



Making Sense of Strategy A Social Systems Perspective

J.P. Vos

Eindhoven Centre for Innovation Studies, The Netherlands

Working Paper 03.10

Department of Technology Management

Technische Universiteit Eindhoven, The Netherlands

July 2003

Making Sense of Strategy

A Social Systems Perspective

Jan-Peter Vos

Department of Organisation Science, Eindhoven University of Technology
PO Box 513, 5600 MB Eindhoven, The Netherlands, e-mail: J.P.Vos@tm.tue.nl

In strategic literature, the problems involved with the observation of the way organisations and their environment constitute each other has been neglected for far too long. The inherent circularity between organisations and their environment in defining strategies is often obscured by making either the environment or the capabilities of organisations the point reference in defining successful strategies. In this paper, it will be illustrated that with a focus on self-reference it is possible to observe, both theoretically and methodologically, the way organisations and their environment constitute each other reciprocally. For this, we will develop a both/and-approach to strategy to illustrate that organisations need to make sense of both their environment and organisation.

Introduction

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; Weick, 1987; Pettigrew, 1988; Knights & Morgan, 1991; Whittington, 1993; Rajagopalan & Spreitzer, 1996; Barry & Elmes, 1997; Calori, 1998). Until now, however, 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. The inherent circularity between oneself and one's environment in defining strategies is often obscured by making *either* the environment *or* the capabilities of organisations 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), for instance, states that sustaining competitive advantage involves dealing with competitive forces within a sector of industry to become distinct from your competitors. The competitive forces determine the rules of the game in doing business within a sector of industry. According to Porter, organisations act wisely if they obey these strategic rules. This implies that within Porter's strategic reality it is not wise if organisations 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 believes the strategic rules within a sector of industry are objective, all competitors will observe the same strategic rules and choose a strategy to become distinct accordingly. Paradoxically, this will result in the situation that strategy no longer concerns doing things differently, but by doing things the same as your competitors do. After all, if either all organisations 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 organisations is independent of the markets served by these organisations. 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 organisations that need to be regarded as core competences eventually needs to be determined by customers. That is, market success determines the core competences of organisations. It appears, paradoxically, 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 an organisation’s core competences.

The fact that paradoxes can be brought to light within these dominant strategic management approaches should not be interpreted as a shortcoming of these approaches *per se*. As will be illustrated later on in this paper, paradoxes appear to be omnipresent. Strategic management approaches can only be criticised for the denial of their paradoxical foundation. Denying this paradoxical foundation leads to either/or-approaches to strategy that fail to grasp the specifics of the ways members of organisations deal with strategy. 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 accurately, it seems helpful to find an explanation for the fact that either/or-approaches fail to acknowledge the tautological and paradoxical origin of strategy.

The Blind Spot of the Paradigm of Adaptation

To look for an explanation for the impossibility of either/or-approaches to acknowledge their 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).

All strategic schools of thought (Mintzberg, 1990) 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 organisations constitute their environment in the same way as parts together form a whole. This whole is thought to be relevant for all the organisations 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 organisations 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 either/or approaches to strategy exist.

Within the paradigm of adaptation, organisations are observed as parts of the more encompassing environment. This implies that organisations 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 its 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 organisations 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. Consequently, the blind spot of both these either/or-approaches relates to the impossibility to conceptualise that organisations and their environment constitute each other reciprocally and that both are equally valid starting points to define strategies. By maintaining the conception as if organisations make part of a more encompassing environment, it remains problematic how to conceptualise the way organisations and their environment constitute each other reciprocally. The conception that social systems make part of a more encompassing environment eventually leads to the tautology that social systems are possible because they make themselves possible (Luhmann, 1975: 195). This tautology contradicts with the paradigm of adaptation because within this paradigm the environment mediates between successful and unsuccessful social conduct. The paradigm of adaptation thus is self-defeating, which leads us to questioning the applicability of Ashby's famous 'Law of Requisite Variety'. This law 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). If social systems succeed

in establishing a point-to-point accordance with their environment, we would not be able to discern between what is system and what is environment anymore (Luhmann, 1984: 48). 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, 1984: 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 underlying paradox is that for social systems *approving to the paradigm of adaptation is only possible by disapproving it*. This paradox proves it impossible for organisations to gain '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. The theory of social systems enables such a conceptualisation, as will be illustrated next.

The Role of Self-Reference in Strategic 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 (Luhmann, 1984). That is because within the theory of social 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 social systems theory they are exclusive (Figure 1).

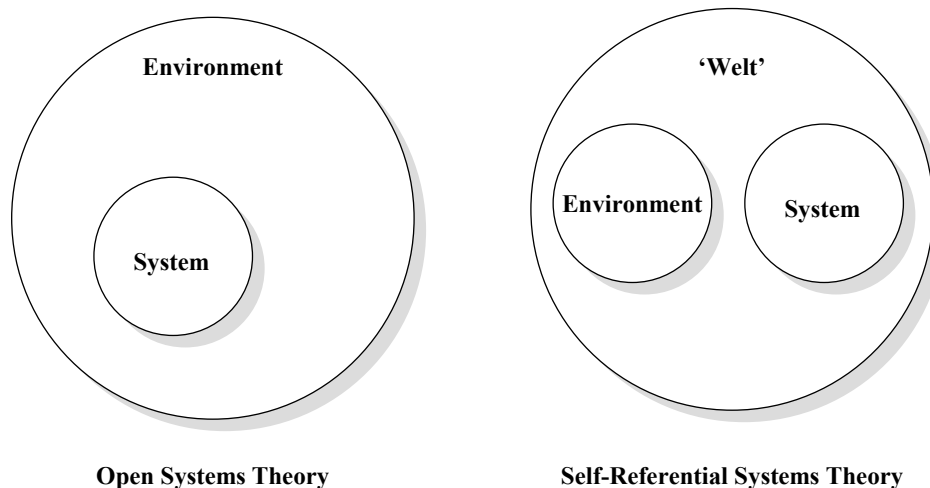


Figure 1: The System/Environment-Distinction in various Disguises

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 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 social systems, ‘Welt’ does not refer to an all-embracing ontological concept of social reality: ‘Welt’ is never a ‘Welt’ ‘an sich’ but always a ‘Welt’ ‘für mich’.

