considerable less effort in terms of development hours with respect to engineering and manufacturing. It appeared that the use of the specialised capabilities of suppliers makes product development both more efficient and more effective (e.g. Clark, 1989; Cusumano and Takeishi, 1991; Dyer & Ouchi, 1993). 'Early Supplier Involvement' or ESI, as the relating strategy is called, however, is no panache. The greater responsibility of suppliers for the outcome of the product development process of OEM-companies does not always lead to an increase in development-performance (Harley et al., 1997; McCutcheon et al., 1997). In order to enhance the strategic performance of ESI, several improvements have been proposed (e.g. Wasti & Liker, 1997; Bonaccorsi & Lipparini, 1994; MacDuffie & Helper, 1997; Wynstra & Ten Pierick, 2000; Wynstra et al., 2001). These authors have in common their strong focus on the perspective of OEM-companies. True, it has been addressed that often suppliers have little or no experience in joint product development and that their level of technical capabilities is below par, but the focus has remained what OEM-companies can do about these problems. Existing literature ignores the problems experienced by suppliers in dealing with ESI. Therefore, besides the illustration of the role of self-reference, the empirical part of this study could shed some new light on the problems experienced by suppliers busy with making sense of ESI strategically.

Self-referential systems theory and functional analysis were deemed beneficial to gain insights in the way suppliers make sense of themselves, their processes and their operations when they engage in ESI. Normally, the strategic focus of suppliers is on the capabilities necessary to manufacture the product designs of customers. In dealing with ESI, suppliers need to consider *both* the manufacturability *and* functionality of a product design at the same time. That is, they cannot focus solely on the way products or parts of products, as designed by their customers, can be manufactured optimally anymore. Instead, suppliers need to be capable in both the designing and manufacturing of products or parts of these products. In making sense of this situation, organisational members are trapped within a chicken-and-egg problem (Figure 4.1).

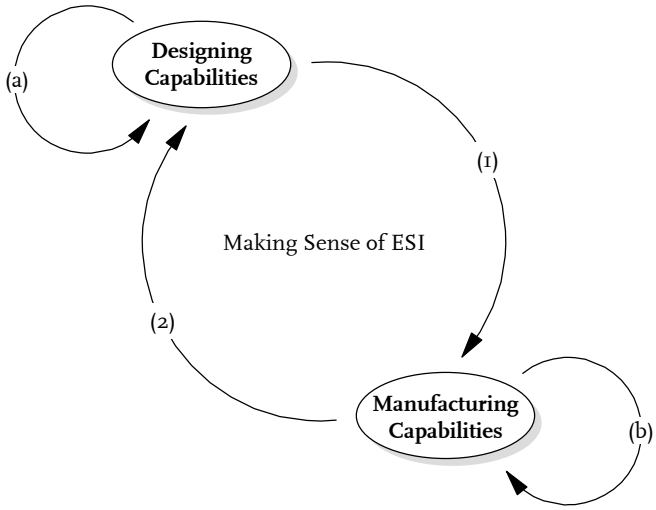


Figure 4.1: Making Sense of Early Supplier Involvement

[...]
(1) What can be designed depends on what can be manufactured
(2) What can be manufactured depends on what can be designed
[...]

In order to deal with this chicken-and-egg problem self-referentially, organisational members cannot relate to reason anymore and can only give meaning tautologically (a) to its design capabilities in the sense that they could be what they could be or (b) to the manufacturing capabilities in the sense that they, again, could be what they could be. Confronted with either of these tautologies, organisational members experience an excess of opportunities to choose from in making the company existent, which may lead to an inability to choose. Therefore, the only way to make the company existent is by just doing something. Dealing with self-reference in making sense of ESI thus involves acting naively to become operational because strictly speaking, designing capabilities cannot be defined without their accompanying manufacturing capabilities and manufacturing capabilities cannot be defined without their accompanying designing capabilities. As a result, each choice made by organisational members to solve the strategic chicken-and-egg problem and to make sense of ESI, is contingent because they could have chosen otherwise. Because of naivety, there are risks involved with contingent selections. These risks are of importance to understand why suppliers have difficulties in making sense of ESI successfully.

4.3 Empirical Research Design

The empirical research is aimed at determining problems experienced by suppliers involved with 'Early Supplier Involvement' or ESI. For this, one of the social mechanisms presented in the previous chapter will be used. This social mechanism accounts for the distinct ways customers and companies can do business with each other. The social mechanism will be used to illustrate the following preliminary assumption.

> "Suppliers involved with ESI do wise to regard the manufacturing and design capabilities offered to their customers as distinct types of businesses, in order to prevent paradoxical strategic indecision with respect to these capabilities from occurring."

In the former chapter (section 3.4), it was pointed out that orders or assignments are the elemental operations of doing business. The empirical research is aimed at highlighting that suppliers that try to make sense of ESI by not defining distinct business strategies for the designing and manufacturing capabilities offered to their customers, will experience paradoxical strategic indecision with respect to these capabilities. This paradoxical indecision hinders the autopoiesis or self-reproduction of the elemental operations, i.e. assignments, which may lead to the jeopardy of the ESI-strategy. In other words, *it will be determined if the development of the capabilities necessary for doing business successfully with customers by means of ESI is hindered because of the way the business is defined.*

Dependent and Independent Variables

Our preliminary assumption can be translated into the scheme of dependent and independent variables, as is depicted in Figure 4.2. The theoretical relationship assumes a relationship between the employment of several types of businesses (independent variable) and different experienced strategic realities (dependent variable). This implies that the strategic reality of companies is therefore made dependent on the business choice despite the fact that this choice is part of the strategic reality also. This leads to the inevitable paradox of this research design that *a strategic reality is dependent and independent of the business choice at the same time*. When answers are sought for the tautological question why the strategic reality as experienced by members of organisations is what it is, this paradox is inevitable. That is because of the chicken-and-egg problem a social researcher is trapped within when he needs to choose between what to regard as dependent and independent variables, i.e. *what should be regarded as dependent variables, depends on what should be regarded as independent variables and vice versa*. This tautology becomes a paradox by means of the second-order observation of the reciprocal relationship between the variables. When a social researcher regards a

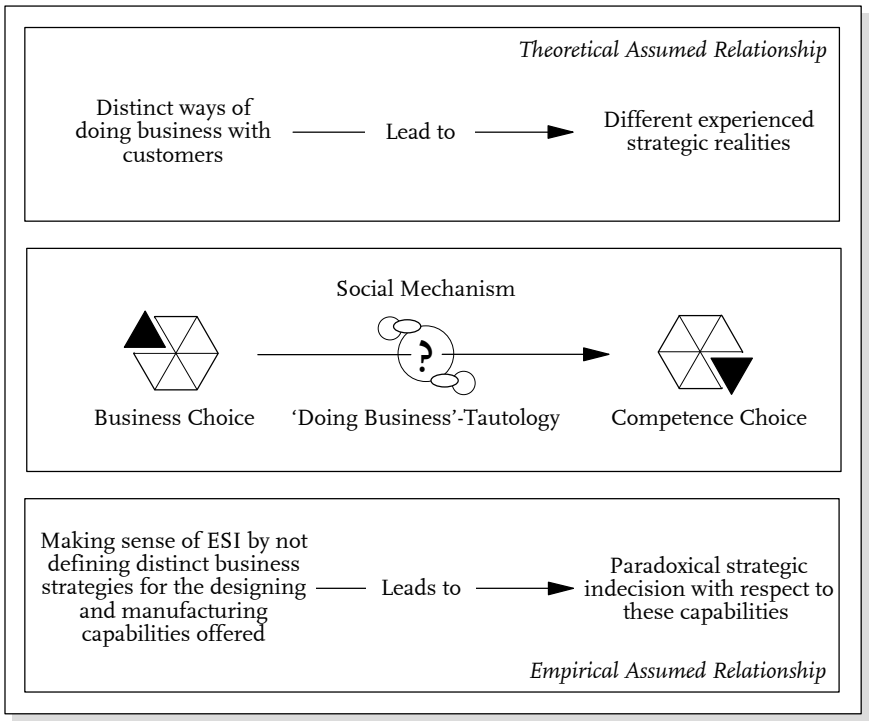


Figure 4.2: Assumed Theoretical and Empirical unilateral Relationships

strategic reality as *independent* of the variables described – because this reality structures the variables that constitute it – he needs to conclude that it can only be *dependent* of the variables described because without these variables there would be no strategic reality. Likewise, when he regards the strategic reality as *dependent* of the variables described – because without these variables there would be no strategic reality – he needs to conclude that this strategic reality structures the variables that constitute it and is therefore *independent* of the variables described.

In general, research designs that relate to dependent and independent variables to explain 'why something is what it is' cannot deal with the existence of reciprocal relationships between variables. Therefore, the question whether the distinction between dependent and independent variables is valid is not the right question. It should rather read if the specific instance of this distinction is a valid way of reducing complexity in describing and analysing the strategic reality of companies. In the case of our research design, this implies that we should evaluate whether the perfect tautological circularity of a strategic reality as experienced by members of organisations becomes invalidly 'verletzt' or asymmetrised by arranging the six variables or strategic choices throughout time. For the research design we have chosen, this specific

reduction from reciprocal to unilateral relationships is tolerable, as will be explained next.

Within the research tool presented in the previous chapter, the business choice was made the first choice to be described during a Quick Scan. This choice is dependent on the social mechanism that explains how organisational members can commence in defining a strategy and therefore are able to make something out of nothing. The subsequent strategic choices are dependent on the social mechanism that explains how the strategic reality created thus far enables and constrains the way these choices will be made. These considerations highlight the fact that during a Quick Scan, the description of a strategic reality is already made dependent on the businesses distinguished strategically. As a result, the unilateral relationship to be explored remains true to the contingent way the strategic reality was described.

Functional Analysis of ESI

As explained within section 2.4, functional analysis is aimed at exploring functional equivalents in solving problems. It is contingent whether problems or solutions are regarded or asymmetrised as dependent or independent variables. Depending on the way the research question is formulated, this tautological problem can be asymmetrised in two distinct ways. When a problem is regarded as dependent variable, solutions chosen in the past are regarded as independent variables in order to bring to light dysfunctional effects of these solutions. Likewise, when a solution is regarded as dependent variable, past problems are regarded as independent variables in order to bring to light preferred ways to solve these problems. In this research, the proposed change in business strategy due to ESI is regarded as solution and we try to bring to light dysfunctional effects of this ESI-solution with respect to the capabilities involved. In other words, the business choice is regarded as independent variable and the competence choice as dependent variable (see the middle part of Figure 4.2).

The design chosen to illustrate our assumed empirical relationship implies that when ESI-strategies of various suppliers are considered and each of these strategies results in paradoxical indecision, this finding can be used as an indication for the plausibility of the social mechanism that structures the way companies and customers do business[22]. In that case, we have some preliminary evidence for the existence of the relationship between business-types and experienced strategic realities. As described in section 2.4,

[22] Luhmann: 'Man kann vermuten, daß Einsichten um so größeren Erkenntniswert besitzen, je verschiedener die Sachverhalte sind, an denen sie bestätigt werden können. Das Funktionieren trotz Heterogenität ist deshalb selbst eine Art Beweis. [...] Wenn es der funktionalen Analyse gelingt, trotz großer Heterogenität und Verschiedenartigkeit der Erscheinungen Zusammenhänge aufzuzeigen, kann dies als Indikator für Wahrheit gelten, auch wenn die Zusammenhänge nur für den Beobachter einsichtig sind.' (Luhmann, 1985: 90-91).

functional analysis is not aimed at discovering causality, although it does not reject causality. The reason for this is that the notion of cause and effect emphasise the necessity of a relationship, which contradicts with the notion of functional equivalence that emphasises the contingent nature of a relationship, i.e. a relationship is *neither* necessary *nor* impossible. These considerations lead to the conclusion that on the level of first-order observation, an assumed relationship is causal because the strategic reality is what it is because it is what it is. On the level of second-order observation, this causality needs to be transformed into contingence in order to compare various functional equivalents in making sense of strategic reality with each other.[23].

Research Method

Until now, it has remained implicit that the research design relates to a case study design. The case study design chosen can be described as an *embedded multiple-case design* (Yin, 1994: 39). The design is *embedded* because on the level of first-order observation each case study has two units of analysis, i.e. a company's present and future strategy. The case study design is *multiple* because the strategic reality of two companies will be described and analysed on the level of second-order observation according to the case protocol developed. In addition, the case study design employs the logic of *literal replication* (Yin, 1994: 46) because each case is carefully selected to be homogeneous or similar with respect to the independent variable (Swanborn, 1996: 61-62). The overall reason why a case study design was chosen for the empirical research is threefold.

In the first place, it should be stressed that *not* because little is known about the subject under investigation, a case study design was chosen[24]. Most social researchers agree that case study designs are appropriate when the research goals and questions demand the need 'to preserve action that is situated in context[25]' (Weick, 1995: 173). However,

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[23] Contrary to Luhmann's concept of contingency that refrains from causality on the level of second-order observation, Hedström & Swedberg state that the social mechanism approach '[is] always striving for narrowing the gap or lag between input and output, cause and effect' (Hedström & Swedberg, 1998: 25).

[24] According to the even nowadays widely cited Eisenhardt (1989: 548), case studies should be applied '[...] when little is known about a phenomenon [...]' or there is '[...] need for a different perspective.' Yin (1994 [1984]: 3) on the other hand states that 'we were once taught to believe that case studies were appropriate for the exploratory phase of an investigation [...]. This [...] view, however, is incorrect'. According to Yin (1994: 3-4), case studies can be applied for exploratory, descriptive and explanatory purposes.

[25] The use of the notion of 'context' abounds in social studies. In most studies, 'context' seems to indicate the unity of a social system and its environment or 'Welt' (see also section 2.7). It is in this way the notion of 'context' is referred to here also. However, the notion of strategic context was reserved in this research to indicate decisions concerning the use of strategic roles to make sense of expectations of relevant stakeholders (section 2.6). Because the empirical part this

this need can hardly be described as a convincing argument to differentiate between case study designs on the one hand and, for instance, survey designs on the other. After all, survey designs can also account for the exploration of experienced strategic realities. Therefore, it seems, the exploration of strategic realities can never be a decisive factor for choosing a case study design. The main reason why a case study design differs from survey designs relates to the fact that the former design is characterised by *intensive* empirical exploration, whereas the latter is characterised by *extensive* research (Swanborn, 1996: 13-14). Intensive research concerns empirical explorations among *many* variables and *few* unities of analysis and extensive research deals with explorations among *few* variables and *many* unities of analysis. This implies that intensive research is aimed at uncovering relationships between variables *within* single unities of analysis and extensive research is aimed at uncovering relationships between variables *among* single unities of analysis. The reason why the case study design is relevant to this study is that there are relatively many variables or strategic choices under consideration. In addition, pragmatic issues have led to the fact that relatively few companies met the case selection criteria, as will be discussed later in this section.

In the second place, *not* because of some preference for qualitative research a case design was chosen. In our opinion, both qualitative and quantitative research techniques can be applied in case study designs. The reason why the case protocol only employs qualitative research techniques is that these techniques were sufficient in answering the research question defined above. As pointed out in section 2.6, the only restriction imposed on these research techniques with respect to the functional analysis of social phenomena, is that they should be able to deal with *both* the structural or institutional aspects of social life that seem to exist despite of social systems *and* the coincidental aspects of social life that seem to exist because of social systems.

In the third place, *not* because of some preference for theoretical generalisation a case design was chosen. Yin pointed out that statistical and theoretical generalisations are both equally valid ways of generalising (Yin, 1994: 10). Statistical generalisation aims at generalising towards populations and theoretical or analytical generalisation, as applied in experimental research designs, towards theoretical preconditions (Yin, 1994: 30-31). The reason why the case study design only concerns theoretical generalisation is that we sought evidence for the fact if paradoxical strategic indecision occurred altogether with respect to the way suppliers make sense of ESI in the assumed way. Therefore, the extent this type of indecision is a common experience in some pre-defined domain was not of interest to this research.

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research refrains from exploring the strategic process and context and focuses solely on strategic content, the notion of 'context' should be replaced by the notion of 'reality'.

THE SAMPLE

As indicated before, the field research was carried out in association with two Dutch organisations, namely SENTER and FME/CWM, which both took an interest in supporting small and medium sized enterprises, not necessarily suppliers, with respect to providing knowledge and support in answering strategic knowledge questions. In association with these parties a mailing was carried out to introduce us to 20 companies, which were probably willing to participate in the research. Of these companies, 19 replied positively and 17 companies were investigated eventually. Within this set of 17 companies, six companies were found that were involved with ESI. Only the ESI-strategies of two of these companies were considered useful because their organisational members were in the midst of making sense of ESI. Therefore, both the present strategy, that was not entirely oriented towards ESI, and the future strategy, that was oriented towards ESI, could be described. The respondents interviewed were organisational members that were busy with defining the ESI-strategy.

The fact that both a company's present and future strategy was described, made it possible to measure the strategy on two distinct time-intervals at one single point in time. This was in fact a trick to describe two distinct strategic operations that otherwise could only have been described by means of conducting a longitudinal research after the strategy process (see section 2.6). By this manoeuvre, it became possible to determine to some extent the 'dominant logic' of the respondents (Prahalad & Bettis, 1986 and Bettis & Prahalad, 1995), i.e. the social structures of meaning in use, that enable and constrain the way the gap is bridged between the present and the future. These structures of meaning may aid in the second-order observation of the ESI-strategy defined. That is, in the explanation of why the ESI-strategy was defined as it was defined.

4.4 Case Protocol

Functional analysis is aimed at relating specific problems and solutions to each other and tries to make understandable and verifiable that problems can be solved in various ways. Within the theory of self-referential systems, the alternatives to solve a problem are called functional equivalent. The contribution of functional analysis is to explain how the relation between problems and appropriate solutions can be specified narrower. That is, *which functional equivalents work and which do not work for suppliers involved with ESI*.

As indicated in section 4.2, normally, the strategic focus of suppliers is on the capabilities necessary to manufacture the product designs of customers. In dealing with ESI, suppliers need to consider *both* the manufacturability *and* functionality of a product design at the same time. That is, they cannot focus solely on the way products or parts of products, as designed by their customers, can be manufactured optimally anymore. Instead, suppliers need to be capable in both the designing and manufac-

turing of products or parts of these products. In making sense of this situation, organisational members are trapped within the chicken-and-egg problem that what they can design depends on what they can manufacture and what they can manufacture depends on what they can design (see Figure 4.1 on page 111).
From a theoretical perspective, each way chosen to asymmetrise this tautology is contingent. After all, in theory, the asymmetry could have been chosen differently. Nonetheless, it is plausible that each way of asymmetrising is not equally valid. That is, it is to be expected that some functional equivalents are more useful than others are. However, the final verdict to compare equally valid theoretical functional equivalents with each other on their merits is an empirical one[26]. A case protocol was developed to determine if the functional equivalents chosen by organisational members of the suppliers involved did not jeopardise the ESI-strategies of these companies.

The case protocol aids in the empirical exploration of the strategic reality as experienced by the organisational members of suppliers that were in the midst of making sense of ESI. Note that strategic reality refers to what is regarded as *real* and *unreal* by organisational members strategically (see section 2.7). The case protocol not only tries to offer rigorous guidelines with respect to the first-order observation of ESI-strategies (case description) but also to observe these ESI-strategies contingently by means of second-order observation (case analysis). The data was collected by means of participating interviews with the organisational members that contributed to the strategic sensemaking process. In addition, relevant documents were used. As such, multiple sources of data were used to 'triangulate' evidence (Yin, 1994: 90-91). The interviews aimed at describing a supplier's present and future business strategies in order to find out the specific characteristics of the ESI-strategy and the reason why it was proposed. The case analysis aimed at explaining why the reality as experienced strategically by the respondents was experienced as it was experienced. The documents selected were used as supplementary sources of evidence in this respect. The constituting parts of the case protocol, i.e. case description and case analysis, are split up in two again. The case protocol thus consists of four distinct parts (Figure 4.3).

- *Strategic action*: within this part of the case-protocol, the motives of the respondents to propose the ESI-strategy are determined. That is, it needs to be determined which problem forced the respondents to choose ESI as a solution. For this, the strategic problem as experienced by the respondents and the ESI-

[26] In other words, evidence has to be empirical valid or *natural*. For this reason, Luhmann notes that 'Blickt man auf neuere Entwicklungen der Erkenntnistheorie, so fällt vor allem eine Abwendung von transzendentaltheoretischen Fundierungsversuchen und eine Rückkehr zu *naturalen Epistemologieen* auf.' (Luhmann, 1985: 647-648) (italics in original).

solution chosen to solve the problem function as points of reference for each case study. This implies that by means of the functional equivalent chosen, the 'Realität' as experienced by the respondents will be analysed. This is legitimate because solving problems involves dealing with chicken-and-egg problems. The complexity involved with making sense of a chicken-and-egg problem provokes a choice on organisational members for a functional equivalent. Just because this functional equivalent is meaningful to the respondents, the way they define their strategic problem and solution may function as a valid points of reference for the case studies.

- *Strategic choice*: within this part of the case-protocol, the choices made by the respondents concerning the present strategy and the planned ESI-strategy are described in terms of the strategic concepts used in our model with the six strategic chicken-and-egg problems. For these descriptions, the Quick Scan was used. Because both the present and the future business strategies are described, some clues will be implied in these descriptions with respect to the dominant logic in use by the respondents. As described in section 3.4.2, this dominant logic enables and constrains the way the respondents make sense of their strategic reality. The first-order observation of strategic content should also focus on operational contradiction with respect to the strategic concepts used (see Table 2.2 on page 45). Therefore, the operational contradictions that puzzle the respondents with respect to the success of their ESI-strategy will be inferred also from the description of the company's present and future strategy.

- *Strategic reality*: within this part of the case-protocol, the proposed ESI-strategy needs to be regarded as a contingent functional equivalent that was neither necessary nor impossible to solve the experienced strategic problem. It will be made plausible why the problem was defined as it was defined and why the solution was defined as it was defined. Based upon both of these analyses, conclusions will be drawn with respect to the dominant logic of the respondents. The findings will be 'triangulated' by means of written and photographical material concerning the company's business. With respect to this part of the case analysis, the data to be analysed will be presented by means of data-display techniques of Miles & Huberman (1984).

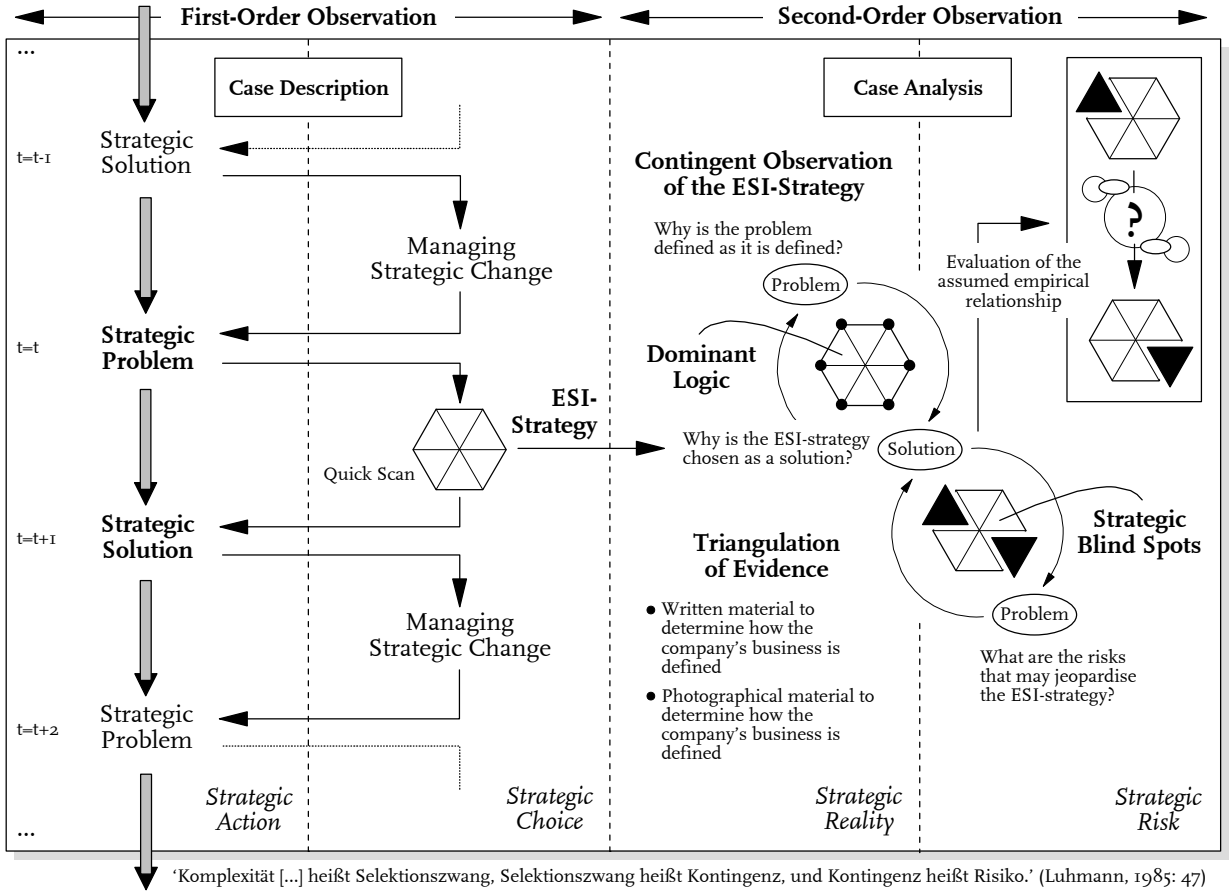


Figure 4.3: Case Protocol

- *Strategic risk*: within this last part of the case protocol, the focus is upon the unforeseen problems or risks of the ESI-strategy given the business-types involved in focussing on both the functionality and manufacturability of the products of customers. These risks cannot be observed by the respondents because of the way they observe by means of the dominant logic in use, and may jeopardise the success of the ESI-strategy. The 'blind spots' of the dominant logic of the respondents will be observed by means of the configuration theory on strategic realities presented in the previous chapter. Lastly, it can be examined if the way the organisational members have defined their company's business to make sense of the ESI-strategy causes paradoxical strategic indecision with respect to the capabilities necessary to design and realise the products of customers.

When both case studies have been described and analysed, the functional equivalents chosen by the companies to make sense of ESI will be put into perspective. This will be done by means of additional experiences the author has with companies involved with ESI and by means of relevant literature on ESI.

4.5 The First Case Study

For describing and analysing ESI-strategies, the case protocol developed consists of two main parts, i.e. the case description and case analysis, and each of these parts consists of two parts again, i.e. strategic action and strategic choice, respectively strategic reality and strategic risk. Below, first, the strategic problem as experienced by the company's management and the solution chosen to solve this problem will be described (strategic action). After that, the present and future business strategies will be described systematically by means of the various chicken-and-egg problems that constitute our strategy model (strategic choice). The description of the business strategies consists of a detailed reproduction of the results of the interviews taken with the company's management team, i.e. the general manager and sales manager. The analysis of the data takes place in the subsequent section.

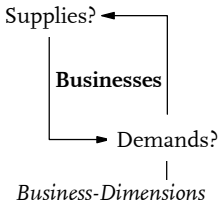
4.5.1 The First-Order Observation of the ESI-Strategy

EXPERIENCED PROBLEMS AND THE SOLUTIONS CHOSEN

The Dutch Metalworks Ltd.[27] was founded in 1968 and at present employs about 185 people in two shifts. Last year (1996), the company realised a turnover of 20 million € or 105.000 € per employee. The company is owned by the German holding company Stahlwerke GmbH. that consists of six strategic business units, employs about 14.000 people and last year (1996) realised a turnover of 1.6 billion €. The management of Metalworks regards the financial state of the company as 'healthy'. It was 'very healthy' but last year Stahlwerke GmbH. has had a payment of dividend and consequently, according to the management team, Metalworks now has a 'more common ratio of own and debt funds'. The problem as experienced by the management of Metalworks is *the stagnation in turnover growth for the present business with the company's key customers*. The management team has *planned an ESI-strategy to realise the desired turnover growth*. This ESI-strategy consists of an expansion of the present business, i.e. offering stamping capabilities, with assembling and engineering capabilities. The reason why the management makes such an issue of annual turnover growth relates to the fact that a former sales employee ones stated that the increase of 10% turnover per year should be high on the priority list of the company. It turns out that this ambition has become a life on its own.

THE BUSINESS CHOICE

Present Businesses



From the start up in 1968, the company's core business is to offer stamping capabilities in sheet metal, steel strips, aluminium, carbon steel and special steel usually in very large numbers (100.000 to 1.000.000). The company was founded as a manufacturing facility for the defence industry. Therefore, the management team regards the company as a 'jobber'. For the defence industry, the company produced cartridge belt links. In 1979, the company was sold to a German holding of manufacturing firms. The board of the holding forced the company's formerly management team to 'diversify in the civilian sector', because the board thought it unwise to depend on one industry solely. Still, the company offers stamping capabilities to the defence industry (15% of last year's turnover) but nowadays companies in the automotive industry are of more interest to the company. The management team sees the cartridge belt links as the company's 'own product', i.e. as a business that involves offering realisations.

[27] The names of the companies involved with the case studies are fictive.

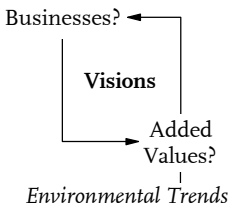
Within the automotive industry, the company offers their capabilities to five customers. These customers have contracted out the manufacturing of singular parts of airbags, safety belts and suspension systems to the company. The management team says that for these customers 'precision stampings made from Ferro and non-Ferro metals, within very tight tolerances, followed by forming, hardening and surface treatment to customer requirements is the company's main speciality'. Other specialities include offering assembling capabilities to an automotive company for stamped parts of an exhaust system. For the turnover, however, the assembling capabilities presently are of minor interest.
To summarize the above, the company's present businesses are (1) to offer stamping capabilities to realise singular sheet metal parts for the automotive industry, (2) to offer assembling capabilities to realise complex sheet metal parts for the automotive industry and (3) to offer cartridge belt links to the defence industry. This last business was not discussed further because the management team has the intention to eventually draw back from the defence industry.

Future Businesses

In the near future, the management team wants to continue the stamping business, to expand the assembling capabilities and to offer engineering capabilities. According to the management team, 'the company should focus on the manufacturing, assemblage and engineering of complex parts of automobiles that deal with the safety of drivers and passengers'. The management team says that this slogan not covers all the automotive activities because the assembling of parts of a customer's exhaust system do not relate to this business-definition. However, the management team thinks it is necessary to choose such a slogan in order to get a clear message to customers and secure future assignments. The management team expects that customers are not so willing to pay for the assembling and engineering capabilities, at least not directly. Instead, the management team hopes that customers are willing to pay extra for the parts realised.
The board of the German holding forces the company to generate a substantial part of their turnover in more industries than the automotive and defence industry. Until now, the management team has no specific ideas about an industry that supplements the automotive industry in a synergistic way. The management team expects that in the future the defence industry will be of decreasing importance to the company's turnover. As long as customers offer assignments, the manufacturing of cartridge belt links will be continued. However, as indicated above, the management team eventually wants to draw back from this industry.
To summarise the above, the company's future business is offering engineering, manufacturing and assembling capabilities to design and realise complex safety-parts for the automotive industry.

THE VISION CHOICE

Present Visions



Within the automotive industry the performance norms are getting tighter and tighter. Customers want still better control of tolerances, costs and delivery times. The management team beliefs the company is well suited to meet these stringent demands. The company has 'many decades experience in quality systems for the defence industry (AQAP-1) and is able to prevent failures and identify and remedy irregularities at a very early stage'. The company's quality assurance system is certified according to NEN-ISO 9001. According to the management team, the company's experience with quality systems was the main reason automotive customers have contracted out assignments to the company. However, the management team says it becomes harder to realise added value solely on their quality reputation.

Another important environmental trend is the increasing use of synthetic materials in automobiles. The use of synthetic materials forces the company to 'even better exploit the advantages of Ferro and non-Ferro metals and stamping technologies to accomplish lower costs'. Recently, the company has succeeded in this respect by designing and realising a singular product ('Umlänker') that 'actually was impossible to make by means of stamping technology '. An 'Umlänker' is the part of the safety belt system that mounts on the doorpost and guides the safety belt.

The increasing use of synthetic materials is of importance also for the assembling capabilities. Added value can be offered to customers if complex product parts are assembled from a combination of metal and synthetic materials. Right now, the company tries to get hold of such an assignment. This assignment concerns the engineering, manufacturing and assembling of a subassembly concerning the locking and releasing of safety belts. In German, this subassembly is called a 'Halteranbindung'. Unfortunately, the customer has postponed the decision to contract out this assignment.

To summarise the above, with respect to the stamping capabilities, the company presently seeks added value in accomplishing (1) a reliable production system and (2) cheaper manufacturable subassemblies by very large production numbers.

