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SUSTAINABILITY OF MARKETING SYSTEMS:
SYSTEMING INTERPRETATION OF HYBRID CAR
MANUFACTURER AND CONSUMER
COMMUNICATIONS

A thesis submitted in fulfilment of the requirements for the
degree of Doctor of Philosophy at the University of Waikato

by

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The University of Waikato

2007

Abstract

The purpose of this qualitative macromarketing investigation is to explore the issue of the sustainability of marketing systems. Drawing on complex systems thinking, an alternative logic of marketing systems and a methodological basis for interpreting communicated meanings are developed. The alternative logic of marketing systems recognises the unity of a difference between a marketing system and its environment. This insight has become a cornerstone for synthesising the systeming methodology. Systeming comprises the philosophy, the model, and the method of interpreting communication-as-self-observation of marketing system agents. Data, communication by hybrid car manufacturers and consumers, were collected from netnographic sources such as corporate websites, reports posted online, weblogs, and consumer forums. The interpretation of these data was accomplished using systeming procedures, e.g. communication analysis, distinction identification, re-entry description, and logical level tracking.

The systeming analysis of the hybrid car marketer and consumer communications illustrates that meaning-creation in the system is underpinned by purposeful human behaviour in reducing complexity of marketplace experience into a meaningful pattern, sustainability. Both manufacturers and consumers claim to become “sustainable” in reference to being “unsustainable” by creating self-referential differences, operating in different interaction contexts, and expanding meaning paradoxes. The interpretation shows that interactive meaning-creation in the system is inherently contradictory. Manufacturers expand (give a logical form to) contradictions through introducing hierarchical meaning structures, temporality, new functions, and communicative transvection. Consumers deal with the contradictions through enriching co-creation experiences and learning the proper continuation of specific hybrid car driving practices.

The significant insight gained from this investigation is that the hybrid car marketing system is not a passive entity; it is the locus of purposefully expanding meanings. Two

modes of sustainability with regard to the hybrid car marketing system can be distinguished: the content of communication that denotes enacted meanings of sustainability and the form of communication that indicates how sustainable these sustainability enactments are. The content/form distinction implies that the sustainability of the hybrid car marketing system is a matter of interactive meaning-creation between system agents. The sustainable development process, in at least a mobility domain, is driven by purposeful social interaction rather than static product attributes.

This investigation is innovative because it a) offers a conceptualisation of a marketing system as a meaning flow; b) synthesises and compiles a methodology and method for interpreting communication in a marketing system; c) reveals systemic insights into the hybrid car marketing system; d) characterises the sustainability dimension of the hybrid car marketing system; e) explains a conceptual ground for reconciling the marketing system and society; f) provides a general macromarketing perspective to scrutinise recent conceptual developments in the marketing discipline; g) unifies marketing systems thinking with recent advancements in the marketing discipline, such as the service-dominant logic, and consumer culture theory; and, also, h) provides recommendations for a number of micro-managerial situations from a holistic perspective.

Preface and Acknowledgements

At a time when so many scholars in the world are calculating, is it not desirable that some, who can, dream?

Rene Thom (1989), mathematician, the father of catastrophe theory

In fact, mathematics is more philosophy than symbol manipulation (Gullberg, 1997). Similarly, the marketing field is in no less need of philosophical intellectualisation and qualitative interpretation. This thesis has actually been inspired by the ideas of logical mathematicians, e.g. Kurt Gödel, Bertrand Russell, and Douglas Hofstadter. Also, the ideas of Niklas Luhmann, the guru of complex systems thinking in sociology, have been particularly inspiring. Useful concepts have been borrowed from a cybernetics expert Heinz von Foerster, cultural anthropologist Gregory Bateson, linguist Ludvig Wittgenstein, and organisational psychologist Karl Weick. This shows that the background of this investigation is very broad and is not simply limited to marketing literature. In my opinion, this is what is required for being able to think about a marketing system as a whole.

This thesis is not *in* a marketing system, it is *about* a marketing system. A simple metaphor can help: a person looking at whole traffic from a higher altitude observes a different world than a driver of a car. Pragmatics for a car driver represents the knowledge of which button to push or which gear to pull according to observed road conditions. Pragmatics for a traffic planner is to make sure that the flow of cars runs smoothly and in the right direction. Similarly, I observe a marketing system and its features reified in its agents' actions rather than the characteristics of the agents per se. The concept of networks can be proposed as a more pragmatic alternative to the concept of systems. My argument is that a network connotes a static structure, whereas a system is flow. For instance, traffic is not a network of cars, it is a loosely-coupled system of interactions between cars. Moreover, a network implies nodes as fundamental blocks, whereas a system gives priority to relation rather than substance. Networks can be

described as mechanical systems, whereas complex systems cannot be called a network. This list of differences is not exhaustive.

The main founding idea in this thesis is that the system comprises both the self and the environment. There is nothing outside the system except complexity. This insight is not new. Many marketing systems thinkers (e.g. Alderson, Shapiro, Layton) alluded to this insight, yet the implications of this insight on other mechanical system conceptualisations have not been investigated. The acceptance of the unity of the system and its environment in entirety opens up a wealth of conceptual possibilities. The ideas such as survival, an input-output mechanism, the common's tragedy would have to be reconceptualised. This work is an initial attempt to walk in this direction.

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Definitions

Autopoiesis refers to the “networks of productions of components that recursively, through their interactions, generate and realize the network that produces them and constitute, in the space in which they exist, the boundaries of the network as components that participate in the realization of the network” (Maturana, 1981, p.21). In the context of this investigation, autopoiesis means independent reproduction of meanings.

Communication is the holistic pattern of social interaction that comprises the following selections: information, utterance, and understanding (Luhmann, 1995). *Content of communication* refers to meanings created as the result of communicating (alternative terms are operating, interacting, observing) within the system. *Form of communication* is the result of the recursive application of a distinction to itself; communication that communicates about itself (Luhmann, 1995). In the context of this investigation, it indicates the sustainability of sustainability meaning-creation.

Distinction is the tendency of communicating meanings through referencing oppositional values, such as good/bad, true/false, sustainable/unsustainable (Levy, 1981; Spencer-Brown, 1969; Stern, 1995; Thompson & Hirschman, 1995).

Emerge, come forth, actualise, form are the verbs used in this work to indicate the reification of systems in social and communicative spaces.

Emergent is a quality that characterises a system. The system is emergent when its properties are not directly traceable in the system’s elements. It means that the system’s emergent qualities are irreducible to elementary relations, rather they are the result of multi-level, intensive interactions among the elements (Boccaro, 2004; Eve, Horsfall, & Lee, 1997; Hofstadter, 1979; Juarrero, 1999).

Enacted environment is the manifestation of the external environment within the system, which represents a meaningful order constructed from complex social events (Weick, 1979).

Enactment refers to the process of purposeful and existential construction and communication of life-phenomena within the system (Maturana & Varela, 1992; Weick, 1979).

Existential. In the context of this work, the term implies that meaning creation is a form of being for systems. In other words, a system exists to communicate meaning, whereas meaning implies the existence of the system.

External environment is a set of perturbations (social and natural events) that does not have a meaningful form per se (von Foerster, 2003).

Intentionality is the term borrowed from phenomenology. In the context of systems thinking, it refers to the systeming maxim that marketing actions imply recognition, understanding, and continuation of a particular system by a means of social communication. People learn to recognise and maintain systems in interaction and communication.

Marketing system is the unity of marketplace communications that differentiate the system in reference to the environment.

Meaning is actualised in “a surplus of references to other possibilities of experience and action” (Luhmann, 1995, p.60). In other words, meaning is a selection that is actualised within a horizon of other possible selections. Hence, not only is it a mental phenomenon, but also a systemic happening.

Observation is the active process of simplifying life-worlds, cutting distinctions, and reducing the environmental complexity into meaningful patterns; every communication embodies *self-observation*, as it delineates the self from the environment.

Purposeful expansion is an alternative concept to survival and adaptation. This concept means that a system's operation is self-regulatory. The system expands, i.e. comes forth via constructing and interpreting both its internal structure and the external environment at the same time. Alternatively, in human social behaviour purposefulness means the unity of ends and means. The means-ends dynamics is circular: ends are chosen in presupposition of means, whereas means are constructed according to ends (see Lindblom, 1958; 1959; 2001).

Survival as a general concept may denote various meanings depending on the context of use. In this work, the concept of survival represents its mainstream mechanical meaning, i.e. a system that is devoid of an internal purposeful character is shaped by external changes, and thus, becomes increasingly adapted to changing conditions.

Sustainability. Sustainability is broadly defined as meeting “the needs of the present without compromising the ability of future generations to meet their needs” (World Commission on Environment and Development, 1987, p.43). In marketing, the concept refers to the harmonious, undestructive relationship between a marketing system and its environment (van Dam & Apeldoorn, 1996). On the other hand, its meaning is nebulous (Schaefer & Crane, 2005). I concur with several researchers (Dolan, 2002; Goodin, 1999; Schaefer & Crane, 2005) who argue that sustainability is ambivalent if taken literally. However, its meaning can be investigated through *systeming* that explores how it is enacted within various contexts of marketing systems.

Systeming represents the complex of philosophical, methodological, and methodical assumptions and practices which conform to the original principles of systems thinking. I have chosen the term “systeming” to stress its broadness and dynamism in comparison to other alternatives. Systeming comprises all steps from clarifying logic to specifying

research procedures. The aim was to isolate mechanical assumptions which crept into systems thinking. I found the terms such as approach, perspective, worldview, framework, or thinking to be restrictive in one or other aspects. For instance, the term “systeming approach” may denote a procedural aspect, whereas a philosophical aspect would remain excluded.

Value co-creation is the joint process of value formation among system agents, including consumers and producers (Prahalad & Ramaswamy, 2004a, 2004b; Vargo & Lusch, 2004).

Value is accepted to represent “an interactive relativistic preference experience” (Holbrook, 1994, p.27).

Key Abbreviations

SMC	(sub)system of hybrid car marketer communication
SCC	(sub)system of hybrid car consumer communication

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Definitions

Autopoiesis refers to the “networks of productions of components that recursively, through their interactions, generate and realize the network that produces them and constitute, in the space in which they exist, the boundaries of the network as components that participate in the realization of the network” (Maturana, 1981, p.21). In the context of this investigation, autopoiesis means independent reproduction of meanings.

Communication is the holistic pattern of social interaction that comprises the following selections: information, utterance, and understanding (Luhmann, 1995). *Content of communication* refers to meanings created as the result of communicating (alternative terms are operating, interacting, observing) within the system. *Form of communication* is the result of the recursive application of a distinction to itself; communication that communicates about itself (Luhmann, 1995). In the context of this investigation, it indicates the sustainability of sustainability meaning-creation.

Distinction is the tendency of communicating meanings through referencing oppositional values, such as good/bad, true/false, sustainable/unsustainable (Levy, 1981; Spencer-Brown, 1969; Stern, 1995; Thompson & Hirschman, 1995).

Emerge, come forth, actualise, form are the verbs used in this work to indicate the reification of systems in social and communicative spaces.

Emergent is a quality that characterises a system. The system is emergent when its properties are not directly traceable in the system’s elements. It means that the system’s emergent qualities are irreducible to elementary relations, rather they are the result of multi-level, intensive interactions among the elements (Boccaro, 2004; Eve, Horsfall, & Lee, 1997; Hofstadter, 1979; Juarrero, 1999).

Enacted environment is the manifestation of the external environment within the system, which represents a meaningful order constructed from complex social events (Weick, 1979).

Enactment refers to the process of purposeful and existential construction and communication of life-phenomena within the system (Maturana & Varela, 1992; Weick, 1979).

Existential. In the context of this work, the term implies that meaning creation is a form of being for systems. In other words, a system exists to communicate meaning, whereas meaning implies the existence of the system.

External environment is a set of perturbations (social and natural events) that does not have a meaningful form per se (von Foerster, 2003).

Intentionality is the term borrowed from phenomenology. In the context of systems thinking, it refers to the systeming maxim that marketing actions imply recognition, understanding, and continuation of a particular system by a means of social communication. People learn to recognise and maintain systems in interaction and communication.

Marketing system is the unity of marketplace communications that differentiate the system in reference to the environment.

Meaning is actualised in “a surplus of references to other possibilities of experience and action” (Luhmann, 1995, p.60). In other words, meaning is a selection that is actualised within a horizon of other possible selections. Hence, not only is it a mental phenomenon, but also a systemic happening.