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. This does, however, not mean that self-referential systems social systems do not have to deal with their environment. Self-referential systems are autonomous with respect to their environment (Luhmann, 1984: 478) but at the same time they are forced to deal with their environment (Luhmann, 2000a: 15). Adaptation towards the environment is only possible by means of self-adaptation. For social systems theory, the paradigm of adaptation, as used within open systems theory, should therefore be substituted by a paradigm of self-adaptation. The paradigm of self-adaptation 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. 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 social systems adhering to this law. It is only a contingent, i.e. a *neither necessary nor impossible* solution to reduce complexity.

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 to become existent. Instead, they need to make sense self-referentially of *both* their environment *and* themselves. As a result, sensemaking involves unfolding or ‘asymmetrising’ the perfect circularity between oneself and one’s environment. The existence of social systems is therefore grounded upon a tautology (e.g. Luhmann, 1993a & 1993b) (Figure 2).

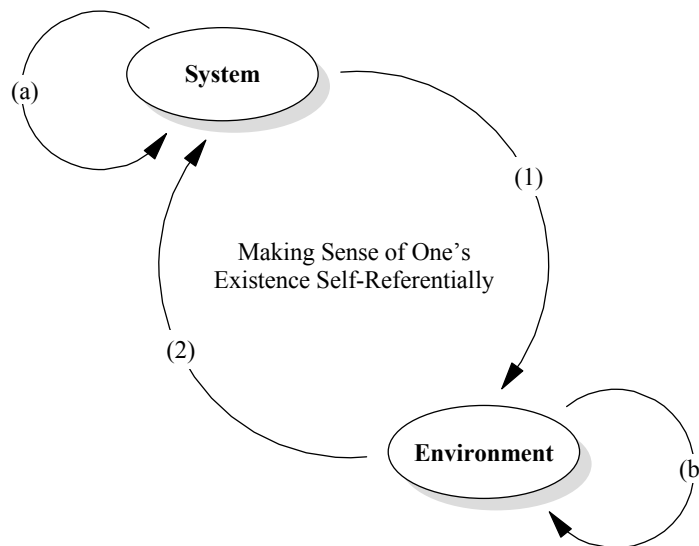


Figure 2: The System/Environment-Tautology

[...]

(1) The social system is what the environment is not

(2) The environment is what the social system is not

[...]

Strategic sensemaking can be defined as seeking solutions to solve this chicken-and-egg problem in making sense of the reciprocal relationship between one’s environment and organisation. In making sense of this chicken-and-egg problem, organisations stumble upon self-reference. That is, while being busy with self-observation, they need to

conclude that the problem they face only exists because they created it themselves. 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. In order to deal with this tautology, self-referential systems cannot relate to reason anymore 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). Confronted with either of these tautologies, they may 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 become existent is by naively doing something: ‘just do it!’ (Spencer Brown, 1972). Dealing with self-reference thus involves acting naively and 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.

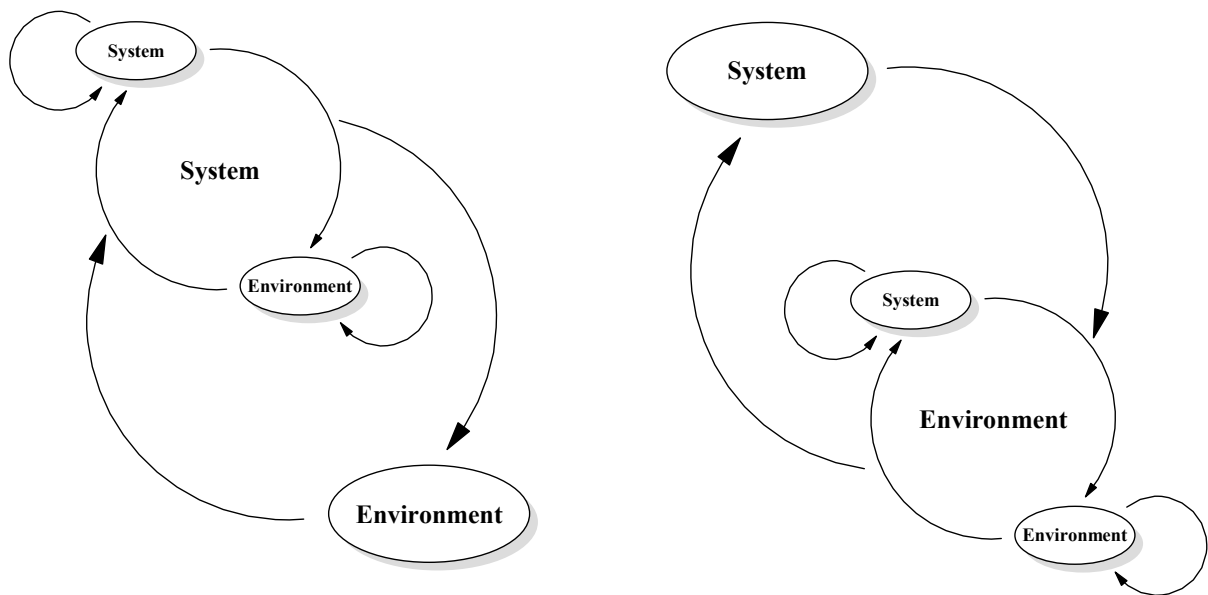


Figure 3: Re-Entry of the System/Environment-Distinction

SELF-REFERENCE AND PARADOX

Once they are operational, self-referential systems may reflect upon their operations and their identity. When they do this, the system/environment-distinction reappears into itself. This ‘re-entry’ (Spencer-Brown, 1972; Luhmann, 1994) of the distinction between system and within the same distinction can appear at both sides of the