Future Visions

In recent years, competitors have closed the quality distance. For the future, the management team wants the company to realise added value in 'thinking with' the design team of customers to enable these design teams to solely focus on subsystems of products that are of real strategic importance to these customers. The same applies to the manufacturing and assembling processes of customers. The added value the

management team wants to offer to customers for the engineering capabilities is 'cheaper manufacturable designs'. For the assembling capabilities, the added value offered to customers will be 'lower costs'. Lastly, the added value for the manufacturing capabilities will be 'other materials and more complex shapes'. The ultimate goal for the new core business is to come up with complex product parts that are cheaper and easier to manufacture because of the better integration of the engineering, manufacturing and assembling capabilities. According to the management team, the industry the company should enter in the future 'must be close to the automotive specialities'.
To summarise the above, the added value the company wants to realise in the future is producing cheap subassemblies by means of better manufacturable designs.

THE TACTICS CHOICE

Present Tactics

The company tries to get hold of assignments by living up to their reputation: 'We do what we promise to do'. The management thinks that due to this tactic future assignments will be secured. About moves of competitors, the management team has no substantial knowledge: 'we are virtually unaware of actions by competitors to get hold of assignments'. However, the management team thinks that the tactics of competitors are not so very different from their own.
The management team tries to withstand the present threat of synthetic materials by being cheaper in realising parts than companies that offer capabilities in injection-moulding of synthetic materials. Until now, this tactic is successful because customers still contract-out assignments to the company.
Customers are aware of the fact that with injection-moulding more complex product shapes can be realised. The company tries to prove to customers that with stamping technology also shapes of higher complexity can be realised. The management team hopes that the development of the 'Umlänker' has convinced customers in this respect.
The management tries to withstand the demands of the holding company by annually presenting impressive turnover results.
To summarise the above, the company's main present competitive moves are (1) to prove their reputation in stamping technology to customers and (2) to prove the versatility of stamping technology.

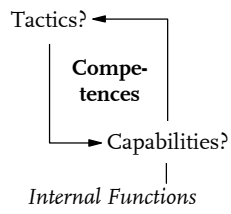
Future Tactics

To secure future manufacturing assignments for complex parts the management team wants to convince customers with the results of the 'Umlänker' project. Because specific parts possibly are made easier and cheaper by injection-moulding technology

instead of stamping technology, the management team reckons with the increasing use of synthetic materials. Therefore, the company tries to find a suitable partner that offers capabilities in injection moulding.
To secure future assembling assignments, the company hopes to build on the possible success of the 'Halteranbindung' project. With the results of this project, the management team hopes to persuade customers to offer more engineering, manufacturing and assembling assignments to the company.
For this, the management team hopes to have convinced customers of the company's competence with the results of the 'Umlänker' project. Important in this respect also is to find 'an injection-moulding company who wants to think with us about the engineering of synthetic singular parts'. With the help of such a partner, it should be possible to convince customers of the feasibility of contracting-out assignments for subassemblies.
To summarise the above, the company's planned future competitive moves are (1) to 'think with customers' to become a valuable partner, (2) to co-operate with an injection-moulding company to design and realise complex safety-parts for the automotive industry and (3) to obtain new customers.

The Competence Choice

Present Competences



According to the management team, the company has proven with the 'Umlänker' that they 'are able to design shapes which can be realised cheaply by means of stamping technology'.
To live up to the customers' expectations regarding the reliability of the production system, the company has 'a proven ability to prevent failures', works on Saturdays, has 2-shifts and a clever system of changing stamps and scheduling work. These competences result 'in a more than adequate control of the company's delivery performance'.
The management team says the 'company has very little experience in acquiring new customers'. The customers the company has within the automotive industry were passed on by sister-companies of the German holding. In addition, the company did not have to bother much about conquering customers in the past because the company's former owner acquired the customers of the defence industry. The management team says 'the customers are very loyal and pleased with the company's delivery performance'.
To summarise the above, the company's main present capabilities are (1) the possibility to come up with functional specifications, (2) the flexible uses of the production capacity and (3) the long-term commitment of customers.

Future Competences

The management team says that once the company gets hold of the assignment for the 'Halteranbindung', a very important first step has been made to realise the company's future strategy. After some serious effort, the company has come up with a design for the 'Halteranbindung'. The management beliefs that when the 'Halteranbindung' project succeeds, the company 'has a decisive head start on competitors and has recommitted customers to the company'.

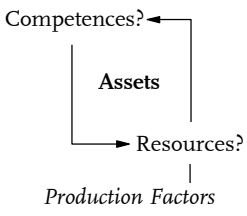
The company has made serious attempts to locate an injection-moulding company that is willing to co-operate with them. Until now, no company has taken interest in co-operation. Many injection-moulding companies are willing to realise the synthetic parts. However, none of them is willing to design the part with them. Right now, the NEVAT[28] is helping the company to find a suitable partner.

In obtaining new customers the management is confronted with a problem: the available production capacity is nearly occupied. It is possible only to serve new customer when the capacity is increased. However, the management team is afraid that an increase in capacity is only possible at the expense of the company's high quality level. The management team says if the board of the German holding wants to persevere in their intentions, the company should be able to obtain new customers themselves by 'better selling the company's specialities'. Therefore, becoming competent in acquiring new customers is a point of serious interest to the management team.

To summarise the above, the company's main planned future capabilities are (1) to engineer, produce and assemble complex product parts, (2) to recommend the company's specialities to customers and (3) the possibility to serve more customers and maintain the high quality level besides.

THE ASSETS CHOICE

Present Assets



According to the management team, the company's most important asset is the knowledge and skills of the workforce. The management team has admiration for the fact that in busy periods the personnel has to work in overtime on Saturdays: 'The labour inspector has made more complaints about this than the workforce did'. To complicate matters more, 'even the rest on Sunday is subject for debate'.

The fact the company is able to engineer and to deal with functional customer specifications is due to the production manager. About him, the management states 'it

[28] NEVAT is an abbreviation of 'Nederlandse Vereniging Algemene Toelevering' or 'Dutch Association of General Subcontractors'.

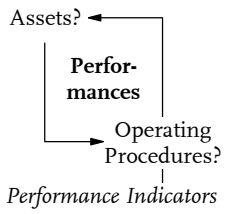
is almost unbelievable what this man is able to accomplish'. It turned out the design of the 'Umlänker' and the 'Halteranbindung' was solely his engineering and the management team says this man gives the company the decisive potential to attain future assignments.
The long-term commitment to customers is valuable to the management team because customers own each stamp the company uses. The fact that the stamps are on a loan does not imply the company can impose its will on customers: 'customers can pick up their stamps any day so to speak'. However, the fact that the stamps are on a loan is interpreted by the management team that customers value the specialities of the company and are committed to them.
To summarise the above, the company's main present resources are (1) the knowledge and skills of the working force, (2) the production manager who developed the 'Umlänker' and the 'Halteranbindung' and (3) the long-term commitment of customers.

Future Assets

In the near future, the management team wants to invest time and money in the company's engineering capabilities: 'the company must become less dependent upon the engineering capabilities of the production manager'. Therefore, the management team plans to recruit mechanical engineers when the company has enough engineering assignments in prospect. Already, the development of the 'Halteranbindung' has cost quite a lot of money and the management team says 'in the year to come the company must get hold of engineering assignments otherwise it is not sensible to invest further in the development of engineering capabilities'.
The management team wants to invest in the company's ability to recommend their specialities to customers. This is independent of the fact that the board of the German holding wants the company to enter another industry. 'We have to become more self-confident in approaching potential customers because in our business you have to struggle for each assignment' says the management team.
To serve more customers and maintain the high quality level besides, the management team has to consider a serious investment in more production capacity. However, the management team says 'actually, we do not want to expand our businesses because we are quite happy with the current business magnitude'.
To summarise the above, the company's future investments in resources are (1) to recruit mechanical engineers after obtaining a considerable amount of engineering assignments, (2) to develop acquisition skills and (3) the possible expansion of the production capacity.

THE PERFORMANCE CHOICE

Present Performances



A few years back, to expand the production capacity, the management team has decided to work in two shifts of eight hours each. Due to working overtime on Saturdays, the manufacturing capacity has increased from about 80 hours to 88 hours per week. Although the company 'is pretty productive', higher output-rates are necessary to meet customer demands. Right now, the management team does not really know what to do about this. There are alternatives, working in three shifts of eight hours each and focussing on fewer customers, but none of them appeals much to the management. The production employees are not very eager to work in the night shift and the latter alternative of focussing on fewer customers does not correspond to holding directives.

The second resource-investment concerns the development of the 'Umlänker' and the 'Halteranbindung'. Although these developments both have gone over budget to a considerable degree, the management team is convinced 'that engineering capabilities are a necessity to serve the customers in the automotive industry in the future'. The management team worries about the fact that few people comprehend the clever engineering by the production manager. The management team is convinced that the 'Umlänker' project proved the fact that the company can deliver added value in lowering manufacturing costs for its customers by clever design. However, it is admitted that this is more the competence of one person than a 'core competence of the company'.

To summarise the above, the company's present operating procedures relate to the realisation of (1) higher output-rates to control the productivity of the company's production system and (2) decreasing the costs of development projects to control the efficiency of the engineering operations.

Future Performances

As said before, the recruitment of mechanical engineers is dependent upon the amount of obtainable engineering jobs. So far, besides the assignment for the 'Halteranbindung', the management team has not made serious attempts to persuade customers in the automotive industry to contract-out the engineering, manufacturing and assembling of subassemblies. The management does not know yet how to integrate the engineering, manufacturing and assembling operations into one overall organisational approach.

In addition, for the development of acquisition skills the management team has not made any efforts yet besides the conversations with the customer's purchasing department about the 'Halteranbindung'. The management team says 'possibly, the best way to develop acquisition skills is to develop know how about the ins-and-outs of

carrying out engineering, manufacturing and assembling assignments. With this knowledge, purchasers can be persuaded to contract-out jobs to us'. Critical in this respect is collaborating with partners competent in other technologies to bring about complex safety-parts for the automotive industry.
In the near future, the management team has a discussion with the board of the German holding about the experienced problems regarding the production capacity. The management team says again that 'any future expansion must definitely not jeopardise the company's high quality level'.
To summarise the above, the company's future operating procedures relate to (1) the development and implementation of an organisational approach to integrate the engineering, manufacturing and assembling operations, (2) the improvement of the turnover realised by new customers and (3) to solve the capacity problems.

Overview of the Quick Scan

As mentioned before, the first-order observation of strategic content should also focus on operational contradiction with respect to the strategic concepts used. The most obvious operational contradiction experienced by the management team of Metalworks concerning their ESI-strategy, relates to the fact that despite their attempt to convince customers of the company's ability in engineering, manufacturing and assembling, these attempts have not lead to prospering prospects of assignments. It is obvious from the case description that this puzzles the management team. In addition, the management team is confronted with the fact that integrating the engineering and assembling operations into the manufacturing-oriented organisation is not so easy. An overview of the results of the Quick Scan to determine the strategic choices made for the present and the future strategy is given in Table 4.1.

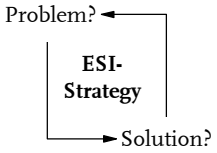
4.5.2 The Second-Order Observation of the ESI-Strategy

As indicated above, the case analysis part of the case protocol (Figure 4.3) consists of two main parts, i.e. the analysis of strategic reality and strategic risk. The analysis of the experienced strategic reality aims at uncovering the asymmetries used by the company's management to make sense of the content of both their present and future business strategies. This implies that the aim is to discover the dominant logic that has led the management to define the ESI-strategy as it has been defined. For the analysis of the strategic risks, it will be determined if the dominant logic has led to paradoxical indecision with respect to the ESI-strategy defined. That is, it will be determined if the ESI-strategy has led to unconsidered strategic issues or 'blind spots' given the business-types involved.

	Present Strategy	Future Strategy	Business Change
1. **Business Choice**	*From*: offering stamping capabilities to realise specific singular product parts for key customers in the automotive industry	*To*: offering engineering, manufacturing and assembling capabilities to design and realise subassemblies for key automotive customers	Making money by offering customer related design and realisation capabilities instead of only offering realisation capabilities
2. **Vision Choice**	*From*: establishing a reliable production system for large production numbers	*To*: solving the customers' manufacturing difficulties to realise lower prices	Seeking added value in improving parts also instead of only realising them
3. **Tactics Choice**	*From*: securing jobs and beating competitors by living up to the proven quality reputation	*To*: securing jobs and staying ahead of competitors by obtaining a trustworthy 'thinking with' reputation	Using competitive imperatives to become a valuable partner also instead of only living up the performance levels of customers
4. **Competence Choice**	*From*: realising singular parts with stamping, surface treatment and heat treatment technologies	*To*: designing and realising complex product parts by adopting other technologies with help from partners	Building competences to engineer, assemble and co-operate also instead of only realising the parts without help from other suppliers
5. **Assets Choice**	*From*: investing in resources to enhance the flexibility of the production facilities of the company	*To*: investing in resources to develop 'thinking with' skills in more than one technology and in selling these capabilities	Obtaining resources to solve problems also instead of only carrying out solutions as engineered by customers
6. **Performance Choice**	*From*: securing the company's performance by means of a NEN-ISO 9001 quality system	*To*: developing the business administration to control the engineering, manufacturing and assembling operations	Trying to integrate the operating procedures for the various capabilities into a single organisational approach

Table 4.1: Strategic Choices and Changes in Business Strategy

THE ANALYSIS OF THE EXPERIENCED STRATEGIC REALITY



The analysis of the strategic reality, as experienced by the company's management, focuses upon the notion of contingency. This implies that the specific way the management has made the ESI-strategy possible will be considered as neither necessary nor impossible. The ESI-strategy can be regarded as the result of the way the problem/solution-tautology is asymmetrised.

> [...]
> (1) What is defined as the problem depends on the solutions distinguished
> (2) What is defined as the solution depends on the problem experienced
> [...]

Both the present and future strategy function as means to determine (1) *why the strategic problem was defined as it was defined* and (2) *why the solution was defined as it was defined.* Based upon the resulting explanations, conclusions can be drawn on the strategic asymmetries chosen that constitute the dominant logic of the respondents. For these contingent asymmetries, further evidence will be sought for by means of triangulation. That is, written and photographical material concerning the business of the company will be explored on keywords and excerpts that are of interest to determine the preferred ways of action in defining both the present and future business strategies.
The problem as defined by the management of Metalworks is the stagnation in turnover growth for the stamping capabilities with the company's key customers. As a solution, the management has chosen to supplement the stamping capabilities with assembling and engineering capabilities in order to be able to realise more turnover with the key customers. The asymmetries contingently chosen to enable the formulation of the present and future business strategies should reflect the reasons why the strategic problem and solution were defined this way. In order to determine these asymmetries, we need to find out how the company's management has solved the chicken-and-egg problems related to the various strategic choices for both the present and business strategy (see also Table 4.2).

- *The business choice*: presently the management has given meaning to the business-dimensions by focussing mainly on customers from the automotive industry ('who?') by offering stamping capabilities ('how?') to realise singular product parts ('what?'). In the future the management focuses even more strongly on its automotive customers ('who?') by offering engineering, manufacturing and assembling capabilities ('how?') to design and realise complex safety parts of automobiles ('what?').

- *The vision choice*: the management has given meaning to environmental trends by focussing mainly on trends that are relevant to the company's automotive customers, e.g. the importance of quality systems and the increasing use of synthetic materials in automobiles. In the future the management focuses mainly on the trend of 'thinking with' the design team of customers to enable these design teams to solely focus on the systems of products that are of real strategic importance to these customers ('back to core business').

- *The tactics choice*: the management has given meaning to other strategic players by focussing mainly on moves to secure assignments from the automotive customers by focussing on these customers. The management is virtually unaware of actions taken by competitors to get hold of assignments and needs to withstand the demands of Diehl GmbH not to focus so strongly on the automotive industry. In the future, the management plans moves to acquire combined engineering, manufacturing and assembling assignments from the automotive customers and to become a valuable partner for customers in this respect. In addition, the management is busy seeking an injection moulding company to supplement its stamping capabilities.

- *The competence choice*: it seems the management has given meaning to the internal functions by focussing on all but the commercial function of the company, i.e. the company has little experience with acquiring new customers. In addition, the management is not convinced of the necessity of capabilities in this respect either because customers are very loyal to and pleased with the company. In the future, the management focuses mainly on their engineering function, i.e. to become capable in designing specific parts of subassemblies autonomous and in co-developing other parts with an injection moulding company. In addition, the commercial function is considered because the management wants to be better in selling the companies capabilities.

- *The assets choice*: the management has given meaning to the production factors by focussing among other things on the long-term commitment to customers. The stamps in use are owned by the customers concerned and therefore these stamps are considered a valuable asset for the company. In the future, the management focuses on becoming less dependent on the knowledge of the production manager because only this person is capable in engineering. In addition, the company wants to invest in the skills of the sales men to become more confident in approaching potential customers in order to become less dependent of their present customers in acquiring assignments.

	Present Strategy	Present Asymmetries	Future Strategy	Future Asymmetries
1. Business Choice	Offering stamping capabilities to realise specific singular product parts for key customers in the automotive industry	The business-tautology is asymmetrised by a specialisation-strategy towards a small amount of customers	Offering engineering, manufacturing and assembling capabilities to design and realise subassemblies for key automotive customers	The business-tautology is asymmetrised by a specialisation-strategy towards a small amount of customers and their pre-supposed demands
2. Vision Choice	Establishing a reliable production system for large production numbers	The vision-tautology is asymmetrised by a 'me-too'-strategy with respect to a good quality reputation	Solving the customers' manufacturing difficulties to realise lower prices	The vision-tautology is asymmetrised by a 'me-first'-strategy with respect to improving the manufacturability of the parts realised
3. Tactics Choice	Securing jobs and beating competitors by living up to the proven quality reputation	The tactics-tautology is asymmetrised by a defending-strategy to get hold of further assignments for the same parts	Securing jobs and staying ahead of competitors by obtaining a trustworthy 'thinking with' reputation	The tactics-tautology is asymmetrised by an attacking-strategy to get hold of different assignments from the same customers

	Present Strategy	Present Asymmetries	Future Strategy	Future Asymmetries
4. Competence Choice	Realising singular parts with stamping, surface treatment and heat treatment technologies	The capabilities-tautology is asymmetrised by a make strategy with respect to the technologies needed to realise the parts	Designing and realising complex product parts by adopting other technologies with help from partners	The capabilities-tautology is asymmetrised by a make and buy-strategy to design and realise complex product parts
5. Assets Choice	Investing in resources to enhance the flexibility of the production facilities of the company	The investment-tautology is asymmetrised by an acquiring-strategy to lengthen the production time available	Investing in resources to develop 'thinking with' skills in more than one technology and in selling these capabilities	The investment-tautology is asymmetrised by an acquiring-strategy to develop engineering and commercial skills
6. Performance Choice	Securing the company's performance by means of a NEN-ISO 9001 quality system	The performance tautology is asymmetrised by an improving-strategy with respect to an efficient use of the production capacity	The management team does not know yet how to integrate the capabilities to realise the desired level of performance	The performance tautology is asymmetrised by a consolidation-strategy with respect to the effectivity of the production

Table 4.2: Display of Present and Future Strategies and Contingent Asymmetries

- *The performance choice*: the management has given meaning to the performance indicators by focussing among other things on the higher than budgeted costs of projects to engineer specific product parts. In addition, the productivity of the production system to establish higher output rates is of concern to the company's management. In the future, the management is mainly focused on he development and implementation of an organisational approach to integrate the company's engineering, manufacturing and assembling operations. The management holds the opinion that the possible increase in production capacity should not go at the expense of the company's high level of quality-performance.

From the above description and its summary in Table 4.2, it appears that the way the management has made sense of both the present and future external choices (i.e. the business, vision and tactics choice) by means of a strong focus towards the present customers. This implies that the company's external complexity is reduced to issues that relate foremost to the company's automotive customers. From the way the company has made sense of the internal choices (i.e. the competence, assets and performance choice), it appears that there is an inclination to structure the company's engineering and commercial skills. This implies, not surprisingly, that the company's internal complexity is reduced to issues that relate foremost to issues to make the ESI-strategy happen.

The Strategic Problem and Contingency

For the management team, the way the ESI-strategy is defined is not contingent. That is, it makes sense to implement exactly this functional equivalent to solve the experienced strategic problem. Therefore, it is possible to discover the assumptions of the management team with respect to the necessity of the ESI-strategy.

Ever since the take over, the management team of Metalworks is arguing with the board of the German holding company about customers. The board demands that Metalworks should be active in more-than-one industry lest the company becomes not too dependent on a small amount of customers. The management team of the company tries to withstand this demand by realising impressive turnover results annually (*present tactics*). Striking is the fact that the planned strategic change will result in an even further focus within the already small group of customers. Contrary to official guidelines there is a persistent inclination to focus on a small amount of customers over an extended period. Apparently, the management team has used the rate of annual turnover growth as a means to withstand the demands of the German holding company. This, however, does not explain why they persevere in their inclination to focus on their present customers. Could it be that the management of Metalworks is

focused on a small amount of key customers because they dislike approaching new customers to acquire assignments?
During the interview, the management said that presently 'the company has very little experience in obtaining new customers' (*present assets*). For the future, the management planned to invest in the company's ability to recommend their capabilities to customers. According to them, this move was not initiated because of the demands of the holding company but because 'we have to become more self confident in approaching potential customers because in our business you have to struggle for each assignment' (*future assets*). It seems the management has experienced that acquiring assignments (e.g. the 'Umlänker') for their newly defined business is not as easy as they thought it would be, even when only present customers are approached.
To conclude, it seems that the management of Metalworks avoids approaching new customers to acquire assignments because the management team beliefs the company has insufficient commercial skills. Therefore, the strategic problem was defined as it was defined, i.e. is the stagnation in turnover growth for the stamping capabilities with the company's key customers. To withstand the demands of the board of the holding company concerning the narrow customer focus, the management team choose to realise impressive annual turnover growth. In practice, this resulted in the fact that the company annually tried to make more turnovers with existing customers. Presently, the existing production capacity is almost used fully and therefore the continuation of the turnover growth is in danger. Because the management does not want to expand the existing production capacity and does not want to be confronted with the same old demands of the holding company, they have chosen to supplement the stamping capabilities with engineering and assembling capabilities to realise more turnover. While acquiring the assignments that relate to this new strategy, ironically, it turned out the company needs the commercial skills that it tried to avoid developing in the first place.

The Strategic Solution and Contingency

The management team has defined the future business as follows: 'The company should focus on the manufacturing, assemblage and engineering of complex parts of automobiles that deal with the safety of drivers and passengers' (*future businesses*). When taken this definition into account, it is apparent that the management of Metalworks treats the combination of engineering, manufacturing and assembling capabilities as an operative unity in gaining turnover. That is, the company offers its engineering, manufacturing and assembling capabilities as a whole to key customers as will be illustrated next.

- With respect to the business choice this operative unity reveals itself in the way the management beliefs the company will be paid for future assignments.

They expect that customers are not willing to pay for the assembling and engineering capabilities, at least not directly (*future businesses*). Instead, hoped is that customers are willing to pay more for the stamped parts as a means to compensate the additional efforts given (*future businesses*).

- In addition, with respect to the vision choice or the way the management has defined the company's added values, it appears an overall strategy is defined for the distinct capabilities offered. For instance, the management team has decided to seek added value in designing 'cheaper manufacturable designs' (*future visions*). Apparently, the added value of the engineering and manufacturing capabilities are not seen distinctly by the management team. For the assembling business, the company seeks added value in 'less tolerance deviancies and subsequent less rejections' (*future visions*). This added value also aims to contribute to the various capabilities as a whole. However, nowhere is the operative unity better described as in the following statement: 'the ultimate goal is to come up with complex product parts that are cheaper and easier to manufacture because of the better integration between the various capabilities' (*future visions*).

- The operative unity of the three capabilities offered appears also in the choice of the company's tactics. The management team hopes that the results of the 'Umlänker'-project (which is a singular product part) is a stepping-stone to the future assignment of the 'Halteranbindung'-project (which is a complex product part) (*future tactics*). Apparently, the company aims at acquiring projects or assignments for which the engineering, manufacturing and assembling capabilities can be deployed in relations to each other.

- With respect to the choice of the company's competences, the operative unity of the capabilities constituting the future business appears in the way the management looks for co-operation with a production partner. Not only should this partner contribute to the realisation of various synthetic parts by means of injection-moulding technology, this partner should also contribute to the engineering of these parts. Unfortunately, none of the companies approached thus far was willing to design or engineer the synthetic parts needed (*future competences*). Apparently, these companies do not see any benefits in designing the parts besides realising them, as the management of Metalworks does.

- For the assets choice, the operative unity exposed itself in the way the management team spoke about the reasons to invest in acquisition skills. In the words of the management: 'We have to become more self confident in

approaching potential customers because in our business you have to struggle for each assignment' (*future assets*). Apparently, the company aims at acquiring assignments for which the engineering, manufacturing and assembling capabilities can be deployed in combination with each other.

- Regarding the choice of the company's performance, the case description brought to light that the management team '[did] not know how to integrate the engineering, manufacturing and assemblage operations to realise the output the customer wants' (*future performances*). Therefore, it appears that within the business administration the three capabilities are regarded as an operative unity also.

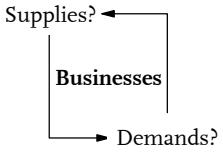
To conclude, the main argument given above is that the management of Metalworks treats the company's capabilities as a means to an end and not as an end in itself by focussing on the design and realisation of subassemblies. Therefore, the strategic solution was defined as it was defined, i.e. to supplement the stamping capabilities with assembling and engineering capabilities to realise more turnover with the key customers. Although the management team regards the company as a 'jobber' (*present businesses*), within the business definition, the focus seems to be on the complex product parts as such and not on the solutions necessary to design and/or realise the parts. Peculiar in this respect is the fact that the management team sees the cartridge belt links as the company's own product (*present businesses*), while the customer from the defence industry has designed the parts (*present businesses*) and owns the stamps necessary (*present assets*). Apparently, in speaking about their future business the management of Metalworks is focused upon the business output as such (i.e. subassemblies) and not on the means to realise the output (i.e. capabilities). Therefore its seems that way chosen by the company's management to make sense of the manufacturing, engineering and assembling capabilities offered, was by focusing on subassemblies specific to the customer.

Overall Conclusions

The dominant logic of the management of Metalworks is based upon the assumptions that approaching new customers is something best avoided due to the lack of commercial skills. With respect to the commercial skills it turns out that, ironically, the management team hinders itself with their assumption that approaching new customers is something best avoided because it turned out the present customers need to be seen as new customers at the same time. That is because these customers need to be convinced that Metalworks is capable in both designing and realising subassemblies. In addition, the management assumed that to realise more turnover with the existing customers by offering additional capabilities, these capabilities could best be made

sense of by unifying them. That is, by strategically focussing upon subassemblies. With respect to the strategic focus on subassemblies, it turns out that the management of Metalworks has forgotten to define the engineering and assembling principles needed to come up with subassemblies that deal with the safety of automobiles. This leads to the paradoxical situation that the company tries to convince customers about their capability in engineering and assembling but at the same time cannot make clear upon which knowledge and skills this capability is grounded.

Triangulation of Evidence



In this part of the case analysis, we will explore the way the organisational members have defined their company's business by means of written material about the company. This written material will be explored on keywords and excerpts that are of interest to determine the asymmetries chosen by the company's management team to make sense of the definition of their business. The focus is upon written material aimed at informing potential customers. This written material can be used to determine the way the company has asymmetrised the 'doing business'-tautology to define the company's businesses. After all, to acquire future assignments, it is of great importance to inform customers as clear as possible about the company's business. Recall from the previous chapter that depending on the type of business, some business-dimensions are of more importance than others are. Therefore, it is to be expected that within company brochures the emphasis will be on the leading business-dimensions. The relationship between business-types and leading business-dimensions is described in Box 4.1 (see also section 3.5.3).

- Companies offering *designs* will emphasise the character of inventions offered.
- Companies offering *realisations* will emphasise characteristics of the market segments served.
- Companies offering *capabilities in designing* will emphasise characteristics of the problems that can be solved.
- Companies offering *capabilities in realising* will emphasise characteristics of the realisation-principles used.

Box 4.1: Business-Types and Business-Dimensions

In advance of the company visit, the company's management team sent various leaflets.

- A short profile of the German holding company. This leaflet presents key figures, the corporate structure and all the business units. The leaflet is of less interest because the focus is not on the businesses of Metalworks.

- A brochure within which the 'cartridge link production and supply' is discussed. This leaflet is of less interest also because the management team eventually wants to draw back from this industry.

- A brand new full-colour brochure that deals solely with the company of interest. In the brochure, in both English and German, the geographical place, a company profile, the products & services and the customers are described. In addition, the way the company deals with environmental and quality issues is presented. Of interest to us is the way the products & services are described. Because this brochure also contains photographs, it might be interesting to see if this photographical material also gives an indication about the strategically leading business-dimensions.

- Lastly, a couple of stapled A4s was appended within which the company's 'manufacturing program' is listed: the number and kind of equipment used for pressing, hardening and surface treating. This leaflet is of interest because it indicates that the former business of the company was to make money by jobbing. After all, only for this kind of business it is relevant to gain the customers' trust by recommending the company's production means.

Analysis of Written Material

Within the full colour brochure, the management team defines their future business as follows[29].

- *Products*: "Precision stampings made from sheet metal, observing the most stringent production tolerances, followed by forming, hardening and further processing to customer requirements: that's our main speciality. As a world-wide supplier of belt links Metalworks knows exactly how to handle the tough product requirements imposed on the defense industry and extends this expertness also to the civil sector".

[29] The excerpts taken from the brochure are one-to-one: misspellings and terms putted in the American way are not changed.

- *Services*: "[...], a successful cooperation means starting expert consulting services early-off in the product design phase long before production begins. Our recommendations in the first phase of product development will help the customer avoid problems and unnecessary costs later on. Our experts and specialized computer programs explain all options to the customer enabling him to implement the required product features without neglecting costs and quality consciousness. Further services include harmonizing the production capacities with the customer and insuring efficient warehousing thanks to reliable delivery quantities and schedule".

- *Customers*: "Our stamped and formed products for automotive seat belts made us a firm partner to the safety industry, such as the Swedish Autoliv and TRW, with worldwide distribution channels. Accordingly, about 60 percent of the automobiles manufactured in Germany are fitted with parts from Metalworks, explaining why Metalworks is in fact a major supplier to the automotive industry. Furthermore, we supply custom-made fasteners to many important companies in this sector and to large hardware centers and other markets".

- *Policy*: "We have made it our task to further extend our partnership with the suppliers for the automobile industry by offering complete sub-systems for various assemblies. Our specialty mainly relates to high-quality metal products for heavy-duty operation and their hardening and surface coating. Thus, our products will find many new applications whenever fasteners are required to meet high safety standards, e.g. in system-ceilings and many other areas of the building industry. When large quantities are needed at low production costs and when your requirements call for quality, versatility and responsiveness, then we are the people to talk to".

Table 4.3 displays excerpts from the sections of the brochure against the three business-dimensions. In all parts of the self-description, no explanation is given to the reader about the specific needs the company wants to fulfil. While some excerpts are displayed with respect to the 'what?' business-dimension, these excerpts do not really relate to needs. An excerpt like '[...] avoid problems and unnecessary costs [...]' relates to the benefits of the things the company does for customers. To put it in terms of the strategic model: the excerpts relate to added values instead of demands.
With respect to the 'who?' business-dimension, it comes as a surprise that the 'safety industry', 'hardware centers and other markets' and the 'building industry' are mentioned. The management team did not indicate these markets as key customers during the Quick Scan (*future businesses*). The fact that is spoken of 'safety industry'

corresponds with the intention of the management team that the company 'should focus on [...] the safety of drivers and passengers' (*future businesses*).
The most useful data from the brochure to indicate the business-type or business-types of Metalworks relate to the 'how?' business-dimension. Therefore, these excerpts are displayed in Table 4.3 against the four businesses of our typology.

- The first excerpt is distributed over two business-types. The fact that is spoken about 'Precision stampings made from sheet metal [...]', indicates the company typifies their business as 'offering realisations'. The other part of this excerpt, i.e. '[...] followed by forming, hardening and further processing to customer requirements [...]', indicates the company's business type is 'offering capabilities in realising'.

- The second excerpt, i.e. '[...] a world-wide supplier of belt links', should also be put under the label 'offering realisations'.

- The third and fourth excerpt are respectively '[...] expert consulting services early-off in the product design phase [...]' and 'Our experts and specialized computer programs explain all options to the customer [...]'. These two excerpts relate to the business as 'offering capabilities in designing'.

- The fifth excerpt, i.e. 'Our stamped and formed products for automotive seat belts [...]', relates clearly to the business as 'offering realisations'.

- The sixth excerpt, i.e. '[...] we supply custom-made fasteners [...]', cannot be typified unambiguously. The fact that is spoken about 'fasteners' indicates a relation with 'offering realisations', while the fact that is spoken about 'custom-made fasteners' seems to indicate a relationship with the business as 'offering capabilities in realising'.

- In the seventh excerpt, i.e. '[...] offering complete sub-systems for various assemblies', the company speaks about their business as 'offering realisations'.

- Concerning the last excerpt, the first part, i.e. 'Our specialty mainly relates to high-quality metal products for heavy-duty operation [...]', relates to the business as 'offering realisations' and the second part, i.e. '[...] and their hardening and surface coating', relates to the business as 'offering capabilities in realising'.