Observation is the active process of simplifying life-worlds, cutting distinctions, and reducing the environmental complexity into meaningful patterns; every communication embodies *self-observation*, as it delineates the self from the environment.

Purposeful expansion is an alternative concept to survival and adaptation. This concept means that a system's operation is self-regulatory. The system expands, i.e. comes forth via constructing and interpreting both its internal structure and the external environment at the same time. Alternatively, in human social behaviour purposefulness means the unity of ends and means. The means-ends dynamics is circular: ends are chosen in presupposition of means, whereas means are constructed according to ends (see Lindblom, 1958; 1959; 2001).

Survival as a general concept may denote various meanings depending on the context of use. In this work, the concept of survival represents its mainstream mechanical meaning, i.e. a system that is devoid of an internal purposeful character is shaped by external changes, and thus, becomes increasingly adapted to changing conditions.

Sustainability. Sustainability is broadly defined as meeting “the needs of the present without compromising the ability of future generations to meet their needs” (World Commission on Environment and Development, 1987, p.43). In marketing, the concept refers to the harmonious, undestructive relationship between a marketing system and its environment (van Dam & Apeldoorn, 1996). On the other hand, its meaning is nebulous (Schaefer & Crane, 2005). I concur with several researchers (Dolan, 2002; Goodin, 1999; Schaefer & Crane, 2005) who argue that sustainability is ambivalent if taken literally. However, its meaning can be investigated through *systeming* that explores how it is enacted within various contexts of marketing systems.

Systeming represents the complex of philosophical, methodological, and methodical assumptions and practices which conform to the original principles of systems thinking. I have chosen the term “systeming” to stress its broadness and dynamism in comparison to other alternatives. Systeming comprises all steps from clarifying logic to specifying research procedures. The aim was to isolate mechanical assumptions which crept into systems thinking. I found the terms such as approach, perspective, worldview, framework, or thinking to be restrictive in one or other aspects. For instance, the term “systeming approach” may denote a procedural aspect, whereas a philosophical aspect would remain excluded.

Value co-creation is the joint process of value formation among system agents, including consumers and producers (Prahalad & Ramaswamy, 2004a, 2004b; Vargo & Lusch, 2004).

Value is accepted to represent “an interactive relativistic preference experience” (Holbrook, 1994, p.27).

Key Abbreviations

SMC	(sub)system of hybrid car marketer communication
SCC	(sub)system of hybrid car consumer communication

Section I
Introduction

In this section, the broader picture of this investigation is introduced. Foremost, the area of inquiry, background of investigation, research problems, and expectations for research outcomes are articulated. The potential points of academic, social, consumer, and managerial interest are then presented, followed by the discussion of justification for research and methodology. Next, the outline of the thesis is presented. In the final part, the delimitations of scope and key assumptions are given. The summary of main findings concludes the section.

Research Problem

Macromarketing

In June 5-8, 2006, the author joined an eccentric multinational group of marketing thinkers gathered in Queenstown, New Zealand, to convene a conference under the title *Macromarketing the Future of Marketing?* The general concern that was more or less shared by everyone present centered on the issue of re-introducing the macro-level thought into the marketing discipline on a broad basis. Professor Robert Nason (2006) resoundingly reinforced this in his introductory panel speech. He identified three limiting forces that needed to be addressed for ensuring the meaningful future of macromarketing:

- a) the lack of independence from the managerial focused marketing discipline – the marginalization of macromarketing thought and analysis;
- b) the expanding academic compartmentalization of knowledge – the loss of focus on the system;
- c) the uncritical acceptance of the notion of market driven world consumption as sustainable in the future – unabated material consumption of the wealthy and emerging markets (Nason, 2006, p. 4)

To recapitulate, the first notion expresses a need for alternative thought on the form of marketing in the future, while the second notion emphasises the marketing system as a whole. The third notion draws attention to the issue of the *sustainability of marketing systems*.

The broader field of study for this investigation is *macromarketing*. Macromarketing issues were the focus of early marketing thought (Bartels, 1976; Fisk, 1981; Nason, 2006; Sheth, Gardner, & Garrett, 1988; Wilkie & Moore, 2003). Marketing gurus point out that classic mainstream marketing and macromarketing-in-the-present greatly overlap in terms of research interests (Nason, 2006; Sheth et al., 1988; Wilkie & Moore, 2003). As a matter of fact, the label “macromarketing” was introduced in the early 1980s to differentiate the tradition from micro-managerial marketing perspectives that had become mainstream since the mid-twentieth century (Fisk, 1981). However, a common view is that macro and micro-marketing perspectives are not exclusive, but complementary. A micro-problem can be studied from a macro-perspective, and vice versa (Shawyer & Nickels, 1981). The macro-perspective on vital marketing problems, especially, those of societal scope, are very important not only for managers, but also for consumers, policy-makers, and other stakeholders (Alderson, 1965; Bartels, 1970; Brown, Bell, & Carson, 1996; Crane & Desmond, 2002; Fisk, 1981; Sheth & Sisodia, 2005; Shultz II & Holbrook, 1999; Wilkie & Moore, 2003). Macromarketing research is multi-faceted. Listing all research directions in macromarketing is beyond the scope of this discussion. But several research areas are relevant in the context of the current investigation: marketing-society interactions (Emery & Trist, 1972; Fisk, 1971; Layton, 1981a; Schaefer, 2005; Sheth & Sisodia, 2005; Wilkie & Moore, 1999), marketing systems (Alderson, 1964; Dixon, 1991; Dixon & Wilkinson, 1982; Dowling, 1983; Fisk, 1967; Layton, 1981a, 1981b, 1989, 2006; Lindblom, 2001; Schaefer, 2005), marketing history (Bartels, 1976; Boulding, 1956; Shaw & Jones, 2005; Sheth et al., 1988; Wilkie & Moore, 2003), marketing future (Brown et al., 1996; Holbrook & Hullbert, 2002; Kitchen, 2003; Webster Jr., 1997), sustainable marketing and sustainable consumption (Dolan, 2002; Fuller, 1999; Hart & Milstein, 1999, 2003; Kilbourne, McDonagh, & Prothero, 1997; Peattie, 2001; Schaefer, 2005; van Dam & Apeldoorn, 1996), and consumer society and culture (Durning, 1992; Goodwin, Ackerman, & Kiron, 1997; Holt, 2002; Keat, Whiteley, & Abercrombie, 1994; Lee, 2000; Schor & Holt, 2000; Sherry, 2000; Thompson, Locander, & Pollio, 1989; Wernick, 1991).

Marketing Systems

An investigation that focuses on *marketing systems* in their wholeness pertains to the macromarketing domain (Fisk, 1981; Layton, 2006; White, 1981).

Macromarketing is essentially about investigating marketing phenomena from the point of a systems perspective (Fisk, 1981; Hunt, 1981; Monieson, 1981; Shawyer & Nickels, 1981; White, 1981). In particular, Hunt (1981) states that:

Macro-marketing refers to the study of (1) marketing systems, (2) the impact and consequence of marketing systems on society, and (3) the impact and consequence of society on marketing systems. (p.8)

Layton (2006) distinguishes between *a* marketing system and *the* marketing system. He points out that the marketing system represents an abstract generalisation of marketplace activities at broad national, global, and even theoretical levels, whereas a marketing system is taken as a specific set of market mechanisms which form in reference to a particular product or brand context. In other words, *the marketing system* becomes meaningful, when it is referenced *vis-à-vis* other general institutions in society such as economic, political, legal, cultural systems, whereas *a marketing system* embodies differences among alternative product-related marketing systems. However, the definition of the/a marketing system is not clear in the extant literature (Layton, 2006, 2007). Therefore, the interpretive thrust of this investigation will be on intellectualising the boundaries of marketing systems, since the definition of a system cannot be complete without delineation of its boundaries (Luhmann, 2004). In this thesis, a marketing system signifies a domain of interlinked, meaning-creating communicative acts that form in reference to a product category (the hybrid car). At the same time, the marketing system comes under focus when insights are extended at a societal level.

Research Trends

Several important shifts in the understanding of marketing can be discerned in marketing theory and practice (Sheth & Sisodia, 2006). Important changes are a) a growing focus on social interactions and relationships in marketscapes (Gummeson, 1999; Varey, 2002b; Varey & Ballantyne, 2005); b) a shift toward

the notion of value co-creation (Prahalad & Ramaswamy, 2004a, 2004b; Vargo & Lusch, 2004); and c) a move toward eco-system friendly and sustainable operations (Fuller, 1999; Hart & Milstein, 2003; Peattie, 2001; Polonsky & Mintu-Wimsatt, 1995; van Dam & Apeldoorn, 1996). The traditional (micro) concept of marketing is challenged by theorists, commentators, and critics, as being conducive to consumerist, wasteful, domination-minded, competitive, one-way, myopic, and eco-averse behaviour (Brown et al., 1996; Connolly & Prothero, 2003; Crane & Desmond, 2002; Dawson, 2003; Dolan, 2002; Varey, 2005b). Thus, companies pursuing socially responsible business face a dilemma of reconciling three crucial business elements: complexity of marketing systems, value/meaning co-creation, and sustainability. These elements will comprise the bases of the current investigation.

Two profound theoretical debates are relevant to Hunt's view of *macromarketing as the study of marketing systems* (1981). The first debate envisions marketing systems in a temporal perspective. The future of the marketing system is debated (Brown et al., 1996; Brownlie & Saren, 1992; Holbrook & Hullbert, 2002; Hullbert, 1998; Kitchen, 2003; McDonagh & Prothero, 1996; Sheth & Sisodia, 2006). One argument is that radical social transformations may result in a situation that no need for marketing (in its current form) is exerted anymore in the future. So, transition to a new form which is not "traditional marketing" is thought to be inevitable (Brown et al., 1996; Holbrook & Hullbert, 2002). The other stream of research suggests that marketing in its orthodox form will endure (Kitchen, 2003; McCole, 2004). The intriguing aspect of this discussion is that the opposite camps seem not to be in obvious disagreement, but in agreement that marketing is currently experiencing its biggest ever thrust for transformation (Sheth & Sisodia, 2006).

Second, there is a debate on the nature of the relation between marketing systems and society. The traditional default is that both marketing and society are each considered as an independent unity that has impact on another unity (Hunt, 1981; Wilkie & Moore, 1999). In other words, they are thought to represent "Newtonian particles" which mechanistically affect each other in interaction (Bateson, 1991, p.152). This view is reflected in Hunt's definition of macromarketing (1981) and

particular systems research which treat marketing as a mechanical system. On the other hand, the marketing system is seen as a societal process (Lindblom, 2001; Shawyer & Nickels, 1981; Spring, 2003; Varey, 2005b). A majority of early contributors to marketing thought, e.g. Clark, Stewart, Dewhust, Duddy, Revzan, Vaile, and Alderson, saw marketing as the social pattern of market behavior (Sheth et al., 1988). Alfred Kuhn (1963) described the marketing process “as one of several techniques of achieving consensus valuations in a society” (p.vii). The main premise behind the social perspective is that marketing represents emergent patterns of social action. This view de-emphasises the importance of a clear-cut delineation of marketing and social processes. Rather it stresses the inherent social character of market relations (Firat, 2001; Firat & Venkatesh, 1995). At the same time, researchers observe the trend of increasing divergence between the interest bases of the marketing system and society (Sheth & Sisodia, 2005; Wilkie & Moore, 2003). The debate indicates complexity rather than triviality of the marketing-society relation. The challenging question still remains open: How do we reconcile marketing and society?

Sustainable Marketing

A better form of marketing is *sustainable marketing* (Fuller, 1999; Peattie, 2001; van Dam & Apeldoorn, 1996). Researchers struggled to reconcile competition and self-interest based marketing ideologies and greening-sustainability motives (Fuller, 1999; Ginsberg & Bloom, 2004; Hart & Milstein, 2003; Kotler, 2004; Porter & Van Der Linde, 1995). Several issues are important in this respect. These issues are green production and green consumption (Ginsberg & Bloom, 2004; Kilbourne & Beckmann, 1998; Porter & Van Der Linde, 1995), sustainable consumption (Connolly & Prothero, 2003; Kilbourne et al., 1997; Tanner & Kast, 2003), and marketing evolution (Peattie, 2001). Some researchers concluded that holistic re-analysis of people, markets, society, and environment is required to fully understand the perspectives of integration between marketing operations and sustainable development (Kilbourne et al., 1997; Peattie, 2001; Saren, 2000; Shultz II & Holbrook, 1999). Often the attempt was made to develop an account of how sustainable marketing should (not) be (Dolan, 2002; Hart & Milstein, 2003; Kilbourne et al., 1997; Schaefer, 2005; Schaefer & Crane, 2005). In their article on societal marketing and morality, Crane and Desmond (2002) argue that

conceptualisation that seeks to develop a normative view of marketing is amoral and egoistic. They argue that instead of discussing what marketing should or should not be, one needs to focus on how discourse and meanings are communicated in marketing systems. In this vein, this investigation seeks to explore meanings enacted in marketing systems.