distinction (Figure 3). When the distinction reappears into the system part of the system/environment-distinction, self-referential systems reflect upon their existence from an ‘agency’-perspective: ‘what *could* we be according to ourselves?’. In the other case, ‘structure’-perspective is used: ‘what *should* we be according to our environment?’. In both cases, however, the self-observation is paradoxical because self-referential systems try to observe their ‘Welt’ *despite* of themselves, whereas it only exists *because* of them. 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 self-referential systems are unfathomable for themselves, which leads to the paradox that *they cannot identify themselves while being busy with identifying themselves*. Ironically, in failing to observe their identity, they stumble upon a problem that they have already solved, that is *their existence*.

THE EMPIRICAL EXPLORATION OF SELF-REFERENCE

The function of tautology and paradox is to indicate that social systems need to do something to escape self-referential closure. For this reason, the point of carrying out empirical research to investigate the role of self-reference within strategic sensemaking is *to determine the extent to which social systems jeopardise their self-reproduction due to the blind spots involved with their contingent existence*. This empirical research should be done by means of the ‘functional method’ (Luhmann, 1964 & 1974), which accompanies the theory of social systems (Luhmann, 1984). The aim of the functional method is to compare solutions or functional equivalents to the problems involved with self-reference on their dysfunctionalities, i.e. how do solutions both enable and constrain communication. The problem/solution scheme of observation 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 or unintended consequences of a solution chosen in the past. Alternatively, in the second case, the focus is upon dysfunctional effects or unintended consequences of a solution presently in use. In determining dysfunctional effects of functional equivalents, the

focus is upon theories that are able to explain the usual as being unusual (Luhmann, 1984: 162). 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* (Luhmann, 1987).

For an empirical focus on self-reference, two distinct ways of observation can be used: first and second-order observation (Von Foerster, 1981). Research aimed at first-order observations takes as its point of reference the things that can be observed by social systems and research aimed at second-order observations takes as its point of reference the things that cannot be observed by social systems. 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 (Luhmann, 1984: 47). From a methodological stance the implications of these considerations are that it should *matter* for social researchers what should be included and excluded from the research. That is, what is meaningful is first and foremost decided upon by the social systems under investigation (Luhmann, 1997: 37-38).

THREE TYPES OF SELF-REFERENCE

Within social systems theory, three types of self-reference are being distinguished that are linked to three levels of systemic aggregation (Luhmann, 1984: 600-602). On the level of operations, self-reference relates to basic or *operational self-reference*, which involves the recursive relation between communications as such. This recursion relates to the self-reproduction or autopoiesis of communications based upon communications. Through the autopoiesis of communications, social systems become real. For this reason, the realm or medium of operations is called 'Realität' or reality. 'Realität' is the unity of the distinction between knowledge and objects (symbolic generalisations). The second type of self-reference is called *reflexivity* and is accounted for on the level of processes. Reflexivity involves observing the structures of meaning that make the temporal communications on the operational level expectable. Structures can be seen as contingent reductions of the available options to bridge the gap between two subsequent

operations (Luhmann, 1984: 73-74; 383-384). Through the structures of meaning, social systems decide upon what is meaningful and what is not for the autopoiesis of their communications. For this reason, the medium of processes is called 'Sinn' or meaning. 'Sinn' is the unity of the distinction between what is current and what is possible. On the systemic level, lastly, self-reference is referred to as *reflection*. Reflection involves sensemaking with respect to the operational unity of social systems based upon the system/environment-distinction. This self-observation relates to the re-entry of the system/environment-distinction into the same distinction. As such, reflection brings to light again the tautological and paradoxical foundation of social systems. Through the various identities that can be identified, social systems decide upon what matters or not with respect to the world they live in. For this reason, the medium of systemic observation is called 'Welt' or world, which is the unity of the distinction between system and environment.

'Realität', 'Sinn' and 'Welt' can be regarded as Luhmann's 'Holy Trinity' because they function the same as the concept of God, i.e. the absorption of paradoxes inherent to the use of distinctions within society (e.g. Nassehi, 1992: 64). The term 'Welt' for example is unitary because the negation of the world can only be performed within the world (Luhmann, 1988: 42). The fact that social systems theory acknowledges this paradoxical foundation must be observed as a major breakthrough in social theorising. After all, by this manoeuvre the theory becomes self-referential and truly universal: it is able to appear within itself as a functional equivalent to theorise about social life. The main aim of social systems theory therefore is to deconstruct itself (Baecker, 2001: 69) to observe the ignorance sustained by its paradoxical foundations.

The Outline of a Both/And-Approach to Strategy

The main lesson that can be learned from the previous section is that the existence of organisations is grounded upon tautology and paradox. For self-referential systems, tautology and paradox are omnipresent. Therefore, it becomes clear that social systems thrive primarily on meaning instead of reason in dealing with their self-referential closure. 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 organisation existent. Due to this complexity, organisations need to address their

ability to deal with contradiction on the level of operations, processes and systems. The three types of self-reference and levels of aggregation mentioned in the previous section are not linked by Luhmann to the levels of first and second-order observation, at least not explicitly. Nonetheless, relating the levels of aggregation and observation to each other leads to useful indications for the kind of knowledge that the functional analysis of strategic sensemaking could contribute to strategy research (Figure 4).