	What?	How?	Who?
'Products'	No relevant data	'Precision stampings made from sheet metal [...] followed by forming, hardening and further processing to customer requirements [...]' '[...] a world-wide supplier of belt links [...]'	'[...] the defense industry and [...] the civil sector.'
'Services'	'[...] avoid problems and unnecessary costs [...]' '[...] enabling him [the customer] to implement the required product features without neglecting costs and quality consciousness.'	'[...] expert consulting services early-off in the product design phase [...]' 'Our experts and specialized computer programs explain all options to the customer [...]'	No relevant data
'Customers'	No relevant data	'Our stamped and formed products for automotive seat belts [...]' '[...] we supply custom-made fasteners [...]'	'[...] safety industry, such as the Swedish Autoliv and TRW [...]' '[...] Metalworks is in fact a major supplier to the automotive industry [...]' '[...] to many important companies in this sector and to large hardware centers and other markets.'
'Policy'	'[...] our products will find many new applications whenever fasteners are required to meet high safety standards [...]' '[...] when your requirements call for quality, versatility and responsiveness, then we are the people to talk to.'	'[...] offering complete sub-systems for various assemblies.' 'Our specialty mainly relates to high-quality metal products for heavy-duty operation and their hardening and surface coating.'	'[...] in system-ceilings and many other areas of the building industry.'

Table 4.3: Display of Data from Brochure against the Business-Dimensions

	Supply and Demand of Designs	Supply and Demand of Realisations
Precision stampings made from sheet metal [...] followed by forming, hardening and further processing to customer requirements [...]'	Not applicable	'Precision stampings made from sheet metal [...]'
'[...] a world-wide supplier of belt links.'	Not applicable	'[...] a world-wide supplier of belt links [...]'
'[...] expert consulting services early-off in the product design phase [...]'	Not applicable	Not applicable
'Our experts and specialized computer programs explain all options to the customer [...]'	Not applicable	Not applicable
'Our stamped and formed products for automotive seat belts [...]'	Not applicable	'Our stamped and formed products for automotive seat belts [...]'
'[...] we supply custom-made fasteners [...]'	Not applicable	'[...] we supply custom-made fasteners [...]'
'[...] offering complete sub-systems for various assemblies.'	Not applicable	'[...] offering complete sub-systems for various assemblies.'
'Our specialty mainly relates to high-quality metal products for heavy-duty operation and their hardening and surface coating.'	Not applicable	'Our specialty mainly relates to high-quality metal products for heavy-duty operation [...]'

Table 4.4: Display of Data against the 'How?'-Dimension (Product-Oriented)

Conclusions

From Table 4.4 and Table 4.5 it is evident that the engineering ('expert consulting services'), manufacturing ('forming, hardening and further processing') and assembling capabilities ('sub-systems for various assemblies') are represented in the brochure. The way some excerpts are distributed over the business-types, suggests that the company treats the various capabilities as an operative unity in generating turnover. This subscribes to the finding that the company offers its engineering, manufacturing and assembling capabilities as a whole to fulfil the needs of its key automotive customers.

Most of the references with respect to the 'how?' business-dimension, relate to the ideal-typical business 'offering capabilities in realising'. This subscribes to the self-

	Supply and Demand of Capabilities in Designing	Supply and Demand of Capabilities in Realising
Precision stampings made from sheet metal [...] followed by forming, hardening and further processing to customer requirements [...]'	Not applicable	'[...] followed by forming, hardening and further processing to customer requirements [...]'
'[...] a world-wide supplier of belt links.'	Not applicable	Not applicable
'[...] expert consulting services early-off in the product design phase [...]'	'[...] expert consulting services early-off in the product design phase [...]'	Not applicable
'Our experts and specialized computer programs explain all options to the customer [...]'	'Our experts and specialized computer programs explain all options to the customer [...]'	Not applicable
'Our stamped and formed products for automotive seat belts [...]'	Not applicable	Not applicable
'[...] we supply custom-made fasteners [...]'	Not applicable	'[...] we supply custom-made fasteners [...]'
'[...] offering complete sub-systems for various assemblies.'	Not applicable	Not applicable
'Our specialty mainly relates to high-quality metal products for heavy-duty operation and their hardening and surface coating.'	Not applicable	'[...] and their hardening and surface coating.'

Table 4.5: Display of Data against the 'How?'-Dimension (Capability-Oriented)

definition of the company as a 'jobber' (*present businesses*). Only one reference is made to the fact the company supplies complex product parts. For some reason, the company's management has decided not to mention their preference to engineer, manufacture and assemble complex product parts. Maybe, the management does not want to refrain from the production of singular parts yet. Possibly, the same reasoning applies to the fact that the brochure does not focus on the automotive industry solely but on several industries. The fact that other industries are mentioned can of course also be considered of political importance. After all, the German holding company disapproves the company's sole focus on the automotive industry.

Contrary to the theoretical expectations (see Box 4.1), the engineering problems to be solved and assembling-technologies to be offered are not mentioned explicitly. This is

in line with the finding that no definite choice has yet been made with respect to the specifics of these capabilities.

Analysis of Photographical Material

It seems the excerpts from the written material are not of interest because of what they *do* mention but because of what they *do not* mention. After all, it is probably obvious the company is into 'jobbing' or 'offering capabilities to realise systems' and therefore this fact is not mentioned explicitly. This seems even more likely if the photographs of the full-colour brochure and the stapled A4s containing the company's 'manufacturing program' are considered. The photographs of the full-colour brochure concern the production processes of the company and in the stapled A4s the number and kind of equipment used for pressing, hardening and surface treating are listed. From the photographic material in the brochure, it is clear that the company emphasises its capabilities in stamping, hardening and treatment of surfaces. For instance, in the brochure a 'Transfer press with integrated assembly and threading attachment' is displayed (Figure 4.4). In addition, the brochure contains photographs of the 'Hardening of rails for belt height adjustment' (Figure 4.5), a 'Numeric controlled press, 300 tons' (Figure 4.6) and of 'Body frame metal sheets in a multi-stage tool' (Figure 4.7). Lastly, a reference is made to a 'Follow-on cutting and bending tool for precision stampings' (Figure 4.8). In addition to the photographs of various production processes, the brochure contains pictures of both singular and complex product parts. In full, the caption of Figure 4.9 reads 'Surface treated precision shapes from sheet metal for safety belts'. Two subassemblies are displayed in Figure 4.10, which caption reads 'Receptacle for airbag system and engine support'.

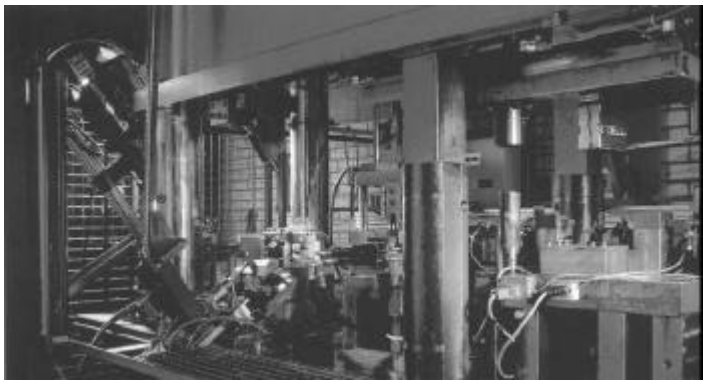


Figure 4.4: Transfer Press with Assembly and Threading Attachment

Figure 4.5: Hardening Process

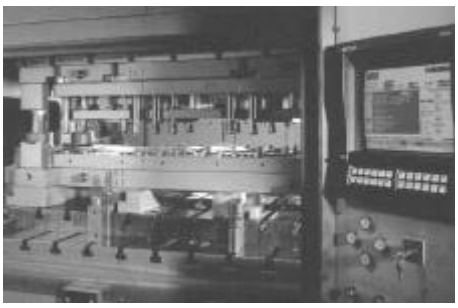


Figure 4.6: Numeric Controlled Press

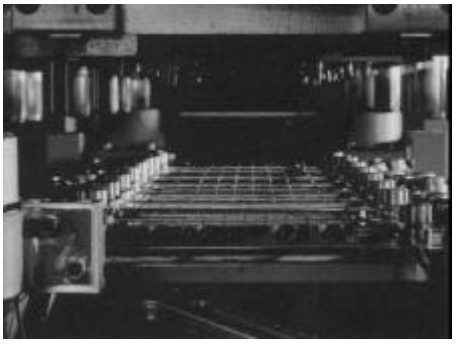


Figure 4.7: Multi-Stage Tool

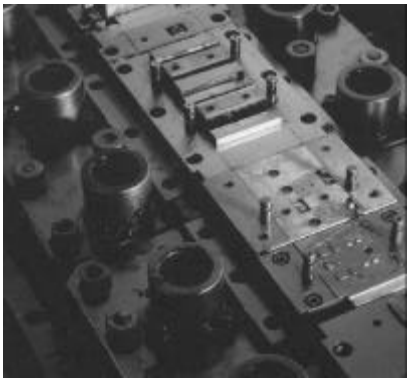


Figure 4.8: Cutting/Bending Tool

Figure 4.9: Singular Product Parts

Figure 4.10: Subassemblies

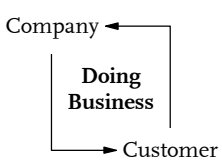
Conclusions

From the photographical material, it appears the company tries to inform interested parties of its stamping, hardening and surface treatment technologies. In addition, references are being made to products the company can realise with these technologies. The process-oriented photographs emphasise the characteristics of the realisation-principles used, i.e. stamping, hardening and treatment of surfaces. Therefore, the conclusion seems justified that the company tries to get the message abroad that they try to make money by have offering *capabilities to realise systems*. The product-oriented photographs seem to indicate that the systems realised relate to singular and complex product parts. No reference whatsoever is made to the engineering and assembling capabilities. Given the fact that the company only just advances in these disciplines, this is no surprise. This finding is also indicative for the finding in the former section that the management of Metalworks has not defined the engineering and assembling-technologies needed to come up with subassemblies that deal with the safety of automobiles.

Overall Conclusions

To conclude, it appears that both the written and photographical material subscribe to the findings based upon the data gathered during the Quick Scan. Based on these last findings, it was concluded that the business-tautology was made sense of by a subassembly-asymmetry, i.e. the company offers engineering, manufacturing and assembling capabilities to automotive customers in order to design and realise complex product parts that deal with the safety of cars. In line with this, the written material suggest the company has made sense of the unity of engineering, manufacturing and assembling by focussing upon singular and complex parts. In addition, the written material suggests the automotive industry is of importance to the company. The photographical material suggests the 'core business' of the company is offering capabilities to produce foremost singular product parts specific to the customer. Consequently, it can be concluded that the asymmetry used to make sense of the business-choice relates to capabilities to design and realise complex product safety parts of automobiles.

THE ANALYSIS OF THE STRATEGIC RISKS



Now that the asymmetries have been determined and triangulated that enabled the company's management to make sense of the content of their present and future business strategies, the focus is on the strategic risks that may jeopardise the planned ESI-strategy. The ESI-strategy will be a success if the company is able to do business successfully with customers. That is, if the company is able to acquire assignments throughout time. For this, the company should be able to deal with the

double contingency of the communication process between customers and themselves. While doing business, a company needs to make clear to customers what it has to offer. For Metalworks, this implies getting the message abroad that the company is able to solve the customers' design and realisation problems. If the company does not succeed in the autopoiesis or self-reproduction of assignments, it endangers the development of capabilities in line with the business-types employed. The relationship between business-types and capabilities is described in Box 4.2 (see also section 3.5.2).

- Companies offering *designs* become capable in defining breakthrough functionalities independent of the designs offered in the here and now.
- Companies offering *realisations* become capable in defining functionalities wanted by markets independent of specific realisations offered in the here and now.
- Companies offering *capabilities in designing* become capable in defining design-problems independent of the solution-principles applied in the here and now.
- Companies offering *capabilities in realising* become capable in applying realisation-principles independent of the goods or services realised in the here and now.

Box 4.2: Business-Types and Capabilities

Concerning the ESI-strategy, it needs to be ascertained whether the company is able or not to develop the capabilities needed to do business with customers successfully. It is assumed that this is impossible when an overall strategy is defined to combine several distinct types of businesses. It was concluded from the reconstruction of the company's strategic reality that Metalworks offers its engineering, manufacturing and assembling capabilities as a whole to customers. Now, each of these capabilities is regarded as a single business to determine the blind spots with respect to these businesses and to determine the strategic risks involved (see Table 4.6 and Table 4.7).

- For the *engineering capabilities*, the management has made clear that the company should focus on subassemblies 'that deal with the safety of drivers and passengers' (*future businesses*). Therefore, it was to be expected that the management considered several safety engineering-principles to solve various safety problems of subassemblies. However, no reference whatsoever has been made in this respect and as a result, the company risks that it cannot make clear to customers which and how safety problems can be solved. Another

	Ideal-typical Business Asymmetries	Contingent Business Asymmetries
Offering Engineering Capabilities	• *What*: solving distinctive problems • *How*: by offering diverse solution-principles • *Who*: for diverse customers	• *What*: solving safety problems of automobiles • *How*: by offering some not defined safety engineering-principles • *Who*: for automotive companies
Offering Manufacturing capabilities	• *What*: realising diverse systems • *How*: by offering distinctive realisation-principles • *Who*: for diverse customers	• *What*: realising singular product parts • *How*: by offering stamping, hardening, surface treatment and injection moulding technology • *Who*: for automotive companies
Offering Assembling Capabilities	• *What*: realising diverse systems • *How*: by offering distinctive realisation-principles • *Who*: for diverse customers	• *What*: realising subassemblies • *How*: by offering some not defined assembling-principles • *Who*: for automotive customers

Table 4.6: Business Change and Asymmetries

issue relates to the importance of defining problems from an independent position (see section 3.5.2). That is, customers demand an independent advise with respect to the various ways a safety problem can be solved. Because of the strong and persistent strategic focus on the automotive customers, the management of Metalworks risks that customers do not regard the company as independent because Metalworks is willing to do almost anything to get hold of an engineering assignment and may jeopardise the proposed business change in this respect.

- For the *manufacturing capabilities*, the management has made clear that the company should be able to deal with synthetic materials (*present and future visions*) by means of injection moulding technology (*present and future tactics*). This move towards offering injection-moulding technology with the help of a strategic partner (*future competences*) has been made dependent upon the automotive customers served and not upon the use of injection-moulding technology to make money as such. As opposed to the latter approach, the former approach leads to the situation that Metalworks does becomes less capable in the use of injection moulding technology independent of the

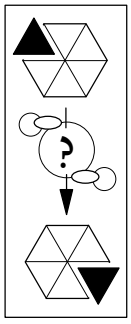
	Strategic Blind Spots	Strategic Risks
Offering Engineering Capabilities	• The strategic importance of design problems and solution-principles is not considered • The strategic importance of an independent position towards customers is not considered	• The company risks that it cannot make clear to customers how problems are solved • The company risks undermining its independence due to the strong focus on customers
Offering Manufacturing capabilities	• The manufacturing capabilities are made dependent on the customers served instead of the production-principles offered	• The company risks becoming incapable in applying production-principles independent of the systems produced in the here and now
Offering Assembling Capabilities	• The strategic importance of the assembling-principles is not considered • The assembling-capabilities are made dependent on the customers served instead of the assembling-principles offered	• The company risks that it cannot make clear to customers how assembling takes place • The company risks becoming incapable in applying assembling-principles independent of the systems assembled in the here and now

Table 4.7: Business Change, Blind Spots and Strategic Risks

product parts realised in the here and now and may jeopardise the proposed business change in this respect.

- For the *assembling capabilities*, the management has made clear that the company should focus on the assemblage of subassemblies because customers do not consider the assemblage of subassemblies is as their core business (*future visions*). Consequently, it was to be expected that the management considered several assembling-technologies to realise subassemblies specific to the customer. However, no reference whatsoever has been made in this respect and as a result, the company risks that it cannot make clear to customers how subassemblies can be assembled. Because the assembling capabilities offered are made dependent on the customers served instead of some assembling-technologies, the company risks becoming incapable in applying assembling-technologies independent of the systems assembled in the here and now. As a result, the company may jeopardise the ESI-strategy.

CONCLUSIONS



Lastly, it needs to be determined if the company is able to deal with the double contingency inherently associated with the communication process between customers and companies. In other words, has the company developed a functional equivalent to solve their strategic problem effectively? As indicated above, the proof consists of a test whether the autopoiesis of assignments succeeds or results in the development of capabilities in line with the business-types employed.

This issue relates to the unity of the engineering, manufacturing and assembling capabilities as such. Just because the management failed to define safety-problems and corresponding engineering-technologies, it is questionable if the company can deal with safety problems of drivers and passengers in automobiles. Because no assembling-technologies were chosen, the same applies for the assembling capabilities. Therefore, it can be concluded that the management of Metalworks has not succeeded in defining capabilities to engineer and assemble safety parts of automobiles. Because of this failed attempt to asymmetrise the 'doing business'-tautology effectively, Metalworks should stumble upon paradox or strategic indecision while reflecting upon the way they do business with customers. The management team of the company has tried to solve the chicken-and-egg problem concerning the reciprocal relationship between the engineering, manufacturing and assembling capabilities by focussing on the safety parts of automobiles. However, due to this asymmetry, the management has failed in choosing engineering and assembling-technologies and therefore cannot make clear to customers how the company can design and realise specific safety parts of automobiles. The capabilities that are key for the success of the ESI-strategy cannot be developed because the company stays trapped within the following chicken-and-egg problem (Figure 4.11).

[...]
[1] The engineering capabilities depend on the manufacturing capabilities
[2] The manufacturing capabilities depend on the assembling capabilities
[3] The assembling capabilities depend on the engineering capabilities
[4] The engineering capabilities depend on the assembling capabilities
[5] The assembling capabilities depend on the manufacturing capabilities
[6] The manufacturing capabilities depend on the engineering capabilities
[...]

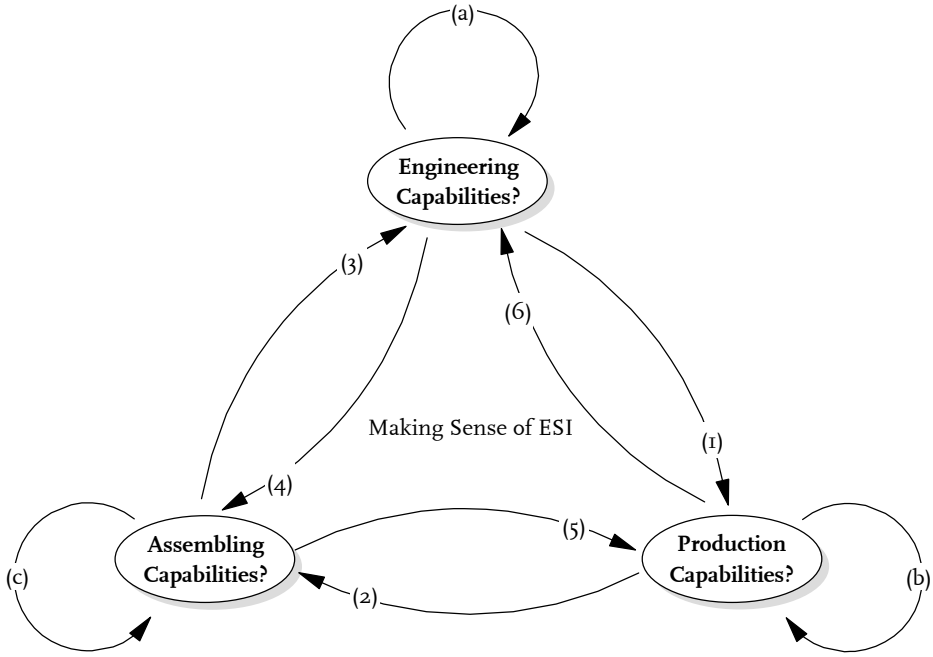


Figure 4.11: The Capabilities-Trap in the Case of Metalworks Ltd.

The asymmetry chosen implicitly to solve this threefold chicken-and-egg problem relates to the manufacturing capabilities (b), i.e. the manufacturing capabilities depend on the stamping, hardening and surface treatment technology. As a result, it seems as if the engineering and assembling-technologies to be offered are made dependent on the production-technologies already offered. This leads to the situation that the company can only define safety problems in terms of the subassemblies they can realise and not in terms of safety problems as such. That is, problems will be defined as problems with respect to their manufacturability and not with respect to their contribution to the safety of drivers and passengers. Therefore, the assembling and engineering capabilities offered relate to singular or complex product parts the company is able to produce, i.e. the 'Umlänker' and the 'Halteranbindung', and not to enhancing the safety of these parts. Consequently, it can be concluded that is questionable if the company becomes capable in defining design-problems independent of the solution-principles applied in the here and now and in applying assembling technologies independent of the specific systems assembled in the here and now (see Box 4.2).

From the above it can be concluded that the failed attempt to asymmetrise the 'doing business'-tautology effectively results in another tautology. Just because of that, we can conclude that strategic indecision has resulted. After all, tautologies are also paradoxical

because they are statements that do not state anything. The paradox is that the capabilities choice made for the ESI-strategy turns out to be no choice at all. That is, the strategic decision to enhance *both* the functionality *and* manufacturability by means of a focus on subassemblies of products of customers has resulted in strategic indecision with respect to the capabilities to offer to these customers. The paradoxical oscillation occurs when the managers of the company state that the company has capabilities to offer in designing and realising safety parts of automobiles, they need to conclude the direct opposite because they cannot make clear by means of which engineering, manufacturing and assembling-technologies the functionality and manufacturability of the products of customers is to be enhanced. Likewise, if the managers should state that the company has no capabilities to offer in designing and realising safety parts of automobiles, they need to conclude the direct opposite because the company offers engineering, manufacturing and assembling capabilities to enhance the functionality and manufacturability to their customers.

4.6 The Second Case Study

For describing and analysing business changes, the case protocol developed consists of two main parts, i.e. the case description and case analysis, and each of these parts consists of two parts again, i.e. strategic action and strategic choice, respectively strategic reality and strategic risk. Below, first, the strategic problem as experienced by the company's management and the solution chosen to solve this problem will be described (strategic action). After that, the present and future business strategies will be described systematically by means of the various choices of our strategic management model (strategic choice). The description of the business strategies consists of a detailed reproduction of the results of the interviews taken with the company's general manager. The analysis of the data takes place in the subsequent section.

4.6.1 The First-Order Observation of the ESI-Strategy

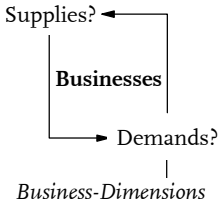
Experienced Problems and the Solutions Chosen

The Dutch Sheetmetal-Industries Ltd. was founded in 1965 and at present employs 95 people. Last year (1996), the company realised a turnover of 8 million € or 82.000 € per employee. The company is autonomous and the general manager regards the financial state of the company as 'very healthy'. The problem as experienced by the general manager of Sheetmetalindustries is *the unfavourable expectations for the future five years from now*. Despite the good present perspective, the general manager beliefs *the company should engage in ESI to realise favourable expectations for the future*. The ESI-strategy proposed concerns a shift from the present business, i.e. offering manufacturing capabilities in sheet metal, towards offering engineering, manufacturing and assembling capabilities in packaging high grade electronic equipment of key

customers. Presently, the general manager has trouble with the production personnel because the latter are not convinced of the necessity of the ESI-strategy. Nevertheless, the general manager beliefs the strategy is key to keep the level of employment as it is.

The Business Choice

Present Businesses



Initially the company's business was to offer manufacturing capabilities in sheet metal. This 'jobbing' was done for all customers in need throughout the Netherlands. Nowadays the management team focuses mainly on a limited amount of high-grade electronic Original Equipment Manufacturers in the region where the company is situated. For the products of these customers, the sheet metal exterior ('omkasting') is being realised. However, the company's key customers also want to contract out, at least to a certain degree, the engineering of the sheet metal exteriors.

Almost two years ago, the management of the company has decided to start a new business in offering assemblage capabilities to their key customers in order to relief these customers from the control of the supply chain, Until now, it is proved very difficult if not impossible to acquire assembling jobs and therefore, not surprisingly, the turnover is disappointing.

Lastly, turnover is generated by the detachment of a planning engineer to a main customer. This employee is being deployed in the development projects of the customer's products. Within these projects, the employee has to improve on the manufacturability of the customer's sheet metal exterior designs. It has occurred more than once in similar occasions in the past that those customers overtook the detached employee. Considering the management's plans for the future, this is a highly undesirable situation.

To summarise the above, the company's present businesses are (1) to offer manufacturing capabilities in sheet metal for key OEM-customers and (2) to offer assembling capabilities for OEM-customers.

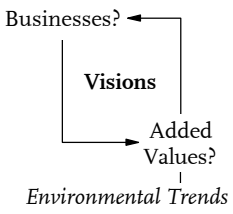
Future Businesses

In the near future, besides the manufacturing and assembling capabilities, the general manager wants the company to offer engineering capabilities to their key customers. The general manager says that in the future 'the company should participate in thinking with customers about the best way to package high-grade electronic equipment'. This implies that knowledge about the manufacturability of sheet metal exteriors is of growing importance. Besides that, knowledge about designing exteriors is required. The general manager labels the current business strategy as 'jobbing' and

the future strategy as 'co-supplying'. Expected is that customers are not willing to pay for the engineering hours as such but only for the 'whole deal'.
To summarise the above, the company's future planned business is offering engineering, manufacturing and assembling capabilities to design and realise exteriors of high-grade electronic equipment.

THE VISION CHOICE

Present Visions



To bring about new added values for its jobbing and assembling business, the company's management team visits their customers once a year to find out their planned actions. Based on these planned actions the management team decides upon their own.
The general manager has the opinion that on the long term, due to high wages, production is not profitable anymore in the Netherlands. Right now customers already demand that certain parts are to be produced in Eastern-Europe. Therefore, the company followed the example of several competitors to participate in several Eastern-European manufacturing companies. In this way, the company is able to offer the same rate as their leading competitors and lower rates than those who do not have Eastern-European manufacturing facilities.
Another important environmental trend is the tendency of the OEM-customers to go back to their core business. This means that the OEM-companies specialise in developing and selling products and try to contract out the manufacturing and assemblage of their products. Among their competitors, the company is the first to offer assembling capabilities to their customers. According to the general manager, the company has probably entered the assembling business to early because it seems that customers are not yet willing or perhaps able to contract out their assemblage activities.
To summarise the above, with respect to the manufacturing and assembling business, the company seeks added value in being cheaper than their competitors and their key customers.

Future Visions

To carry out the co-supplier business strategy successfully in the future, the general manager beliefs the company should be able to deal with an ever-increasing complexity in the deliverables.
The implication for the manufacturing business is that the company should develop capabilities to produce a wider variety of shapes for customers than the company and competitors can do now. For the assembling business, the company should be leading customers and competitors in the use of new connection technologies. Lastly, for the engineering business the company should be able to deal with a wider variety of

technologies (e.g. not only sheet metal technology but also technologies with respect to synthetic materials). Until now, the general manager can think of no other companies that offer combinations of different technologies. With the new multi-technological capabilities, the company should be able to realise added value in relieving customers from the development and manufacturing of certain functional product parts or subassemblies.
To summarise the above, the company's future added value is to 'think along with' customers in improving specific subassemblies.

The Tactics Choice

Present Tactics

In order to be cheaper in the manufacturing and assembling business than competitors, the company deals with the various players in the businesses in the following way. With respect to the manufacturing business, die-casting of synthetic materials is a competitive technology. Die-casting companies are able to realise more complex product shapes. To be competitive the company aims at small batch manufacturing, whereas die-casting is competitive for large batches. Small is between 10 and 150 products and large between 1.000 and 10.000 products.
The customers do not contract out assembling jobs as easily as they want the company to belief. The management team thinks this is because the customers purchasing departments are not as willing as their management. Therefore, the aim is to persuade the customers' purchasers that the company is ready and able to carry out assembling jobs in a reasonable fashion.
It is difficult to be distinctive because competitors seek the same kind of added values as the company does. However, the management teams beliefs that in specialising towards a few customers, the company is able to identify the customer needs sooner than their competitors can do.
To summarise the above, the present competitive moves are (1) focussing on small batch manufacturing to deal with injection moulding competitors and (2) focussing on a small mount of key customers to identify their future needs sooner than competitors.

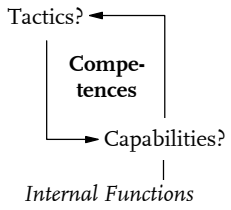
Future Tactics

The company's future added value is to 'think along with' customers in improving specific subassemblies. The general manager hopes the company has build up sufficient trust in the past so that customers are willing to see them as trustworthy: 'Trustworthiness is something you have to earn'. To make this happen, the company wants to do jobs for their customers that gradually become more complex.

There is always a danger that other subcontractors also move into the assembling business. To overcome this danger, the general manager wants to position the company as a 'supply chain director'. This means that the company wants to control the supply chain and therefore their competitive subcontractors with respect to the parts that are to be assembled for customers.
As said before, in the future, the company wants to offer engineering capabilities to customers. To stay ahead of competitors, the general manager has the opinion that the combination of manufacturing, assembling and engineering capabilities leads to serious competitive advantages. He also thinks that most of their competitors are not able to follow their actions, at least not immediately, because most jobbers do not want to philosophise about the future.
To summarise the above, the future competitive moves are (1) becoming trustworthy with respect to the engineering and assembling capabilities by gaining jobs of increasing complexity throughout time, (2) to become a 'supply chain director' to secure subcontractors from offering assembling capabilities also and (3) to stay ahead of the competition by offering manufacturing, assembling and engineering capabilities.

The Competence Choice

Present Competences



The present tactics relate to focussing on small batch manufacturing to deal with injection moulding companies and focussing on a small mount of key customers to identify their future needs sooner than competitors. With respect to small batch manufacturing, the management team beliefs that it is important to make explicit the production knowledge with respect to the manufacturability of the customer's product designs. It is to be expected that this knowledge is key in fulfilling the future engineering needs of customers,
According to the management team, the company should gather the assembling competences of their customers. One key customer has launched a knowledge management program for their subcontractors. Knowledge that strategically is not important to this customer's core business is transferred to subcontractors in whom the customer sees valuable partners for the future. Presently, the management team is negotiating with this customer to participate in this program.
In the past, the company acquired 'jobs' instead of 'problems'. To fulfil the customers' future needs it is also important to 'learn to listen' to the customer during acquisition.
In order to produce more efficiently the management team beliefs that it is most important to deepen the company's logistical capabilities. Right now, a consulting company advises the company in this respect.
To summarise the above, the company's present required capabilities are (1) the possibility to design in sheet metal, (2) the possibility to assemble functional parts of

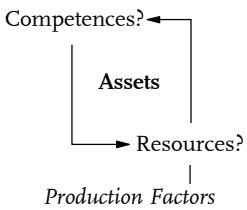
customers' products and (3) the control of the delivery performance for the jobbing and assembling businesses.

Future Competences

The future tactic is to be a 'supply chain director' in offering manufacturing, assembling and engineering capabilities to key customers. The management team beliefs that several capabilities need to be developed in playing this role successfully.
First, the company should transfer manufacturing knowledge to their East-European production facilities in order to bring about a good production and logistical performance. This knowledge transfer for the production function is running a few years and the general manager is pleased with the results so far.
Second, the company should seek cooperation with suppliers in order to bring about a good assembling and logistical performance. Agreements have been made for the purchasing function but the problem is that the company has only acquired incidental assembling jobs and as such has not been able to supply work to their subcontractors.
Third, the company should be able to maintain long-term relationships with customers to bring about future developments and actions. The company's management has informed their customers' management about their intentions. Yet, apparently, the customers do not see the company as a valuable partner.
Fourth, the company should be able in the development of 'multi-technological' knowledge and skills to bring about the right engineering solutions for customers. Establishing an R&D-department is something to be desired for the future or the day after tomorrow. The management team beliefs that sheet metal technology is a basis too small for the future. However, no specific actions have been taken yet. According to the general manager, the other required operations are more urgent.
To summarise the above, the future required capabilities are (1) to engineer in more than one technology, (2) to manage the supply chain and (3) to gain insights in the 'market of the market' (i.e. the developments in the market of customers).

The Assets Choice

Present Assets



Right now, the management team is entirely concerned with the human resources to bring about the desired engineering and assembling knowledge.
The management team beliefs that in order to obtain design knowledge, investments have to be made in the production employees. The knowledge to bring about certain shape and material characteristics is a requisite input for the design of a manufacturable product. This knowledge lies hidden in the craftsmanship of the production employees. The question for the company's management is how to distract

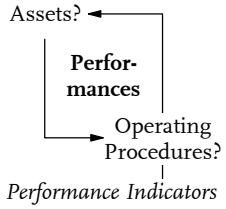
this craft knowledge. Yet, the production employees acted rebelliously towards the management team's intentions. According to the management team, the employees do not see the necessity of the future direction. The financial position is promising and acquiring new sheet metal jobs is not a big problem either.
To obtain assembling knowledge, the company has (1) tried to detach some employees to their customers, (2) tried to detach some employees from a customer and (3) tried to participate in the knowledge transfer program mentioned above. So far, the first action did not work out and the problem with the second action is that the customer's employees do not want to leave their current employer. For the third action, the management is currently negotiating with the customer's management to participate in the knowledge transfer program. Besides the investments in human resources, the company has made a big investment in an assemblage hall.
Lastly, to obtain logistical knowledge the planners' are trained by a consultancy firm. The general manager is not satisfied with the training because the training is not oriented towards a tailor made solution but to some general known logistical principles instead. The solution he wants concerns the flexible deployment of production resources to jobs that have to be done.
To summarise the above, the company's present investments in resources concern the way (1) to bring about a sense of urgency among the production employees, (2) to appoint well trained assemblage employees (3) to invest in the relationships with customers and (4) to realise shorter throughput times for the production.