The problem of reconciling marketing systems, society, and sustainable development is exacerbated by a notion that market processes are never static, but continuously evolving, dynamic, emergent, and bifurcative (Eve et al., 1997; Luhmann, 1995; Prigogine, 2003; Salk, 1973; Shaw & Jones, 2005). Moreover, not only understanding, but also *understanding of understanding* of these processes is the inherent aspect of the problem (von Foerster, 2003). Such hologramic (multidimensional) conceptualisation is enabled by recent progress in marketing thought, especially in such directions as value co-creation, experience co-creation, interactive communication, and the service-dominant logic (Holbrook, 1999; Prahalad & Ramaswamy, 2004b; Varey, 2004, 2005a; Vargo & Lusch, 2004). Also, advances in complex systems theories is to be taken into account (Luhmann, 1995, 2002).

Research Aims, Questions, and Expectations

The purpose of this investigation is to understand the sustainability bases of marketing systems. The investigation is underlined by motivation to shed some light on the characteristics of sustainable marketing systems. Especially, the objective is to develop an interpretive theory of a marketing system, and its harmonious relation to the environment, which is depicted in and shaped through interactive communicative acts of marketplace actors. Considering that this inquiry is essentially qualitative, based on reification of systems and their agency with tilt toward existentialism, interpretivism, and philosophical intellectualisation, the research question is:

In what form (and how) is sustainability actualised in the operation of a marketing system?

The main phenomenon under focus is the process of how sustainability as *meaning* is enacted in operations of a marketing system. In the light of this, the following specific research questions are plausible:

- What is the process of formation of a marketing system as a locus of meanings?
- How is sustainability enacted in the distinct domains of a marketing system, especially in the domains of production and consumption?
- How do marketplace actors communicate, understand, and construct the meanings of sustainability in a marketing system?
- What are the characteristics of a marketing system which make it conducive to sustainable development?

Points of Interest

The point of academic interest lies in conceptual reconciliation of the concepts of marketing systems, society, and sustainable development. Specifically, outcomes expected from this investigation a) offer an alternative view of marketing systems-society dynamics; b) provide insights into the operating of sustainable marketing systems; c) reveal the essence of self-referentiality in marketing systems; d) indicate the meanings dimension of marketing systems; and d) suggest a new perspective to interpreting communication in marketing systems. Mechanistic conceptualisation is dominant in the current literature. As a result, marketing systems have come to represent technocratic sensitivities. It is a conceptual challenge to describe systems through a more flexible, descriptive, and qualitative interpretivism that is in conformance with recent developments in the area of consumer research marked as Consumer Culture Theory (Arnould & Thompson, 2005).

The particular aspect of this investigation is that it is a research project for consumers, or precisely, for marketing system actors (Firat, 2001). A systems approach offers a broader view on market experiences. Marketplace actors learn from this investigation the principles of *wise* action in their operating as consumers and marketers to attain long-term sustainable existence. I show how

marketing system actors communicate and reify systems in emerging, complex, and technologised marketscapes. The meaning of sustainable marketing to system participators is discussed. The awareness of systemic tendencies may help both producers and consumers to distinguish between principles of myopic, dogmatic action and wise bases of action.

This investigation suggests several points of interest for marketing managers. Managers are offered a broad perspective of thinking about the sustainability of marketing systems. It is known that much of day-to-day managerial action is performed based on decision heuristics. This work supplies criteria to build such heuristics in reference to a sustainability cause. Society and publics, including business policy makers, may see benefits in terms of clarification of action principles, which elicit more responsible behaviour. At a societal level, there is both widespread condemnation of marketing excess as a cause of socially corrosive consumption, waste, and pollution, and an optimistic drive for realising the developmental potential of marketing as a powerful solution to many problems of sustainable development (Sheth & Sisodia, 2005, 2006). Policy makers may learn to address this dilemma from a macro-perspective, thus taking the marketing system as the unit of analysis, action, and policy decision-making.

Justification for Research

Marketing System as Meaningscape

In this work, marketing systems are conceptualised as *meaning* spaces. This conceptualisation is in contrast to mechanistic and economic idealisation. Traditionally, marketing systems are conceptualised in the following ways in the extant research: a) the economic form: production, distribution, and consumption mechanisms within a set national boundaries (Alderson, 1965; Layton, 1981a, 1981b, 1991; Wilkie & Moore, 1999); b) input-output and recursive feedback mechanisms at a micro-managerial level; specifically, aggregation of exchanges (Bagozzi, 1974; Dowling, 1983; Forrester, 1958; Reidenbach & Oliva, 1981); and c) a general phenomenon that unites cultural, socio-historical, and experiential aspects of society which affect marketplace behaviour (Bourdieu, 1984; Dreyfus & Rabinow, 1982; Holt, 1997; Livesey & Kearins, 2002; Scheurich & McKenzie,

2005; Thompson & Hirschman, 1995). None of these versions presents how meanings are created and communicated in a marketing system-as-whole. There is a lack of research on marketing systems as the locus of *meaning-creation in operation*. Ironically, symbolism and meaning has an established tradition in marketing thought. It is recognised that marketing transactions involve not only physical exchanges, but also symbolic meaning-creation (Bagozzi, 1975a; Levy, 1959). Also, the concept of transvective transformations offered by Alderson (1965) implies a meanings aspect in addition to other physical and economic facets:

...a transvection is in a sense the outcome of a series of transactions, but a transvection is obviously more than that ... a transvection includes the complete sequence of exchanges, but it also includes the *various transformations* which take place along the way.

(Alderson & Martin, 1965, p.118)

In agreement with this view, Bagozzi (1974) identified several problems with the original concept of the marketing system as the aggregate of exchanges. Research suggested that the concept of exchange is devoid of a social and meaningful character (Bagozzi, 1974, 1975a, 1975b). Bagozzi noted that the concept of exchange could only be applied to situations where physical “stuff” and purely “positive value” were traded. This notion ignored various non-standard situations ranging from marketer deception to coercive and violent influence tactics to demarketing activities. Combinations of “positive, negative, or neutral actions” exercised by exchange actors were not considered (Bagozzi, 1974, p. 78). Bagozzi (1975a) conceptualised the total domain of marketing as the general background of relationships to suggest a meanings dimension. Furthermore, Holbrook (1999) argued that exchanges are consummated in parallel with value creation. He developed a typology of values which exist in the domain of marketing behaviour. Marketing behaviour in reference to marketing systems is a broad phenomenon that includes both marketer and consumer activity (Kotler & Levy, 1973). This change in emphasis opens up wide possibilities to focus on experiential and phenomenological tenets of marketing systems. One of the latest conceptual developments regarding meaningfulness in marketing systems is the service-dominant logic of marketing (Vargo & Lusch, 2004). According to this theory,

meanings (the service logic) rather than physical substance are considered to be dominant in markets.

Sustainability of Marketing Systems

The problem of marketing-society sustainable relation suffered from weak conceptualisation. For example, in their review of marketing thought history, Wilkie and Moore (2003, p.140) state that

...the marketing and society area has been treated with “benign neglect” by the new academic mainstream of research in marketing, but this mainstream has itself been fragmented and less powerful. Within its own ambit, moreover, marketing and society research is also fragmented and is less powerful. (p.140)

Crane and Desmond (2002) address the problem of fundamental reconstruction of marketing on moral and ethical bases. They analysed the societal marketing concept, which represented a more radical view than the traditional view of marketing. The attempt to incorporate ethical considerations such as long-term consumer welfare, long-run consumer benefit, and society’s wellbeing into traditional marketing decision-making processes suggests that the concept is comparable in its meaning to the idea of *sustainable marketing*. However, Crane and Desmond note that almost no major conceptual progress has been made toward this direction since the early 1970s. They indicated that the field had since seen the rise of many non-traditional theories of marketing, namely social marketing, green marketing, ethical marketing, and cause-related marketing, the agenda of which tended to emphasise micro-managerial issues rather than macro-level problems. The concern was that societal marketing literature failed to contribute substantially to marketing theory and practice. Crane and Desmond note “we have been left with little in terms of *theoretical models*, theory constructs, concepts, relationships, testable propositions...” (p.552). They suggest that researchers need to refocus their attention from attempting to create normative articulation of what societal (sustainable) marketing should be toward developing a genuine understanding of discourses, value communication, and meanings that shape and inform marketing system actors’ decisions:

...we suggest that it may be opportune if more emphasis is now directed in furthering research which seeks to understand those processes and discourses which frame decision making in marketing and consumption, particularly with respect to their moral dimension. This would involve seeking to unravel the complex and often competing discourses which organizational actors and consumers draw on seeking to justify and implement marketing/consumption decisions... the discipline as a whole is still lacking requisite understanding of the moral meanings and understandings that shape, support and reinforce marketing decision making. (Crane and Desmond, 2002, p. 565)

Crane and Desmond's suggestion that research needs to be directed toward understanding how meanings shape and evolve in the marketing/consumption locus predicts to some extent, and even lays out an agenda for the current investigation. In support of this claim, it would suffice to note that their indication of a marketing/consumption locus parallels the concept of a *marketing system*, whereas their concept of discourses and processes are included in the notions of *meanings, value, and communication*. In turn, the emphasis on the moral dimension in Crane and Desmond's paper is reincarnated in terms of a *sustainability discourse*.

To attain a holistic idea of the marketing system, *transformational* research is called for which does not differentiate between the roles of citizens such as consumer-producer, buyer-seller, or marketer-customer (Firat, 2001). Citizens, the active participants of the marketing system, regardless of acting as producers or consumers, need research that would direct them to the sources of achieving success, welfare, and happiness by participating in marketplace activities. The kind of research is needed that "enable[s] people to modify and/or reinforce their own thoughts, feelings and behaviors in directions they deem helpful to their own success – however defined – and happiness" (Firat, 2001, para 20). Moreover, the marketing system actors may find themselves in need of research:

that enables and empowers the communities [systems] s/he belongs to, and thereby her/him, to produce/construct what is imaginable (the imaginary) in terms of life experiences, meanings and identities more than research that reifies or reconstructs that which is. The performer-consumer requires research that enables *the presentational mode of action* – a mode that empowers the actor to present potentials and possibilities by having a chance and facility for performing them. (Firat, 2001, para 22)

Firat restates the fact that there is a lack of research that is directed at investigating meanings constructed within the community-like aggregations of individuals. In a general sense, the existence of communing dynamics and social bond building tendencies indicates the presence of systemic effects in the marketplace. Hence, this work detects a strong need in academic marketing research to develop a theory that takes marketing systems as entities which operate through construction, use, and enactment of meanings.

Although marketing systems research makes up a relatively significant fraction of macromarketing research, Wilkie and Moore (1999) suggest that research that utilises a broader macro-systemic perspective in studying “aggregate marketing systems” has almost disappeared from the mainstream marketing research. Moreover, the existing systemic analysis of marketing has so far been essentially based on the deterministic, mechanical, and deductive-logical assumptions (Varey & Kadirov, 2006), even though the systems perspective has been developed to challenge these assumptions (von Bertalanffy, 1950). The constructivist source of marketing system dynamics – meanings – has been neglected. In this field (i.e. macromarketing and marketing), there seems to be no comprehensive macro-analysis of meaning formation and evolution that takes marketing systems as a unit of investigation and draws broader schemes of conceptual implications, apart from some sociological research that is directed toward understanding cultural and sociological aspects of marketing (Applbaum, 2004). Paradoxically, the academic marketing research recognised the importance of meaning formation in marketing systems almost five decades ago (Levy, 1959). The macro-view of meaning/value communication and transformation in marketing exchange systems occasionally surfaced in several seminal marketing works (Bagozzi, 1975a; Prahalad & Ramaswamy, 2004b; Vargo & Lusch, 2004; Webster Jr., 1992). This meaning perspective considers the interplay of logic, value, and symbols in marketing systems in addition to the dynamics of ontological, physical, tangible flows of goods and money (Dixon, 1991; Vargo & Lusch, 2004). Some academic marketing research focused on the rise of meanings and their cultural interpretation in fragmented social loci, such as communities, consumption tribes, microcultures, and value systems (Holt, 1997; Kozinets, 1997, 1999; McAlexander, Schouten, & Koenig, 2002; Muniz Jr. & O’Guinn, 2001; Schouten

& McAlexander, 1995; Thompson & Troester, 2002). This micro-cultural research, in contrast to the systeming approach advocated in this work, puts less emphasis on macro-implications to understand underlying marketing systems as a whole, and relatively neglects a moral transformational dimension. Furthermore, little attention is given to interpretation of meanings that are taken as operative realisation of communicative acts rather than that of activity of psychic mechanisms (Weick, 1979).