- On the *level of operations*, organisational members can be forced strategically to alter the way they have *asymmetrised* their organisation'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 organisation'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 organisation'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 the way they have *identified* their organisation'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 organisation'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'.

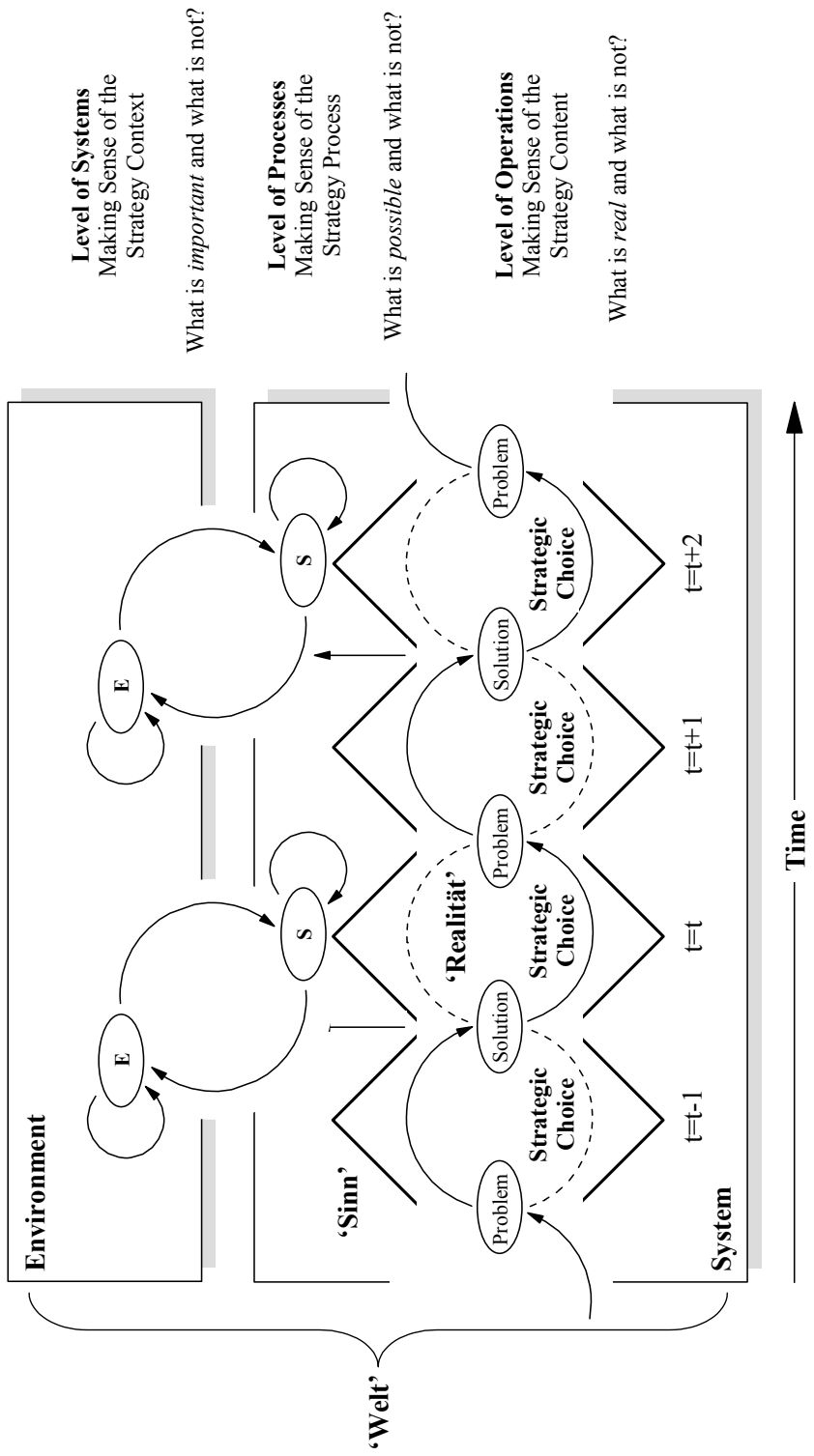


Figure 4: Self-Reference and Strategy Content, Process and Context

	First-Order Observations	Second-Order Observations	(Critical) Function of Social Inquiry
Strategic Content	Observing the way <i>strategic concepts</i> are used to make sense of the strategy content with a focus on <i>contradictory information</i>	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 <i>strategic content</i> in order to rule out risky and dysfunctional ones
Strategic Process	Observing the way <i>strategic routines</i> are used to make sense of strategic processes with a focus on <i>contradictory expectations</i>	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 <i>strategic processes</i> in order to rule out risky and dysfunctional ones
Strategic Context	Observing the way <i>strategic roles</i> are used to make sense of the strategic context with a focus on <i>contradictory identities</i>	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 <i>strategic context</i> in order to rule out risky and dysfunctional ones

Table 1: The Both/And-Approach to Strategy

The functional method aids in exploring the way organisational members make contingently sense of their organisation's *strategic content, process* and *context* (Pettigrew, 1987; De Wit & Meyer, 1994). The use of 'strategic choice' within Figure 4 should not be interpreted as if decision making is subjectivist by nature and the sence of managerial work (cf. Simon, 1960). Rather it should be interpreted that strategic decisions are symbolically enacted upon (cf. Weick, 1987) by means of communication that transcends the level of individual members of organisations (Luhmann, 2000b). Within Table 1, the both/and-approach of strategic sensemaking based upon social systems theory is presented.