Future Assets

The future required competences are (1) to engineer in more than one technology, (2) to manage the supply chain and (3) to gain insights in the 'market after the market' (i.e. the developments in the market of customers). For the first two future competences, the management team is concerned with the human resources to bring about the desired knowledge. Actions have been carried out to acquire mechanical engineers and project managers. So far, only mechanical engineers have been appointed. The engineers are 'trying to comprehend the ins and outs of sheet metal'. To gain insights in the 'market after the market' as a 'co-supplier' the management team has invested in the development of a more systematic method or protocol for strategic management. This protocol is based upon general marketing and strategy literature. As a means to communicate with the various team members, this method serves it purpose. However, the management team of the company has problems to define some concepts in a convenient way. The use of the concept 'product-market-combination' for instance is not as straightforward as the literature suggests.
To summarise the above, the future investments in resources are (1) to appoint project managers and (2) to develop a management approach suited to the future strategic position as a 'co-supplier'.

THE PERFORMANCE CHOICE

Present Performances



The present investments resources (assets) concern the way (1) to bring about a sense of urgency among the production employees, (2) to appoint well trained assemblage employees (3) to invest in the relationships with customers and (4) to realise shorter throughput times for the production.

To establish the sense of urgency the management team has organised several company wide meetings. Still the employees do not think the management's strategic intentions are a precondition for existence in the future. The general manager does not know how to improve on this situation.

For the recruitment of assemblage employees, the management team has started to retrain some willing production employees. However, the management team increasingly questions their motivation for the decision to offer assembling capabilities to their customers because it is so hard to get assembling jobs, despite some serious conversations with customers. Just like with respect to the former problem, the general manager does not know what to do about this.

Lastly, with respect to the logistics project the management team wants to call to account the consultancy firm because they, until now, have not lived up to the raised expectations.

To summarise the above, the company's present operating procedures relate to (1) organising company wide meetings in bringing about a sense of urgency among the production employees, (2) retraining production employees to assembling employees and (3) rationalising the production logistics of the company.

Future Performances

The future investments are (1) to appoint project managers and (2) to develop a management approach suited to the future strategic position as a 'co-supplier'.

According to the general manager, the business administration has to be changed to a significant degree. He does not know exactly what changes have to be made in operating procedures, but he does know that the future project managers are to be the centres of the organisation.

The general manager has trouble in developing a new management approach for the company's future co-supplier strategy. He and his managers do not know exactly 'what is important to keep an eye on with respect to the engineering, manufacturing and assembling operations'.

To summarise the above, the company's main future operating procedure relates to the development of the business administration to control the engineering, manufacturing and assembling operations

	Present strategy	Future strategy	Business change
1. **Business Choice**	*From*: offering production capabilities in sheet metal and assembling capabilities for key regional OEM-customers	*To*: offering engineering, production and assembling capabilities to design and realise exteriors and sub-assemblies of customers	Making money by offering customer related design and realisation capabilities instead of only offering realisation capabilities
2. **Vision Choice**	*From*: being cheaper than competitors and key customers in producing, respectively assembling product parts	*To*: 'think along with' customers to improve on the subassemblies contracted out	Seeking added value in improving parts also instead of only realising them
3. **Tactics Choice**	*From*: securing jobs by focussing on small batch manufacturing and focussing on a small amount of key customers	*To*: securing jobs by becoming a trustworthy 'supply chain director'	Using competitive moves to become a valuable partner in relieving the production system of customers
4. **Compe-tence Choice**	*From*: producing exteriors by means of sheet metal technology	*To*: designing and realising the exterior of high grade electronic equipment by means of at least two different technologies	Building competences to come up with exteriors that are not based on sheet metal alone
5. **Assets Choice**	*From*: investing in bringing about a sense of urgency among the production employees and gaining assembling competence	*To*: appointing mechanical engineers and project managers to develop the planned capabilities	Obtaining resources to solve problems of customers instead of only carrying out solutions defined by customers
6. **Perfor-mance Choice**	*From*: rationalising the company's performance with respect to logistics	*To*: developing the business administration to control the engineer-ing, manufacturing and assembling operations	Trying to integrate the operating procedures for the various capabilities into a single organisational approach

Table 4.8: Strategic Choices and Changes in Business Strategy

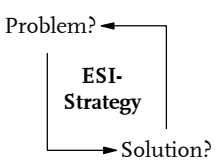
OVERVIEW OF THE QUICK SCAN

It was mentioned before that first-order observations of strategic content should also focus on operational contradiction with respect to the strategic concepts used. The operational contradiction as experienced by the general manager of Sheetmetal-Industries relates to the fact that, despite the company's attempt to convince customers of the company's ability in engineering, manufacturing and assembling, these attempts have not lead to prospering prospects of assignments. It is obvious from the case description that this puzzles the general manager. In addition, the general manager is puzzled by the fact that the production employees acted rebelliously towards the new strategy. According to him, the employees do not see the necessity of the future direction. The financial position is promising and acquiring new sheet metal jobs is not a big problem either. With respect to this issue, it is of importance also that the general manager and his management team have trouble in defining an organisational approach to manage the ESI-strategy as a whole. An overview of the results of the Quick Scan to determine the strategic choices made for the present and the future strategy is given in Table 4.8 on the previous page.

4.6.2 The Second-Order Observation of the ESI-Strategy

As indicated above, the case analysis part of the case protocol (Figure 4.3) consists of two main parts, i.e. the analysis of strategic reality and strategic risk. The analysis of the experienced strategic reality aims at uncovering the asymmetries used by the company's management to make sense of the content of both their present and future business strategies. This implies that the aim is to discover the dominant logic that has led the management to define the ESI-strategy as it has been defined. For the analysis of the strategic risks, it will be determined if the dominant logic has led to paradoxical indecision with respect to the ESI-strategy defined. That is, it will be determined if the ESI-strategy has led to unconsidered strategic issues or 'blind spots' given the business-types involved.

THE ANALYSIS OF THE EXPERIENCED STRATEGIC REALITY



The analysis of the strategic reality, as experienced by the company's management, focuses upon the notion of contingency. This implies that the specific way the management has made the ESI-strategy possible will be considered as neither necessary nor impossible. The ESI-strategy can be regarded as the result of the way the problem/solution-tautology is asymmetrised.

[...]

(1) What is defined as the problem depends on the solutions distinguished
(2) What is defined as the solution depends on the problem experienced

[...]

Both the present and future strategy function as means to determine (1) *why the strategic problem was defined as it was defined* and (2) *why the solution was defined as it was defined*. Based upon the resulting explanations, conclusions can be drawn on the strategic asymmetries chosen that constitute the dominant logic of the respondents. For these contingent asymmetries, further evidence will be sought for by means of triangulation. That is, written and photographical material concerning the business of the company will be explored on keywords and excerpts that are of interest to determine the preferred ways of action in defining both the present and future business strategies.
The problem as defined by the general manager of Sheetmetal-Industries is the unfavourable expectations for the future five years from now. Despite the good present business perspective, the general manager has chosen to carry through a business change to realise better future expectations. This business change concerns a shift from the present business, i.e. offering manufacturing capabilities in sheet metal, towards offering engineering, manufacturing and assembling capabilities in packaging high grade electronic equipment of key customers. The asymmetries contingently chosen to enable the formulation of the present and future business strategies should reflect the reasons why the strategic problem and solution were defined this way. In order to determine these asymmetries, we need to find out how the general manager has solved the chicken-and-egg problems related to the various strategic choices for both the present and business strategy (see also Table 4.9).

- *The business choice*: presently the general manager has given meaning to the business-dimensions by focussing mainly on a limited amount of high-grade electronic Original Equipment Manufacturers in the region the company is situated ('who?') by offering manufacturing capabilities in sheet metal ('how?') to realise the exteriors of the products of customers ('what?'). In the future the company should focus even more strongly on its OEM-customers ('who?') by offering engineering, manufacturing and assembling capabilities ('how?') to design and realise the exteriors of high grade electronic equipment ('what?').

- *The vision choice*: the general manager has given meaning to environmental trends by focussing mainly on trends that are relevant for the company's main customers, e.g. the importance of low production rates and the tendency of customers to contract out the manufacturing of their products. In the future, the focus is upon the increasing complexity in the deliverables. This implies that the company should be able to develop and produce a wider variety of shapes by means of different technologies.

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	Present Strategy	Present Asymmetries	Future Strategy	Future Asymmetries
1. **Business Choice**	Offering production in sheet metal and assembling capabilities for key regional OEM-customers	The business-tautology is asymmetrised by a specialisation-strategy towards a small amount of customers	Offering engineering, production and assembling capabilities to design and realise exteriors and sub-assemblies of customers	The business-tautology is asymmetrised by a specialisation-strategy towards a small amount of customers and their pre-supposed demands
2. **Vision Choice**	Being cheaper than competitors and key customers in producing, respectively assembling product parts	The vision-tautology is asymmetrised by a 'me-first'-strategy with respect to lower production rates	'Thinking along with' customers to improve on the subassemblies contracted out	The vision-tautology is asymmetrised by a 'me-first'-strategy with respect to deal with trends relevant to customers
3. **Tactics Choice**	Securing jobs by focussing on small batch manufacturing and focussing on a small amount of key customers	The tactics-tautology is asymmetrised by a defending-strategy to get hold of further assignments for the same parts	Securing jobs by becoming a trustworthy 'supply chain director'	The tactics-tautology is asymmetrised by an attacking-strategy to get hold of different assignments from the same customers

	Present Strategy	Present Asymmetries	Future Strategy	Future Asymmetries
4. **Competence Choice**	Producing exteriors by means of sheet metal technology	The capabilities-tautology is asymmetrised by a make strategy with respect to the knowledge needed to realise the exteriors	Designing and realising the exterior of high grade electronic equipment by means of at least two different technologies	The capabilities-tautology is asymmetrised by a make strategy to design and realise exteriors of high grade equipment
5. **Assets Choice**	Investing in bringing about a sense of urgency among the production employees and gaining assembling competence	The investment-tautology is asymmetrised by an acquiring-strategy to acquire the personnel needed	Appointing mechanical engineers and project managers to develop the planned capabilities	The investment-tautology is asymmetrised by an acquiring-strategy to develop engineering skills
6. **Performance Choice**	Rationalising the company's performance with respect to logistics	The performance tautology is asymmetrised by an improving-strategy with respect to the delivery performance	Developing the business administration to control the engineering, production and assembling operations	The performance tautology is asymmetrised by a strategy of improvement with respect to controlling the future organisation

Table 4.9: Display of Present and Future Strategies and Contingent Asymmetries

- *The tactics choice*: the general manager has given meaning to other strategic players by focussing mainly on players related to the technology of the production system, i.e. small batch manufacturing in sheet metal. Due to this focus, the company is able to compete with die-casting companies that offer a wider variety of shapes. In the future, the general manager is focussed upon suppliers who can also start offering assembling capabilities. By positioning, the company as a 'supply chain director' the company can prevent other suppliers to the OEM-customers in doing that.

- *The competence choice*: the general manager has given meaning to the company's internal functions by focussing on the production and assembling function. With respect to the production function, the focus is upon making explicit the production knowledge with respect to the designs of customers in order to develop the future engineering capabilities. With respect to the assembling function, the company focuses upon the development of assembling capabilities by means of participating in a knowledge transfer program of one of its OEM-customers. In addition, the company is focussed upon deepening its logistical capabilities with a consulting firm in order to become a true 'supply chain director' in the future. With respect to the future engineering function, the management is focussed upon the development of capabilities to bring about the right solutions for problems of customers. This move has consequences for the commercial function because the company should be able to discern important developments in the market of their customers.

- *The assets choice*: the general manager has given meaning to the production factors by focussing mainly on acquiring the human resources necessary to bring about the desired engineering and assembling knowledge. The craftsmanship of the production employees is considered key in obtaining engineering knowledge with respect to the feasibility of the design of certain sheet metal exteriors. In addition, the company has invested rather heavily in an assemblage hall that is positioned besides the company's production hall. In the future, the focus is upon the human resources deemed necessary to solve design problems of customers. For this, the company has acquired mechanical engineers and has tried unsuccessfully to appoint project managers. In addition, the company has invested in the development of method for strategic management. This method should aid in gaining insight in the markets of customers.

- *The performance choice*: the management has given meaning to the performance indicators by focussing among other things on the company's delivery performance. In addition, the management is focussed upon establishing a sense of urgency among the employees in order to gain support for the company's future direction. With respect to the future, the management is focussed upon establishing a business administration to control the engineering, production and assembling operations.

From the above description and its summary in Table 4.9, it appears that the way the general manager has made sense of both the present and future external choices (i.e. the business, vision and tactics choice) by a strong focus towards the company's OEM-customers. This implies that the company's external complexity is reduced to issues that relate foremost to these customers and their markets. From the way the company has made sense of the internal choices (i.e. the competence, assets and performance choice), it appears that there is an inclination to structure the company's engineering and assembling skills. This implies that the company's internal complexity is reduced to issues that relate foremost to issues to make the ESI-strategy happen.

The Strategic Problem and Contingency

For the general manager, the way the ESI-strategy is defined is not contingent. That is, it makes sense to him to implement exactly this functional equivalent to solve the company's strategic problem. Therefore, it is possible to discover the assumptions of the general manager with respect to the necessity of the ESI-strategy.
The general manager has the opinion that on the long term, due to high wages, production is not profitable anymore in the Netherlands (*present visions*). Right now customers already demand that certain parts are to be produced in Eastern-Europe (*present visions*). Therefore, the company participates in several Eastern-European manufacturing companies (*present visions*).
With respect to the necessity of the business change, it appears that the general manager is solely focused upon the company's key OEM-customers. In other words, the general manager beliefs that on the long term offering manufacturing capabilities in sheet metal is not profitable anymore with the company's key customers. Apparently, the general manager is not interested in the question whether offering manufacturing capabilities in sheet metal is profitable regardless of specific customers. Because of this strong focus on the company's key customers, the general manager has defined the problem as it has been defined, i.e. the uncertain future of a company that offers manufacturing capabilities in sheet metal.

The Strategic Solution and Contingency

From the above it appears that, despite the good present business perspective, the general manager beliefs that offering manufacturing capabilities in sheet metal is to small a basis for the future. In the future, the company should participate in thinking with customers about the best way to package high-grade electronic equipment (*future businesses*). When taken this business definition into account, it is apparent that the general manager treats the combination of engineering, production and assembling capabilities as an operative unity in gaining turnover. That is, the company offers its engineering, production and assembling capabilities as a whole to key customers, as will be illustrated next.

- With respect to the business choice, the operative unity reveals itself in the opinion of the general manager that customers are not willing to pay for the engineering hours as such but only for the 'whole deal' (*future businesses*). In addition, the general manager labels the future business strategy as 'co-supplying' as opposed to the present 'jobbing' business strategy (*future businesses*).

- In addition, with respect to the vision choice or the way the general manager has defined the company's added values it appears an overall strategy is defined for the distinct capabilities offered. The added value the company wishes to accomplish for its customers is to relief customers from the development and manufacturing of certain subassemblies (*future visions*).

- The operative unity of the three capabilities offered appears also in the choice of the company's tactics. The general manager has the opinion that the combination of jobbing, assembling and engineering capabilities leads to serious competitive advantages and that most of their present competitors are note able to follow this manoeuvre (*future tactics*).

- With respect to the choice of the company's competences, the operative unity of the capabilities constituting the future business appears in the way the general manager spoke about the future engineering, production and assembling operations to fulfil the role of 'supply chain director' (*future competences*).

- For the assets choice, the operative unity exposed itself in the way the general manager spoke about the reasons to invest in the development of a strategic approach to the position as 'co-supplier' (*future assets*).

- Regarding the choice of the company's performance, the case description brought to light that the general manager and his management team struggle to define the future business administration that should be centred around future project managers that control the company's performance with respect to the engineering, production and assembling operations (*future performances*).

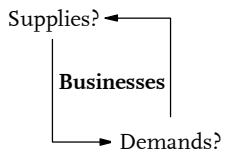
To conclude, the main argument given above is that the general manager treats the company's capabilities as a means to an end and not as an end in itself by focussing on the design and realisation of subassemblies. Therefore, the strategic solution was defined as it was defined, i.e. to supplement the manufacturing capabilities in sheet metal with assembling and engineering capabilities to be able to realise a more favourable future. Apparently, in speaking about the future business the general manager is focused upon the business output as such (i.e. sheet metal exteriors and subassemblies) and not so much on the means to realise the output (i.e. capabilities). Therefore its seems that way chosen to make sense of the production, engineering and assembling capabilities, was by focusing on the packaging of high grade electronic equipment.

Conclusions

The dominant logic of the general manager of Sheetmetal-Industries is based upon the assumption that the future direction of the company is best in line with the future of the company's key customers. Ironically, the company has not succeeded yet to convince these customers of the engineering and assembling capabilities of the company. After all, customers are not willing or able to contract out assembling jobs (*present visions*).

In addition, the general manager assumed that in order to establish a more favourable future perspective by offering complementary engineering, production and assembling capabilities, these capabilities could best be made sense of by unifying them. That is, by strategically focussing on subassemblies accommodating high-grade electronic equipment to be installed within exteriors of sheet metal. With respect to this strategic focus, it turns out that the management of Metalworks has forgotten to define the engineering problems and corresponding engineering-technologies. In addition, they forgot to choose assembling-technologies to deliver the high-grade electronic equipment of customers. This leads to the paradoxical situation that the company needs to convince customers about their capability in engineering and assembling but at the same time cannot make clear upon which knowledge and skills this capability is grounded.

TRIANGULATION OF EVIDENCE



In this part of the case analysis, we will explore the way the organisational members have defined their company's business by means of written material about the company. This written material will be explored on keywords and excerpts that are of interest to determine the asymmetries chosen by the company's management team to make sense of the definition of their business. The focus is upon written material aimed at informing potential customers. This written material can be used to determine the way the company has asymmetrised the 'doing business'-tautology to define the company's businesses. After all, to acquire future assignments, it is of great importance to inform customers as clear as possible about the company's business. Recall from the previous chapter that depending on the type of business, some business-dimensions are of more importance than others are. Therefore, it is to be expected that within company brochures the emphasis will be on the leading business-dimensions. The relationship between business-types and leading business-dimensions is described Box 4.1 on page 140 (see also section 3.5.3).
In advance of the company visit, the general manager sent the new full-colour brochure of the company. In this brochure, in both Dutch and German, the company is profiled with respect to its business, quality, costs, production, assembling and purchasing capa-bilities. Because this brochure also contains photographs, it might be interesting to see if this photographical material also gives an indication about the strategically leading business-dimensions.

Analysis of Written Material

Within the full colour brochure, that is entitled 'Passion for Perfection', the management team defines their future business as follows[30].

- *Sheetmetal-Industries*: "Sheetmetal-Industries ist auf die Herstellung hochwertiges Blech spezialisiert. Blech, deren Dicke zwischen 0,5 und 3 mm liegt, und die in kleine bis mittelgroßen Serien produziert werden. Diese Spezialität ist die Grundlage für die Montage von Baugruppen inkl. Elektronik-en Zerspanenden und Kunstoffteilen".

- *Markte*: "Sheetmetal-Industries stellt hochwertige Blechteilen für die Hightech-, Elektro- und Elektronik Industrie her und ist auch am Markt für Bürogeräte, für medizinische und Kommunikationssysteme vertreten".

[30] The excerpts taken from the brochure are the German ones. Misspellings are not changed.

- *Herstellung*: "Feinmechanisches Blech ist die Spezialität von Sheetmetal-Industries. Im Produktionsprozeß tauschen die Abteilungen Engineering und Produktionsvorbereitung über moderne CAD/CAM-Systeme Informationen mit dem Kunden aus. Zusammen mit einem automatisierten Logistiksystem und einem hochmodernen und völlig automatisierten Maschinenpark wird auf diese Weise das time-to-market verkürzt".

- *Montage und Einkauf*: "Unser umfangreiches Einkaufsmarketing und die intensive Zusammenarbeit mit strategischen Partner im In- und Ausland, wenn es um die Lieferung von Halbfabrikaten und Teilen geht, garantieren optimale Kosten. Die Koordinierung zwischen dem Einkauf von Elektronik-zerspanenden und Kunststoffteilen einerseits und die Montage von funktionalen Baugruppen anderseits vollzieht sich über kurze Wege. Kurz: mit Sheetmetal-Industries haben Sie einen starken Partner für hochwertiges Blech".

- *Optimale integrale Kosten*: "Mit Blick auf die Interessen des Kunden hat Sheetmetal-Industries ein spezielles Projektteam geschaffen, in dem die Disziplinen Engineering, Einkauf und Logistiek vertreten sind. Auf Grund funktionaler Spezifikationen des Auftraggebers arbeitet dieses Projektteam die Detaillierung von zusammengesetzten Baugruppen aus. Durch early supplier involvement, die Einschaltung von Sheetmetal-Industries zu einem frühen Zeitpunkt, können Sie zur gemeinsamen Realisierung von optimalen integralen Kosten beitragen".

Table 4.10 displays excerpts from the sections of the brochure against the three business-dimensions. With respect to the 'what?' business-dimension, the excerpt from the 'Sheetmetal-Industries' section indicates that the company aims at fulfilling the need of customers for sheet metal exteriors that house several (electronic) subassemblies or 'Baugruppen'. This is in line with the results of the Quick Scan (*future businesses*). The other excerpts with respect to the 'what?' business-dimension do not really relate to needs but to the added value offered to customers: a shorter time to market and optimal costs.
In line with the results of the Quick Scan, the brochure indicates the company aims at relationships with high-grade electronic Original Equipment Manufacturers from the electronic, communication and medical systems industry. In addition, the company aims at customers from the office-furniture industry.

	What?	**How?**	**Who?**
'Sheetmetal-Industries'	'Diese Spezialität [die Herstellung hochwertiges Blech] ist die Grundlage für die Montage von Baugruppen inkl. Elektronik- en Zerspanenden und Kunstoffteilen.'	'Sheetmetal-Industries ist auf die Herstellung hochwertiges Blech spezialisiert.' 'Blech, deren Dicke zwischen 0,5 und 3 mm liegt, und die in kleine bis mittelgroßen Serien produziert werden.'	No relevant data
'Markte'	No relevant data	'Sheetmetal-Industries stellt hochwertige Blechteilen [...] her [...].'	'[...] für die Hightech-, Elektro- und Elektronik Industrie [...] und ist auch am Markt für Bürogeräte, für medizinische und Kommunikations-systeme vertreten.'
'Herstellung'	'[...] wird auf diese Weise das time-to-market verkürzt.'	'Feinmechanisches Blech ist die Spezialität von Sheetmetal-Industries.'	No relevant data
'Montage und Einkauf'	No relevant data	'[...] wenn es um die Lieferung von Halbfabrikaten und Teilen geht, garantieren optimale Kosten.' '[...] mit Sheetmetal-Industries haben Sie einen starken Partner für hochwertiges Blech.'	No relevant data
'Optimale integrale Kosten'	'Durch early supplier involvement, [...], können Sie zur gemeinsamen Realisierung von optimalen integralen Kosten beitragen.'	'Auf Grund funktionaler Spezifikationen des Auftraggebers arbeitet dieses Projektteam die Detaillierung von zusammengesetzten Baugruppen aus.'	No relevant data

Table 4.10: Display of Data from Brochure against the Business-Dimensions

The most useful data from the brochure to indicate the business-type or business-types of Sheetmetal-Industries relate to the 'how?' business-dimension. Therefore, these excerpts are displayed in Table 4.11 and Table 4.12 against the four businesses of our typology. All but one of the excerpts relate to the 'offering capabilities in realising' business-type. From these excerpts, only one excerpt, i.e. '[...] wenn es um die Lieferung von Halbfabrikaten und Teilen geht [...]', indicates that the company offers capabilities to assemble subsystems. From the Quick Scan it appeared this capability involves both the assemblage of subsystems and the assemblage of these subsystems into an overall system with an exterior of sheet metal (*future tactics*). The only excerpt indicating the company is into engineering also relates to the 'offering capabilities in designing' business-type.

Conclusions

From Table 4.11 and Table 4.12 it is evident that all capabilities offered that were mentioned during the Quick Scan are also mentioned in the company's brochure. The fact that within the brochure the engineering, production and assembling capabilities are not mentioned explicitly as independent to each other, subscribes to the finding during the Quick Scan that the general manager does not regard the capabilities offered as strategically independent. That is, the company offers its engineering, production and assembling capabilities as a whole to fulfil the needs of its key OEM-customers.
From the brochure, it is also evident that the machining of sheet metal or 'Blech' is of strategic importance to the company. Therefore, it seems that the three distinct capabilities are made coherent by focussing on the sheet metal exteriors of high-grade electronic equipment. Contrary to our theoretical expectations (see Box 4.1 at page 126), the specific engineering problems to be solved and assembling-principles to be offered are not mentioned explicitly. This is in line with the findings of the Quick Scan and indicates that no definite choice has been yet with respect to the specifics of the engineering and assembling capabilities.

	Supply and Demand of Designs	Supply and Demand of Realisations
'Sheetmetal-Industries Metaalindustrie ist auf die Herstellung hochwertiges Blech spezialisiert.'	Not applicable	Not applicable
'Blech, deren Dicke zwischen 0,5 und 3 mm liegt, und die in kleine bis mittelgroßen Serien produziert werden.'	Not applicable	Not applicable
'Sheetmetal-Industries stellt hochwertige Blechteilen [...] her [...].'	Not applicable	Not applicable
'Feinmechanisches Blech ist die Spezialität von Sheetmetal-Industries.'	Not applicable	Not applicable
'[...] wenn es um die Lieferung von Halbfabrikaten und Teilen geht, garantieren optimale Kosten.'	Not applicable	Not applicable
'[...] mit Sheetmetal-Industries haben Sie einen starken Partner für hochwertiges Blech.'	Not applicable	Not applicable
'Auf Grund funktionaler Spezifikationen des Auftraggebers arbeitet dieses Projektteam die Detaillierung von zusammengesetzten Baugruppen aus.'	Not applicable	Not applicable
'Sheetmetal-Industries Metaalindustrie ist auf die Herstellung hochwertiges Blech spezialisiert.'	Not applicable	Not applicable

Table 4.11: Display of Data against the 'How?'-Dimension (Product-Oriented)

	Supply and Demand of Capabilities in Designing	Supply and Demand of Capabilities in Realising
'Sheetmetal-Industries Metaalindustrie ist auf die Herstellung hochwertiges Blech spezialisiert.'	Not applicable	'Sheetmetal-Industries ist auf die Herstellung hochwertiges Blech spezialisiert.'
'Blech, deren Dicke zwischen 0,5 und 3 mm liegt, und die in kleine bis mittelgroßen Serien produziert werden.'	Not applicable	'Blech, deren Dicke zwischen 0,5 und 3 mm liegt, und die in kleine bis mittelgroßen Serien produziert werden.'
'Sheetmetal-Industries stellt hochwertige Blechteilen [...] her [...].'	Not applicable	'Sheetmetal-Industries stellt hochwertige Blechteilen [...] her [...].'
'Feinmechanisches Blech ist die Spezialität von Sheetmetal-Industries.'	Not applicable	'Feinmechanisches Blech ist die Spezialität von Sheetmetal-Industries.'
'[...] wenn es um die Lieferung von Halbfabrikaten und Teilen geht, garantieren optimale Kosten.'	Not applicable	'[...] wenn es um die Lieferung von Halbfabrikaten und Teilen geht [...]'
'[...] mit Sheetmetal-Industries haben Sie einen starken Partner für hochwertiges Blech.'	Not applicable	'[...] mit Sheetmetal-Industries haben Sie einen starken Partner für hochwertiges Blech.'
'Auf Grund funktionaler Spezifikationen des Auftraggebers arbeitet dieses Projektteam die Detaillierung von zusammengesetzten Baugruppen aus.'	'Auf Grund funktionaler Spezifikationen des Auftraggebers arbeitet dieses Projektteam die Detaillierung von zusammengesetzten Baugruppen aus.'	Not applicable
'Sheetmetal-Industries Metaalindustrie ist auf die Herstellung hochwertiges Blech spezialisiert.'	Not applicable	'Sheetmetal-Industries ist auf die Herstellung hochwertiges Blech spezialisiert.'

Table 4.12: Display of Data against the 'How?'-Dimension (Capability-Oriented)

Analysis of Photographical Material

From the photographical material, it appears that the company is clearly into the capability-oriented type of business. That is because all but one photograph highlights the company's ability in engineering (Figure 4.12 and Figure 4.13), manufacturing (Figure 4.14 and Figure 4.15) and assembling (Figure 4.17). In addition to these capability-oriented photographs, one photograph (Figure 4.16) depictures products the company has made for its customers. The products relate to both singular and complex product parts.

Figure 4.12

Figure 4.13

Figure 4.14

Figure 4.15

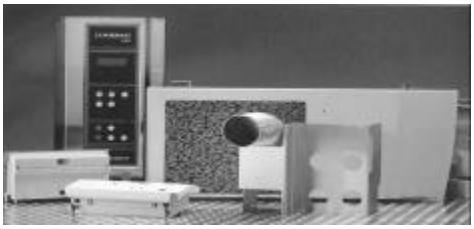


Figure 4.16

Figure 4.17

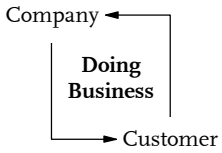
Conclusions

From the photographical material, it appears the company tries to inform interested parties of its capability to design and realise sheet metal exteriors to house various subassemblies. The content of the manufacturing-oriented pictures (i.e. Figure 4.14 and Figure 4.15), make clear the company highlights the abilities of both men and machines to deal with sheet metal. However, from the engineering and assembling-oriented pictures it cannot be deduced which engineering and assembling principles the company masters or is learning to master. This is in line with the findings of the Quick Scan and the brochure's written material that no definite choice has been yet with respect to the specifics of the engineering and assembling capabilities.

Overall Conclusions

To conclude, it appears that both the brochure's written and photographical material subscribe to the findings of the analysis of the Quick Scan. From the analysis of the brochure it became clear that the company tries to inform interested parties of its capability in engineering and producing sheet metal exteriors and the assemblage of functional subsystems to be installed within these exteriors. However, until now no engineering and assembling principles are chosen to shape these future capabilities of the company. In addition, from both the written and photographical material it appears sheet metal is of the utmost strategic importance to the company and is used as means to make the three distinct capabilities offered coherent. Consequently, it can be concluded that the asymmetry chosen to make sense of the business choice relates to capabilities to design and realise sheet metal exteriors of high-grade electronic equipment.

THE ANALYSIS OF THE STRATEGIC RISKS



Now that the asymmetries have been determined and triangulated that enabled the general manager to make sense of the content of the company's present and future business strategies, the focus is on the strategic risks that may jeopardise the planned ESI-strategy The ESI-strategy will be a success if the company is able to do business successfully with customers. That is, if the company is able to acquire assignments throughout time. For this, the company should be able to deal with the double contingency of the communication process between customers and themselves. While doing business, a company needs to make clear to customers what it has to offer. For Sheetmetal-Industries, this implies getting the message abroad that the company is able to solve the customers' design and realisation problems. If the company does not succeed in the autopoiesis or self-reproduction of assignments, it endangers the development of capabilities in line with the business-types employed. The relationship between business-types and capabilities is described in Box 4.2 at page 135 (see also section 3.5.2).

Concerning the ESI-strategy, it needs to be ascertained whether the company is able or not to develop the capabilities needed to do business with customers successfully. It is assumed that this is impossible when an overall strategy is defined to combine several distinct types of businesses. It was concluded from the strategic reality analysis that Sheetmetal-Industries offers its engineering, manufacturing and assembling capabilities as a whole to customers. Now, each of these capabilities is regarded as a single business to determine the blind spots with respect to these businesses and to determine the strategic risks involved (see Table 4.13 and Table 4.14).

- For the *engineering capabilities*, the general manager has made clear that 'the company should participate in thinking with customers about the best way to package high-grade electronic equipment' (*future businesses*). Therefore, it was to be expected that the company considered several engineering-technologies to solve problems in relation to exteriors, e.g. solutions to deal with electro-magnetic-interference (EMI) and ground loops between several parts of the chassis. However, no reference whatsoever has been made in this respect and as a result, the company risks that it cannot make clear to customers how and which housing problems can be solved. Another issue overlooked relates to the importance of defining solutions from an independent position (see section 3.5.2). That is, customers demand an independent advise with respect to the various ways a housing problem can be solved. Because of the strong and persistent strategic focus on the OEM-customers, the company risks that customers do not regard Sheetmetal-Industries as independent because the

	Ideal-typical Business Asymmetries	**Contingent Business Asymmetries**
Offering Engineering Capabilities	• *What*: solving distinctive problems • *How*: by offering diverse solution-principles • *Who*: for diverse customers	• *What*: solving exterior problems of electronic equipment • *How*: by offering some not defined exterior design-principles • *Who*: for Original Equipment Manufacturers
Offering Manufacturing capabilities	• *What*: realising diverse systems • *How*: by offering distinctive realisation-principles • *Who*: for diverse customers	• *What*: realising exteriors of electronic equipment • *How*: by offering sheet metal technology • *Who*: for Original Equipment Manufacturers
Offering Assembling Capabilities	• *What*: realising diverse systems • *How*: by offering distinctive realisation-principles • *Who*: for diverse customers	• *What*: realising subassemblies • *How*: by offering some not defined assembling-principles • *Who*: for Original Equipment Manufacturers

Table 4.13: Business Change and Asymmetries

company is willing to do almost anything to get hold of an engineering assignment in order to get a production and assembling assignment. This most probably will lead to difficulties in getting hold of assignments and may jeopardise the proposed business change in this respect.