The marketing system has been the centre of focus of classic marketing research. This perspective perhaps will (should) become important in the future. Wilkie and Moore (1999) note that in the future “the aggregate marketing system should come to occupy a central position in research in the marketing field” (p.217).

Interpretive Methodology: Systeming

The formulation of both research problems and methods is the emergent result of operating within a research paradigm or a particular worldview (Bateson, 1979; Kuhn, 1962). The logic of positivism would ask for step-by-step articulation of a research problem, research questions, hypotheses, relevant methods, and research outcomes (Anderson, 1983). However, a research process does not necessarily occur in such a linear sequence. An understanding of the systemic nature of processes, including research operations, would lead one to question orthodox research principles. A research problem cannot be understood independently from a research perspective, methods, and interpreted insights. A research method does not stand or exist prior to an interpretation process (Anderson, 1983; Schwandt, 2003; Thompson, Locander, & Pollio, 1990; Weick, 2001). Accordingly, except the process of ordered reporting of the thesis, each aspect of this investigation is developed simultaneously through a holistic constructive observation.

In this thesis, a unique qualitative research approach, systeming for interpreting systemic communications, which is based on the work of several thinkers in the fields of sociology, anthropology, education, cybernetics, biology, logical mathematics, physics, and artificial intelligence is proposed (Bateson, 1991; Hofstadter, 1982; Luhmann, 1995; Maturana & Varela, 1992; von Foerster & Poerksen, 2001; von Glasersfeld, 1995). A common theme underlies research in

the aforementioned fields. This theme is *systems*. This stream of systems research challenges the orthodox notions of systems conceptualisation. In a traditional sense, a system can be taken as an object that is separate from a subject, the characteristics of which are quantitatively approximated. In this sense, the systems perspective would mean the exploration, conceptualisation, and measurement of systemic attributes. Alternatively, a system can be taken as a social construction that comes forth in interaction among system actors. Systeming is based on the latter logic. Hence, systeming is better suited to observing systems, as positivistic methods tend to trivialise the concept to such extent that the essence of systems becomes unrecognisable (von Bertalanffy, 1950).

In this thesis, major philosophical (ontological, epistemological, methodological) assumptions behind systeming are provided. The model of systeming interpretation is developed and compared to existing frameworks. Specific procedures for interpretation of systemic communication are also provided. This application of systeming to marketing is unique, as there seem to be no studies known to the author which take this perspective to investigate marketing. A version of systeming, Social Systems Theory (reviewed in the next section), was applied to society (Baecker, 1999; Luhmann, 1989, 1995, 2002), economic systems (Staubmann, 1997), legal systems (Luhmann, 2004), art (Sevanen, 2001), organisations (Baecker, 2006; Seidl & Becker, 2006), public relations (Holmstrom, 2005), and environmental movements (Japp, 1999; Luhmann, 1989).

The perspective taken to explore the nature of marketing systems is very important in creating new insights (Monieson, 1981; Wilkie & Moore, 1999). The macromarketing literature specifically investigates issues pertaining to the relationship between the marketing system and the broader environment encompassing the entire natural and social world (Dowling, 1983; Reidenbach & Oliva, 1983; White, 1981). These macro-studies share a common feature: they attempt to analyse the impact of marketing decisions on the social-ecological domain of life by employing *distinctions* drawn between the marketing system and the corresponding environment. The distinctions are drawn in order to differentiate, and particularly, define the marketing system against what is not the marketing system. This process is implicit, and moreover, it is taken for granted,

so the rationalistic-positivistic methods used in these undertakings fail to grasp the character and possible implications of this aspect. The result is usually a package of rationalised prescriptions about what a “good” marketing system should be (Crane & Desmond, 2002; Dolan, 2002). In this regard, Crane and Desmond (2002) pose a fair question: whose points of view and priorities, which appear as the distinctions, should we, researchers and observers, take into account? Alternatives include marketing managers, firms, state regulators, consumers, and pressure and interest groups. In contrast, systeming is based on *observing the observer*. The observer is the marketing system that draws distinctions about the self, thus reproducing its own difference from the self-defined version of the environment. Crane and Desmond (2002) refer to this kind of research process as “developing an understanding of the structures, meaning, and discourses which shape and explain marketing and consumption decision making” (p.548). In this context, the appropriate question to investigate would be: How does the marketing system proceed in determining its boundaries? The systeming approach rejects the practice of drawing boundaries through defining them in a purely analytical way; rather it focuses on the definition of boundaries enacted by a self-observing system. This constitutes the essence of systeming (Luhmann, 2004).

Systeming is based on *observing the observer*, and it is concomitant to perspectives that are directed at empowering and enabling research subjects. Firat (2001) argues that the marketing field is in need of research that is for the benefit of consumers. His argument is that a consumer “is not a subject in the sense of being the one who is observed, experimented upon, or studied, but one who determines and directs the *investigation*. The scientist/researcher, in this case, plays the role of a *facilitator*” (Firat, 2001, para 24). Taking this idea to higher abstraction, systeming emphasises that a research subject is not passive in terms of their experiences being conceptualised along the researcher-chosen boundaries. The observer/researcher has, perhaps, a moral responsibility to empower research subjects by adopting their points of distinction. In this respect, systeming emancipates its subjects from researcher-defined roles and characters. Moreover, systeming research is predominantly inductive. The researcher’s approach is open-ended and exploratory. Equipped with systeming insight, he/she starts with observation. The researcher attempts at recognition of macro-patterns in

interaction, he/she then combines these specific patterns into meta-patterns, and so on. The result is a collection of conceptual and theoretical insights about the system under inquiry that are unique and context-specific.

Usefulness of Potential Applications of Expected Findings

Knowledge enables action and living-in-action (Thompson et al., 1990; von Glasersfeld, 1995), while ignorance creates the illusion of “the” right action within marketing systems (von Foerster & Poerksen, 2001). Insights about a sustainable marketing system are expected to enlighten actors in the system about the conditions, processes, consequences, and self-referentiality of communicative acts. Hence, knowing can become equal to acting in order to create more action options for both selves and others (von Foerster, 2003). Systeming interpretation of a sustainable marketing system attempts to reconcile two phenomena – marketing and society – thought so far to be in divergence and contradiction (Sheth & Sisodia, 2005). The systemic principles of such reconciliation can encourage society members to act wisely, while simply accepting to remain ignorant about these possibilities may lead to persistent dogmatism and inflexibility, and consequently, to self-destruction (Bateson, 1991; Sherry, 2000).

To compare, models based on linear cause-effect relations often suggest the inflexible bases of action. Systems researchers argued that a bifurcative character of changes renders many theories irrelevant in social settings (Casti, 1991; Eve et al., 1997; Salk, 1973). Findings attained in experimental settings could only be relevant for those specific contexts (Bateson, 1979). The essence of social existence lies in the acts of flexible manoeuvring, negotiating, and changing among the contexts of life worlds. Perhaps, acting within a marketing system requires a good knowledge of systemic dynamism. The application of this kind of knowledge may not be straightforward; rather one finds oneself to be in need of learning “dancing” in accord with systemic rhythms. This is in contrast to regular apprehension of applying knowledge to complex systems, where neither manipulation nor ignorance of “factors” would work as expected (Bateson, 1991; Lindblom, 2001).

In this investigation, observing a particular marketing system is my operation, while I hope that others would be attracted to emulate such operating. This approach is called “aesthetic seduction” (Poerksen, 2004). The application of knowledge occurs when individuals start “living” this method in their lives. Findings are strictly limited to a particular product category in relation to which a marketing system is conceptually constructed. However, it is in the macromarketing tradition that a macro-theory developed becomes applicable to diverse problems in both macro and micro-marketing (Alderson, 1965). Specifically, insights generated by this investigation can become useful in public policy on environmentalism and sustainability. A great amount of public funds and effort is spent to promote the use of sustainable products. Global and local climate policies reimpose externalities on manufacturers and consumers in a form of monetary payments or action limits. How effective are these policies in meeting the purpose of attaining sustainable development? Macromarketing insight into the interplay of meanings in a marketing system can enlighten these procedures to some extent. The environmental and climate policy would gain much if the essence and meanings of communicative acts pertaining to environmental sensitivities in the system on the part of publics, manufacturers, and consumers are taken into consideration. Potentially, a policy action that has lost touch with the environment and become an endless self-referential rhetoric may be avoided. Moreover, there are many government-sponsored or voluntary environmental programmes which undertake to change attitudes, thought patterns, and conscious structures of society members. Redirecting the attention from meanings which reside only in “psychic spaces” to meanings in systems operation can offer a number of potential improvements in conducting and managing such programmes effectively.

In micromarketing context, insights about a sustainable marketing system can help enhance a holistic understanding of customer relations. One aspect is clear: companies cannot physically cover and attend each contingency that can possibly happen in the marketing system. Some key factors that affect value creation in use of a product may not be under the full control of managers. A good approach may be to learn acting in harmony with communicative systems and co-opt some of their dynamics. Similarly, marketing communication including advertising

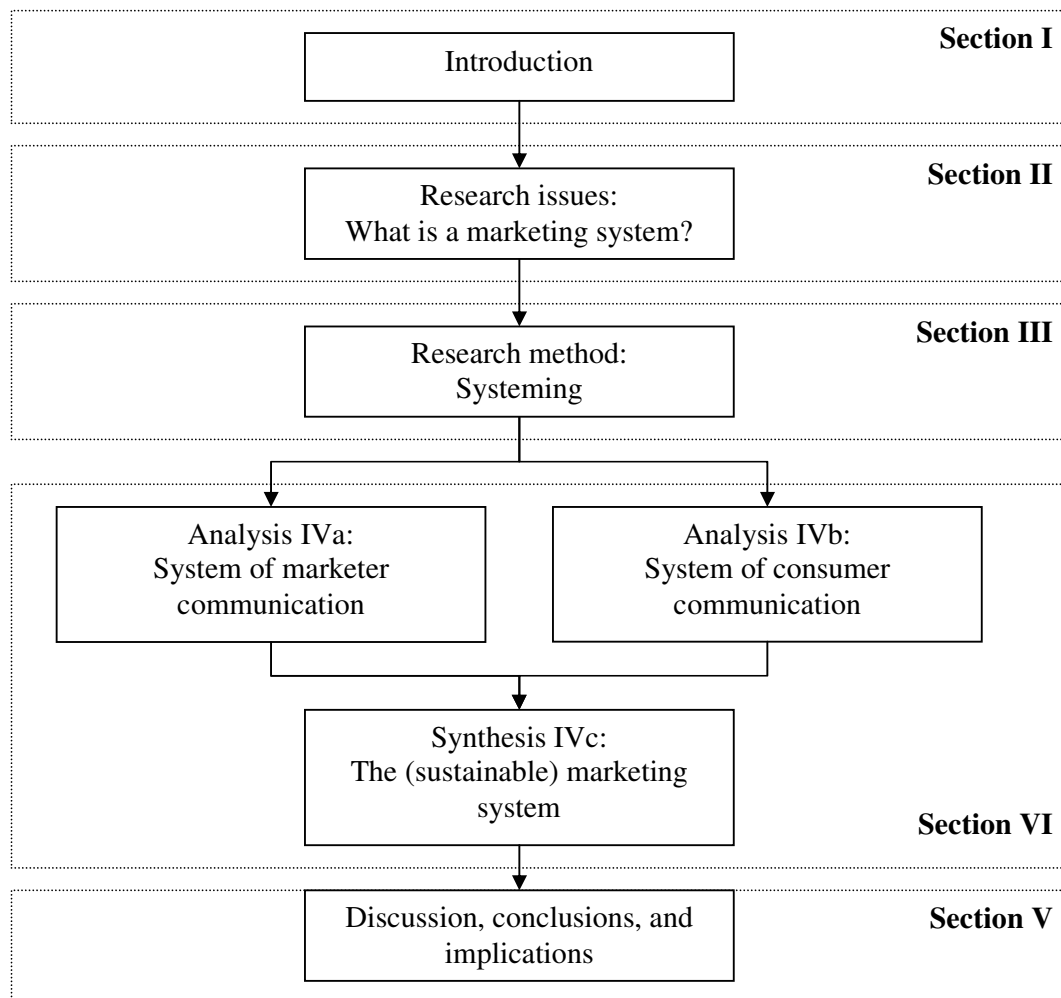
practices needs to develop sensitivity to a systemic nature of meaning creation. Advertising should communicate in concurrence with right systemic meanings that resonate with consumers. Another aspect of marketing communication is emotional branding. The recent concern is about managing the construction of emotional stories about a brand, the process which becomes uncontrollable due to involvement of various parties with various motives, for example, consumer groups, art and literature enthusiasts, green movements, and consumerists (Thompson, Rindfleisch, & Arsel, 2006). The insights about systems interactions can offer valuable lessons in dealing with the problem.