The notions of strategic content, process and context can be used synonymous with the notions of operations, processes and systems as they appear in social 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 meaning self-referentially to their organisation's strategic content, process and context both deliberately and naively to make the organisation existent and

to remain it throughout time. In addition, by means of second-order observation, functional analysis is aimed at observing how organisations 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

Strategic content relates to decisions concerning the use of strategic concepts that aid in making sense of the strategy content. 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; Collins, 2000; Ortmann & Salzman, 2002), 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 organisation has core competences (e.g. Stalk, Evans & Shulman, 1992; Bartness & Cerny, 1993).

In strategic ‘guru’ literature, many strategic management concepts can be found that should aid organisations in formulating competitive strategies. While it is easy to condemn the validation of strategic concepts, it is less easy to condemn their validity. After all, 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 social 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, strategic gurus 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.

The functional analysis of strategic content is aimed at comparing and evaluating functional equivalents in the way organisational members make sense of the content of their organisation's strategies by means of enacting strategic concepts. The theoretical relevance of this perspective is *to uncover the way members of organisations deal with contradictory information regarding strategic concepts in use by the organisation*. In addition, *the inability of members of organisations to cope with contradictory information and unintended consequences 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 1).

MAKING SENSE OF STRATEGIC PROCESS BY MEANS OF STRATEGIC ROUTINES

Strategic processes relate to decisions concerning the use of strategic routines that aid in making sense of the strategy process. 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 structures of meaning 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 organisations 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 organisations.

The functional analysis of strategic process is aimed at comparing and evaluating functional equivalents in the way organisational members make sense of their organisation's strategic process by means of enacting strategic routines. The theoretical relevance of this perspective is *to uncover the way members of organisations deal with contradictory expectations regarding the strategic routines in use by the organisation*. In addition, *the inability of organisations to cope with contradictory expectations and unintended consequences regarding the used strategic routines can be uncovered*.

MAKING SENSE OF STRATEGIC CONTEXT BY MEANS OF STRATEGIC ROLES

Strategic context relates to decisions concerning the use of strategic roles that aid in making sense of the strategic context. 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 organisations 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 organisations 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 organisations 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.

The functional analysis of strategic identity is aimed at comparing and evaluating functional equivalents in the way organisational members make sense of their organisation's strategic context by means of enacting strategic roles. The theoretical relevance of this perspective is *to uncover the way members of organisations deal with contradictory identities regarding the strategic roles in use by the organisation*. In addition, *the inability of organisations to cope with contradictory identities and unintended consequences regarding the used strategic roles can be uncovered*.

Conclusions

It can be concluded that existing approaches to strategy fail to acknowledge their tautological and paradoxical foundation. The inability of strategy researchers to comprehend this can probably 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) and Eisenhardt & Martin (2000: 1116) replied to this observation but from their comments it appears that they miss the point 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. In other words, they fail to see that the tautological ground-figure underlying strategic decision-making is the main problem of making sense of strategic issues. As such, social systems theory may

aid to a better understanding of strategic sensemaking. Our contribution is a first attempt in this respect.

From sensemaking literature (e.g. Weick, 1995) it may appear as if organisations are free to enact their environment as they please. That is, it may appear as if organisations are viewed ‘as isolated units confronting a faceless environment’ (see Pfeffer (1987: 120) for this criticism of mainstream strategy research). This criticism certainly does not apply to the strategic sensemaking perspective as presented here. In system theoretical terms, this preferred way of observing the environment implies a preference to observe the system/environment-distinction as a re-entry within the system-part of the same distinction. That is, observing the way organisations observe themselves as being autonomous towards their environment. Naturally, as we have shown, the re-entry within the environment-part of the system/environment distinction is also possible. As such, our strategic sensemaking perspective seems to offer strategy researchers a more comprehensive way to observe the reciprocal relation between organisations and their environment from both an agency (Child, 1972 & 1997) and structure perspective (Donaldson, 1985 & 1997).

It should be stressed that for the functional analysis of strategic sensemaking, distinct research methods can be used, whether these methods are quantitative or qualitative (Luhmann, 1997: 37). Functional analyses of social phenomena should adhere to the paradox that human agency becomes human bondage because of the very nature of human agency (Dawe: 1979), which implies in our case that the focus should be on the way organisational members are involved with sensemaking self-referentially by means of communication. 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. 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 an organisation needs to be able to deal with its inabilities by means of self-observation*. This law states that social systems should be able to develop new self-descriptions dependent on the situation at hand. As indicated before, this new paradigm of self-adaptation includes the old paradigm of adaptation and the related either/or-approaches to strategy. Naturally, the ‘Law of Requisite Reflexivity’ applies to social researchers also, which implies that social

researchers are forced to question the ignorance sustained that enables and constrains the way research is done.

Lastly, the framework as presented here has little to do with the quest for the 'holy grail' of strategic success. Despite the critics of leading figures in organisation studies (e.g. Goodman, Pennings et al., 1977; March & Sutton, 1997), the preoccupation of mainstream strategy research with performance remains unbroken. Perhaps we should go ahead with a less ambitious aim: *to merely restrict ourselves in describing how organisations contingently reduce the complexity involved with making sense of the strategy phenomenon* (cf. Nicolai, 2000: 301-302). Within a social systems perspective, explaining strategy relates to descriptions of the blind spots, un-decidabilities and unintended consequences of strategic self-descriptions (cf. Weick, 1999). Because of the self-reference involved, it seems the only knowledge we have to offer to both practitioners and ourselves takes the form of 'ironic compassion' in the quest for the 'paradise lost' that is called strategic success. After all, forty years of strategy research has taught us that each strategic success is foreshadowed by its failure.