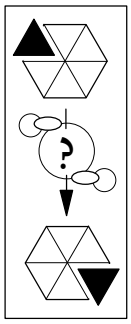
- For the *manufacturing capabilities*, the general manager has made clear that the company should develop capabilities to deal with a wider variety of shapes than the company is able to do now (*future visions*). Due to the strong focus on the OEM-customers, the company risks that on the long-term the production assignments resemble one-another considerably. Ironically, this may lead to the situation that Sheetmetal-Industries becomes less capable in dealing with a wider variety of shapes to be realised with sheet metal technology. This may jeopardise the proposed business change in this respect.

	Strategic Blind Spots	Strategic Risks
Offering Engineering Capabilities	• The strategic importance of design problems and solution-principles is not considered • The strategic importance of an independent position towards customers is not considered	• The company risks that it cannot make clear to customers how problems are solved • The company risks undermining its independence due to the strong focus on customers
Offering Manufacturing capabilities	• There is a strong and durable strategic focus on OEM-customers	• The company risks becoming incapable in applying sheet metal production-principles independent of the exteriors produced in the here and now
Offering Assembling Capabilities	• The strategic importance of the assembling-principles is not considered • The assembling-capabilities are made dependent on the customers served instead of the assembling-principles offered	• The company risks that it cannot make clear to customers how assembling takes place • The company risks becoming incapable in applying assembling-principles independent of the systems assembled in the here and now

Table 4.14: Business Change, Blind Spots and Strategic Risks

- For the *assembling capabilities*, the general manager has made clear that the company should focus upon assembling functional units, which are not considered as the core business of customers (*present visions*). It was to be expected that the company considered several assembling-principles to realise subassemblies specific to the customer. However, no reference whatsoever has been made in this respect and as a result the company risks that it cannot make clear to customers how the planned functional units can be assembled. Because the assembling capabilities offered are made dependent on the customers served instead of the assembling-principles, the company risks becoming incapable in applying assembling-principles independent of the systems assembled in the here and now and may jeopardise the proposed business change in this respect.

CONCLUSIONS



Lastly, it needs to be determined if the company is able to deal with the double contingency inherently associated with the communication process between customers and companies. In other words, has the company developed a functional equivalent to solve their strategic problem effectively? As indicated above, the proof consists of a test whether the autopoiesis of assignments succeeds or results in the development of capabilities in line with the business-types employed.

This issue relates to the unity of the engineering, manufacturing and assembling capabilities as such. Just because the general manager failed to define engineering-principles, it is questionable if the company can deal with housing problems of high-grade electronic equipment. Because no assembling-technologies were chosen, the same applies for the assembling capabilities. Therefore, it can be concluded that the general manager of Sheetmetal-Industries has not succeeded in defining capabilities in order to engineer and assemble exteriors of of high-grade electronic equipment specific to the customer. Because of this failed attempt to asymmetrise the 'doing business'-tautology effectively, Sheetmetal-Industries should stumble upon paradox or strategic indecision while reflecting upon the way the company does business with its customers. The general manager has tried to solve the chicken-and-egg problem concerning the reciprocal relationships between the engineering, manufacturing and assembling capabilities by focussing on the packaging of high-grade electronic equipment. However, due to this asymmetry, he has failed in choosing engineering and assembling-technologies and therefore he cannot make clear to customers how they can design and realise the housings of specific electronic equipment. This implies that the capabilities constituting the ESI-strategy cannot be developed because Sheetmetal-Industries stays trapped within the following chicken-and-egg (Figure 4.18).

[...]
[1] The engineering capabilities depend on the manufacturing capabilities
[2] The manufacturing capabilities depend on the assembling capabilities
[3] The assembling capabilities depend on the engineering capabilities
[4] The engineering capabilities depend on the assembling capabilities
[5] The assembling capabilities depend on the manufacturing capabilities
[6] The manufacturing capabilities depend on the engineering capabilities
[...]

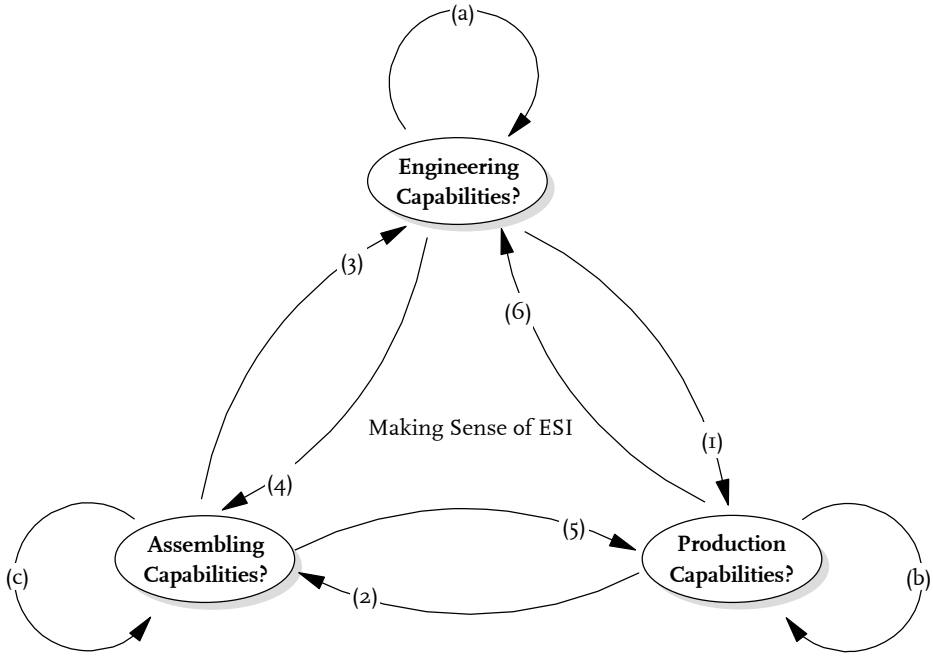


Figure 4.18: The Capabilities-Trap in the Case of Sheetmetal-Industries Ltd.

The asymmetry chosen implicitly to solve this threefold chicken-and-egg problem relates to the manufacturing capabilities (b), i.e. the manufacturing capabilities depend on underlying principles of sheet metal technology As a result, it seems as if the engineering and assembling-technologies to be offered are made dependent on the production-technologies already offered. This leads to the situation that the company can only define housing problems in terms of the exteriors they can realise and not in terms of housing problems as such. That is, problems will be defined as problems with respect to their manufacturability and not with respect to their contribution to solve problems associated with packaging high-grade electronic equipment. Consequently, it can be concluded that is questionable if the company becomes capable in defining design-problems independent of the solution-principles applied in the here and now and in applying assembling-technologies independent of the specific systems assembled in the here and now (see Box 4.2 on page 150).

From the above it can be concluded that the failed attempt to asymmetrise the 'doing business'-tautology effectively results in another tautology. Just because of that, we can conclude that strategic indecision has resulted. After all, tautologies are also paradoxical because they are statements that do not state anything. The paradox is that the capabilities choice made for the ESI-strategy turns out to be no choice at all. That is, the strategic decision to enhance *both* the functionality *and* manufacturability by means of a

focus on subassemblies of products of customers has resulted in strategic indecision with respect to the capabilities to offer to these customers. The paradoxical oscillation occurs when the company's general manager states that the company has capabilities to offer in designing and realising housings of high-grade electronic equipments, he needs to conclude the direct opposite because he cannot make clear by means of which engineering, manufacturing and assembling-technologies the functionality and manufacturability of the products of customers is to be enhanced. Likewise, if the general manager should state that the company has no capabilities to offer in designing and realising housings of high-grade electronic equipment, he needs to conclude the direct opposite because the company offers engineering, manufacturing and assembling capabilities to enhance the functionality and manufacturability to their customers.

4.7 The Validity of the 'Capability Trap' in Making Sense of ESI

From the first-order observation of the ESI-strategies, it appeared that both companies involved with the case studies experienced problems with respect to the prospect of future assignments with respect to their ESI-strategy. In addition, both companies experienced problems in defining an organisational approach to integrate the engineering, manufacturing and assembling capabilities from a managerial perspective. It appeared that the management of both Metalworks and Sheetmetal-Industries were puzzled by both issues in the sense that they could not find a way out. From the second-order observation of the ESI-strategies, it appeared that the companies did not differentiate strategically between the environmental and organisational issues involved with offering several capabilities to their customers at the same time. Notwithstanding this outcome, it should come as no surprise that the cases of both Metalworks and Sheetmetal-Industries bare a remarkable similarity. After all, the cases were deliberately selected to produce similar results by means of literal replication of the independent variables. The assumption to be illustrated empirically was formulated as follows (see section 4.3).

> "Suppliers involved with ESI do wise to regard the manufacturing and design capabilities offered to their customers as distinct types of businesses, in order to prevent paradoxical strategic indecision with respect to these capabilities from occurring."

We have shown that in both cases paradoxical strategic indecision resulted. It remains to be seen, however, how strong the assumed relationship between the business choice (independent variable) and the competence choice (dependent variable) actually is. Therefore, it will be illustrated what needs to be done to make stronger the claim that the functional equivalent chosen by the company's is dysfunctional.

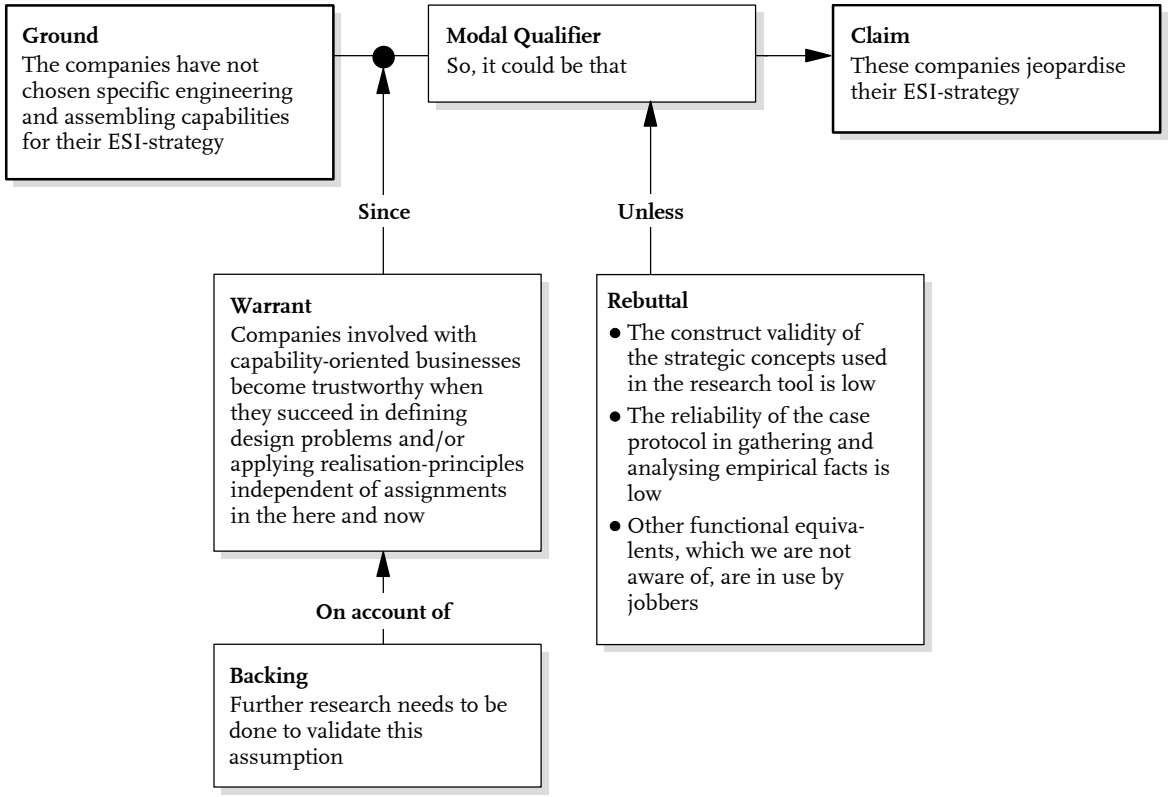


Figure 4.19: The ESI-Argument and Toulmin's Logic

THE EVALUATION OF THE ASSUMED RELATIONSHIP

From the case studies, it appeared that both suppliers did not regard the various capabilities to their customers as independent businesses. In addition, it appeared that they did not differentiated clearly between the capabilities when organisational issues are considered. On the contrary, from the case analysis it appeared that capabilities to design and realise the products of customers were treated as a single business within a single organisational approach. Because by means of literal replication of the independent variable, the results with respect to the dependent variable of the first case study were replicated by the second case study, we think we have reasonable arguments to conclude that the occurrence of paradoxical indecision is *not* coincidental when suppliers chose this functional equivalent to make sense of ESI. Therefore, it seems justified to state that something is wrong with this functional equivalent chosen by both suppliers to commence in ESI. However, before we can truly state that this functional equivalent does not work or is dysfunctional, more work has to be done. To indicate these additional efforts, 'Toulmin's Logic' can be of use (Hutjes & Van Buuren, 1996).
Toulmin's scheme of argument represents a tool for the analysis of arguments (Toulmin, 1958). He argued that arguments should be analysed using a more comprehensive format than the classic scheme of argument that distinguishes only between premises and conclusions. Within his scheme, next to the premises (*grounds*) and conclusions (*claim*), Toulmin distinguishes between *warrants*, additional *backing* of these warrants, *rebuttal* of the connection between grounds and claims and the *modalities* that indicate the strength of this connection (Toulmin et al, 1979: 78). The relationship we have assumed can be put in the form of this scheme of argument as follows (Figure 4.19).

The empirical grounded data indicate that both Metalworks and Sheetmetal-Industries did not chose specific engineering and assembling capabilities to supplement their already existent manufacturing capabilities (*ground*). It was concluded that because of that, the companies might jeopardise their ESI-strategy (*claim*). This claim was supported by insights offered by the configuration theory on strategic realities (*warrant*). These insights relate to the assumption that companies offering capabilities in designing and realising to their customers should be able to define design-problems independent of the design-technologies used in the here and now, respectively to apply realisation-technologies independent of the goods or services realised in the here and now. This warrant has a high degree of plausibility. After all, one expects a surgeon to be capable in carrying out a specific surgery independent of the patients involved. Notwithstanding this observation, the assumption needs to be explored further empirically (*backing*). That is because of the low *external validity* of the assumption with respect to theoretical generalisation towards the configuration theory. In other words, before we can be decisive about the assumption, the configuration theory on strategic

realities needs to be tested empirically. This configuration theory on strategic realities was used as an ideal-type theory. Using the business-types as ideal-types was in fact a trick to asymmetrise self-reference with respect to myself as a second-order observer. That is, in order to observe the blind spots of members of organisations in defining strategies, some more encompassing theory is needed than the espoused theory in use by these organisational members. There is a caveat with respect to our configuration theory on strategic realities. This shortcoming relates to the methodological problem that the configuration theory cannot really be ideal-typical. After all, this 'idealness' would imply that the dysfunctional effects identified would not necessarily need to be empirical valid. This contradicts with the aim of Luhmann's functional analysis to rule out dysfunctional functional equivalents empirically. Therefore, just as any theory, our configuration theory eventually needs to be tested empirically. Consequently, we can only preliminary presume (*modality*) that jobbers that wish to engage in ESI and try to improve the functionality as well as the manufacturability of the product designs of their customers experience paradoxical strategic indecision when they do not regard the capabilities involved as distinct types of businesses. This implies that the *internal validity* of the assumed empirical relationship between the claim and its ground is low. Future research should make clear the extent to which the assumed relationship between the business choice (ground) and competence choice (claim) can be studied meaningfully independent of the other choices constituting the strategic reality of companies. If that is the case, this relationship could be tested by means of extensive research among *many* units of analysis (i.e. business strategies) and *few* variables (i.e. 'only' the business and competence choice). Moreover, the claim could be untrue because of the low *construct validity* of the research tool, the low *reliability* of the case protocol and the existence of other functional equivalents that are not dysfunctional (*rebuttal*). Each of these issues will be discussed next.

- With respect to the *construct validity* of the research tool, we need to ascertain if the strategic concepts used to describe ESI-strategies are the right concepts to truly describe the problems experienced by suppliers. Within our study, the strategic concepts were chosen *a priori*. Therefore, it remains to be seen if these concepts mean actually something in the strategic reality as experienced by organisational members of jobbers. To ascertain this, an inductive type of research could be carried out to discover *a posteriori* the strategic concepts in use. This inductive research should aim at obtaining 'grounded theories' (Glaser & Strauss, 1967) on the strategic concepts in use by members of organisations to make sense of their environment and their organisation.

- With respect to the *reliability* of the case protocol, we need to ascertain if others obtain similar results. Until now, the case protocol has only been used by me

in exploring strategies. Therefore, the description and analysis of strategies might be very dependent on my own 'dominant logic' or preferential ways of action. The use of the case protocol by others should bring to light the extent to which the researchers involved influence the description and analysis of ESI-strategies and the extent to which the guidelines in applying the research tool are reliable.

- Lastly, the existence of *other functional equivalents* to make sense of ESI that work is dependent on the extent to which the cases selected can be regarded as 'typical' cases on the way suppliers make sense of ESI. The answer to this question depends on the extent to which the functional equivalent chosen by both suppliers involved with the case studies is an obvious alternative for jobbers to commence in ESI. It can be argued that the dominant logic of suppliers not always constrains them in making sense of ESI more effectively.

OTHER EXISTING FUNCTIONAL EQUIVALENTS

In the subset of six companies that conducted an ESI-strategy (see section 4.4), one holding company was found that strategically regarded the various capabilities as distinct businesses. Unfortunately, the general manager/owner of this company did not experience problems with the ESI-strategy. Therefore, the Quick Scan of this company did not bear reference to ESI and was of no use to the field research. The brochures of the business units of this company, however, made clear that the company clearly differentiates strategically between the engineering, manufacturing and assembling capabilities that it offers to customers:

- On the engineering capabilities, the brochure of the first business unit states that[31] '[we] dispose of engineers [...] and designers that with their technological know-how co-design your products: with advanced 3D CAD-systems they make drawings and formulate specifications.'

- On the manufacturing capabilities, the brochure of the second business unit states that the 'exemplary quality of the company' relates to 'The manufacturing of complex precision product parts out of sheet metal in single units, small and large batches based upon just-in-time and zero-defects principles.'

- On the assembling capabilities, the brochure of the third business unit states that the company 'Assembles electromechanical subunits according to specifi-

[31] These excerpts were translated from Dutch to English by the author.

> cation of the customer including the purchasing of parts and components, the control of stocks and testing of the ready-made products.'

This company has made sense of ESI by regarding the engineering, manufacturing and assembling capabilities as strategically independent to each other, both when environmental and organisational strategic issues are considered. Each business is organised within a business unit and for each business, also a distinct environmental strategy is defined. By means of this functional equivalent, organisational members prevent that they become trapped within the capabilities chicken-and-egg problem the same way as the management of Metalworks and Sheetmetal-Industries did.

One may wonder, on this point, how Japanese suppliers within the automotive industry have succeeded in conducting ESI-strategies. After all, it appeared, from the automotive studies concerning Japanese supplier involvement in design, that 51% of the total engineering hours were spent by suppliers (Clark et al, 1987: 741; Womack et al, 1991: 157). Apparently, this fact becomes unexplainable when we take into consideration that only 8% of the engineering related to 'supplier proprietary parts' (Clark et al, 1987: 741; Womack et al, 1991: 157). These are parts that are 'developed entirely by parts suppliers as their standard products' (Clark et al, 1987: 741). In other words, these suppliers are in the supply and demand of realisations business. This implies that 92% of the engineering done by suppliers related to parts and subassemblies owned by car manufacturers. Have these suppliers found some kind of magic functional equivalent to stay out of the capability trap?
On closer inspection it appears that of this 92%, 62% relates to 'black box parts', i.e. 'parts whose basic engineering is done by automakers, while detailed engineering is done by parts suppliers' and 30% to 'detail-controlled parts', i.e. 'parts developed entirely by car makers from basic to detailed engineering' (Clark et al, 1987: 741). Apparently, the latter category relates the supply of parts were ESI is not a standard practice and, therefore, the detail-controlled parts can be regarded as 'standard' jobbing practices, i.e. the manufacturing of parts according to the specifications of customers. This business relates to ideal-typical offering capabilities in realising business. This leaves still 62% involvement of suppliers in engineering to be explained.
One reasonable explanation is that the detailed engineering of the black box parts concerns the re-engineering of parts with respect to their manufacturability. That is, changing the design such that it becomes more effective and efficient to manufacture. The fact that suppliers are capable to do this, is not surprising because it was assumed that suppliers offering capabilities in realising to their customers, become capable in applying realisation-principles independent of the goods or services realised in the here and now (see Box 4.2 on page 150). In other words, these suppliers become capable in the evaluation of the drawings of designs with respect to their manufacturability. Therefore, the capability of suppliers in detailed engineering could more appropriate be

labelled production engineering, as Clark et al. have done on page 734: 'Production engineering occurs when engineering drawings are translated into a process design at various levels, such as process flow charts and plant layout, tool and equipment design, work design, and parts programming'. The involvement of suppliers in production engineering has, however, nothing to do with improving the functionality of product designs of customers. Therefore, it can be concluded that Japanese suppliers involved with ESI, did not find a magic functional equivalent to stay out of the capability trap in designing and realising the products of their customers. That is because Japanese suppliers do not focus on the functionality of the product designs of their customers. This outcome leaves one wonder though, about the major impact of 'Early Supplier Involvement' on the innovation in supply chains. Apparently, for years, most Original Equipment Manufacturers have underestimated the capabilities of their suppliers in production engineering and the suppliers have not considered their knowledge & skills in this respect to be of importance to become distinct with respect to their competitors. Another interesting conclusion that can be drawn, relates to the apparent fact that during the automotive studies no Japanese suppliers were involved in improving *both* the functionality *and* the manufacturability of the designs of their customers. It would be interesting to know whether this is changed during the last decade.

Unfortunately, literature that is just as comprehensive on various kinds of ESI and as detailed in its measures on product development as the paper by Clark et. al (1987) is fairly rare. Most literature relates to 'component suppliers' and not to suppliers involved with offering capabilities in manufacturing (e.g. McCutcheon et al., 1997; Nazli Wasti & Liker, 1997; Afuah, 2000; Takeishi, 2001). An exception to this rule is the paper by Bidault et al. (1998). In this paper, the extent to which manufacturers adopted ESI in their product development process is explored. The authors distinguished between five levels of ESI (Bidault et al., 1998: 727).

- *Level 1*: the supplier provides input into your product design by sharing information about its equipment and capabilities. Of the manufacturers in the sample, 4% were involved with this ESI-practice.

- *Level 2*: the supplier provides feedback on your design including suggestions for cost and quality improvement. Of the manufacturers in the sample, 54% were involved with this ESI-practice.

- *Level 3*: the supplier participates significantly in the design of a part or component by executing detailed drawings based on your group's rough sketches. Of the manufacturers in the sample, 29% were involved with this ESI-practice.

- *Level 4*: the supplier took full responsibility from concept to manufacture for the design of an entire part or component. Of the manufacturers in the sample, 0% were involved with this ESI-practice.

- *Level 5*: the supplier took full responsibility from concept to manufacture for the design of a system or subassembly incorporating one or more parts, which it also designed. Of the manufacturers in the sample, 13% were involved with this ESI-practice.

It appears that 87% (level 1, 2 and 3) of the ESI-practices of suppliers relates to production engineering. The ESI-practices of level 5 relate to component suppliers or what Clark et al (1987) label 'supplier proprietary parts'. In addition, these figures highlight that no suppliers were active in designing and manufacturing parts or components (level 4). So just as with the Japanese automotive studies, this study indicates that it is not a common practice for suppliers offering capabilities in realising to their customers to focus on *both* the functionality *and* the manufacturability of product designs. Nonetheless, in the Netherlands, this practice has been promoted extensively by two small but influential books of Praat (1993) and Praat & Alders (1998) in association with the 'Dutch Association of General Subcontractors' or NEVAT. Apparently, ESI has been adopted in the Netherlands slightly different than in the rest of the world.

From the above it appears that at least two effective functional equivalents can be applied to commence successfully in ESI by means of a strategic focus on *both* the manufacturability *and* the functionality of the product designs of customers.

- Regard each distinct capability offered to customers as an independent business, whether or not these businesses are organised in distinct business units.

- Redefine one's capability oriented business as a business that involves offering 'supplier proprietary parts' or 'components' and choose the capabilities necessary to design and realise the specific goods or services chosen.

From both an organisational and managerial perspective, the occurrence of these functional equivalents can be explained when we consider the extent to which suppliers differentiate strategically between environmental and organisational issues with respect to their engineering, manufacturing and assembling capabilities. If we assume that companies can either differentiate strategically or not between environmental and organisational issues, four distinct functional equivalents can be distinguished to make sense of ESI on the company-level (Figure 4.20). The ESI-strategies of the companies that were described and analysed in the case studies, did not differentiate strategically

between environmental and organisational issues. It appeared that these ESI-strategies lead to paradoxical strategic indecision. The other, more useful, functional equivalents relate to the following situations.

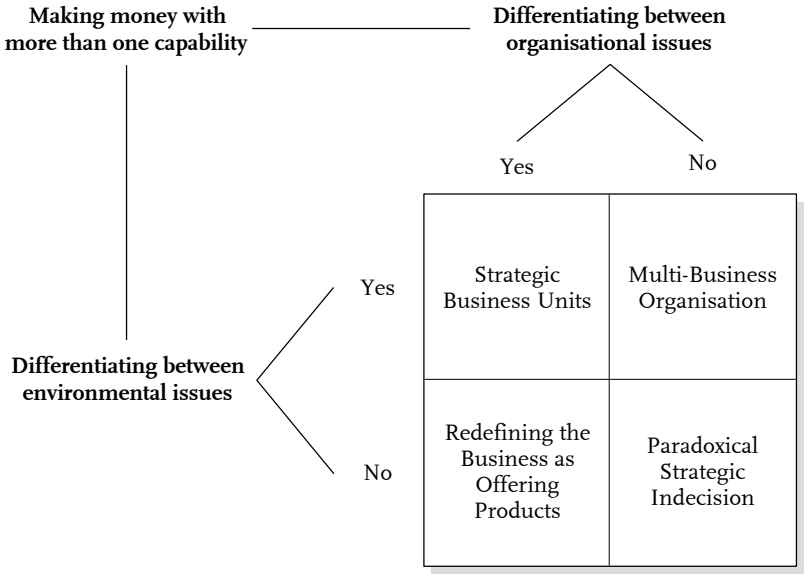


Figure 4.20: Functional Equivalents in Making Sense of ESI-Strategies

- Strategic business units with a distinct strategic focus on both environmental and organisational issues. This alternative was chosen by the general manager/owner of the holding company described above.

- Multi-business organisations with a distinct strategic focus on environmental but not on organisational issues. This equivalent I have not encountered yet, but it seems not impossible to organise a company in such a way that several distinct businesses can be employed within a single organisation. It may however be difficult regarding the experiences of the general manager of Sheetmetal-Industries in this respect.

- Redefining a capability-oriented business as a product-oriented business in offering products. This example relates to the supplying proprietary parts example of Clark et al. (1987). With this functional equivalent, companies do not have to use a distinct strategic focus on environmental issues because only with respect to organisational issues the capabilities to design and realise products need to be distinguished from each other.

The functional equivalents as depicted in Figure 4.20 are not exhaustive. By means of co-operation, another functional equivalent comes to mind. That is, suppliers could co-operate or alliance themselves with engineering firms, whereby the latter should focus on the functionality of product designs and the former on the manufacturability of these designs. Naturally, applying these functional equivalents involves taking risks also. Future research should make clear the risks involved with these functional equivalents and the extent to which these risks may jeopardise the success of ESI-strategies.

Final Remark

The field research was mainly carried out to make it possible to reflect upon the benefits of a both/and-approach to strategy that is grounded upon the notion of self-reference. As a possible side effect, the empirical test might also shed some preliminary new light upon the problems experienced by suppliers engaged with ESI. Within this section, we have shown that further research is needed to make clear the extent to which jobbers jeopardise their ESI-strategy when they do not distinguish strategically between the capabilities offered to improve *both* the functionality *and* the manufacturability of the product designs of their customers. As a result, we cannot give a decisive answer on the validity of the 'capability trap' of jobbers involved with making sense of ESI in the same way as described within the case studies. We can conclude however, that within literature on ESI, no references were made to jobbing-companies that offered capabilities in designing and realising (manufacturing and/or assembling) at the same time. Therefore, the rebuttal of the claim presented in Figure 4.19 on page 186 by means of other jobbing-oriented functional equivalents seems unlikely. In the next and final chapter, we will reflect upon the extent to which our both/and-approach to strategy grasps the specifics of the way members of organisations make sense of their environment and their organisation.

Chapter 5

Reflections

5.1 Introduction

In the first chapter of this thesis, it was mentioned that, within strategy research, the inherent circularity between oneself and one's environment has been denied by making *either* the environment *or* the organisation of companies the point of reference in defining successful strategies. Such either/or-approaches to strategy deny the empirical fact that *neither* a company's environment *nor* organisation means something on its own. That is, one's environment means only something with respect to one's organisation and vice versa. This tautological ground figure is obscured by either/or-approaches to strategy, which has led to the fact that strategic management is regarded as a phenomenon for which deliberateness is key and naivety is best avoided. Current wisdom, however, indicates that practicing strategy is foremost a matter of coming to terms with one's own preferences self-referentially. Hence, the study aimed to achieve the following.

> "An approach to strategy that focuses on self-reference and does not give primacy to *either* the environment *or* the organisation in defining successful strategies but gives primacy to *both* the environment *and* the organisation in order to do justice to both the deliberate and naïve aspects of strategic management."

The tautology I was confronted with in commencing this study, related to the situation that what could be said about the problems involved with strategic sensemaking was dependent on the relevant solutions offered within organisation studies and vice versa. Although self-reference is thought to be of importance within sensemaking literature, it turned out that the sensemaking approach does not centre on self-reference (Weick, 1995: 23). At this point in the study, I came up with two alternatives to asymmetrise the tautology. One could develop an approach to strategic sensemaking on one's own account or one could adopt such an approach from a neighbouring scientific discipline. In the midst of this decision process, I stumbled upon an interesting article in the journal 'Bedrijfskunde' by Romme & Van Witteloostuijn (1997). This article dealt with insights 'chaos theory' has to offer to organisation studies. The authors mentioned the solution of Luhmann to solve the problem of double contingency that is inherently

associated with all forms of communication. Intrigued by Luhmann's radical but clever line of reasoning, I decided to start reading the book 'Soziale Systeme' that was referred to in the article. Soon, I concluded that to gain a better understanding of the way members of organisations make sense of the reciprocal relationship between their company's environment and organisation, the theory of self-referential systems of Luhmann could offer a valuable contribution to organisation studies.
Whether this study has succeeded in realising its aim will be addressed in the remainder of this chapter by reflecting self-referentially upon the way the research questions have been answered. This implies that reflections will be given on the actions, answers and conclusions with respect to either/or-approaches to strategy, the theory of self-referential systems, the both/and-approach to strategy, the functional analysis of strategic content and the field research on 'Early Supplier Involvement'.

5.2 Reflections on Either/Or-Approaches to Strategy

The first research question was formulated as follows.

> "What are the shortcomings of either/or-approaches to strategy in explaining the way organisations and their environment constitute each other reciprocally?"

What was found

In providing an answer to this question, we have studied the most influential strategic schools of thought of recent years, i.e. the positioning school (Porter, 1985), the resource based view (Prahalad & Hamel, 1990) and the dynamic capabilities view (Teece & Pisano, 1994; Teece et al., 1997). It turned out to be impossible for 'outside-in' and 'inside-out' approaches to strategy to claim superiority in prescribing the way companies should define successful strategies because they are self-defeating. As a result, either/or-approaches to strategy hold out false hopes to members of organisations in defining successful strategies. This is a problem because it is an *inside* problem of strategy research and is caused by the fact that strategy researchers adhere to the paradigm of adaptation.

What can be concluded

It surprises us that in the book 'Fundamental Issues in Strategy: A Research Agenda', as edited by Rumelt, Schendel and Teece (1994), no contributions could be found that addressed this problem in the same or in other terms. Ironically, one of the main questions answered in this book by several contributions, i.e. 'How do firms behave?', can only be answered by making clear how firms do not behave according to the strategic models available. No reference whatsoever is made within the book to the tautological and paradoxical origin of strategic sensemaking in dealing with environ-

mental and organisational issues. The fact that tautologies and paradoxes can be brought to light within each strategic management approach, should not be interpreted as a shortcoming of these approaches. After all, tautologies and paradoxes appear to be omnipresent in giving meaning to social phenomena. Strategic management approaches can only be criticised for the denial of their tautological and paradoxical foundation. This denial of the tautological and paradoxical rock bottom of strategy and strategy research is our answer to the first research question because of this denial it is impossible to observe how organisations and their environment constitute each other reciprocally. This observation leads to the conclusion that the distinction between organisations and their environment as conceptualised within strategy research is backward. After all, within general systems theory, ideas about self-referential observation date back well into the previous century.