In consumer behaviour, the systems reconsideration of consumer identity is important. While the traditional view would be that identity is an “entity”, i.e. a real, natural, and necessary quality of each consumer that needs to be discovered, and that it is conducive to marginal manipulation, systeming directs marketing managers to treat identity as a relational, socially co-constructed, and holistic system. If marketing managers fail to understand the social context of value offering and the systemic character of communicating, they may risk dealing with irrelevant versions of social identity observed from unspecified, perhaps researcher-convenient points. The observation of self-observation enacted by relevant systems might add yet another perspective to understanding the *social identity* problem. Moreover, in consumer research, marketing researchers need not rely solely on the concept of identity that draws heavily on self-reported individual data. The *systems of consciousness*, reflected in this kind of data, stand as a complex environment for the *system of communication* (Luhmann, 1995). However, the communicative system reflected in acting and observing is a more realistic locus of consumer behaviour. The brand community research, which also explores some results of systemic existence in marketscapes, might gain from the theory in terms of observing the macro-picture of community practices. An alternative conception of community may be developed based on the insights gained from investigating a marketing system. The new conception would allow brand managers to understand the bases of community formation and dissolution. Similarly, there are several aspects of marketing strategy planning such as product differentiation, value co-creation, and innovation which depend on meanings created within marketing systems.

Outline of the Thesis

The general structure of the thesis is depicted in Figure 1. The thesis consists of five sections.

Figure 1. Thesis Structure



The first section discusses the background to the research, research problems, research questions, expectations, justifications for the research, and the structure of the thesis. In the second section, the main research issues related to the conceptualisation of marketing systems are under focus. A review of systems,

business, and social sciences literature is accomplished. Also, in this section, an alternative logic of marketing systems is developed.

In the third section, systeming for interpreting marketing system communications is introduced. The underlying assumptions behind systeming are discussed. The general philosophical background of the systeming worldview and the metaphorical model for interpreting systemic communication are introduced. Specific research procedures that are used in an interpretation process are also presented.

The fourth section is the empirical part of the thesis. In this section, the hybrid car marketing system is explored in the light of a broad logic developed in the research issues section. This section consists of three subsections: two analysis and one synthesis chapters, labelled as IVa, IVb, and IVc. In the analysis chapters, the domains of production and consumption come under scrutiny. These are, respectively, the (sub)system of marketer communications (SMC) and the (sub)system of consumer communications (SCC). In the synthesis chapter, insights from both subsystems are used to create an integrated view of a hybrid car marketing system.

In the last section of the thesis, insights from interpretations are discussed in the light of extant research. Conclusions are drawn, and respective implications are indicated. The section concludes with suggestions for future research.

Delimitations of Scope and Key Assumptions

The findings of this thesis are limited to marketing systems in the domain of hybrid car marketing and consumption. That is, insights generated may not be appropriate for marketing systems in other product manufacturing and usage contexts. Moreover, the proposed theoretical illustration is one of many possible constructions of the system rather than the only “true” construction that should be considered. Therefore it is not meant to inhibit further creative systemic thinking on the issue.

Another delimitation of the thesis is that it presents the end product of research. It does not provide a step-by-step recipe to emergent thinking and holistic intellectualisation. In a pure systemic research tradition, one may start from a similar point (e.g. same theoretical background, literature, assumptions, and research contexts) and end up with totally different points of view. Thus, generalisation and replicability are not intended by design. Instead, this research is directed to obtain interpretive insights, conceptual and contextual richness in the boundaries of the area under focus.

In this study, systeming is based on the analysis of communicative acts reflected in the texts created online and offline, by system actors. Online media have several limitations in conveying the full picture of interactions in that it cannot contend with the method of direct observation that provides a rich picture of complete sets of behaviour. Nevertheless, the assumption is that system actors are observers in themselves, and their operations of observation and distinction-making are situated and unobtrusive (Kozinets, 2002b; Luhmann, 1995). The only question remaining is who these observers are. I recognise that this investigation does not comprise the hybrid car marketing system and its actors within global perimeters exhaustively. The findings are limited to participants who are computer and internet savvy, affluent in comparison to a majority of global population, and live in developed western countries. Ideally, the study of sustainability should comprise all layers of population.

This thesis attempts to offer innovative conceptualisation, methodology, and interpretation. As it is often the case with pioneers and risk-takers, some inefficiencies and ambiguities related to the rigour of the perspective may still remain unresolved. However, marketing gurus note that:

...the major challenges are conceptual, not methodological. We must show renewed respect for conceptual thinking as opposed to methodological rigor. We must tolerate work that bursts through and redefines the currently accepted boundaries of our intellectual domain. We must respect insight and risk taking as much as we worship empirically verifiable propositions. We must work to advocate a proper balance of rigor and relevance, both theoretical and practical, and bring to bear the results of scholarship...Not all relevant knowledge is less than 20 years old! (Webster Jr., 2005, p.6)

The unit of analysis in this study is *a marketing system* rather than an individual or organisation who acts within marketing systems. In this sense, the demographic markers and characteristics of observers are not considered to be as important as the characteristics of a grand-observer – the marketing system.

Summary of Findings

The hybrid car marketing system is a locus of *meaning flows* rather than substance flows (goods, individuals, exchanges, etc.). The *meaning* of sustainability-related actions, functions, decisions, identities, practices, and experiences is not given and fixed. Rather it emerges in *purposeful* self-observation through which the marketing system expands, i.e. reduces complexity. In the hybrid car marketing system, self-observation creates *the content*. The content is a pattern formed by meaning flows in the system. In the subsystem of marketer communications (SMC), meaning flows are differentiating, contextualising, contradicting, and expanding. In the subsystem of consumer communications (SCC), the meaning is formed through distinctioning, actualising, and continuing. The meaning flows construct both the system and the environment. In contrast to the idea that the environment shapes the system, the system comes forth in purposefully communicated enactments of both the self and the environment. The meaning-creation has its social consequences. The sustainability of sustainability communications represents *the form*. The interpretation indicates that the content projects sustainability meanings, while the form remains complex and unpredictable. The form often becomes conducive to creating a social conflict among society members. Corporations create meaning through consolidating the sustainable-unsustainable paradox: their activities must “sustain” unsustainable operating in order to create a sustainability meaning. Fuel-saving activities by hybrid car drivers become the self-centred, dogmatic, and ethnocentric pursuit of fuel-efficiency ideals. In this sense, I argue that the sustainability of the marketing system as a complex societal problem is rooted in building merited social relations among citizens rather than the minute manipulation of physical resources.

Section II

Research Issues: What is a marketing system?

Introduction

In this section, the main motive is to develop a viable systems logic that enables enriched insights about a marketing systems-environment relation, and also the character of the sustainability of such relation. I maintain that the sustainability of marketing systems cannot be properly explained unless an adequate view on marketing systems is attained. In pursuing this agenda, the original foundations of systems thinking are first clarified. Then, the review of systems literature is presented. The aim of this review is not only to identify how marketing systems are conceptualised, but also to discuss various views on the relation of marketing systems and their environments. In the process, marketing system conceptualisations are analysed in terms of their position in the systems thinking paradigm. Next, a more systems-compatible logic of marketing systems is introduced.

In essence, I show that the original tenets of systems thinking correspond to social constructivism rather than to positivist-Cartesian views, as is conventionally assumed. Moreover, the review demonstrates that system conceptualisations in the marketing discipline suffer from a heavy burden of mechanistic assumptions. It is argued that there are some fundamental inadequacies regarding understanding marketing systems which need to be addressed. To redress these inadequacies, the alternative logic of marketing systems, which reflects the original tenets of systems thinking, is developed.

Tenets of Systems Thinking

A researcher needs a broad coherent theoretical foundation as reference to accomplish the critical review of available literature. Therefore, the authentic tenets of systems thinking are to be clarified first. The original foundations of systems thinking is reflected in the following theories: General Systems Theory (von Bertalanffy, 1950), Social Systems Theory (Luhmann, 1995), and Theory of Autopoiesis (Maturana & Varela, 1980).

General Systems Theory

General Systems Theory (GST) offers a loose framework to think systematically about systems (von Bertalanffy, 1950). The main principles of the theory are summarised in Table 1. GST is based on the notion of a *whole* that cannot be fully explained through reducing it into separate cause-effect relationships.

Table 1. Main Principles of GST

Concepts	Description
<i>Wholeness (gestalt)</i>	A change at a basic level is the result of concerted changes of all elements in the system, and also changes in subordinate as well as supraordinate systems. Its essence cannot be deconstructed into separate linear relations.
<i>Non-summativ character</i>	No system can be built up gradually, i.e. by bringing in a part at a time; rather it comes into existence as a whole.
<i>Progressive segregation</i>	The system is continually differentiated into irreplaceable parts.
<i>Progressive centralisation</i>	The system develops a leading central part around which other parts are re-organised.
<i>Entropy (positive or negative)</i>	Positive entropy is a progressive shift downwards in the level of internal complexity; <i>negative entropy</i> symbolises the effect of ever-increasing complexity in living systems.
<i>Unity with the environment</i>	The system dissolves into the environment, and thus ceases to exist.
<i>Hierarchical order</i>	An element of the system represents a system in itself, so there develops a hierarchy of systems.
<i>Allometric growth</i>	The growth rates of the system's parts are in a constant or variable proportion.
<i>Homeostasis</i>	The system strives to maintain a constant structural order.
<i>True purposiveness</i>	The system behaves in the present in such a manner as if it knows its final state that is to be attained in the future.
<i>Equifinality</i>	Equifinality represents the quality of two different systems which reach an analogous constant order in spite of having totally different conditions at the beginning of transformation.

Source: adapted from von Bertalanffy, 1950

GST posits that scientific investigations should be directed toward a phenomenon in its wholeness, unity, and organisation. Von Bertalanffy (1950) argued that problems would lose relevance if concepts and their relations were studied in isolation, whereas complex life problems appeared to be those of *organization* (p.134). He considered the perspective to be radically different to the analysis of isolated parts of phenomena, that is, deductive reasoning, which he called *the mechanistic worldview* (p.165). He noted this as being:

...profoundly different from the epistemology of logical positivism or empiricism, even though it shares the same scientific attitude. The epistemology (and metaphysics) of logical positivism was determined by the ideas of physicalism, atomism, and the “camera theory” of knowledge. These, in view of present-day knowledge, are obsolete. As against physicalism and reductionism, the problems and modes of thought occurring in the biological, behavioral and social sciences require equal consideration, and simple “reduction” to the elementary particles and conventional laws of physics do not appear feasible. Compared to the analytical procedure of classical science, with resolution into component elements and one-way or linear causality as the basic category, the investigation of organized wholes of many variables requires new categories of interaction, transaction, organization, teleology, and so forth, with many problems arising for epistemology, mathematical models and techniques. (von Bertalanffy, 1972, p.423)

The mechanistic worldview maintains that a system is constructed through the successive incorporation of element after element into the structure of a whole. Whereas, the systems perspective propounds the *non-summativity principle* (see Table 1) that asserts that the systems either come forth as a whole or they do not exist. This is the direct consequence of *progressive segregation* that is the process through which the system transforms from an “undifferentiated wholeness to differentiation of parts...the more parts are specialized in a certain direction, the more they are irreplaceable, and loss of parts leads to the breakdown of the whole system” (von Bertalanffy, 1950, p.148). However, it is thought that a particular part of the system could become its *centre* around which other parts are positioned. In line with this argument, some researchers argued that the essence of the system was encapsulated in the relative positioning of its parts rather than in the parts themselves (Angyal, 1969).