References

- Alkhafaji A.F. (1989), *A stakeholder approach to corporate governance: managing in a dynamic environment*, Quorum Books, New York.
- Ansoff H.I. (1965), *Corporate strategy: an analytic approach to business policy for growth and expansion*, McGraw-Hill, London.
- Ansoff H.I. (1987), 'The Emerging Paradigm of Strategic Behavior', *Strategic Management Journal*, 8 (6): 501-516.
- Ashby W.R. (1956), *Introduction to Cybernetics*, Chapman and Hall, London.
- Baecker D. (2001), 'Why systems?', *Theory, Culture & Society*, 18 (1): 59-74.
- Barney J.B. (2001), 'Is the resource-based "view" a useful perspective for strategic management research? Yes', *Academy of Management Review*, 26 (1): 41-56.
- Barry D., M. Elmes (1997), 'Strategy retold: toward a narrative view of strategic discourse', *Academy of Management Review*, 22 (2): 429-452.

- Bartness A., K. Cerny (1993), 'Building competitive advantage through a global network of capabilities', *California Management Review*, 35 (2): 78-103.
- Bettis R.A., C.K. Prahalad (1995), 'The dominant logic: retrospective and extension', *Strategic Management Journal*, 16 (1): 5-14.
- Brown S.L., K.M. Eisenhardt (1998), *Competing on the edge: strategy as structured chaos*, Harvard Business School Press, Boston, Massachusetts.
- Brummer J.J. (1991), *Corporate responsibility and legitimacy: an interdisciplinary analysis*, Greenwood Press, New York.
- Calori R. (1998), 'Philosophizing on Strategic Management Models', *Organization Studies*, 19 (2): 281-306.
- Chandler A.D. (1962), *Strategy and structure: chapters in the history of the industrial enterprise*, Anchor Books, New York.
- Child J. (1972), 'Organizational structure, environment and performance: the role of strategic choice', *Sociology*, 6: 1-22.
- Child J. (1997), 'Strategic Choice in the Analysis of Action, Structure, Organizations and Environment: Retrospect and Prospect', *Organization Studies*, 18 (1): 43-76.
- Collins D. (2000), *Management fads and buzzwords: critical-practical perspectives*, Routledge, London.
- Cummings J.L., J.P. Doh (2000), 'Identifying Who Matters: Mapping Key Players in Multiple Environments', *California Management Review*, 42 (2): 83-104.
- Cyert R.M., J.G. March (1963), *A behavioural theory of the firm*, Prentice-Hall, Englewood Cliffs.
- Daft R.L., K.E. Weick (1984), 'Toward a model of organizations as interpretation systems', *Academy of Management Review*, 9 (2): 284-295.
- Dawe A. (1979), 'Theories of social action', in: T. Bottomore, R. Nisbet (eds.), *A history of sociological analysis*, Heinemann, London.
- Donaldson L. (1985), *In defence of organization theory: a reply to the critics*, Cambridge University Press, Cambridge.

- Donaldson L. (1997), 'A Positivist Alternative to the Structure-Action Approach', *Organization Studies*, 18 (1): 77-92.
- Donaldson T., L.E. Preston (1995), 'The stakeholder theory of the corporation: concepts, evidence and implications', *Academy of Management Review*, 20 (1): 65-91.
- Duimering P.R., F. Safayeni (1998), 'The role of language and formal structure in the construction and maintenance of organizational images', *International Studies of Management & Organization*, 28 (3): 57-85.
- Eisenhardt K.M., J.A. Martin (2000), 'Dynamic capabilities: what are they?', *Strategic Management Journal*, 21 (10-11): 1105-1121.
- Fitzgerald L.A., F.M. Van Eijnatten (1998), 'Letting go of control: the art of managing the chaordic enterprise', *The International Journal of Business Transformation*, 1 (4): 261-270.
- Foerster von, H. (1981), *Observing systems*, Intersystems Publications, Seaside, California.
- Freeman R.E. (1984), *Strategic management: a stakeholder approach*, Pitman, Boston, Massachusetts.
- Frooman J. (1999), 'Stakeholder influence strategies', *Academy of Management Review*, 24 (2): 191-205.
- Giddens A. (1984), *The Constitution of Society: Outline of the Theory of Structuration*, Polity Press, Cambridge.
- Gioia D.A., J.B. Thomas (1996), 'Institutional identity, image, and issue interpretation: sensemaking during strategic change in academia', *Administrative Science Quarterly*, 41 (3): 370-403.
- Goodman P.S., J.M. Pennings & Associates (1977), *New Perspectives on Organizational Effectiveness*, Jossey-Bass Limited, San Francisco (The Jossey-Bass Social and Behavioral Science Series).
- Hamel G, C.K. Prahalad (1994), *Competing for the future*, Harvard Business School Press, Boston, Massachusetts.

- Henriques I., P. Sadosky (1999), 'The relationship between environmental commitment and managerial perceptions of stakeholder importance', *Academy of Management Review*, 24 (1): 87-99.
- Hofer C.W., D. Schendel (1978), *Strategy formulation: analytical concepts*, West, New York.
- Johnson G. (1988), 'Rethinking Incrementalism', *Strategic Management Journal*, 9 (1): 75-91.
- Johnson, M. (1990), *Business buzzwords: the tough new jargon of modern business*, Blackwell, Oxford.
- Jones T.M. (1995), 'Instrumental stakeholder theory: a synthesis of ethics and economics', *Academy of Management Review*, 20 (2): 404-437.
- Jones T.M., A.C. Wicks (1999), 'Convergent stakeholder theory', *Academy of Management Review*, 24 (2): 206-221.
- Kimberly J.R. (1976), 'Organizational size and the structuralist perspective: a review, critique, and proposal', *Administrative Science Quarterly*, 21 (4): 571-597.
- Knights D, G. Morgan (1991), 'Corporate Strategy. Organizations, and Subjectivity: A Critique', *Organization Studies*, 12 (2): 251-273.
- Knights D. (1992), 'Changing spaces: the disruptive impact of a new epistemological location for the study of management', *Academy of Management Review*, 17 (3): 514-536.
- Luhmann N. (1964), *Funktionen und Folgen formaler Organisation*, Duncker & Humblott, Berlin (Schriftenreihe der Hochschule Speyer – Band 20).
- Luhmann N. (1974 [1970]), *Soziologische Aufklärung: Aufsätze zur Theorie sozialer Systeme*, Band 1, 4. Auflage, Westdeutscher Verlag, Opladen.
- Luhmann N. (1975), *Soziologische Aufklärung: Aufsätze zur Theorie sozialer Systeme*, Band 2, Westdeutscher Verlag, Opladen.
- Luhmann N. (1984), *Soziale Systeme: Grundriß einer allgemeinen Theorie*, Zweite Auflage, Suhrkamp, Frankfurt am Main.