5.3 Reflections on Self-Referential Systems Theory

The theory of self-referential systems was used to observe the way organisations and their environment constitute each other reciprocally. The corresponding second research question was formulated as follows.

> "Which guidelines are offered by the theory of self-referential systems to study the way social systems deal with self-reference?"

WHAT WAS FOUND

In providing an answer to this question, our study of primary and secondary literature on self-referential systems theory showed that little insight was available to apply the insights offered by this theory on self-referential sensemaking. The theory of self-referential systems did not give any detailed guidelines for empirical research. Apparently, Luhmann was satisfied with just the conceptual solution of theoretical problems involved with a systems theory of sociology. The research method associated with the theory of self-referential systems, i.e. functional analysis, is no detailed instruction that describes the steps necessary to get from a problem definition regarding a social phenomenon to its solution. With respect to functional analysis, Luhmann only elaborated on the pitfalls of causality for social theory and the only guidelines offered by the theory of self-referential systems relate to a conceptual solution that according to him avoided the shortcomings of causal explanations.

The fact that so little empirical research is carried out based upon self-referential systems theory, is still a serious shortcoming of this theory because, as they say, the proof of the pudding is in the eating. Following on from this observation, it seems rather ironic that the theory of self-referential systems with all its idiosyncratic terms is necessary to explain how social systems like organisations make themselves possible by means of naivety. In spite of this observation, I have found that the theory of self-

referential systems is quite straightforward in its application. Therefore, it is surprising that Luhmann did not take the extra step to provide detailed instructions for the functional analysis of social phenomena.

It is even more surprising that the tautological ground-figure of self-reference is so poorly modelled in self-referential systems theory. The basic tautology underlying the system/environment-distinction is in fact a multiple tautology[32]. In all the literature I have read to comprehend this tautological ground-figure[33], I have never noticed a single reference to the fact that, due to self-reference, each twofold chicken-and-egg problem involves dealing with three tautologies at the same time[34], let alone that these tautologies were presented as chicken-and-egg problems. Perhaps we do not do justice to Luhmann in this respect because his writings indicate a profound insight in tautology and paradox (e.g. Luhmann, 1987; 1988, 1990a; 1990b; 1993a, 1993b, 1993c, 1993d). However, for him this dealing with the illogical logic of self-reference was apparently so obvious that he could not observe anymore that others could not observe that they could not observe what he could observe.

What can be concluded

The current state of the theory of self-referential systems does not give detailed guidelines to apply this theory in exploring the role of self-reference empirically. It offers, however, advanced points of departure to organisation studies in observing the way social systems make themselves possible on the level of operations, processes and systems by means of first order-observation and impossible because of that by means of second-order observation. This is the guideline the theory of self-referential systems has to offer to us and provides an answer to the second research question.

It can be concluded that Luhmann's theory of self-referential systems is very sophisticated both in its theoretical assumptions and in its methodology. For organisation studies, this theory can offer a valuable contribution in overcoming the incommensurability of the influential paradigms of Burrell & Morgan (1979). The theory of self-referential systems is *functionalistic* in its assumption that social systems need to reduce complexity. Notwithstanding this, the theory highlights also that social order is something dependent on the way social systems experience it. As a result, the theory is *interpretive* also. The theory of self-referential systems highlights the problems involved with transcending the limitations of existing social arrangements. Consequently, due to

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[32] That is, (1) a system is what its environment is not and the environment is what the system is not, (2) a system is what it is and (3) the environment is what it is.

[33] This observation includes the books 'Kalkül der Form' and 'Probleme der Form', red. Dirk Baecker, Suhrkampf, Frankfurt am Main, both published in 1993.

[34] If threefold chicken-and-egg problems are under consideration, as was the case with both case studies, six tautologies need to be dealt with. In general each *n*-multiple chicken-and-egg problem involves dealing with *n above 2 plus n* tautologies

its *phenomenological* perspective, the theory adheres also to the radical humanist paradigm in explaining how men can release themselves consciously from the domination of social structures of meaning. Notwithstanding this, the theory of self-referential systems is true to the radical structuralist paradigm also. Due to its reliance on autopoiesis, social structures exist only as long as they are reproduced on a continuous basis. As a result, tension and conflict can appear any time and offer social systems the potential for *structural differentiation*.

Further Research

In line with this observation, the theory of self-referential systems can offer a valuable contribution to the discussions within organisation studies on paradox. Paradox has gained significant attention from organisational researchers. Reviewing studies from 1990 to 1997, Davis et al. (1997) found the term used in over 300 major publications. Lewis (2000: 760) dares to state that paradox is rapidly becoming the management cliché of our time. Cameron & Quinn (1988) stated that by exploring paradox researchers might move beyond oversimplified and polarised notions of phenomena inherently associated with organisational life, like complexity, diversity and ambiguity. Poole & Van de Ven (1989), use the notion of paradox to indicate the difficulty to reconcile several distinct explanations of the same organisational phenomenon, such as the question whether learning organisations need to be observed as collectives of learning individuals or as individual learning collectives. Some researchers go as far as stating that organisations are inherently paradoxical. Stacey (2000: 13), for example, says that most theories regarding strategy do not recognise paradox as fundamental and the existence of it is treated as a nuisance that is not fundamental to successful strategies. Most organisation researchers use the notion of paradox in order to develop a better understanding of organisational change. Berg & Smith (1990) argue that overly rational attempts to either reconcile or categorise change tend to suppress the paradoxical tension that could give meaning to change processes. The use of paradox makes it possible to discover a link between opposing forces and 'opens up the framework that gives meaning to the apparent contradictions in the experience' (Berg & Smith, 1990). Vince & Broussine (1996: 7) define the paradox of change as 'the tensions between clarity and uncertainty, the "self-contradictory" nature of individual emotions and organizational action, [that] are constantly present in any process that attempts to deal with change'. Tension is something most researchers associate with paradox. Lewis (2000: 774), for example, has the opinion that paradox should be used as thought-provoking tool or perspective that could serve as a lens for examining surprising findings and seemingly absurd aspects of organisational life. Such a framework might help researchers to address what tensions exist, why they exist and how they can be managed (Lewis, 2000: 774). Ropo & Hunt (1995: 91) follow the same

line of reasoning when they consider 'the notion of paradox as an overall perspective useful to breath life into holistic and non-linear aspects of [...] entrepreneurship'.
Despite the differences in defining paradox, most organisation researchers seem to agree about what paradox is not. Paradoxes are not used in the sense of dilemmas, i.e. a situation where a choice needs to be made between two equally undesirable possibilities (e.g. Westenholz , 1993: 41; Stacey, 2000: 13). Contrary to a dilemma, a paradox is said to be characterised by the fact that no choice can be made between the contradictions constituting the paradox. Therefore, most researchers agree that paradox is not so much characterised by either/or-choices (e.g. *either* exploration *or* exploitation) but foremost by both/and-choices (*both* exploration *and* exploitation).
It appears that paradox is used in various distinct ways within organisation studies and not always in the same way as Luhmann did. Within the theory of self-referential systems, paradoxes relate to oscillating contradictions (Wormell, 1958: 271) and are a by-product of self-reference, which implies that *organisational life is paradoxical because of the way we observe it*. We are not able to observe ourselves despite of ourselves and therefore we can never ascertain if organisational life is truly paradoxical. In line with this, Ford & Ford (1994: 757), state that most organisation researchers adopt formal logic and that formal logic cannot deal with changes in identity. They explain that formal logic focuses on identity in the sense that is determined what something 'is' and 'is not'. Within this framework, it is impossible for a thing to be itself and something else at the same time because a thing is equal to itself (Ford & Ford, 1994: 760). Because during organisational change a thing is becoming not equal to itself, organisational change can be characterised as inherently paradoxical, at least from the level of second-order observation, whether the observers are organisational researchers or organisational members involved with making sense of the organisational change.
I belief the theory of self-referential systems can be used in overcoming the different meanings organisational researchers give to paradox because functional analysis enables us a rigid framework to address which paradoxical tensions exist, why they exist and how they can be dealt with. With respect to occurrence of paradox, it is important to note that organisational members are only confronted with paradox when they become self-reflexive and try to observe their 'Welt', 'Sinn' and/or 'Realität' that only exists *because* of themselves *despite* of themselves. In this study, we have not explored paradox in this way because we have not observed organisational members busy with the second-order observation of themselves. Instead, we used our configuration theory on strategic realities for the second-order observation of the first-order observations of organisational members busy with defining strategies. Future research should bring to light the various ways members of organisations deal with paradox when they are busy with second-order observations themselves.

5.4 Reflections on the Both/And-Approach to Strategy

In observing the way organisations and their environment constitute each other reciprocally, in subscribing to the tautological and thus paradoxical foundation of strategic management, the third research question was formulated.

> "Which guidelines are offered by the theory of self-referential systems to study the way organisations and their environment constitute each other reciprocally by means of a both/and-approach to strategy that focuses on the content, process and context of strategic sense-making?"

WHAT WAS FOUND

In providing an answer to this question, we have studied the way the distinction between system and environment is conceptualised within either/or-approaches to strategy and how it is conceptualised within self-referential systems theory. It appeared that either/or-approaches regard the environment and organisations as inclusive, i.e. organisations are part of their environment, and that self-referential systems theory regards the environment and social systems as exclusive, i.e. each organisation has its own environment. The way the system/environment-distinction has been conceptualised within the theory of self-referential systems, was used to ground our both/and-approach to strategy.

We have seen that the guidelines offered by the theory of self-referential systems to study strategic sensemaking empirically, relate to the description of the strategic content, processes and/or context (Pettigrew, 1997) of companies as experienced by members of organisations (first-order observation) and to the explanation of why these organisational members experience these strategic phenomena as they do (second-order observation). In doing so, the risks involved with the way organisations make themselves impossible due to the way they try to make themselves possible can be discovered. The both/and-approach does acknowledge its paradoxical foundation by conceptualising the environment of a company as existing *both* despite *and* because of the company constituting it. Therefore, the both/and-approach makes it possible to observe strategy as a phenomenon that involves acting both deliberately and naively in making sense of the content, process and context of strategies. After all, in dealing with strategic tautologies and paradoxes, organisational members cannot relate to reason in coming out of their chicken-and-egg problems they find themselves trapped within because of themselves.

WHAT CAN BE CONCLUDED

It can be concluded that the functional analysis of strategic sensemaking should adhere to the paradox that human agency becomes human bondage because of the very nature

of human agency (Dawe: 1979: 398). This implies that empirical research grounded upon our both/and-approach to strategy should be able to deal with *both* the structural aspects of organisational life that seem to exist despite of the organisational members *and* the coincidental aspects of organisational life that seem to exist because of the organisational members involved. Consequently, research that focuses solely on structural contingencies and refrains from addressing issues of human agency and vice versa, cannot be regarded as functional analysis of strategic phenomena, whether this research is quantitative, qualitative or both.

In addition, it can be concluded that the both/and-approach to strategy developed offers us ironic compassion with *both* the attempts of members of organisations in defining successful strategies *and* of those who try to find out the characteristics of successful strategies. As a result, this both/and-approach offers to strategy research 'a sense of modesty' in our attempts to comprehend the strategy phenomenon. Offering a sense of modesty is new to the mainstream of strategy research. Until now, the only view that regards mainstream strategy research from a deviating perspective is post-modernistic (e.g. Knights, 1997; Barry & Elmes, 1997). Post-modernism regards the attempts of mainstream strategy researchers with sarcasm. At the same time, ironically, these authors are convinced of being right that mainstream strategy research cannot have it right because of our restricted views on reality. Contrary to this post-modern perspective, our view indicates that nobody has a truly true perspective on organisations and that we cannot even know that for sure. This is the ultimate guideline the theory of self-referential systems has to offer to us and provides an answer to the third research question.

Further Research

With respect to the both/and-approach to strategy, this study focussed on empirical research with respect to strategic content. Consequently, further research needs to be conducted to bring to light social mechanisms involved with the way members of organisations make sense of the strategy process and context. On this point, it should be stressed that the both/and-approach to strategy is complementary to the more traditional either/or-approaches. In this study, it was mentioned that the paradigm of self-adaptation, on which the both/and-approach is grounded, substitutes the paradigm of adaptation, on which either/or-approaches to strategy are grounded. This implies that when organisations naively decide to regard their environment as existing independent of themselves, they can adapt to this environment, notwithstanding the fact that they actually need to adapt to themselves to be adapted towards their environment. In this sense, synergistic effects can be realised between what has already been done in developing scientific knowledge on strategy and what should be done in the future to observe the way organisations and their environment constitute each other reciprocally. Strategy research already has substantial knowledge about functional equivalents that

work and that do not work in defining successful strategies. With this knowledge base, it should be easier to take-off in the study for a better understanding of (1) *how* organisations make themselves strategically possible, (2) *what* the risks are of their attempts to make sense of the strategy content, process and context and (3) *why* they fail to see what they need to see in dealing with these risks.
In doing so, we can evaluate the validity of the both/and-approach to strategy by trying to observe its blind spot. After all, in applying the both/and-approach we will stumble upon contradictions with respect to strategic sensemaking that cannot be explained satisfactorily with a focus on self-referential experiences of this phenomenon. For this, imagine situations where the distinction between system and environment is of less relevance strategically. In those circumstances, the blind spot concerns the impossibility to regard strategy as a phenomenon where the environment and organisation are *neither* inclusive *nor* exclusive to each other. The future application of the both/and-approach should indicate the outline of such a neither/nor-approach to strategy.

5.5 Reflections on the Functional Analysis of Strategic Content

The functional analysis of strategic phenomena deals with the first and second-order observation of the way members of organisations make their company respectively possible and impossible because of that. Reflections on both levels of observation will be presented in this section.

5.5.1 The First-Order Observation of Strategies

To gain empirical evidence for the fact that the reciprocal relationship between organisations and their environment forces members of organisations to make sense of the strategy content, process and context self-referentially, the fourth research question was formulated as follows.

> "How can the both/and-approach to strategic content be deployed in a research tool to gain insights into the strategic reality experienced self-referentially by members of organisations involved with defining strategies?"

WHAT WAS DONE

In providing an answer to this question, we have co-operated with SENTER and FME/CWM, which both took an interest in supporting small and medium sized enterprises in providing knowledge and support to them in answering their strategic knowledge questions. Because of time and resource constrains, only the empirical exploration of the way companies made sense of the content of their strategy was possible. From a scientific stance, this constraint offered the opportunity to present new empirical insights to the field of strategic management with respect to the use of

strategic concepts in making sense of strategic content. In addition, it appeared that SENTER and FME/CWM wanted to have a standardised research tool, which made it impossible to explore the way members of organisations use strategic concepts to make sense of the content of their company's strategy with an *a posteriori* inductive way of analysing.

What can be concluded

Surprisingly, it can be concluded that this apparent shortcoming of the research, forced us to model the way strategic content comes 'truly' into being. By means of self-referential systems theory we were able in modelling this process as a problem solving process that involves solving tautological problems self-referentially and recursively. Within strategy literature, no references could be found to the social mechanisms involved with making sense of strategic content. The most recent paper dealing with the synthesis of several distinct perspectives on strategy (Farjoun, 2002) is focused again on issues relevant to the strategy process. This observation leads to the conclusion that the way strategy researchers observe social processes is underdeveloped. Processes have no duration, they only exist or instantiate themselves when the underlying operations come into existence. The model we have developed, based upon the notion of operational self-reference, offers a more just perspective on the way strategies are defined by organisational members because it originates upon the paradoxical social mechanisms that *organisations create something real out of nothing* and that *organisations constrain themselves by the way they enable themselves.*

This observation, however, is not the only solution available to organisation studies in observing the problem of human agency within an empirical context. Within the structuration theory of Anthony Giddens, for instance, the paradox that structures enable and constrain action at the same time appears also (Giddens, 1984). Notwithstanding this observation, we have found that the research methods associated with structuration theory, namely 'institution analysis' and 'strategic conduct analysis', give primacy to respectively the structural aspects of social life despite of the agency involved and to the agency aspects of social life despite of the structural aspects involved[35]. Luhmann's functional analysis succeeds in overcoming this methodological problem because it functions *both* as a means to observe the 'Welt', 'Sinn' and/or 'Realität' of social systems as phenomena inseparable associated with the way these social systems experience these phenomena *and* as a means to compare the way a specific social system experiences them as opposed to other social systems. Therefore, it can be concluded that the theory of self-referential systems and functional analysis can be truly

[35] For this reason Stones (1991) advocates a 'strategic context analysis' for the theory of structuration within which both perspectives are combined to explore the strategic context experienced by actors that enables and constrains conduct at the same time.

of use to those interested in the empirical exploration of the emergence of social structures. The model we have developed to enable first-order observations of the way members of organisations deal with their strategic reality self-referentially, is the answer to the fourth research question.

FURTHER RESEARCH

In order to make the model more robust, it needs to be applied, developed and tested further by means of empirical research. Situations that can be characterised as highly uncertain are well suited for this. That is because in circumstances like this, members of organisations need to commence in action *both* despite *and* because they cannot know what they should know to act successfully. Therefore, I belief our model can be of use to those interested in the 'fuzzy front end' of innovation (Weggeman, 1997). This fuzzy front end is ill understood by organisation researchers because they cannot describe rigorously how members of organisations deal with this fuzziness. Our model can be used to give an initial impetus to a better understanding of this phenomenon by describing how organisational members naively commence in action and how they subsequently need to take account of the consequences of their naïve choices.

5.5.2 The Second-Order Observation of Strategies

From previous research, it turned out to be of key importance with respect to the empirical exploration of the strategies of small and medium sized enterprises to make clear the way these companies do business with their customers (Vos et al., 1998). Consequently, the fifth research question was formulated.

> "How can the research tool be extended with theoretical considerations to regard the strategies defined by companies dependent on the way they have defined their business?"

WHAT WAS DONE

In providing an answer to this question, we chose to present these theoretical considerations by means of a configuration theory. This configuration theory on strategic realities was used as an ideal-type theory. Using the business-types as ideal-types was in fact a trick to asymmetrise self-reference with respect to myself as a second-order observer. In other words, to observe the blind spots of members of organisations in defining strategies, some more encompassing theoretical framework is needed than the espoused theories in use by these organisational members. For this, the configuration theory on strategic realities was used.

What can be concluded

The reason we had to develop a theory on distinct business-types ourselves has surprised me a lot. Strategy research has a serious blind spot with respect to the way companies can do business with their customers. It seems as if organisation researchers belief that each company makes money by selling goods or services. This study showed that at least three other business-types could be observed in 'reality', i.e. the supply and demand of designs of goods or services, of capabilities in designing goods or services and of capabilities in realising goods or services. This blind spot in strategy research has far reaching implications not only for organisation research, but also for consultancy practice and governmental policy.

Ironically, by ignoring other ways of doing business, consultancy and governmental policy alike will shoot themselves in the foot by their attempts to stimulate the innovativeness of companies. To our opinion, it is impossible to formulate innovative strategies, respectively effective innovation policies by means of mainstream strategic management literature when the core businesses of the target companies does not relate to the most widely acknowledged business type, i.e. the supply and demand of realisations of goods or services. The models presented within this mainstream literature do not fit with the strategic reality as experienced by the organisational members of these companies. The following example can be given in this respect.

For capability-oriented businesses, radical innovation is best avoided because the capabilities necessary to deploy their business successfully, take considerable time and effort to be developed. The products that can be designed by industrial companies involved with offering their design-capabilities to their customers and the product designs that can be manufactured by companies involved with offering their realisation-capabilities to their customers, can only come into being when these companies use their current assignments to renew their capabilities on a day-to-day basis. As a result, these companies can only maintain to be successful and innovative when they refrain from radical innovation because otherwise their potential to innovate is destroyed.

Further Research

It was indicated above and in section 4.7 that there is a caveat with respect to our configuration theory on strategic realities. This shortcoming relates to the methodological problem that the configuration theory cannot really be ideal-typical. After all, this 'idealness' would imply that the dysfunctional effects identified would not necessarily need to be empirical valid. This contradicts with the aim of Luhmann's functional analysis to rule out dysfunctional functional equivalents empirically. Therefore, just as any theory, our configuration theory eventually needs to be tested empirically. Notwithstanding this observation, the configuration theory we have developed to observe the way members of organisations have defined their strategies contingently by means of second-order

observation. As such, the choice to develop a configuration theory on distinct strategic realities is the answer to the fourth research question. In the future, however, empirical research needs to be done to test and improve this configuration theory.

5.6 Reflections on the Field Research

In applying the research tool and configuration theory developed, we chose to focus on 'Early Supplier Involvement' or ESI. The reason why we did this is twofold. The first reason related to the fact that several companies investigated during the field research were busy with ESI. These companies appealed to me in the sense that they refer to themselves as 'jobbers' and as such wander from 'job' to 'job' in giving themselves a reason for existence. On these category of industrial companies, very little is known within organisation studies. The only empirical research I know of that defines these companies as 'jobbers' and tries to describe the reality as experienced by their organisational members, relates to the case studies carried out by Joan Woodward and her colleagues (Woodward, 1965). Secondly, within the scientific community, ESI is regarded as a factor of major importance for the success of innovation within supply chains. Notwithstanding the fact that ESI therefore had already gained significant attention, the insights in problems experienced by jobbers was lacking from a scientific point of view. Therefore, the fifth and last research question was formulated as follows.

> "To what extent does the application of the research tool and the accompanying theoretical considerations succeed in illustrating the inability of suppliers to make sense of ESI because of the way they self-referentially try to make sense of it?"

WHAT WAS FOUND

In providing an answer to this question, two case studies were carried out. For the functional analysis of these studies, a case protocol was developed to enable the rigorous exploration of the way the organisational members make sense of the content of their strategies. From the first-order observations of the strategies of the suppliers involved, it appeared that they tried to focus on *both* the functionality *and* the manufacturability of the designs of their customers. By means of the second-order observation of these strategies, it appeared that paradoxical strategic indecision resulted in choosing between the specifics of the engineering, manufacturing and assembling capabilities offered to their customers. For the validity of this finding, however, further empirical research needs to be carried out as was explained in section 4.7. If our claim on the validity of the configuration theory can be made stronger, we can conclude that the strategic indecision that appeared in both cases is not coincidental. The empirical data, which we gathered, are not corrupted by the configuration theory. On this level of first-order observation, the configuration theory only functioned as a means to keep the

interview going. As such, it was not of importance whether this configuration theory was right or wrong because it functioned as a means to stimulate the respondents to bring into words difficult to label strategic experiences. In addition, for the justification of the paradox we have found, it is not of importance whether the members of the organisations involved subscribe to it. To us, it is only relevant if the finding can be generalised to the configuration theory in the sense that some functional equivalents cannot be made real *both* despite *and* because of the strategic reality created by members of organisations dependent on the business-types they deploy. For the validity of this finding, however, further empirical research needs to be carried out as was explained in section 4.7.

What can be concluded

To conclude, we demonstrated that the ESI-strategies defined eventually were based upon naïve self-referential assumptions to commence the formulation of the strategy. These assumptions enabled the creation of the strategic reality but also prohibited the organisational members involved to regard their strategic reality form a different, perhaps more just perspective in making sense of ESI. The companies involved with the field research naively decided to offer engineering, manufacturing and assembling capabilities as a whole by focussing on complex product parts and/or subassemblies. In doing so, the organisational members were unable to observe the strategic importance of choosing specific engineering and assembling-technologies. The fact that their customers were less willing to contract out assignments as they thought these customers would be, can be used as an extra indication for the relevance of self-reference. That is, as an indication for the fact that the environment and organisation of companies constitute each other reciprocally by means of self-referential sensemaking and not by means of some mechanism outside the experiences of the organisational members of these companies. Despite the fact that it remains to be seen whether the functional equivalent chosen by both companies is actually invalid, we have shown that the way the organisational members have naively asymmetrised the tautological relationship between supply and demand (business choice) has both enabled and constrained them in defining an ESI-strategy. As a result, we can conclude that we have succeeded in illustrating empirically the importance of the role of self-reference for a better understanding of strategic sensemaking. This provides an answer to the sixth research question.

5.7 Reflections on the Research Objectives

Now it is time to question if the study has succeeded in its aim. The aim of the study was to achieve the following.

> "An approach to strategy that focuses on self-reference and does not give primacy to *either* the environment *or* the organisation in defining successful strategies but that gives primacy to *both* the environment *and* the organisation in order to do justice to both the deliberate and naïve aspects of strategic management."

What was found

The both/and-approach to strategy is grounded upon the notion that the environment and the organisation of companies are reciprocal related to each other. This particular conception of the system/environment-distinction has enabled us to develop a both/and-approach to describe and analyse the way members of organisations make sense of the strategy content, process and context under the scrutiny of self-reference.
Due to self-reference, this approach is grounded upon tautology and paradox. As such, our both/and-approach to strategy is not subjected to the shortcomings of either/or-approaches. Our approach does not deny that it is grounded upon the tautology that *companies are possible because they make themselves possible* and the paradox that *companies cannot regard reality as existing despite of them but need to do so to become existent*. The theory of self-referential systems offers these criteria in evaluating whether we have achieved the objective of the study. After all, an approach to strategy that observes strategic management as tautological and paradoxical should be grounded upon these phenomena itself. Despite and because of tautology and paradox, naivety offers us a way out in the observation of strategic realities. As we have illustrated by means of the field research, *companies constrain themselves because of the way they enable themselves*. Naturally, the same applies to us also. As a result, ironically, we have found that we have made a major step forward in observing the strategic reality of companies just because we have acknowledged the impossibility to observe the strategic reality of companies despite of ourselves.

What can be concluded

Although we have only just begun in applying the both/and-approach to strategy, we can conclude that this approach offers a promising solution to the theoretical and methodological problems involved with the observation of the reciprocal relation between organisations and their environment. After all, we have succeeded in describing and analysing the role of self-reference in strategic sensemaking. In addition, contrary to either/or-approaches to strategy, our approach does acknowledge its tautological and paradoxical foundation. In illustrating the importance of naivety in defining strategies, we have brought to light an empirical fact that remained unobserved within either/or-approaches to strategy. Because of that, it can be concluded that the both/and-approach offers a more just perspective on the strategy phenomenon. This is in line with a naturalistic stance on reality. This epistemology of the philosopher

Quine, denies the existence of Archimedean points in grounding the truth of knowledge. Consequently, the possibility of knowledge is explained from within our evolving theories on worldly matters (Koppelberg, 1990: 205). The both/and-approach to strategy has evolved from either/or-approaches and as a result, has a higher degree of sophistication in understanding the way strategies emerge. Our both/and-approach to strategy incorporates the either/or-approaches to strategy in the sense that it highlights that a focus neither on the environment nor on the organisation can claim superiority in explaining strategic success. As a result, both the environment and organisation may function as naïve starting points in strategic sensemaking.

This conclusion reinforces my surprise that most research designs that try to explain organisational behaviour independent of the experiences of members of organisations are so persistent, especially within 'Strategic Management Journal'. After all, if we have reasonable arguments for the fact that organisations make themselves possible, why do we still regard their existence as being mediated by things outside themselves? This is no new finding within strategy research on the theoretical level (e.g. Mir & Watson, 2000), but apparently, it is still difficult to conduct empirical research grounded upon the notion that organisations and their environment constitute each other reciprocally.

In addition, it can be concluded based on this study that naivety is the only solution in situations offering no way out. For this reason, the notion of naivety needs a positive revaluation. Within organisations, naivety is mostly used to indicate the sincere attempts of people to alter specific ways of action, as social blunders because of the fact these people do not take the political dimension of their context into consideration. This study proved that naivety in the sense of thoughtlessness is a necessity for innovation. Without being naïve, nothing new could be brought into existence by companies. This implies, paradoxically, that one can only become wise by acting folly. There is, however, another dimension to this observation. CEO, managers and other members of organisations, should also acknowledge the fact that attempts to rationalise success in situations 'where nobody has dared to go before' eventually cannot be grounded upon wisdom but only on contingent and lucky guesses in the beginning of their actions.

5.8 A Final Word on the Role of Self-Reference

Conducting research based upon the theory of self-referential systems leads one to be self-reflexive also. The notion of self-reference enables a way of observing observations as contingent. In this way, focussing on self-reference proved to be a difficult but valuable experience because exploring social systems as self-referential systems, forces a social researcher to question his premises also. This leads to the situation that one can only offer knowledge to the world if one is willing to learn the world in oneself and vice versa. This implies that by means of self-reference, researchers need to uncover the structures of meaning that they reproduce recursively in the study of organisational

phenomena, which enable and constrain the way they conduct research. As a result, self-reference has a twofold function in experiencing social phenomena: *self-reference functions as a means for modesty in making sense of the reality of others just because self-reference forces one to make sense of one's own reality*. After all, each observer has its blind spot in observing reality and scientific observers are no exception to this rule. For me, conducting organisational research is a meaningful way in forcing myself to come to terms self-referentially with what thrives me as an organisation researcher. I hope readers of this thesis have had similar self-reflexive experiences and will conclude with me that we cannot know for sure if these experiences tell us truly something about ourselves.

Appendix

Self-Referential Systems Theory

1 Introduction

Within this appendix the self-referential systems theory of Niklas Luhmann will be presented. This theory centres on the way social systems create meaning self-referentially, which implies that is described how social systems can come into being despite the fact that they are trapped within a chicken-and-egg problem when they deliberate on coming into existence. Companies busy with innovation, for instance, are confronted with a situation that is characterised by high uncertainty with respect to the market to be approached and the technology to be developed. The chicken-and-egg problem of these companies consists of making sense of the fact that the specifics of the future market depend on the specifics of the innovative technology and the specifics of the innovative technology depend on the specifics of the future market. In making sense deliberately of this situation, organisational members stumble upon the paradox that they need to observe their situation that only exists because of themselves as existing despite of themselves. To put it differently, coming to terms with one's situation self-referentially, implies rising above one's situation without oneself.

The theory of self-referential systems offers guidelines to conceptualise and study the way social systems deal with self-reference within the context of organisations. This implies that this theory describes how social systems can come into existence despite the problems involved with becoming self-referential and how social researchers can study the way social systems deal with problems related to self-reference. This appendix aims at presenting the conceptual and methodological guidelines to study organisations as self-referential systems. Until now, the theory of self-referential systems has not gained significant attention within organisation studies. Therefore, the main theoretical issues of the theory of self-referential systems will be presented in order to describe the problems social systems face in order to come into existence and remain themselves throughout time. Subsequently, the empirical research method associated with the theory of self-referential systems is presented. In the last section, some remarks will be made on the unbearable lightness of being of self-referential systems.

2 Describing Self-Referential Systems Theory

Obviously, the way self-referential systems are able to deal with self-reference will be a major part of this appendix. It is, however, far from obvious from the writings of Luhmann how to apply his insights on self-reference, tautology and paradox in the empirical exploration of sensemaking processes. In addition, the occurrence of tautology and paradox as inseparable phenomena involved with self-reference was not as apparent in 'Soziale Systeme' as it was in Luhmann's later work (see for example Luhmann, 1987, 1988, 1990a, 1990b, 1993a, 1993b, 1993c, 1993d). Therefore, in order to gain a better understanding of tautology and paradox, 'Soziale Systeme' does not suffice and other additional publications of Luhmann need to be used. In order to present the findings of these advancements in a comprehensive manner, two distinct options present themselves.

The first option is to focus on the way social systems act and are able to remain their actions throughout time. This option was chosen by Luhmann in 'Soziale Systeme'. The second option is to focus on the way social systems observe and are able to distinct themselves from their environment. For the sake of clarity, Luhmann thought it wise to connect explicitly to the open systems theory of social systems and to refrain from the second option because he thought it would be alienating for readers familiar with social systems theory (Luhmann, 1992: 378). Naturally, both options have a circular relationship to each other, which implies that independent of the starting option, a description of self-referential systems needs to give credit to the other option also. The major drawback to the first option, however, is that it is not immediately obvious that the theory of self-referential systems focuses primarily on second-order observations (i.e. observing the way social systems observe) and not so much on first-order observations (i.e. observing the way social systems act). Indeed, the concept of circular tautological and paradoxical reasoning comes off pretty badly in 'Soziale Systeme'. As indicated before, this thesis is about the way social systems are able to deal with self-reference. Therefore, a description of the theory of self-referential systems with respect to the second option seems more appropriate. The unavoidable drawback to this approach, however, is that the outset of the description is highly abstract and may even irritate those that favour a more down to earth approach to organisation science.

The description of self-referential systems theory as presented here, should by no means be regarded as exhaustive. Rather it should be regarded as a description of this theory to enable the empirical exploration of sensemaking processes with respect to self-reference. The major issues left out of in depth consideration are the identity of psychic systems and the delicate relationship between psychic and social systems. The description presented here, focuses on the question how it is possible for social systems to exist despite of self-reference. In other words, we need to make clear that *social systems are possible because they make themselves possible*. For this, in the subsequent sections the following aspects of the theory of self-referential systems will be presented

and commented on. These aspects were chosen because of their relevance to strategy research. After all, problems related to identity, adaptation, structure, meaning, communication and contradiction are issues that have gained considerable attention within organisation studies in general and strategy research in particular.