GST postulates that systems are characterised by *negative entropy* (refer to Table 1) that signifies progressively increasing internal complexity that shifts the system away from dissolution into a disorder. The process of dissolution, or in other words, disintegration of the system into parts, is called *attaining the unity with the environment* (refer to Table 1). The environment in this case is understood as chaos and disorder, so dissolution into chaos means extinction for systems.

Von Bertalanffy (1950) suggested that the element of the system may be a system on its own at the subordinate level, whereas the whole system may represent a

single element at the supraordinate level. The array of systems at different levels create a *hierarchical order* (refer to Table 1). GST assumes that the elements of the system grow proportionally, and that each part gets its proportion from the growth of the system according to its relative size in the system. There, could, however, emerge *positive allometry* when a part grows faster than other parts thus seizing more proportion of the system's growth, or *negative allometry* when the part's differential growth decreases. It was also suggested that systems must maintain *homeostasis* (defined in Table 1), a steady rate, regardless of continuous structural changes, internal dynamism, and in/out flow of substances. Systems are *closed* if there is no or minimum exchange with the environment or *open* if they import, process, and export substances from/to the environment.

Von Bertalanffy's (1950) view on the *purposeful* character of systems is rooted in his conviction that the system's current behaviour depends on its final state that is to be attained in the future. He opposed views that suggested that systems were passive, inert, mechanical, and void of purposefulness. During that time, the passive nature of systems was propounded by two streams of worldviews: Darwinism and Platonism. Darwinism suggested that stochastic environmental factors shaped organismic systems through the process of natural selection, a situation in which the system's behaviour and its evolution were seen to be controlled by random environmental changes. In parallel, Platonism saw the system to be controlled by *entelechies* (vital forces) which were not susceptible to scientific inquiry (Casti, 1991). In both accounts, the system is seen as a purposeless mass that is malleable rather than creative. In contrast, GST offers an alternative notion – a dynamic purposeful flow – which constructs the system. This process is called *true purposiveness* (refer to Table 1). True purposiveness symbolises the internal dynamism of the system. In Von Bertalanffy's (1950) words, it depicts “the actual behavior [that] is determined by the foresight of the goal...It presupposes that the future goal is already present in thought, and directs the present action” (p.160). It was argued that this internal purpose would drive similar systems to achieve the same final state despite having various conditions at the beginning of transformation. This process is called *equifinality*.

Despite of GST's self-dissociation from mechanical worldviews, it was criticised with regard to its technocratism, mechanicism, and dehumanism (Hoos, 1983; Lilienfeld, 1988). However, Hammond (2003) dismissed the critiques' arguments, while demonstrating that the points of critique are relevant to GST's application in different fields rather than to the original views of von Bertalanffy. Concurring with Hammond's view, I note that Von Bertalanffy's (1969) thoughts regarding complex systems bear close resemblance to the principles of social constructivism (Guba & Lincoln, 2005). Both GST and constructivist traditions critique mechanical assumptions which are based on the dualism of mind and body (Bateson, 1979). From the constructivist perspective, it is believed that social phenomena emerge as interactively constructed multiple (local and global) realities (Guba & Lincoln, 2005). In the same vein, GST propounds that the system purposefully creates the self and its surrounding world (von Bertalanffy, 1969). GST also posits that the elements of the system are not independent of the observer (von Bertalanffy, 1950). According to GST, the system's element a) is a (sub)system that is not the linear aggregation of separate parts; b) has different characteristics than a whole; and c) is conceptually constructed. Within GST, the assumption that systems exist autonomously in the natural world as the aggregation of certain objective elements is essentially avoided. Moreover, social constructivists argue that individuals essentially construct rather than perceive the world, which does not exist "out there" to be grasped (Schwandt, 2003).

Reflecting on this issue, von Bertalanffy wrote:

... perception is not a reflection of "real things" (whatever their metaphysical status), and knowledge is not a simple approximation to "truth" or "reality". It is an interaction of knower and known, and thus dependent on a multiplicity of factors of a biological, psychological, cultural and linguistic nature. Physics itself teaches that there are no ultimate entities like corpuscles or waves existing independently of the observer. This leads to a "perspective" philosophy in which physics, although its achievements in its own and related fields are fully acknowledged, is not a monopolistic way of knowledge. As opposed to reductionism and theories declaring that reality is "nothing but" (a heap of physical particles, genes, reflexes, drives, or whatever the case may be), we see science as one of the "perspectives" that man, with his biological, cultural, and linguistic endowment and bondage, has created to deal with universe into which he is "thrown", or rather to which he is adapted owing to evolution and history. (von Bertalanffy, 1972, p.423).

Von Bertalanffy (1972) spoke of a deep “humanistic concern” of GST compared to the mechanistic worldview (p.423). The humanistic concern is reflected in von Bertalanffy’s view that human beings are not (and should not be treated as) rational machines. He argued that the traditional scientific perspectives treat humans as stimulus-response robots, who are driven to maintain a homeostatic equilibrium through internal tension reduction, need gratification, and utility maximisation. However, the human systems are disequilibrium systems that actively navigate away from the point of stability. Von Bertalanffy insisted that perfect equilibrium meant death for systems:

Biologically, life is not maintenance or restoration of equilibrium but is essentially maintenance of disequilibria, as the doctrine of the organism as open system reveals. Reaching equilibrium means death and consequent decay...there is wide range of behavior – and, presumably also of evolution – which cannot be reduced to utilitarian principles of adaptation of the individual and the survival of the species. Greek sculpture, Renaissance painting, German music – indeed, any aspect of culture – has nothing to do with utility, or with the better survival of individuals and nations. (von Bertalanffy, 1969, p.192)

In von Bertalanffy’s view, the mechanistic paradigms, such as positivism, behaviourism, including the theory of evolution, are the direct consequences of a wide dominance of utilitarian principles propounded in economics. In a stark contrast to these worldviews, he argues that human systems do not have to maximise or minimise particular utilities. Rather they purposefully construct symbols, meanings, and culture. Symbolic meanings are built by a means of drawing on the available horizon of meanings, and they are a product of evolving social, cultural, historical discourses, which become available through social interaction (Scheurich & McKenzie, 2005). In this sense, it is argued that the systems are socially (co)constructed. Von Bertalanffy’s philosophy shares much ground with the foundations of social constructivism. This discussion indicates that GST is not a theory of (quantitative) deterministic mechanisms; rather it is the theory that accounts for the qualitative nature of humanistic meaning creation, symbolism, and interaction.

Social Systems Theory

In the field of sociology, Niklas Luhmann (1989, 1995, 2002) analysed society drawing on the insights from GST. In his seminal work, *Social Systems* (1995), he described GST as a paradigm shift in a “Kuhn’s sense” (p.6). Luhmann noted that the shift of emphasis was from the dialectic of *wholes and parts* to that of *system and environment*. He contended that it was problematic to conceptualise how a part, a human being, would accommodate the concerns of a whole, i.e. human society. In his view, the difficulty with the logic – *a whole is more than the sum of its parts* – was to explain the process through which the wholeness, the sum of parts and that of extra substance, was comprehended and given priority at the level of parts. Luhmann’s Social Systems Theory is based on the notion of *systems differentiation*, which depicts that the system differentiates itself from the environment by a means of reducing environmental complexity. The same system is thought to become the external environment for its subsystems in a manner as much complex and uncertain as its higher level environment. This means that systems actively construct both themselves and their relevant environments (Luhmann, 1995). Luhmann argues that the elements of the system are systems in themselves, and they may possibly belong to other systems too, when viewed from other perspectives. Thus, this picture of the systems universe does not resemble the straightforward notion of the hierarchy of systems; rather it is a world of *interconnected and interpenetrating systems* which dynamically differentiate from other systems. Luhmann (1995) insists that “systems can differentiate only by *self-reference*” (p.9). This means that social systems employ and build upon system-environment differences to create self-descriptions. Thus, the external environment with all its complexity is considered to be a necessary prerequisite for *self-observation*. Self-observation occurs when the system can segregate the self from the other, while both the self and the other remain a unique perspective of the system itself. The boundaries of the social system are thought to be differences in communication and created through the development of meanings. Luhmann views *meaning* as the product of self-referential adaptation to the complexity of the external environment. Meaning is defined as “a surplus of references to other possibilities of experience and action” (Luhmann, 1995, p.60). In other words, meaning is thought to be a *selection* that is actualised within a horizon of other possible selections. The process of circulation of system-unique

meanings is called a “self-referential closure” (p.9). Hence, social systems’ closedness or openness is resolved with understanding the extent to which the system self-describes itself to be integrated or separated from the environment (Luhmann, 1995).

Social Systems Theory maintains that the basic operation through which the system is self-referenced is communication. The notion of communication here is seen as comprising interactive social actions (Varey, 2002a). Distinct from the mechanistic worldview, this theory rejects the traditional conduit metaphor in representing communication (Luhmann, 1995). The conduit metaphor implies that communication is the process of *transmission* of a message from a sender to a receiver (Krippendorff, 1993). In contrast, the act of communicating is conceptualised as being an interactive, co-creational, and appreciative process to construct common meanings and experiences (Krippendorff, 1993; Luhmann, 1992; Varey, 2002a, 2004). In this way, the interactive (social) aspect of communication becomes an independent whole at the supra(meta)-level, and this wholeness is not describable by a means of discrete utterances (social actions) at a sublevel (Luhmann, 1995). According to Luhmann, communication is not simply an exchange of messages; it is the very act of existing and living. Drawing parallels to Husserl’s *transcendental phenomenology* (1970), Luhmann (2006) refers to communication as a process of distinction-actualisation that *carves out* a system from its environment. The idea is that communication rebuilds the system at each moment, and successive communications comprise a network which bears meaning, thereby providing the necessary conditions for the subsequent communications to follow.

Theory of Autopoiesis

The theory of Autopoiesis was originally proposed by Maturana and Varela (1980) in reference to biological systems, specifically, organic cells. The concept of autopoiesis refers to the

...networks of productions of components that recursively, through their interactions, generate and realize the network that produces them and constitute, in the space in which they exist, the boundaries of the network as components that participate in the realization of the network. (Maturana, 1981, p.21).

In other words, systems reproduce themselves through autonomous creation and maintenance of the self-reproducing mechanisms and structures. This theory was adapted by Luhmann (1995) into the description of autopoietic social systems. Luhmann (1995) argued that social systems, much like cells, self-reproduce themselves via networks of meanings. Moreover, it is suggested that social systems complete “autopoietic turns” (Luhmann, 1995, p.9) through which they become operationally closed in their self-referentiality. This means that no operation is imported from or exported to the environment. However, Luhmann emphasises that social systems are indirectly open to perturbations in other systems’ communicative structures. This would mean that a social system can only enforce internal changes in its operative domain while being triggered by the unity of all changes in the external environment.

Maturana and Varela (1992) thought that the true purposeful character of systems was reflected in autopoiesis. They argued that Darwin’s concepts of adaptation, natural selection, and the survival of fittest could not explain the evolution of autopoietic living systems. The concepts were thought to be relevant to mechanical systems which do not self-reproduce and are determined by external changes. In contrast, autopoietic systems are seen to be determined by their internal structure, purpose, and processes. For them, survival would mean the purposeful maintenance of cohesion as a unity. Since the environment was thought to be the result of a system’s operations, the concept of surviving would not be meaningful from this system’s internal perspective. Maturana and Varela note that if a living system exists, then it is adapted, and if it ceases to exist, then it is not. So adaptation is not to be understood in terms of greater or lesser degree. Consequently, their view implies that living systems do not behave as if they are maximising their chances of survival, but rather they are driven to maintain the wholeness and congruence of their autopoietic structures and processes.

Marketing Systems

So far, I have briefly reviewed the tenets of authentic (constructivist) systems thinking. In the following part, the extant literature on marketing systems is

reviewed. Three aspects are especially highlighted in the case of each account: the definition of a marketing system, the description of its elements, and the assumed relation of the system to its larger environment (Smith, 1997). In the process of review, the robustness of conceptual arguments are scrutinised by a means of looking at them through the systems thinking lenses. The key points are summarised in the table (see Appendix 1).

Diverse and contrasting views on marketing systems can be found in the literature. The perspectives are provisionally divided into two big camps: the macro-perspective and the micro-perspective. The macro-perspective takes the marketing system as the embodiment of social mechanisms of life support and provisioning (Bartels, 1970). The micro-perspective attributes a marketing system to individual or institutional internal mechanisms. The former approach views marketing as the function of society, whereas the latter one views it as the function of individual agents. This classification follows Fisk's (1967) point of view that there exists the macro-marketing system and the micro-marketing system. However, the division of the reviewed thoughts is not as clear-cut as in the current classification, because the majority of literature merely avoids specifying the underlying assumptions in analyses.