- Luhmann N. (1987), 'Tautologie und Paradox in der Selbstbeschreibung der modernen Gesellschaft', *Zeitschrift für Soziologie*, 16 (3): 161-174.
- Luhmann N. (1988), *Erkenntnis als Konstruktion*, Benteli, Bern.
- Luhmann N. (1993a), 'Paradoxie der Form', in: Baecker D., *Kalkül der Form*, Suhrkamp, Frankfurt am Main.
- Luhmann N. (1993b), 'Zeichen als Form', in: Baecker D., *Probleme der Form*, 1. Aufl., Suhrkamp, Frankfurt am Main.
- Luhmann N. (1994), 'Observing Re-entries', *Protozoziologie*, 6: 4-13.
- Luhmann N. (1997), *Die Gesellschaft der Gesellschaft*, Suhrkamp, Frankfurt am Main.
- Luhmann N. (2000a), *Die Religion der Gesellschaft*, Suhrkamp, Frankfurt am Main.
- Luhmann N. (2000b), *Organisation und Entscheidung*, Westdeutscher Verlag, Opladen.
- March J.G., R.I. Sutton (1997), 'Organizational Performance as a Dependent Variable', *Organization Science*, 8 (6): 698-706.
- McWilliams A., D. Siegel (2001), 'Corporate social responsibility: a theory of the firm perspective', *Academy of Management Review*, 26 (1): 117-127.
- Mintzberg H. (1990), 'Strategy Formation: Schools of Thought', in: Frederickson J. (1990), *Perspectives on Strategic Management*, Grand Rapids.
- Mintzberg H., J.A. Waters (1985), 'Of Strategies, Deliberate and Emergent', *Strategic Management Journal*, 6 (3): 257-272.
- Mintzberg, H., B. Ahlstrand, J. Lampel (1998), *Strategy safari: a guided tour through the wilds of strategic management*, Free Press, New York.
- Nassehi A. (1992), 'Wie wirklich sind Systeme? Zum ontologischen und epistemologischen Status von Luhmanns Theorie', in: Krawietz W., M. Welker, *Kritik der Theorie sozialer Systeme: Auseinandersetzungen mit Luhmanns Hauptwerk*, 2. Aufl., Suhrkamp, Frankfurt am Main (1992).
- Nicolai A.T. (2000), *Die Strategie-Industrie: Systemtheoretische Analyse des Zusammenspiels von Wissenschaft, Praxis und Unternehmensberatung*, Deutscher Universitäts-Verlag, Wiesbaden.

- Ortmann G., H. Salzman (2002), 'Stumbling Giants: The Emptiness, Fullness, and Recursiveness of Strategic Management', *Soziale Systeme*, 8 (2): 205-230.
- Pettigrew A.M. (1987), 'Context and action in the transformation of the firm', *Journal of Management Studies*, 24 (6): 649-670.
- Pettigrew A.M. (1992), 'The character and significance of strategy process research', *Strategic Management Journal*, 13 (Special Issue Winter): 5-16.
- Pettigrew A.M. (ed.) (1988), *The Management of Strategic Change*, Blackwell, Oxford.
- Porter M.E. (1985), *Competitive advantage: Creating and sustaining superior performance*, Collier Macmillan, London.
- Prahalad C.K. (1993), The role of core competencies in the corporation, *Research & Technology Management*, 36 (6): 40-47.
- Prahalad C.K., G. Hamel (1990), 'The core competency of the corporation', *Harvard Business Review*, 68, (3): 79-82.
- Prahalad C.K., G. Hamel (1994), *Competing for the future*, Harvard Business School Press, Boston, Massachusetts.
- Prahalad C.K., R.A. Bettis (1986), 'The dominant logic: a new linkage between diversity and performance', *Strategic Management Journal*, 7 (6): 485-501.
- Priem R.L., J.E. Butler (2001), 'Is the resource-based "view" a useful perspective for strategic management research?', *Academy of Management Review*, 26 (1): 22-40.
- Quinn J.B. (1980), *Strategies for Change: Logical Incrementalism*, Irwin, Homewood.
- Rajagopalan N., G.M. Spreitzer (1996), 'Toward a theory of strategic change: a multi-lens perspective and integrative framework', *Academy of Management Review*, 22 (1): 48-79.
- Scott S.G., V.R. Lane (2000), 'A stakeholder approach to organizational identity', *Academy of Management Review*, 25 (1): 43-62.
- Simon H.A. (1960), *The New Science of Management Decision*, Harper and Row, New York.
- Spencer Brown G. (1972), *Laws of Form*, 1st American ed., Julian Press, New York.