- *Identity*: within self-referential systems theory, self-observations of social systems eventually result in either tautological or paradoxical descriptions of identity. For the empirical exploration of sensemaking processes, it is important to find out how self-referential systems are able to identify themselves under the scrutiny of self-reference.

- *Adaptation*: within self-referential systems theory, the environment of social systems is dependent on the way these social systems observe. For the empirical exploration of sensemaking processes, it is important to find out how self-referential systems are able to deal with environmental complexity under the scrutiny of self-reference.

- *Structure*: within self-referential systems theory, the genesis of social systems is contingent or has something coincidental. For the empirical exploration of sensemaking processes, it is important to find out how self-referential systems succeed in overcoming this coincidence and succeed in remaining throughout time under the scrutiny of self-reference.

- *Meaning*: within self-referential systems theory, social systems need to make sense of themselves and (social) systems in their environment by means of interaction. For the empirical exploration of sensemaking processes, it is important to find out how self-referential systems are able to interact in giving meaning to things that constitute their reality under the scrutiny of self-reference.

- *Communication*: within self-referential systems theory, the way individuals make sense of each other's utterings during interactions involves 'verstehen'. For the empirical exploration of sensemaking processes, it is important to find out how psychic systems succeed in sharing information about things that mean something to them under the scrutiny of self-reference.

- *Contradiction*: within self-referential systems theory, sharing information may lead to contradiction and conflict. For the empirical exploration of sensemaking processes, it is important to find out how contradiction emerges and how social systems deal with it under the scrutiny of self-reference.

Because the thesis aims at applying insights of the theory of self-referential systems empirically, the research method associated with self-referential systems theory (functional analysis) will be presented also. After that, the implications of self-referential systems theory and functional analysis for the empirical exploration of sensemaking processes will be derived.

3 Self-Referential Systems and Identity

Self-referential systems are systems that are able to observe and more importantly are able to observe themselves. The former relates to first-order observations and the latter two second-order observations. Only on the level of second-order or self-observations, a social system stumbles upon self-reference. The notion of self-reference indicates the unity of an element, process or system for itself and therefore self-reference does not imply an observation from the outside (Luhmann, 1985: 58). On the level of second-order observations, contact with an environment is therefore only possible through self-contact, which implies that the environment of each self-referential system is the result of internal observations (Luhmann, 1985: 249). It is important to note that observations do not postulate consciousness or cognition[36]. For Luhmann, observing just means utilising a distinction, because only with a distinction it is possible to indicate something (Luhmann, 1985: 63). Observing is referring to one side of a distinction as opposed to the other side, e.g. a statement can only be true, when it is not false. During an observation, the distinction that enables the observation as such cannot be observed and therefore each observation has a 'blind spot' (Luhmann, 1990a: 123). But then again, the blind spot of a first-order observation is observable by a subsequent second-order observation that relates to another distinction (Luhmann, 1990a: 127). Likewise, these reflexive observations also have their blind spot, which is only observable by a third-order observation, etc. The fact that each observation has its blind spot leads to the situation that observation is a paradoxical operation, i.e. only when you close your eyes to something, you are able to see.

In order to be able to observe and observe themselves, self-referential systems need to utilise a distinction (e.g. friendly/unfriendly, true/false, profitable/unprofitable). The distinction that lies at the foundation of the theory of self-referential systems is the 'system/environment-distinction' (Luhmann, 1985: 35). According to Luhmann, self-referential systems are structural coupled to their environment and cannot exist without it (Luhmann, 1985: 35). By means of self-reference, self-referential systems are

[36] Luhmann's notion of 'Realität' or reality as the unity of the distinction between knowledge and objects implies the rejection of the subject-object scheme of knowing: 'Diese Einsicht sprengt [...] die Subjekt/Objekt-Schematik der Erkenntnistheorie.' (Luhmann, 1985: 658). The implications of this position are far reaching: knowing does not presuppose a subject but only a distinction (see also section 3.4).

able to reflect upon the distinction that structures their operations and that gives the self-referential system its identity (Luhmann, 1985: 640). Luhmann has chosen an observational or differential theoretical foundation[37] of the identity of self-referential systems. For this choice, Luhmann has to pay a serious price. This price refers to allowing the notions of 'tautology' and 'paradox' to slip into his theory of self-referential systems. A self-referential system that reflects upon its identity or observes itself, is trapped within circular reasoning or tautology: *it is what it is* (see also Figure 1). When a self-referential system tries to overcome this tautology by means of observing its environment (i.e. that what it is not) it ends up into another tautological or circular argument: *the system is what its environment is not but because there is no environment without the system, the environment is what the system is not* (see also Figure 1). Within self-referential systems theory, tautology needs to be regarded as short-circuited self-reference because *tautological reasoning is reasoning whereby the beginning and ending of a line of argument coincide.*

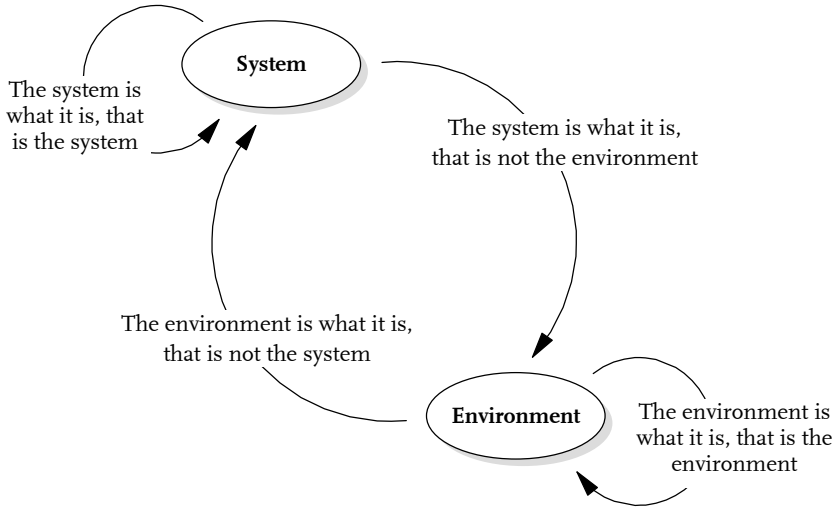

Figure 1: Self-Reference and Tautology

A tautology can be transformed into a paradox by means of negation: *the system is not what it is* (see also Figure 2). When a self-referential system tries to overcome this paradox by means of observing itself as its environment (i.e. that what it is not) it ends up into another paradox: *a system observing itself as that what it is not, observes itself as its environment, but because there is no environment without the system, observing the environment in this way implies observing what the environment is not and that implies that*

[37] For this differential theoretical foundation, Luhmann used the notions of *distinction* and *indication* as developed by the mathematician George Spencer Brown in his book 'Laws of Form', second edition, New York, 1972.

the system needs to observe itself (see also Figure 2). Within the theory of self-referential systems, paradox should be regarded as contradicting self-reference because *paradoxical reasoning is reasoning whereby the enabling and constraining conditions of a line of argument coincide*.

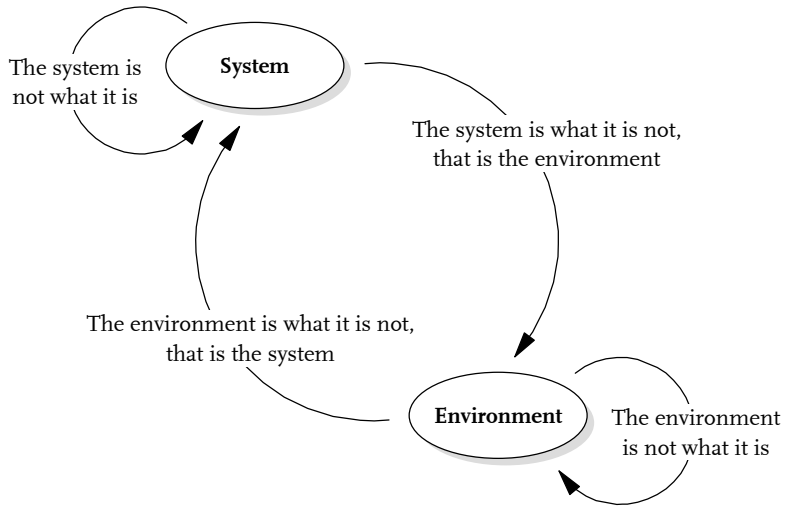

Figure 2: Self-Reference and Paradox

Because of tautology and paradox, the identity or self-observation of self-referential systems is grounded upon paradox: *a self-referential system cannot ground its identity independent of itself and yet only gets an identity when it does*. This problem is similar to the problem of the Baron of Münchhausen who needed to pull himself out of the swamp by his own hair. Observing one's identity leads to paradox because you have to observe yourself as something else based on the same distinction that made it possible to identify yourself (Luhmann, 1987: 165). Ironically, this paradox leads to the situation that a self-referential system that observes itself does actually not observe itself. This is caused by the fact that during the self-observation, a self-referential system cannot observe that it is involved with the observation of itself (Luhmann, 1990a: 128). This blind spot leads to the paradoxical situation that *the identity of a self-referential system is something that cannot be identified by the self-referential system*[38].

[38] Because identity is unidentifiable, Luhmann indicates that the old paradigm of systems theory, i.e. 'the unity of the distinct and the indistinct' ('die Indentität von Indentität und Differenz'), should be replaced by a new one. For Luhmann, 'the distinction between the distinct and the indistinct' ('die Differenz von Identität und Differenz') presents itself as such a new paradigm because '[...] Selbtsreferenz kann in den aktuellen Operationen des Systems nur realisiert werden, wenn ein Selbst (sei es als Element, als Prozeß oder als System) durch es selbst identifiziert und gegen anderes different gesetzt werden kann.' (Luhmann, 1985: 26).

In general, second-order or self-observations by self-referential systems imply the 're-entry' of the system/environment-distinction within the system (Luhmann, 1985: 641). Re-entry means that a self-referential system observes itself by the same distinction that facilitates its first-order observations or actions to obtain knowledge about itself. As we have seen, this re-entry results in either tautological or paradoxical observation. Within the theory of self-referential systems, tautologies are paradoxical also. That is because tautological statements are statements that do not state anything, i.e. something is said and at the same time, nothing is said, e.g. 'this bike is mine because it is mine'. Despite the fact that tautologies are paradoxical also, these two forms of self-reference are not the same. Tautology can be characterised as the non-contradictory form of self-reference whereas paradox is characterised by contradictory self-reference. This means that contrary to tautology, paradox leads to oscillating indecision. That is, if you start an argument with a certain conviction you have to conclude the direct opposite at the end of the argument and vice versa. Because paradox leads to oscillating indecision, within the framework of self-referential systems theory, paradox cannot be defined according to logical or apparent contradiction (Luhmann, 1993a: 212). That is because within this framework, paradoxes are not senseless or meaningless statements but statements that meaningfully indicate the limits of knowledge mankind can have about the nature of things. On the contrary, the occurrence of paradox is the very reason self-referential systems can observe and exist. Within the theory of self-referential systems, paradoxes are not statements that point in two or more incompatible directions but lines of reasoning that oscillate between different directions and fail to point in any one steady direction (Luhmann, 1993b: 246; Wormell, 1958: 271). Paradox leads to the situation that it is impossible to make a useful indication anymore and therefore the observation is blocked. This oscillating indecision occurs each time the unity of a distinction is questioned by re-entry of the distinction onto itself. To give an example, suppose that someone wants to know what the essence of his being is. In the process of unravelling several layers of his identity he finds out, just as is the case with an onion, that after each layer there is yet another layer. This leads him to the conclusion that while finding something continuously in the process, he eventually stumbles upon nothing. The direct opposite of what he presumed. Come to wisdom, he states that there is no essence to his being. However, that does not make sense to him either. After all, each layer he finds tells something about his identity, just as each layer of an onion tells something about the onion. This leads him to the conclusion that there should be something to be found that makes him who he is. Again, the direct opposite of what he presumed. It appears this person has become trapped within an oscillating contradiction that leads to indecision, i.e. he cannot decide if there is an essence to his being or not. This paradox occurs because this person tries to observe the spot behind the distinction between essence and no essence of being, which cannot be observed by the same distinction.

Each distinction is inherently paradoxical and when stumbled upon paradox, the paradox can never be solved from within but only be concealed by means of introducing another way of observation, i.e. by replacing the distinction by another inherently paradoxical distinction. Luhmann indicates that self-referential systems can only come into being (he would say 'become more complex') when they succeed in overcoming the tautology and concealing the paradox that lies at the foundation of their operations (Luhmann, 1985: 59). Later in this chapter will be described in more detail how psychic and social systems can solve their chicken-and-egg problem in coming into existence. For here, it suffices to say that it can be solved by 'naively' utilising a distinction, i.e. a self-referential system 'only' needs to start operating and has to postpone in time the question about the unity of the distinction that enables its operations. This implies that paradoxes are a problem only for an observer and not necessarily for an observed system busy with operating (Luhmann, 1990a: 123). That is because during operations only one side of a distinction can be used for indication, e.g. a statement is either true or false. The good news therefore is that while paradoxes refuse the observation of the unity of observations, they allow operations to take place and the existence of operational unities to emerge throughout time. While operating, self-referential systems can reflect upon their identity by means of a 're-entry' of the distinction that enabled the operations in order to end up in the paradox that gave birth to its existence. Ironically, in doing so a social system finds out that it stumbles upon a problem that is has already solved, that is *its existence*.

The procedure described above to deal with self-reference is the very procedure that enabled Luhmann to formulate his theory of self-referential systems. In the first sentence of the first chapter of 'Soziale Systeme' (1985: 30), Luhmann states that[39]: 'The next considerations assume the existence of systems'. This statement should not be regarded as a 'metaphysical' or 'ontological' claim, as some of his critics have done, but only as a means to start observing (Luhmann, 1986: 130). For a theory of self-referential systems, the merit of the system/environment-distinction lies in the fact that this distinction does not presuppose *any* observation from outside with respect to the existence of self-referential systems. In this respect, the theory of self-referential systems is truly a general systems theory because each theory with a claim to generality should appear without contradictions as its own object of consideration within the theory[40] (Luhmann, 1985: 9). The theory of self-referential systems thus is a self-referential theory and eventually is grounded upon paradox itself, i.e. the unity of the

[39] Luhmann: 'Die folgenden Überlegungen gehen davon aus, daß es Systeme gibt.' (Luhmann, 1985: 30).

[40] Luhmann: 'Theorien mit Universalitätsanspruch sind leicht daran zu erkennen, daß sie selbst als ihr eigener Gegenstand vorkommen (denn wenn sie das ausschließen wollten, würden sie auf Universalität verzichten müssen).' (Luhmann, 1985: 9).

distinction between system and environment. For this unity, Luhmann uses the term 'Welt' or world (Luhmann, 1985: 95-96). It is important to note that because the theory of self-referential systems is self-referential itself, 'Welt' does not refer to an all-embracing ontological concept of the world but only to the world for a self-referential system[41] or the world 'an sich' (Luhmann, 1985: 283-284). In general, the unity of a distinction is treated as a measure of complexity by Luhmann[42] (Luhmann, 1993a: 201). The unity of a distinction can be seen as the point that cannot be observed from within, at least not under penalty of paradox. For self-referential systems, paradox with respect to the system/environment-distinction is regarded as the ultimate form of complexity. Complexity is the reference problem or the 'Welt' of self-referential systems and as such complexity is 'einwertig' or unitary, which means that unitary terms absorb paradoxes because the negation of such a term is enclosed by the term[43] (Luhmann, 1988: 41). The term 'Welt' for example is unitary because the negation of the world can only be performed within the world (Luhmann, 1988: 42).

It should be noticed that Luhmann emphasises that the founding distinction he introduced for his self-referential systems theory could have been chosen differently. In other words, the choice for the system/environment-distinction was 'contingent', i.e. it was neither necessary nor impossible (Luhmann, 1985: 152). Dependent on the founding distinction, a theory of self-referential systems will be conceptualised differently. Despite the fact that Luhmann regards his theory a universal theory, he states that it is not the only possible theory about social systems. In other words, the claim for theoretical universalism goes hand in hand with epistemological constructivism. Notwithstanding the contingent nature of the theory of self-referential systems, we hope to illustrate that it is a theory that offers a valuable and new perspective on the specifics of sensemaking processes in general and strategic sensemaking processes in particular.

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[41] Luhmann: 'Die traditionelle Zentrierung des Weltbegriffs auf eine „Mitte" oder dann auf ein „Subjekt" hin wird damit aufgegeben, wird aber nicht einfach ersatzlos gestrichen. An ihre Stelle tritt die Zentrierung auf Differenz hin; oder genauer: auf die System/Umwelt-Differenzen hin, die sich in der Welt ausdifferenzieren und damit die Welt konstituieren.' (Luhmann, 1985: 284).

[42] When 'Soziale Systeme' appeared, Luhmann used a somewhat different view on complexity but in his later work a notion of complexity emerged that is presented here. The thesis of Blom (1997) offers a valuable description of the ambiguous role of complexity in the work of Luhmann.

[43] Luhmann grounded the theory of self-referential systems upon three unitary terms, i.e. 'Welt', 'Realität' and 'Sinn'. 'Welt' or world will be explained in the remainder of this section, 'Realität' or reality was explained in footnote 36 and 'Sinn' or meaning will be explained in section 2.5.

4 Self-Referential Systems and Adaptation

Self-referential systems can come into existence by naively starting to operate and in the process refrain from thinking. While operating, self-referential systems have to deal with environmental changes in order to maintain themselves as operating unities throughout time. The relationship between self-referential systems and their environment is delicate because the environment cannot cause the structural existence of self-referential systems. The environment cannot influence a self-referential system causally, unless the system willingly co-operates[44] (Luhmann, 1985: 478). This does not mean that the environment cannot have influence on a self-referential system; it only means that the environment cannot determine it. Therefore, self-referential systems are autonomous with respect to their environment.

For Luhmann, this reversal of the 'primacy of the environment' to the 'primacy of the system' leads to a fruitful tautology or vicious circle: systems can be adapted to the environment if the environment is adapted to the system[45] (Luhmann, 1985: 56). The implication of this can be expressed by the paradox that *self-referential systems are open only because they are closed*[46]. Luhmann regards self-referential systems as systems of organised or reduced complexity in relation with their more complex environments (Luhmann, 1985: 46-47; 249). In the former section, we have seen that observations are grounded upon paradox because each observation has its blind spot and therefore you can only see when you are blind. With this in mind, becoming operational implies the reduction of complexity as brought forth by the paradox of self-observation. Self-referential systems can reduce the resulting external ('Fremdreferenz') and internal complexity ('Selbstreferenz') by means of selectivity. That is, by relating some elements while leaving others unrelated. The specific selection made or solution chosen is contingent because the elements could have been related to other elements, i.e. other solutions were possible at the time of selection. Due to the blind spot of each

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[44] Luhmann: 'Es gibt keinen direkten Kausalzugriff der Umwelt auf das System ohne Mitwirkung des Systems.'(Luhmann, 1985: 478).

[45] Luhmann: 'Auf Theorieebene führt diese Umkehrung zunächst in eine zirkuläre Tautologie: Systeme können sich der Umwelt anpassen, wenn die Umwelt dem System angepaßt ist, und umgekehrt.' (Luhmann, 1985: 56).

[46] An important implication of this is that Ashby's 'Law of Requisite Variety' is abandoned, at least on the level of self-observation: 'Die Einrichtung und Erhaltung einer Differenz von System und Umwelt wird deshalb zum Problem, weil die Umwelt für jedes System komplexer ist als das System selbst. Den Systemen fehlt die 'requisite variety' (Ashby), die erforderlich wäre, um auf jeden Zustand der Umwelt reagieren bzw. die Umwelt genau systemadäquat einrichten zu können. Es gibt mit anderen Worten, keine Punkt-für-Punkt-Übereinstimmung zwischen System und Umwelt (ein Zustand, der im übrigen die Differenz von System und Umwelt aufheben würde).' (Luhmann, 1985: 47-48).

observation, each selection or solution has its unforeseeable consequences. Therefore, each contingent selection or solution implies risk[47] (Luhmann, 1985: 47).
Because of the autonomy of self-referential systems, complexity provokes selectivity on them. This connection between complexity and selectivity implies the use of time because self-referential systems experience time as existing before, during and after a selection (Luhmann, 1985: 70). A self-referential system can use time to become more complex, i.e. it can reduce complexity by shifting selection pressure on to time. This is what is called the ability of self-referential systems to 'temporalise complexity' (Luhmann, 1985: 76-77). To temporalise complexity, a self-referential system needs to relate its operations in time. According to Luhmann, operations have no duration, i.e. operations only exist in the present (Luhmann, 1985: 78). This implies that the operations of self-referential systems vanish continually. Within self-referential systems theory, therefore, it is not an issue anymore to explain how social systems adapt to their environment in order to remain in existence but to explain how self-referential systems succeed in reproducing their operations. The latter relates to the question how autonomy results in 'Anschlußfähigkeit' or the ability to relate subsequent operations throughout time (Luhmann, 1985: 28). It is at this point Luhmann introduces the notion of autopoiesis or self-reproduction to explain how self-referential systems can build themselves grounded upon the temporality of their operations. How this is possible, will be the subject of the next section.

5 Self-Referential Systems and Structure

For the development of his theory of self-referential systems, Luhmann used the concept of *autopoiesis* as developed by Maturana & Varela (1980). The theory of autopoiesis tried to explain the difference between living and not-living systems. According to the theory of autopoiesis, a living system is characterised by its ability to produce and reproduce the elements that constitute the system as a unity: each cell is the result of a network of internal operations of the living system. Luhmann regards psychic and social systems as autopoietical also, which implies that the operations constituting the unity of these systems (i.e. respectively thoughts and communications) can only be reproduced because they are self-referentially linked to each other (Luhmann, 1985: 59).
The notion of autopoiesis points to the necessity of self-referential systems to reproduce their elements recursively in order to remain an operative unity. This leads to the paradoxical situation that *self-referential systems are stable in time because of their instability*. Each element of a self-referential system vanishes when it comes into being because elements of self-referential systems do not have any duration, i.e. they only

[47] Luhmann: 'Komplexität [...] heißt Selektionszwang, Selektionszwang heißt Kontingenz, und Kontingenz heißt Risiko.' (Luhmann, 1985: 47).

exist in the present (Luhmann, 1985: 76-77). In order to emphasise the temporality of a self-referential system's elements, Luhmann uses the word element synonymously with the word operation (Luhmann, 11985: 79). The 'genetic material' that causes the reproduction of these elements or operations is selectivity. The fact that complexity is temporalised by a self-referential system indicates that it is completely dependent on its abilities to select because after each operation the system is able to experience its complexity to full extent and is provoked to find new ways to reduce that complexity (Luhmann, 1985: 79). This leads to the paradox that *each operation is definite and indefinite at the same time*. An operation is definite in its temporal existence and indefinite in its ability to indicate the next operation (Luhmann, 1988: 80). Only self-referential systems that find ways to indicate the next operation, by means of selectivity, are able to become existent throughout time[48] (Luhmann, 1988: 80). However, this apparent stability is actually instable, i.e. it is possible for a self-referential system to change the course of its action after each operation.

Thus, selections are the means with which the temporal gap between two subsequent operations can be bridged. However, the complexity as experienced by a self-referential system when it is provoked to select is incomprehensible (Luhmann, 1985: 73), which implies that an abundance of options may lead to an inability to choose. Therefore, structures can be seen as contingent reductions of the available options to bridge the gap between two subsequent operations (Luhmann, 1985: 73-74; 383-384). This leads to paradox that *structures enable and constrain the operations of self-referential systems at the same time*[49]. However, structures cannot determine the operations of self-referential systems nor can they produce their operations throughout time; they only structure the expectancies of a self-referential system's temporal operations (Luhmann, 1985: 397). To emphasise this, Luhmann uses the distinction between structure and process. Structures constrain the course of time in a reversible way because they reduce the available options to select but leave room for other reductions while processes are irreversible in time because it is impossible for them to go backwards (Luhmann, 1985: 73-74). In short, processes *produce* operations and structures *prepare* operations.

The unity and identity of self-referential systems have to be distinguished from each other carefully (Luhmann 1985: 61). The unity of a self-referential system is constituted through the autopoiesis of its operations, whereas a self-referential system's identity is constituted through the observation of its operations. In section 3 of this appendix, we have seen that when a self-referential system starts questioning the unity of its identity, it ends up in a paradox. It can push forward in time this paradox by 'only' start

[48] Luhmann: 'Dadurch, daß diese *Kombination* [von Bestimmtheit und Unbestimmtheit] durch Ausdifferenzierung eines entsprechenden Systems *garantiert wird*, werden Ordnungsleistungen möglich, *die sich darauf stützen*.' (Luhmann, 1985: 80) (italics in original).

[49] With respect to social systems, this paradox is also known within structuration theory (Giddens, 1984).

operating. Therefore, a self-referential system needs to operate first, before it can develop its identity. Because of the fact that an operation thus precedes an observation in time, an operation cannot relate its operative unity to the identity of the self-referential system. The unity of an operation is constituted by means of elemental or operational self-reference, i.e. an operation is an operation of a self-referential system because it refers to other operations of the self-referential system (Luhmann, 1985: 67; 1993c: 141). Within self-referential systems theory, therefore, it is not an issue anymore to explain how social systems succeed in reproducing their operations in order to remain in existence but how they succeed in giving meaning to their operations independent of the operations themselves. How self-referential systems can overcome this operational self-reference, will be discussed in the following section.

6 Self-Referential Systems and Meaning

According to Luhmann, psychic and social systems[50] came into being by means of co-evolution and are structurally coupled to each other: psychic systems cannot exist without social systems and social systems not without psychic systems. Psychic and social systems assume each other. However, due to the autopoietical nature of their operations they are self-referentially closed. This implies that each belongs to the other's environment, i.e. psychic events (thoughts) are not reducible to social events (communications) and vice versa (Luhmann, 1985: 92). In order to emphasise the temporality of the operations of psychic and social systems, Luhmann indicates them with the word events (Luhmann, 1985: 102). For psychic and social systems alike, the complexity experienced while bridging the gap between two events is a special case. 'Sinn' or meaning emerges as the abundance of possible subsequent experiences in psychic systems and communications in social systems[51] (Luhmann, 1985: 93). Psychic and social systems are provoked by this complexity to make literally meaningful selections. 'Sinn' is the 'einwertige' or unitary term used by Luhmann for the unity of the distinction between what is actual and what is possible in experiencing phenomena and indicates that also the negation of meaning has meaning, i.e. it can be meaningful to regard a possibility as meaningless (Luhmann, 1985: 96). In short, 'Sinn' is the

[50] Because of the wordiness of 'self-referential psychic systems' and 'self-referential social systems', they will be indicated as 'psychic', respectively 'social systems'.

[51] Luhmann uses the 'Sinn'-concept of Edmund Husserl's 'Phänomenologie' or phenomenology. However, 'Sinn' is free from ontology and subjectivism: 'Eine Theorie sinnhaft-selbstrefferentieller Systeme liegt außerhalb des Ordnungsbereiches jeder Metaphysik klassischen Stils und ebenso außerhalb des Ordnungsbereiches der neuzeitlichen Subjekt-Methaphysik.' (Luhmann, 1985: 145; see also Nassehi, 1992: 52-53).

'Welt' (see section 3 of this appendix) of psychic and social systems[52] (Luhmann, 1985: 105; 283-284).

All the events of psychic and social systems have meaning and these systems themselves thrive on meaning. Psychic and social systems succeed in making sense of systemic events by means of gathering information. According to Luhmann, information is information because it makes a difference[53] and therefore information results from events with which new possible meanings are selected (Luhmann, 1985: 102). Information that is processed a second time cannot be regarded as information anymore because it does not make a difference anymore. Therefore, time causes that psychic and social systems distinct meaning from information, although the reproduction of meaning implies the processing of information and all information has meaning (Luhmann, 1985: 103). Due to the difference between meaning and information, psychic and social systems are susceptible for deviating experiences and are provoked to alter their frames of reference from time to time.

In the former section, it turned out that structures reduce the possibilities of subsequent operations. The structured expectations of psychic and social systems with respect to their realities can be labelled as symbolic generalisations (Luhmann, 1985: 135). Besides meaning, identity is necessary for the emergence of symbolic generalisations. Therefore, the processing of meaning implies the use of distinctions in order to connect events in time by information (Luhmann, 1985: 100). According to Luhmann, the emergence of symbolic generalisations in psychic and social systems does not presuppose language. To illustrate this, Luhmann uses the following example concerning his garbage can. Based on the noise it makes, you can deduce that it is your garbage can that is being emptied and when you go outside to fetch it, despite that it stands in the midst of many, you recognise yours immediately (Luhmann, 1985: 136). Although language is not necessary, words and names can contribute significantly to the interpretation of the meaning of events. Therefore, symbolic generalisations emerge in the intercourse of identifying objects and executing events (Luhmann, 1985: 136-137).

We have seen that time itself causes that psychic and social systems can distinct between meaning and information. With information, psychic and social systems can structure their expectations and are able to develop symbolic generalisations of meaningful thoughts, respectively communications. The development of symbolic generalisations is necessarily dependent on distinctions, while only with distinctions it is possible for psychic and social systems to indicate information regarding thoughts

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[52] Luhmann: 'Wir setzen den Weltbegriff hier als Begriff für die *Sinneinheit der Differenz von System und Umwelt* ein und benutzen ihn damit als differenzlosen Letztbegriff.' (Luhmann, 1985: 283) (italics in original).

[53] Luhmann accredits the concept of information as 'the difference that makes a difference' to Gregory Bateson as elaborated in his book 'Steps to an Ecology of Mind', San Fransisco, 1972.

and communications as meaningful. According to Luhmann, psychic and social systems can utilise three dimensions of meaning to experience symbolic generalisations as existing independent from themselves, i.e. these dimensions allow the overcoming of tautology and paradox which both are inherently associated with the observation of each distinction (see section 3 of this appendix) by transforming 'Selbst-referenz' into 'Fremdreferenz'[54]. This leads to the paradoxical situation that *despite they are self-referentially closed, self-referential systems need to experience symbolic generalisations as existing independent of themselves*. The three dimensions to decompose meaning 'objectively' or asymmetrise the self-referential circularity are not reducible to each other and can be listed as follows (Luhmann, 1985: 112-122).

- The *systemic dimension*[55] concerns the apparent objective experience of aspects of meaningful intentions and themes of communications in psychic respectively social systems. That is, despite the fact that each object only exists through self-contact. The distinction between system ('this') and environment ('that') constitutes this dimension and results in the possibility that we are able to objectify things as different from each other, i.e. a horse is no cow.

- The *temporal dimension* concerns the apparent objective experience of events in time. That is, despite the fact that for psychic and social systems only the present exists. The distinction between past ('before') and future ('after') constitutes this dimension of meaning and results in the possibility that we are able to experience different time horizons in the present, i.e. a thing is still there where you left it yesterday.

- The *social dimension* concerns the apparent objective experience of the perspective of psychic systems different from you. That is, despite the fact that perspectives of others necessarily are projections of our own perspectives. The distinction between you ('alter ego') and me ('ego') constitutes this dimension of meaning and results in the possibility of 'Verstehen' or understanding, i.e. we agree that you are my friend and not my enemy.

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[54] Luhmann: 'Alle Einheit ist Einheit von Selbstreferenz und Fremdreferenz, [...]' (Luhmann, 1985: 495).

[55] Luhmann indicates the systemic dimension as the 'Sach-dimension'. The German word 'Sache' means 'object' or 'thing' in English. The adjective of both words, i.e. what concerns objects or things, is, as far as I know, hard to denominate in English. Because in Luhmann's theory of self-referential systems 'Sache' are always systems or systems in the environment, we have chosen to indicate the 'Sach-dimension' as the systemic dimension.

The objectivity of meaning as the actual and the possible implies the use of the three dimensions of meaning simultaneously, e.g. by means of writing communication becomes independent of interaction and is preserved for the future (Luhmann, 1985: 127-128). However, the three dimensions also constrain each other. One important 'meaningful' constraint of the theory of self-referential systems is that consensus between two subjects as an aspect of the social dimension implies the non-identity of these subjects in the systemic dimension[56] (Luhmann, 1985: 120). This means that the identity of two subjects remains unidentifiable for one another despite the fact that communication is possible. Within self-referential systems theory, therefore, it is not an issue anymore to explain how social systems succeed in making sense of apparent objective things in order to remain in existence but how they succeed in communicating about it. How self-referential systems are able to communicate will be discussed in the following section.

7 Self-Referential Systems and Communication

Within the theory of self-referential systems, psychic and social systems belong to each other's environment. This implies that both systems remain unidentifiable for each other because communications cannot be reduced to thoughts and thoughts not to communications. According to Luhmann, this is the very reason communication is possible in the first place[57] (Luhmann, 1985: 154-155). Social systems come into being when psychic systems interact during communication processes. By communication, psychic systems become personalised, which means that during communication processes, the psychic systems involved develop expectations on each other's actions. In other words, the personality of a psychic system is dependent on the expectations other psychic systems have regarding the behaviour or way of acting of this psychic system. For example, in time you become aware that a specific colleague will rage in anger when you tighten the screws on him with respect to the quantity of his scientific output. This development of expectations is dependent on the notion of double contingency[58], which indicates that two psychic systems coming across each other in the social dimension experience each other's feelings and actions as contingent, i.e. as neither necessary nor impossible. A psychic system interacting with another psychic system experiences a situation as double contingent when he realises that he cannot determine the way the other interprets his actions and when he at the same time

[56] Within for example the 'Theorie des kommunikativen Handelns' of Jürgen Habermas, two subjects are able to communicate 'herrschaftsfrei' because they are able to experience one another's identity by means of 'verstehen'.