Macro Perspective

Skeleton of science. Boulding (1956) extolled GST as “the skeleton of science” that is the overarching theoretical framework which could foster cooperation among various fields of scientific inquiry (p.208). He proposed a typology of systems as the units of analysis which he called “individuals” (p.201). The individuals, from the simplest to the most complex, were positioned as follows: (1) static structures, (2) dynamic systems, (3) mechanisms or cybernetic systems, (4) self-maintaining structures, (5) plant systems, (6) animal systems, (7) humans, (8) social organisations, and (9) transcendental systems. In business sciences, Boulding (1956) called for acceptance of more complex individuals for analyses. His concern was that many researchers were content with the lowest level of an individual. For instance, economics still remained as “the mechanics of utility and self-interest” (p.207). Boulding doubted the ability of simple mechanical models to represent complex interdependencies. Following suit, some researchers, for

instance, Daft and Weick (1984), critiqued organisational studies that are based on logical models derived from the second- or third-level individuals while explaining social phenomena at the eighth or ninth levels.

Katz and Kahn (1966) argued that social organisations (including marketing systems) could be categorised as open systems just like biological organisms. They viewed a social organisation consisting of a wide range of behavioural patterns. In Katz and Kahn's view, the structure of social systems represents a loose network of dynamic actions. They thought that social networks were very flexible. Flexible systems may expand enormously or disappear totally in short time intervals. This structural contingency is called "*radical temporalisation*" of elements by other researchers (Seidl & Becker, 2006, p.16). Katz and Kahn viewed social systems as "*contrived systems*" (p.33). Contrived systems are dynamically constructed and reshaped in a chaotic way:

Social structures ... made by men are imperfect systems. They can come apart at the seams overnight, but they can also outlast by centuries the biological organisms which originally created them. The cement which holds them together is essentially psychological rather than biological. Social systems are anchored in the attitudes, perceptions, beliefs, motivations, habits and expectations of human beings. Such systems represent patterns of relationships in which the constancy of the individual units involved in the relationships can be very low. An organization can have a very high rate of turnover of personnel and still persist. The relationships of items rather than the items themselves provide the constancy. (Katz & Kahn, 1966, p. 33)

Both Boulding's (1956) and Katz and Kahn's (1966) ideas prove that systems thinking has originally stressed social relations rather than entities (e.g. individuals, firms) or substances (e.g. goods, exchanges). Although these authors did not dispute that the basic building blocks (elements) of systems are physical entities, they argued that *dynamic relations* between elements rather than the physicality of these elements must be analysed. However, system thinkers seem to disagree on the exact nature of "relation". Katz and Kahn thought that social relations are rooted in human psychology, e.g. beliefs, attitudes, and thoughts. In contrast, Luhmann (1995) proposed the distinction between *social* and *psychic*. Luhmann insisted that psychological and cognitive processes are systems in

themselves, which are different to social processes. He argued that psychic dynamics are intra-human, whereas social dynamics are inter-human.

Conventionally, a common assumption is that cognition drives action. In contrast to this convention, marketing and social research shows this cognition-action link is not fairly straightforward (Luhmann, 1995; Petty & Cacioppo, 1996; Zaltman, 2003). According to Luhmann (1995), this link is to be visualised as interaction between the system of social communication and the system of psychic processes.

Unity of market action. William McInnes (1964) defined a market system as consisting of two elements – separations and relationships – which in combination generated market potential. Accordingly, the marketing system stood for a set of market-potential-actualisation-processes. In McInnes's view, the market behaviour of individuals driven by actualisation is not simply mechanistic. It is also driven by creativity, intuition, and emergent imagination. McInnes's conceptualisation is relevant to systems thinking, especially to von Bertalanffy's notion of anamorphosis, in terms of viewing marketing as *creative action* and emphasising *emergent, deconstructible, and unique* patterns of market behaviour.

Alderson (1964, 1965) proposed the *normative theory of marketing systems*. The normative theory defined marketing as the system of external relationships of "organised behavioral systems" (Alderson, 1964, p. 94). The major types of organised behavioural systems were households, firms, and public and educational institutions. Alderson stressed that marketing systems maintain a *steady rate* (homeostatic equilibrium) in operating. However, disbalance may occur when a system experiences a *systemic illness*. The goal of a behavioural system, as Alderson put it, is to avoid disbalances which endanger the system's survival within hostile environments. Here we can see the difference between McInnes's and Alderson's conceptualisations. Alderson stresses balance, or in other words, striving toward equilibrium, whereas McInnes supports the notion of dissipativity, striving away from equilibrium. Alderson (1964) advocated the *ecological* perspective of marketing. This perspective emphasises a balance between organised behavioural systems and the encompassing environment. Being akin to the discipline of ecology that studies relationships between organisms and their

environment, the ecology of marketing (or the functionalist school) emphasised the task of improving the functions of organised behavioural systems vis-à-vis their external environments.

Alderson's project to study marketing systems was based on the method of *functionalism*. The method was an adaptive rendering of the functional analysis borrowed from the field of physiology. The purpose of functionalism was to identify general functions of a system which define and regulate its "health" within the environment. In order to be analysed functionalistically, the system must be taken as a self-maintaining, self-observing, and goal-directed system:

...functional statements are regarded as appropriate in connection with systems possessing self-maintaining mechanisms for certain of their traits, but seem pointless and even misleading when used with reference to systems lacking such self-regulatory devices. (Nagel, 1969).

In contrast, the mechanistic viewpoint treats the marketing system as a lifeless and purposeless object that is shaped by external factors. The mechanistic system ceases to exist once the factors which causally determine it undergo radical changes or different factors enter the stage.

Alderson's key argument was that marketing should normatively be exercised by a behavioural system in such a way that it does not compromise its survival odds within the larger systems which it was embedded in. A constant disbalance in the organised behavioural system causes damaging effects on its environment. Hence, marketing should become a force that serves the goal of *survival* rather than the purpose of eliciting narrowly defined (in terms of the monetary units of value) responses from people. However, I think that at this point, Alderson diverges from systems thinking. *True purposiveness* rather than *survival* is more relevant to complex systems under the philosophy of GST (the issue of *survival versus purposiveness* is discussed in the third part of the section). This kind of blunder that is still recurrent in the systems literature is an example of how systems research falls prey to deterministic thinking.

Kelley and Lazer (1962) advocated a *managerial approach* to systems analyses. They pointed out that the systems perspective allowed managers to detect and solve marketing problems more efficiently. They thought that the facets of marketing systems which were more manageable (e.g. marketing strategies or a marketing mix) must be focused on when solving marketing problems. In their view, the emphasis should be on the effective management of the marketing system with the purpose of ensuring the efficiency of a market participant's actions. The marketing system was conceptualised as consisting of five elements: relationships, interactions, intentionality, environmental constraints, and marketing technology. The first element comprised relationships among market institutions and actors. The second element embraced market interactions among users and providers, including competition, cooperation, innovation, and power dynamics. The next element was the intentionality of marketing action, i.e. activities backed by deliberate objectives, intentions and beliefs. Kelley and Lazer stated that the legal, economic, and social constraints defined the boundaries of the system, whereas technology available for marketers mediated the content of market action. Later, Lazer (1971) revised this model. The reviewed model consisted of the following components: people and activities, information, objectives and cultural symbols, institutional structures, control mechanisms, and technological environment. The model is complex, but confusing in terms of systems thinking. It can be simplified, while its richness preserved. The elements are heterogeneous, and this suggests that various systems rather than a single marketing system are investigated. The initial two elements, relationships and interactions could be combined, because the latter already presupposes the former. The environmental constraints and technology could be also combined, as all the factors included may become both environmental enablers and constraints depending on market situations. However, a rightful question arises here on whether the marketing environment (or its defining factors) is the element of the marketing system or the part of the external environment. I suppose that the environmental factors should not be included in the system. Moreover, the intentionality is qualitatively different to market interaction in that this factor represents psychic processes rather than communication. Luhmann (1995) thought that psychic processes are not part of a social system's structure. Therefore, intentionality cannot be included in a marketing system as one of its elements.

Bagozzi (1974) proposed the theory of the *systems of exchange*. He revived the Aldersonian theory of organised behavioural system and applied it to the analysis of the dyadic nature of exchange processes. The exchange system was “a set of social actors, their relationships to each other, and the endogenous and exogenous variables affecting the behavior of social actors in those relationships” (Bagozzi, 1974, p.78). Bagozzi challenged Kotler’s (1972) value exchange model that considers only ideal positive situations. In contrast, Bagozzi proposed the concept of an exchange system that comprised both positive and negative social actions employed by exchange parties in order to maximise their subjective expected utility. This theory is a significant step in recognising the fact that the concept of marketing systems should be able to explain the possibility of both positive and negative actions.

In turn, Dholakia and Dholakia (1982) suggested the view of marketing as a *system of three (sub)systems*: marketing as a system of institutions, marketing as a system of actions, and marketing as a system of ideas. Regarding the first component, the concept “institution” in the marketing context, if taken narrowly, means particular market participators, such as producers, agents, intermediaries, and consumer networks. Yet in general terms, institutions may refer to “a set of contexts, conditions and rules for economic transactions” (Arndt, 1981, p.37). The second component, marketing as a system of actions, pinpoints the practical aspect of the system. Not only institutions, but also their functions, i.e. actual actions taken by market actors, must be considered as a part of the system. The third component represents the knowledge context of market behaviour, as marketing thought is an inherent part of the marketing system (Bartels, 1976; Shaw & Jones, 2005; Sheth et al., 1988; Wilkie & Moore, 2003). Although Dholakia and Dholakia’s analysis is a substantial step toward arguing about the unity of action and thought, it lacks constructionist understanding of a fundamental relation between social communication and individual cognitive processes (Luhmann, 1995).

Model of trade flows. Several researchers quantified marketing systems within national borders (Layton, 1981a, 1981b, 1989, 1991; Pirog III, 1991; Sybrandy,

Pirog III, & Tuninga, 1991; Sybrandy & Tuninga, 1991; Tuninga, 1991). Their objective was to measure the structure of marketing systems. A model of a marketing system comprised aggregate inter-industry trade flows (Layton, 1981a). Layton built the input-output model for the Australian marketing system based on the 1968 economic census data. Then he compared it to the analogous US marketing system model built by Cox, Goodman and Fichandler in 1947. The comparison revealed fundamental similarities and differences between two different structures. The main implication of the model was that it allowed the estimation of the volume of inter-industrial trade caused by a marginal increase in the final demand. The main contribution of the approach was that the marketing system was conceptualised as a set of transaction flows rather than the aggregate of institutions (Sybrandy et al., 1991). Several researchers explored the analytical implications of the model (Pirog III, 1991; Sybrandy et al., 1991; Sybrandy & Tuninga, 1991; Tuninga, 1991). However, the model had some limitations in terms of measuring market dynamics, and these limitations are reflected in a set of main assumptions (Layton, 1981a). The main assumptions are that macro-marketing system boundaries must match a nation-state's borders, a certain product is delivered by just one industry, no product is created through inter-industry cooperation, and input trade flows in the industry change proportionally to the level of output. These assumptions took the model too far from systems thinking toward a mechanistic reduction. Realising this, in his subsequent works, Layton (1989, 1991) attempted to introduce entropy measures to the model to render it more dynamic.

Anatomy of macro-marketing system. Gunn (1975) emphasised the meaningful, symbolic aspect of the system as he argued that an *ideology* is a moving force of the macro marketing system. The ideology was thought to be that of "competruism", meaning social, cultural, and institutional belief structures centred on the concept of true competition and laissez-faire (p.162). Gunn imagined the macro-marketing system to represent an *input-output mechanism* that processes environmental resources for provisioning society. The system was thought to be controlled by a double force: firms' marketing strategies and government's market policy. These forces were thought to maintain a homeostatic balance between oversupply and undersupply in the system. The several aspects of Gunn's model

need clarification. First, he did not provide mechanisms for how the ideology would structure the macro-marketing system. Second, he deemphasised the role of value and cultural meaning-creating capabilities on the part of system agents. Third, the nature of inputs and outputs was not specified, whereas the external environment was too fragmentalised and included contradictory factors. In the external environment, although the factors such as psychological, technological, sociological, and economic may represent distinct forces, the factors such as government policy, ideological factors, and political forces seem to be closely related. Moreover, marketing strategies were put in the environment, whereas they could be a part of the marketing system. Furthermore, the environment included the resource environment and the residual environment which were thought to be separate. The resources environment comprised natural resources, whereas the residual environment consisted of waste, pollution, and other externalities. In contrast, Luhmann (1995) argues that both the system and the external environment must be conceptualised as a unity.