- Stacey R.D. (2000 [1993]), *Strategic Management & Organisational Dynamics: The Challenge of Complexity*, Third Edition, Prentice Hall, Harlow.
- Stalk G., P. Evans, L.E. Lawrence (1992), 'Competing on Capabilities: The New Rules of Corporate Strategy', *Harvard Business Review*, 70 (2): 57-69.
- Teece D.J., G. Pisano (1994), 'The dynamic capabilities of firms: an introduction', *Industrial and Corporate Change*, 3 (3): 537-556.
- Teece D.J., G. Pisano, A. Shuen (1997), 'Dynamic capabilities and strategic management', *Strategic Management Journal*, 18 (7): 509-533.
- Tirole J. (2001), 'Corporate Governance', *Econometrica*, 69 (1): 1-35.
- Waddock S., N. Smith (2000), 'Corporate Responsibility Audits: Doing Well by Doing Good', *Sloan Management Review*, 41 (2): 75-83.
- Weick, K.E. (1979), *The social psychology of organizing*, 2nd edition, Addison-Wesley, Reading.
- Weick K.E. (1987), 'Substitutes for Corporate Strategy', in: D.J. Teece (ed.), *The Competitive Challenge: Strategies for Industrial Innovation and Renewal*, Balling Publishing Organisation, Cambridge, Massachusetts.
- Weick, K.E. (1995), *Sensemaking in Organizations*, Sage Publications, Thousand Oaks, California (Foundations for organizational science).
- Weick K.E. (1999), 'That's Moving: Theories That Matter', *Journal of Management Inquiry*, 8 (2): 134-142.
- Whittington R. (1993), *What is strategy – and does it matter?*, Routledge, London.
- Wit de, B, R. Meyer (1994), *Strategy – process, content, context: an international perspective*, West, St. Paul, MN.



Eindhoven Centre for Innovation Studies

WORKING PAPERS

Ecis working papers 2002-2003 (July 2003):

- 02.01 M. van Dijk
The Determinants of Export Performance in Developing countries: The Case of Indonesian manufacturing
- 02.02 M. Caniels & H. Romijn
Firm-level knowledge accumulation and regional dynamics
- 02.03 F. van Echtelt & F. Wynstra
Managing Supplier Integration into Product Development: A Literature Review and Conceptual Model
- 02.04 H. Romijn & J. Brenters
A sub-sector approach to cost-benefit analysis: Small-scale sisal processing in Tanzania
- 02.05 K. Heimeriks
Alliance Capability, Collaboration Quality, and Alliance Performance: An Integrated Framework.
- 02.06 G. Duysters, J. Hagedoorn & C. Lemmens
The Effect of Alliance Block Membership on Innovative Performance
- 02.07 G. Duysters & C. Lemmens
Cohesive subgroup formation: Enabling and constraining effects of social capital in strategic technology alliance networks
- 02.08 G. Duysters & K. Heimeriks
The influence of alliance capabilities on alliance performance: an empirical investigation.
- 02.09 J. Ulijn, D. Vogel & T. Bemelmans
ICT Study implications for human interaction and culture: Intro to a special issue
- 02.10 A. van Luxemburg, J. Ulijn & N. Amare
The Contribution of Electronic Communication Media to the Design Process: Communicative and Cultural Implications
- 02.11 B. Verspagen & W. Schoenmakers
The Spatial Dimension of Patenting by Multinational Firms in Europe
- 02.12 G. Silverberg & B. Verspagen
A Percolation Model of Innovation in Complex Technology Spaces

- 02.13 B. Verspagen
Structural Change and Technology. A Long View
- 02.14 A. Cappelen, F. Castellacci, J. Fagerberg and B. Verspagen
The Impact of Regional Support on Growth and Convergence in the European Union
- 02.15 K. Frenken & A. Nuvolari
Entropy Statistics as a Framework to Analyse Technological Evolution
- 02.16 J. Ulijn & A. Fayolle
Towards cooperation between European start ups: The position of the French, Dutch, and German entrepreneurial and innovative engineer
- 02.17 B. Sadowski & C. van Beers
The Innovation Performance of Foreign Affiliates: Evidence from Dutch Manufacturing Firms
- 02.18 J. Ulijn, A. Lincke & F. Wynstra
The effect of Dutch and German cultures on negotiation strategy comparing operations and innovation management in the supply chain
- 02.19 A. Lim
Standards Setting Processes in ICT: The Negotiations Approach
- 02.20 Paola Criscuolo, Rajneesh Narula & Bart Verspagen
The relative importance of home and host innovation systems in the internationalisation of MNE R&D: a patent citation analysis
- 02.21 Francis K. Yamfwa, Adam Szirmai and Chibwe Lwamba
Zambian Manufacturing Performance in Comparative Perspective
- 03.01 A. Nuvolari
Open source software development: some historical perspectives
- 03.02 M. van Dijk
Industry Evolution in Developing Countries: the Indonesian Pulp and Paper Industry
- 03.03 A.S. Lim
Inter-firm Alliances during Pre-standardization in ICT
- 03.04 M.C.J. Caniëls & H.A. Romijn
What drives innovativeness in industrial clusters? Transcending the debate
- 03.05 J. Ulijn, G. Duysters, R. Schaetzlein & S. Remer
Culture and its perception in strategic alliances, does it affect the performance? An exploratory study into Dutch-German ventures
- 03.06 G. Silverberg & B. Verspagen
Brewing the future: stylized facts about innovation and their confrontation with a percolation model
- 03.07 M.C. Caniëls, H.A. Romijn & M. de Ruijter-De Wildt
Can Business Development Services practitioners learn from theories on innovation and services marketing?
- 03.08 J.E. van Aken
On the design of design processes in architecture and engineering: technological rules and the principle of minimal specification

- 03.09 J.P. Vos
Observing Suppliers observing Early Supplier Involvement: An Empirical Research based upon the Social Systems Theory of Niklas Luhmann
- 03.10 J.P. Vos
Making Sense of Strategy: A Social Systems Perspective