[57] Luhmann: 'Das bedeutet Verzicht auf jede substanzialisierte Auffassung von Individuen oder Akteuren, die als Träger bestimmter Eigenschaften die Bildung sozialer Systeme ermöglichen.' (Luhmann, 1985: 155).

[58] The term 'double contingency' was introduced by Talcott Parsons.

realises that the other one realises this too. Therefore, double contingency results in the fact that the meaning of actions is indefinite. Social systems can only come into being when the problem of double contingency is solved by the interacting psychic systems. However, because a psychic system is self-referentially closed, each action of a psychic system necessarily points back to itself. The solution to asymmetrise this circularity relates to the fact that a psychic system or *Ego* can observe another psychic system as an *Alter Ego* and because Ego knows that Alter experiences a situation as double contingent too, Ego can start interacting with Alter. This means that just because the actions of Alter are experienced as contingent, each action of Alter is informative and therefore results in the fact that the indefinite becomes definite[59] (Luhmann, 1985: 170-171). This leads to the paradoxical situation that both *despite and because of double contingency, self-referential systems are able to communicate*.

From former sections, it appeared that the elements or operations of social systems are communications. According to Luhmann, communication is the emergent unity of three selections (Luhmann, 1985: 196). These selections are *information* ('Information'), *utterance* ('Mitteilung'), and *understanding* ('Verstehen'). Luhmann regards information in line with today's standard definition as a selection of a repertoire of possibilities (Shannon & Weaver, 1949). Information is a selection and as such, information draws a distinction between what is communicated and what is excluded from communication (Luhmann, 1985: 194). Information is a meaningful selection made by Ego that needs to be understood by Alter. Therefore, information is not transmitted but produced[60].

In addition, a behaviour or utterance needs to be selected that expresses the information. This utterance not only can occur intentionally or unintentionally, it is also possible without language, e.g. by means of your absence or your body language. It is important however, to regard utterance as a selection because information does not determine how it should be communicated. Therefore, utterance duplicates information in a specific form, e.g. speech or in writing (Luhmann, 1985: 197).

Lastly, understanding is necessary to complete communication. Understanding is the distinction between information and utterance (Luhmann, 1985: 198). That is, understanding is the observation of conduct by Alter as two meaningful contingent selections concerning an utterance of information by Ego. However, because of double contin-

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[59] Luhmann: 'Was Kontingenzerfahrung leistet, ist mithin die *Konstitution und Erschließung von Zufall für konditionierende Funktionen im System*, also die *Transformation von Zufällen in Strukturaufbauwarhscheinlichkeiten*.' (Luhmann, 1985: 170-171) (italics in original).

[60] Luhmann explicitly distances himself from the 'transmission-metaphor' of communication: 'Die Übertragungsmetapher ist unbrauchbar, weil sie zu viel Ontologie impliziert. Sie suggeriert, daß der Absender etwas übergibt, was der Empfänger erhält. Das trifft schon deshalb nicht zu, weil der Absender nichts weggibt in dem Sinne, daß er selbst es verliert. Die gesamte Dingmetaphorik ist ungeeignet für ein Verständnis von Kommunikation.' (Luhmann, 1985: 193).

gency, Ego cannot determine the way Alter should understand utterances of information. To make this point even stronger: just because the selection of information and utterance is conceived as contingent, understanding is possible. Luhmann indicates for example that sincerity cannot be communicated because by communication it becomes insincere (Luhmann, 1985: 207-208). This implies that utterances of information are informative utterances only if Alter regards them as such (Luhmann, 1985: 196).
Because informative utterances can be willingly or unwillingly misunderstood, understanding cannot be regarded as the duplication of an informative utterance of Ego in the mind of Alter. The purpose of understanding is to make communications 'Anschlußfähig', i.e. to make it possible to relate subsequent communications in time (Luhmann, 1985: 199). Only from a subsequent communication, Ego is able to conclude that his informative utterance is understood by Alter in the way he intended it to be understood. This example also illustrates that the autopoiesis of social systems is the result of communications triggering communications triggering communications, etc. (Luhmann, 1985: 226). That is, communications refer to other communications by means of elemental or operational self-reference (see also section 5 of this appendix).
The recursive reproduction of communications thus is possible with operational self-reference. However, in order to become existent throughout time, social systems need to structure their communication processes. For this purpose, social systems can use the distinction between themes (e.g. strategic management) and contributions (e.g. management survivals) (Luhmann, 1985: 213). Themes can be regarded as the unity of communication processes and contributions as the elements that vanish immediately after their occurrence. Themes are more persistent than contributions and therefore function as systemic, temporal and/or social-structures of meaning within social systems (Luhmann, 1985: 216). This implies that the structures of social systems that structure the expectations within communicating processes only become relevant when they in turn can be expected (Luhmann, 1985: 411). Therefore, the emergence of structured themes of communications draws the attention to self-reference and to various levels of self-reference. After all, communications not only can relate to elemental communications (contributions) but also to the unity of communication processes (themes) and even to the identity of social systems. Luhmann indicates the first type of self-reference with the already introduced term *operational self-reference*, the second type with the term r*eflexivity* and the third type with the term *reflection* (Luhmann, 1985: 600-602). These three types of self-reference relate to three levels of aggregation of social systems, respectively operations, processes and systems. From the former section, it appeared social systems need to asymmetrise tautological problems with respect to their environment and themselves to become 'Operationsfähig'. Strictly speaking, social systems do not need elemental self-reference, reflexivity or reflection to develop respectively asymmetrised operations, structured processes and identifiable systems. However, because self-referential systems are structural coupled to their

environment, changes in the environment can surprise, irritate and frustrate the operations, processes and systems of social systems. A social system therefore is forced to some degree to become reflexive in order to cope with environmental changes by communicating about these changes.

The elements or operations of social systems are communications and only by means of meta-communication, social systems can become existent throughout time. According to Luhmann, however, communication cannot be observed directly by social systems. The unity of information, utterance and understanding is only accessible when it is unfolded in time (Luhmann, 1985: 226). Social systems do this by asymmetrising the unity of communications as temporal personal actions. That is, communications will be attributed to persons and consequently communications become expectable during communication processes and as such solve the problem of double contingency[61] (Luhmann, 1985: 227).

It appears that social structures are structures that structure expectations of communicating psychic systems and as such make it possible to attribute communications to persons. For social systems, this implies that communications are the 'Letzteinheiten' or elemental unities for self-constitution and actions the elemental unities for self-observation and self-description (Luhmann, 1985: 241). Only by actions, communications become bounded as operations in time. Therefore, social systems are constituted dualistically[62]. The attribution of communications to personal actions, results in the fact that persons are provoked to experience selections concerning communications as actions for which they are responsible and can be accounted for. The attribution of communications to personal actions does not mean that all actions can be regarded as communicative, i.e. not all actions are aimed at uttering information, e.g. singing while showering. Despite of that, it is not entirely false for communicating systems to regard themselves as acting systems; it is only a one-sided point of view because the process of self-constitution is too complex to comprehend by means of self-observation and self-description. This incomprehensibility leads to the fact that a social system needs to deal with the possibility of deviances or contradictions that surprise, irritate and frustrate the operations, structures and subsystems of social systems. Within self-referential systems theory, therefore, it is not an issue anymore to explain how social systems succeed in communication in order to remain in existence but how they succeed in dealing with

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[61] Luhmann: '*Erst durch Einbau eines Handlungsverständnisses in das kommunikative Geschehen wird die Kommunikation asymmetrisiert*, erst dadurch erhält sie eine Richtung vom Mitteilenden auf den Mitteilungsempfänger, die nur dadurch umgekehrt werden kann, daß der Mitteilungsempfänger seinerseits etwas mitzuteilen, also zu handeln beginnt.' (Luhmann, 1985: 227) (italics in original).

[62] Luhmann: 'Auf die Frage, woraus soziale Systeme bestehen, geben wir mithin die Doppelantwort: aus Kommunikationen und aus deren Zurechnung als Handlung.' (Luhmann, 1985: 240).

contradiction. How self-referential systems succeed in this, will be discussed in the following section.

8 Self-Referential Systems and Contradiction

In order to comprehend what contradictions are, a sharp distinction needs to be drawn between autopoiesis and observation. Contradictions have a different function according to the autopoiesis or observation of communications (Luhmann, 1985: 491). In the context of autopoietical operations, contradictions are specific means to make operations 'Anschlußfähig' or to relate them throughout time (see also section 4 of this appendix). The reaction to contradiction is different from the reaction to a situation that is not contradictory. In both cases, however, the situation provokes reactions and these reactions keeps the autopoiesis going. From an observational point of view, the situation is different. For an observer, and only for an observer, a contradiction leads to indecision while he cannot unify both sides of the contradiction. This results in the fact that the observation is blocked and cannot be continued[63].

According to Luhmann, contradictory statements are not the same as contrasting statements (Luhmann, 1985: 493). For example, competition is not a contradiction because there is nothing inherently contradictory about two customers striving for the same good. In fact, contradictions seem to be inherently tautological because they are statements whereby the negation of the statement is lost: Ego states A and Alter replies not A (Luhmann, 1985: 493). A tautology comes into being each time self-reference is short-circuited. Luhmann regards short-circuited self-reference as fruitful circularity (see also section 4 of this appendix) because only by means of this circularity, self-referential systems become 'Anschlußfähig'. That is, each subsequent operation unfolds the tautology throughout time. This means that an operation restricts the possibility of other operations, for example: A is not A because ... (Luhmann, 1985: 493-494). By means of these restrictions, subsequent operations can be connected. Apparently, self-referential systems have the ability to use restrictions and at the same time leave enough room for other possibilities to relate operations throughout time (Luhmann, 1985: 494).

In section 5 of this appendix, we have seen that because of the instability of operations, self-referential systems can become stable throughout time. Instability in this respect meant the uncertainty of the 'Anschlußwert' or 'connectiveness' of operations (Luhmann, 1985: 500). It is important to note that due to elemental self-reference,

[63] It is important to note that according to Luhmann, contradiction does not lead to a 'dialectic' conception of contradiction. Dialecticism should be replaced by an evolutionary perspective because evolution presupposes autopoiesis as well as observation and can only come into being by means of changing autopoiesis (Luhmann, 1985: 492). Luhmann, however, credits Hegelian dialecticism for the fact that it made clear that the operations of systems were not blocked by contradiction (Luhmann, 1985: 509).

autopoiesis does not presuppose structures that structure the expectancies of self-referential systems. After all, for the autopoiesis to take place, it suffices that operations only refer to each other. These structures, however, are necessary for self-referential systems to become existent and remain existent throughout time. The function of contradiction is to blow up structures of expectation as used by a self-referential system in order to keep the autopoiesis going in situations where the structures endanger the existence of the system throughout time (Luhmann, 1985: 503). In short, contradiction fosters innovation. When someone, for example, does something that you did not expect, you are forced to alter your perception of his personality. It appears therefore that contradictions function as special means for the autopoiesis of social systems because they remain 'Anschlußfähig' when the expectancy structures of social systems get out of order[64]. However, when contradictions transform into conflicts the autopoiesis of operations comes to a halt. Conflicts are contradictions that have become the subject of communication[65] (Luhmann, 1985: 537). Conflicts are characterised by over-stability and lean towards parasitically consuming the resources of the social system in conflict (Luhmann, 1985: 531). As such, conflicts are characterised by a negative form of double contingency, i.e. 'I don't do what you want, if you don't do what I want' instead of 'I do what you want, if you do what I want' (Luhmann, 1985: 531). Conflicts cannot be solved but can only be conditioned. This means that the ending of a conflict cannot result from the autopoiesis of the communications that produce the conflict. Only from outside the social system the conflict can be resolved. According to Luhmann, the resolution of conflict can be done by restraining the resources that are consumed by the conflict or by increasing the uncertainty through the entry of a neutral third party into the system (Luhmann, 1985: 539-541).

The former considerations lead to the conclusion that contradiction is something that not only is unavoidable but also is beneficial for the reproduction of social systems. This leads to the situation that social systems can deal with contradictions because they

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[64] Luhmann: 'Man sieht also deutlich, wie der Widerspruch eigentlich seine warnende, alarmierende Funktion erfüllt. *Er zerstört für einen Augenblick die Gesamtprätention des Systems: geordnete, reduzierte Komplexität zu sein*. Für einen Augenblick ist dann unbestimmte Komplexität [that is 'Welt'] wiederhergestellt, ist alles möglich. *Aber zugleich hat der Widerspruch genug Form, um die Anschlußfähigkeit des kommunikativen Prozessierens von Sinn doch noch zu garantieren*. Die Reproduktion des Systems wird nur auf andere Bahnen gelenkt.' (Luhmann, 1985: 508) (italics in original).

[65] Luhmann: 'Konflikte sind operationalisierte, Kommunikation gewordene Widersprüche. [...] Als soziale Systeme sind Konflikte autopoietische, sich selbst reproduzierende Einheiten. Einmal etabliert, ist ihre Fortsetzung zu erwarten und nicht ihre Beendung. Die Beendung kann sich nicht aus der Autopoiesis selbst ergeben, sondern nur aus der Umwelt des Systems – etwa dadurch, daß einer der beiden Streitenden den anderen erschlägt und dieser damit für die Fortsetzung des sozialen Systems Konflikt ausfällt.' (Luhmann, 1985: 537-538).

are constituted by inherently contradicting communications. The paradox thus is that *for social systems contradictions are beneficial and unbeneficial at the same time*. One may wonder what the point is to explore social systems empirically for contradiction. After all, from the onset it is clear that the research stumbles upon contradiction. In other words, what are the benefits of such a perspective for empirical research? In the next section, this question will be dealt with.

9 Self-Referential Systems and Functional Analysis

Functional analysis is the empirical research method associated with the theory of self-referential systems. This functional method is aimed at relating specific problems and solutions to each other and tries to make understandable and verifiable that problems can be solved in various ways (Luhmann, 1985: 83-84). Various alternatives to solve a problem are called functional equivalent. The contribution of functional analysis is to explain how the relation between problems and appropriate solutions can be specified narrower (Luhmann, 1985: 84). Therefore, functional analysis can be seen as a means to compare various functional equivalents in solving a problem with each other on their merits. This leads to the paradox that *a functional analysis at the same time aims at enlarging and reducing the number of functional equivalents to solve a problem* (Luhmann, 1985: 86). The enlargement of the number of functional equivalents is the result of the methodological stance taken by Luhmann. This stance implies that each functional equivalent is neither necessary nor impossible. In short, each functional equivalent is contingent (see also section 3 of this appendix). The reduction of the number of functional equivalents is the result of Luhmann's aversion against 'anything goes'. Luhmann rejects a 'concept of contingency without praxis' (Luhmann, 1993b: 258). Only with rigorous research, contingency leads to comparable functional equivalents with respect to chosen reference problems. In order to prevent methodological relativism, Luhmann holds the opinion that the functional method needs to be accompanied by the theory of self-referential systems (Luhmann, 1974: 39-40; Luhmann, 1985: 86).

The functional method and the theory of self-referential systems are mutual dependent in the sense that empirical theories aid in tracking down and comparing functional equivalents and the functional method aids in the development of theories. The fact that the functional method aids in developing theories has some serious consequences for the way theories need to be formulated. Theories cannot be based upon explanations between causes and effects that relate these causes and effects as necessary because this would contradict with the notion of functional equivalence (Luhmann, 1985: 84). That is not to say that causal explanations are not useful for functional analysis, it only implies that causality is one of the means with which

functional order comes into being[66] (Luhmann, 1974: 16). The knowledge the functional method strives for, lies hidden through causal-relationships and by means of comparing these relationships knowledge is brought to light (Luhmann, 1985: 84). The functional method is not aimed at determining hidden causality but is aimed at determining and comparing functional equivalents in solving problems. For Luhmann, the notion of function is a means to compare various functional equivalents from a specific functional point of view[67] (Luhmann, 1974: 14). As a comparative method, functional analysis makes it possible for an observer or social researcher to use distinctions that enable ways of observation, which the social systems under investigation cannot employ to observe themselves. This implies that social researchers can consider the asymmetries, structures and identities that social systems deem necessary in order to enable respectively their self-referential closed operations, processes and systems as contingent.

The point of view offered by the functional method can be used recursively, i.e. problems can also be viewed as solutions and solutions as problems (Luhmann, 1974: 20). In the first case, the focus is upon dysfunctional effects of a solution chosen in the past. Alternatively, in the second case, the focus is upon dysfunctional effects of a solution presently in use. In determining dysfunctional effects of functional equivalents, Luhmann has a keen interest for theories that are able to explain the usual as being unusual[68] (Luhmann, 1985: 162). Ultimately, this interest is the consequence of Luhmann's methodological stance that functional equivalents are contingent. The benefits of this methodological stance are that *reality does not have to be explained tautologically in terms of what it is, but can also be approached paradoxically in terms of what it is not.*

10 The Unbearable Lightness of Being of Self-Referential Systems

After a few years dealing with the theory of self-referential systems and functional analysis, it appears the social theory of Luhmann appeals more to the mind than to the heart. That is because the theory of self-referential systems does not offer guidance in making social life more fun, pleasant, etc. Indeed, Luhmann has always avoided seeking foundations in ethics and moral (Luhmann, 1993e: 370).

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[66] Luhmann: 'Die Funktion ist nicht eine Sonderart der Kausalbeziehung, *sondern die Kausalbeziehung ist ein Anwendungsfall funktionaler Ordnung.*' (Luhmann, 1974: 16) (italics in original).

[67] Luhmann: 'Die Funktion is keine zu bewirkende Wirkung, sondern ein regulatives Sinnschema, das einen Vergleichsbereich äquivalenter Leistungen organisiert.' (Luhmann, 1974: 14).

[68] Luhmann: 'Das methodologische Rezept hierfür lautet: Theorien zu suchen denen es gelingt, Normales für unwahrscheinlich zu erklären.' (Luhmann, 1985: 162).

> "Moral ist ein riskantes Unternehmen. Wer moralisiert, läßt sich auf ein Risiko ein und wird bei Widerstand sich leicht in der Lage finden nach stärkeren Mitteln zu suchen zu müssen oder an Selbstachtung einzubüßen. [...] [D]ie Erfahrungen, die Europa seit dem Hochmittelalter mit religiös aufgezogenen Aufständen und Unterdrückungen, mit den Schrecken der Inquisition, mit Kriegen um moralisch verbindliche Wahrheiten und mit aus Empörung entstandenen Revolten gemacht hat, sollten eigentlich beim Stichwort Moral immer gleich dieses Problem vor Augen führen."

Apparently, self-referential systems have an almost unbearable lightness of being. This lightness of being appears also from the design of 'Welt'. That is, the design of the 'Welt' of self-referential systems is similar to a design of God as the omnipresent deity which ways are mysterious. Just as God, 'Welt' is the omnipresent something that is nothing when you take a closer look at it, or in the words of Luhmann (1985: 284).

> "Insofern ist sie (anders als phänomenal gegebene Welt) nichts Ursprüngliches, [...], sie ist eine Abschlußeinheit als Anschlußvorstellung an eine Differenz. Sie ist Welt nach dem Sündenfall."

To me, this paradise lost indicates that this 'Welt' leaves something to be desired. Nevertheless, perhaps this desire is also accounted for because now we can long endlessly for that what is lost instead of what is to be found. Therefore, we can conclude that despite the fact that self-referential systems theory does not offer guidance in making social life more fun or pleasant, it offers a way to study the way others make their unbearable lightness of being more bearable.
In doing so, we might be forced to learn observing the blind spot of the theory of self-referential systems. After all, it is a fact that this theory has a blind spot, just as it is a fact that we cannot observe this blind spot from within self-referential systems theory. In applying this theory, we will stumble upon contradictions, which cannot be explained satisfactorily with a focus on self-referential experiences of social life. For the time being, however, we can marvel at the intellectual effort of Luhmann and may wonder if his attempt to unify social theory is perhaps an attempt to good to be true.

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Summary in Dutch

In dit proefschrift wordt een strategiebenadering gepresenteerd waarmee de manier waarop ondernemingen en hun omgeving elkaar wederzijds beïnvloeden zowel theoretisch, als methodisch kan worden beschouwd. De aanleiding hiertoe werd gevormd door het feit dat de huidige strategiebenaderingen bij het verklaren van strategisch succes òf het belang van de omgeving òf het belang van de onderneming vooropstellen. Het doel van het onderzoek was om tot een benadering te komen met als uitgangpunt dat noch een vertrekpunt bij de omgeving, noch bij de onderneming het alleenrecht kan opeisen voor het verklaren van strategisch succes. Om tot deze en/en-benadering van strategie te komen, is gebruik gemaakt van de sociale systeemtheorie van de Duitse socioloog Niklas Luhmann (1927-1998). Deze theorie stelt zelfreferentie centraal bij het verklaren van de wijze waarop sociale systemen, zoals ondernemingen, betekenis geven aan hun bestaan. Door zelfreferentie wordt de wederzijdse relatie tussen een onderneming en haar omgeving afhankelijk gesteld van de manier waarop ondernemingen deze zelf beschouwen. Deze beschouwing is onderhevig aan een cirkelredenering of een tautologie: specifieke kenmerken van de onderneming zeggen alleen maar iets in het licht van de omgeving en andersom. Wanneer organisatieleden aan deze tautologie trachten te ontkomen door hun onderneming en omgeving als een geheel te beschouwen, wordt de tautologische redenering omgezet in een paradox. Immers, zij trachten dan het onderscheid *ondanks* zichzelf te observeren, terwijl het alleen maar *dankzij* deze organisatieleden bestaat. Om aan deze tautologe en paradoxale observatievormen te ontsnappen, moeten organisatieleden net doen of deze er niet zijn. Dat lukt alleen maar door naïef in actie te komen. Eenmaal in beweging, zijn zij ontsnapt aan de circulaire ontstaansgrond van hun onderneming. Door zelfreflectie komt deze echter weer aan het licht.

Om bij het ontwikkelen van de en/en-benadering de theoretische en methodische valkuilen van of/of-benaderingen te vermijden, is eerst onderzocht wat de specifieke tekortkomingen van de laatstgenoemde benaderingen zijn. Er is gebleken dat zij zichzelf tegenspreken, waardoor een schijnzekerheid wordt geboden bij het beschrijven en verklaren van succesvolle strategieën. Dit probleem komt voort uit het huidige adaptatieparadigma, waarin wordt getracht strategisch handelen te verklaren als noodzakelijke aanpassingen van ondernemingen aan hun meeromvattende omgeving. Op basis van inzichten uit de zelf-referentiële systeemtheorie is geconcludeerd dat het op zich geen probleem is dat of/of-benaderingen zichzelf tegenspreken, maar wel dat zij niet onderkennen dat zij een tautologe- en paradoxale ontstaansgrond hebben. Immers, ook

organisatieleden hebben bij het komen tot strategisch handelen te kampen met tautologe en paradoxale betekenisgeving. Wanneer strategiebenaderingen dit niet onderkennen, kunnen zij het succes van strategisch handelen, of het gebrek daaraan, onvoldoende waarheidsgetrouw beschrijven.

De zelf-referentiële systeemtheorie biedt een onderscheid tussen systeem en omgeving welke haar tautologe en paradoxale ontstaansgrond onderkent. Systeem en omgeving worden hierbij exclusief ten opzichte van elkaar gemodelleerd: een systeem betekent niets zonder een omgeving en andersom. Gebleken is dat de sociale systeemtheorie van Luhmann alleen algemene richtlijnen geeft voor observeren van de wijze waarop sociale systemen betekenis geven aan hun handelen. Op theoretisch niveau gaat het om het beschrijven en verklaren van de wijze waarop sociale systemen zichzelf mogelijk maken en zich daardoor tegelijkertijd belemmeren in hun ontwikkeling. Hierbij wordt gebruik gemaakt van het beschrijven van door sociale systemen ervaren tautologieën, respectievelijk paradoxen. Op methodisch niveau gaat het met behulp van een functionele analyse om het beschrijven van door sociale systemen ervaren complexiteitsproblemen en oplossingen die zij daarvoor kiezen (eerste orde observaties). Daarnaast kan met tweede orde observaties worden nagegaan waarom zij juist deze problemen en oplossingen hebben gekozen. Er wordt geconcludeerd dat ondanks het feit dat Luhmanns sociale systeemtheorie geen gedetailleerde richtlijnen geeft voor de observatie van de rol van zelfreferentie in sociale systemen, deze de organisatiekunde wel een zeer geavanceerd begrippenkader aanreikt voor de bestudering van organisationele fenomenen Hierbij kunnen zelfs diepgewortelde sociale paradigmatische verschillen worden overbrugd. Geconcludeerd wordt dat ook een bijdrage kan worden geleverd aan het onderzoek naar het bestaan van paradoxale verschijnselen in organisaties. In het onderzoek naar deze verschijnselen blijken veel uiteenlopende definities te worden gebruikt. De zelfreferentiële systeemtheorie kan deze begripsverwarring in de organisatiekunde voorkomen.

Met het nieuwe onderscheid tussen systeem en omgeving is het mogelijk om de wijze waarop ondernemingen en hun omgeving elkaar op strategisch niveau wederzijds beïnvloeden theoretisch te observeren. De oneindige complexiteit die is verbonden aan de tautologische relatie tussen onderneming en omgeving zal organisatieleden dwingen om eraan te ontsnappen door naïef iets te gaan doen. Hiermee is ook een methodisch aanknopingspunt gevonden. Immers, ieder gekozen alternatief om de tautologische geslotenheid te 'asymmetriseren' is contingent, dat wil zeggen noch onmogelijk, noch noodzakelijk. De functionele analyse van de wijze waarop ondernemingen zichzelf asymmetriseren, kan uitwijzen welke risico's verbonden zijn aan verschillende strategische handelingsalternatieven. Met eerste orde observaties op basis van de strategische en/en-benadering wordt getracht om te beschrijven hoe ondernemingen zichzelf mogelijk hebben gemaakt door naïeve keuzes. Vervolgens kan met tweede orde observaties worden geanalyseerd welke succesvolle, dan wel niet succesvolle, gevolgen

dit handelen heeft. Gebleken is dat de functionele analyse van strategisch handelen zich op drie niveaus kan afspelen. Op het operationele niveau gaat het om het zelfreferentieel creëren van strategische realiteit (wat is *werkelijk* en wat is *onwerkelijk*?), dankzij en ondanks het gebruik van gekozen strategische concepten. Op het niveau van de processen gaat het om het zelfreferentieel creëren van strategische betekenisvolheid (wat is *mogelijk* en wat is *onmogelijk*?), dankzij en ondanks het gebruik van gekozen strategische routines. Op systeemniveau gaat het tenslotte om het creëren van strategische belangen (wat is *belangrijk* en wat is *onbelangrijk*?), dankzij en ondanks het gebruik van gekozen strategische rollen. Door het exclusieve onderscheid tussen systeem en omgeving is de en/en-benadering gefundeerd op het paradigma van zelf-adaptatie: ondernemingen kunnen zich aan hun omgeving aanpassen, wanneer zij de omgeving aan henzelf aanpassen en andersom. Er wordt geconcludeerd dat de en/en-benadering ons tot bescheidenheid dwingt bij het strategieonderzoek. Immers, net als leden van organisaties, kunnen wetenschappers door hun zelfreferentiële geslotenheid de werkelijkheid ook alleen maar dankzij zichzelf waarnemen.

Op basis van de en/en-benadering is onderzocht hoe organisatieleden strategische realiteit creëren bij het formuleren van strategieën. Hiervoor is een model met zes strategische keuzen ontwikkeld. Deze keuzen worden als strategische kip-ei-problemen gezien. Met het model kunnen eerste orde observaties worden uitgevoerd naar de wijze waarop organisatieleden oplossingen kiezen om tautologische relaties tussen concepten als vraag en aanbod te asymmetriseren. Bij het creëren van strategische realiteit spelen twee sociale mechanismen een rol. Het eerste sociale mechanisme betreft het probleem hoe je vanuit een situatie die geen houvast biedt, deze toch zelf kunt creëren door een betekenisvolle naïeve keuze te maken voor te leveren goederen en/of diensten. Wanneer deze goederen en diensten eenmaal zijn gekozen, bieden deze houvast bij het nemen van andere strategische beslissingen. Hierbij speelt het tweede sociale mechanisme een rol: ondernemingen beperken zich door de manier waarop ze zichzelf mogelijk maken. Immers, de eenmaal gecreëerde realiteit kan nooit meer vanuit deze realiteit worden doorgrond en ontneemt daarmee het uitzicht op andere, wellicht nuttigere asymmetrieën. Er wordt vastgesteld dat in de strategieliteratuur niet eerder op deze wijze naar strategievorming is gekeken. Op basis daarvan wordt geconcludeerd dat hiermee een belangrijk inzicht is verkregen om tot een beter begrip van het strategisch handelen van ondernemingen te komen. Het model leent zich bij uitstek voor situaties in organisaties die worden gekenmerkt door een hoge mate van onzekerheid en meerduidigheid bij de betekenisgeving aan sociaal handelen.

Voor het tweede orde observeren van gecreëerde strategische realiteiten is een configuratietheorie opgesteld. Deze theorie is gebaseerd op het inzicht dat, afhankelijk van de wijze waarop ondernemingen met hun klanten zakendoen, zij op een andere wijze met elkaar zullen communiceren. De tautologische relatie tussen vraag en aanbod kan tijdens het zakendoen op vier verschillende manieren worden geasymmetriseerd. Een

goed of de dienst kan betrekking hebben op (1) een ontwerp, (2) een realisatie van een ontwerp, (3) capaciteiten voor het oplossen van een ontwerp-probleem en (4) capaciteiten om een ontwerp te realiseren. Op basis van deze typering is een beschrijving gegeven van vier strategische realiteiten. Hierin wordt uiteengezet welke voorkeursrichtingen bestaan bij het asymmetriseren van de zes strategische kip-ei-problemen uit het eerdergenoemde model. Er wordt geconstateerd dat er in de strategieliteratuur een dominante focus is op ondernemingen die realisaties van ontwerpen aanbieden. De andere manieren van zakendoen krijgen weinig tot geen aandacht. Verder onderzoek moet uitwijzen in hoeverre de beschreven strategische realiteiten empirisch evident zijn.

Om de rol van zelfreferentie in strategievorming te illustreren, is een empirisch onderzoek uitgevoerd. Dit onderzoek heeft betrekking op het achterhalen van door toeleveranciers ervaren problemen bij het leveren van een bijdrage aan zowel de functionaliteit, als de maakbaarheid van de productontwerpen van klanten. Met een tweetal gevalstudies is geconstateerd dat toeleveranciers die kiezen voor een strategische focus op productmodulen zichzelf het zicht ontnemen op de noodzaak om specifieke ontwerp- en productiecapaciteiten te kiezen. Geconcludeerd wordt dat verder empirisch onderzoek nodig is om de risico's van een dergelijke strategie te achterhalen.

Het doel van het onderzoek was om tot een benadering te komen met als uitgangpunt dat noch een vertrekpunt bij de omgeving, noch bij de onderneming het alleenrecht kan opeisen voor het verklaren van strategisch succes. De en/en-benadering van strategie die in deze studie in eerste aanzet is ontwikkeld, onderkent in tegenstelling tot de gangbare of/of-benaderingen haar tautologe- en paradoxale ontstaansgrond. Door hun zelfreferentiële geslotenheid mogen ondernemingen niet doen of hun strategische realiteit er ondanks henzelf is, maar moeten dat desondanks toch doen om tot een strategische realiteit te komen. In het empirisch onderzoek is geïllustreerd dat de en/en-benadering in staat is om de rol van zelfreferentie empirisch evident te maken. Geconcludeerd wordt dat naïviteit een noodzakelijke voorwaarde is om tot handelen te komen. Naïviteit is echter geen voldoende voorwaarde voor strategisch succes, omdat de strategische realiteit ondernemingen het zicht ontneemt op nuttigere manieren om zichzelf en hun omgeving te observeren.

About the Author

Jan-Peter Vos was born on May 24 1969 in Sassenheim, a small town in the heart of the bulbs-growing district of the Netherlands. In 1985, he received his diploma from the Koningin Emma MAVO in Roosendaal, after which he started to study Electrical Engineering (MTS) at the Albertus Magnus College in Breda. He graduated from this study in 1989 and subsequently went to the BBC-College in Breda to obtain HAVO certificates in mathematics and physics. At the same time, he worked as a jack-of-all-trades within the drawing office of an electrical contractor. In 1990, he started with the study Economical Industrial Engineering (HTS) at the Hogeschool Midden-Brabant in Tilburg, from which he graduated in 1994. Next, he commenced in studying Industrial Engineering and Management Science at the Eindhoven University of Technology. After his graduation in 1997, he started to work in Eindhoven as a PhD at the Department of Organisation Science. During the occupation of this post, he has worked as a consultant to small and medium sized enterprises both at Syntens and as a freelance organisation expert. Currently he works in Eindhoven as an assistant professor at the Department of Organisation Science. With his wife Suzan and his son Siem he lives in Etten-Leur.

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