Entropy and negentropy in marketing systems. Reidenbach and Oliva (1983) explored the nature of the effects marketing could have on life systems. They saw the marketing system as an open system within the closed global environmental system. Their analysis was based on the laws of thermodynamics, i.e. the notions of entropy and negative entropy (negentropy). Marketing's two-fold effect was conceptualised. On the one hand, marketing boosted living standards causing negentropy at the micro-level. On the other hand, it intensified unsustainable behaviour causing increase in entropy at the macro-level. Reidenbach and Oliva conducted an indifference analysis to demonstrate a tradeoff between the economic measure of well-being and global sustainability. They insisted that marketers should realise the transforming aspect of consumer behaviour that is depicted in transforming goods into waste. They argued that products are never consumed fully, but transformed into pollution. The conclusion was that marketers' task list must include "synchronising, maintaining, and even reducing and destroying demand" (Reidenbach & Oliva, 1983, p.39). Reidenbach and Oliva thought that the conventional conjecture that citizens must *consume* their way out of social and economic crises was implausible, because high consumption rates correlated with the high level of toxic waste generation. It was thought that

increasing consumption may lead toward deepening social and ecological crises. Therefore, material consumption was not to be viewed as a panacea for mismanagement of society. Two concerns arise from the discussion unfolded above. First, the notions of global entropy and marketing negentropy may represent anthropocentric understandings pertinent to rather a small proportion of the planet's population. How wise is it then when the views (constructed within distanced contexts) of minority are imposed upon a silenced and disenfranchised majority? Should consumption in the less developed countries be also restrained? (Schaefer & Crane, 2005) Second, marketing may not be so simplistic an aspect of social life when it is taken at a macro-level. Is marketing's effect conducive to putting the welfare of people at odds with the ecological health of the global environment? Economic, social, sociological, and psychological literature insists that human well-being is strongly linked to global and social welfare (Varey, 2005b). Moreover, recent research indicates that the orthodox view of marketing emphasised in Reidenbach and Oliva's article is not a single dominant conception of marketing systems (Bartels, 1970; Peattie, 2001; Varey, 2002b; Vargo & Lusch, 2004).

Dixon and Wilkinson (1982) linked the concept of marketing systems to the *behavioural theory*. For them, the marketing system represented the behaviour of individuals (groups) who were engaged in marketing activities. The study of behaviour entails thinking about psychological aspects of the system. Therefore, Dixon and Wilkinson analysed the marketing system employing the *planning model* of behaviour that emphasised rational thought structures of market participants. It was considered that the market behaviour of individuals was a rational process which consisted of two clearly delineated stages: planning and implementation. The marketing system's objective was thought to be that of satisfaction, whereas dissatisfaction with the outcome led to reconsideration of plans accepted previously. Though this approach renders the task of analysis of marketing systems much easier, it has failed to recognise the emergent nature of social interaction. This approach to the metacognitive modelling of behaviour reminiscent of a debate between Igor Ansoff and Henry Mintzberg on a rational planning process (Ansoff, 1991, 1994; Mintzberg, 1990, 1991). The major issue in the debate was whether the strategy process is essentially rational or emergent.

Dixon and Wilkinson's planning model is close to the premises of the design school, the principles of which Ansoff tried to defend. The clear delineation between formulation and implementation stages in the process becomes the sign of a rational model that dismisses the emergent character of social action. The systems perspective opposes the mechanical modelling of contrived realities, so the perspective taken by Dixon and Wilkinson has fallen short of grasping the richness of systemic dynamics.

Scientific marketing. "Predatory" was the very word used by Thorstein Veblen, a scholar who coined the term *conspicuous consumption*. He described the feudal society based on the total superiority of a class of people over the majority in terms of access to and use of material resources (Veblen, 1899/2007). Veblen noted that a similar predatory attitude, although skillfully concealed, was still being exercised by a class of wealthy investors through the use of "marketing" techniques. Marketing became a force of influencing citizens in order to change their consumption habits in a way that would maximise marketers' profits. He saw marketing as a means of class-coercion that he called *salesmanship*. It was different to *workmanship* that was regarded as the process of real value-creation. Veblen thought that competition among corporations was equal to feudal rivalry to gain domination over more resources and people, while research and innovation was akin to the search for new weaponry. The social consequences, as he argued, were small financial benefits and comforts to a limited group, and very heavy social and environmental losses for social masses. Veblen suggested that such populist claims as improved life standards for laypeople did not hold water for a great proportion of humanity. Veblen expressed a concern that if goods produced and marketed wasted more effort, time, and material than they would save, how could one talk about efficiency?

Dawson (2003) extended Veblen's analysis to contemporary social contexts. He argued that marketing represented "a systematic effort by agents of the rich to use corporate resources and management to coerce the non-rich into off-the-job habits that make the rich richer" (p.6). Dawson saw marketing to be the technology of human behaviour modification. He called it the "engineering of off-the job habits" that is distinct, but comparable to the engineering of "on-the-job habits" that stems

from the Taylor's perspective on management (Taylor, 1967). *Scientific marketing*, as opposed to Taylor's *scientific management*, is a suitable term to describe Dawson's view of the marketing system. The corporate employees and managers were seen as the agents of the rich, whose personal goals were deliberately put in line with the objective of their patrons to get richer. Dawson suggested that marketing became the method of nurturing unjust, dominating relationships in markets, where corporations exercised great power due to an unlimited access to information, expertise, and knowledge, whereas product users had a limited access to corporate decision-making. Dawson claimed that the available evidence suggested that corporate communications were deliberately used to plant the seeds of impairment regarding many life concepts. For example, well-being was consistently promoted to be about material possessions. Thus, his conclusion was that weak social infrastructure that is unable to contend corporate dominative ambitions was the result of a marketing assault on culture and traditional lifestyles.

In the light of Dawson's analysis, the marketing system emerges as a set of promotional tools of totalitarian dominance that serves the interests of upper social classes to secure and maximise their level of income. However, here lies the paradox of this kind of analysis – it is based on the view that the ultimate justice would be the redistribution of income, thus recognising that well-being is confined to material wealth, while diligently criticising materialism and the promotion of materialism implemented by big businesses. As the high levels of monetary income fail to bring happiness (de Graaf, Wann, & Naylor, 2005; Durning, 1992; Frank, 2000; Schor & Holt, 2000; Scitovsky, 1976), how successful would a new marketing system directed at "fair" redistribution of income be in making people happier and healthier? Is marketing really about the redistribution of capital among classes?

Aggregate Marketing System. Wilkie and Moore (1999) undertook to describe the marketing system's contribution to society. They provided a comprehensive picture of the aggregate marketing system in USA. They identified the ten most important characteristics of the system. Accordingly, the aggregate marketing system:

(1) incorporates many activities; (2) is composed of planned and continuous flows; (3) is extensive; (4) is sophisticated structurally; (5) is a key basis for resource allocation in a market economy; (6) is governed by forces for efficiency; (7) is constrained by social factors; (8) relies on coordinated processes; (9) operates through human interaction, experience, and trust; and (10) is an open system, geared toward growth and innovation. (Wilkie & Moore, 1999, p.205)

These characteristics of marketing systems are called propositions by Wilkie and Moore. The second proposition includes the physical, persuasive, informational, and monetary flows. I would add to the list the flows of symbolic meanings, as symbolism in the system is not to be underestimated (Levy, 1959; Thompson, 1997; Wernick, 1991). In the sixth proposition, the term “efficiency” might be taken for granted to represent a standard economic notion of utility maximisation. In contrast, efficiency could also be understood in terms of sustainable development, societal welfare, ecological health, and individual happiness, the last but not the least (de Graaf et al., 2005; Frank, 2000; Varey, 2005b). Regarding Proposition 7, Wilkie and Moore mention government controls as one of social forces. Although government regulation sometimes constrains the system, it might not be case for other social factors, for example, cultural institutions, social capital, communities, and discourse systems. Research shows that social factors generate the very essence of a marketing system rather than constrain it (Cova & Cova, 2002; Holt, 1998; Layton, 2006; Lindblom, 2001; Schouten & McAlexander, 1995).

Micro Perspective

Flows. Forrester’s (1958) view on the system was a micro-approach, because he attributed systemic properties to a firm’s operations that he calls flows. The firm represented a small unified system where “the flows of information, materials, manpower, capital equipment, and money set up forces to determine the basic tendency toward growth, fluctuations and decline” (Forrester, 1958, p.52).

Forrester argued that a manager’s task was to deal with the flows in an integrative way in order to bring about realisation of broader systemic goals, e.g. public interests. He predicted that executives would increasingly deal with “the basis for

wise operating decisions”, i.e. solving societal problems rather than daily routine operations (p.66). Their job would become that of “the responsible manager” who is engaged in “a thoughtful process of weighing the past and present” to serve causes of social welfare (p.66). Forrester thought that the marketing system is a part of organisational flow. Hence this flow should link the interests of a small system (the firm) and the broader system (society).

Socio-technical system. According to several researchers the marketing system consists of process and structure (Dixon, 1991; Emery & Trist, 1965; Emery & Trist, 1972). The *process* refers to procedures by which the system attracts inputs and turns them into outputs, whereas the *structure* implies the totality of interdependent relations among system elements. Emery and Trist (1960) defined the marketing system as an enterprise that transforms outputs into inputs through internal technological processes. This system consists of two components: internal and social. The internal component is a technological process, whereas the social component denotes the system’s relation to external factors, including inputs and outputs. Emery and Trist saw the system’s environment as comprising four types of relationships. They were L_{11} (relationships within the system), $L_{1 \rightarrow 2}$ (relationships between the system and the environment dominated by the system), $L_{2 \rightarrow 1}$ (relationships between the system and the environment dominated by the environment), L_{22} (intra-environmental relationships) (Emery & Trist, 1965). Emery and Trist thought that the primary task of the marketing system was to position itself within the environment in such a way so that the optimal level of growth is attained. Emery and Trist stress the social character of marketing systems, as they argue that the technological aspect would not be able to function unless social connections to the external environment are established.

Functions. Lewis and Erickson (1969) developed a view of a marketing system depicted in a set of marketing functions. They define a marketing system as an ongoing process of servicing demand. They noted that although the marketing system was open in its essence, it could be in inadvertent transition to closedness, because of narrow-minded managerial efforts. Lewis and Erickson insightfully combined functional analysis and systems logic, and developed a general framework (Table 2).

Table 2. Synthesis of Functional and Systems Approaches

Functional View: Marketing	Systems View: Marketing System	Elements (essence)
	<i>A. Objects</i>	
Functions	Output Objects	Obtain and service demand
Activities	Input Objects	Advertising, personal selling, sales promotion, warehousing, inventory, marketing research, finance, general administration
Synergy	Process	The set of actions that combines the inputs of marketing in order to obtain the desired output
	Feedback-Control	Marketing Research and General Administration
	Restrictions	External: government, competition, customer, etc. Internal: goals, policy, financial, etc.
	<i>B. Attributes</i>	
		Characterize the objects of a system, making possible the assignment of a value and a dimensional description
	<i>C. Relationships</i>	
	Functional	Object relationships which are indispensable to each other
	Complementary	Not indispensable to each other but when combined the effect is synergistic and interactive and positively foster the system
	Redundant	No effect on results: quantitative, qualitative
	Contradictory	Where the effects on results is negative: quantitative, qualitative

Source: adapted from Lewis and Erickson, 1969

The framework outlines the following elements a) the output objects: obtaining and servicing demand; b) the input objects, e.g. marketing functions such as advertising, personal selling, warehousing, and marketing research. Additionally, the systems approach comprised c) the process combining all functions; d) a feedback-control linking the system and the environment; and e) restrictions governing the potentialities of actions within the system. The crucial feature of the framework is that it defines such important features of the marketing system as the attributes and typology of relationships within the system. The attributes are the meta-descriptions of objects within the system which are assigned certain value. The typology of relationships comprised functional, complementary, redundant, and contradictory relationships.

The unique insights conveyed in the article represent the earliest attempt to describe the marketing system in a constructivist way. Several points in this theory support original systems thinking. First, the marketing system is defined in

terms of its operations (functions) which are driven by common meaning. Second, the operative potentiality of the system is seen to be restricted by its own internal operation. Third, the closed nature of functional dynamics is acknowledged. Fourth, Lewis and Erickson indicate deployment of valuation in operating. Finally, the possibility of redundant and contradictory relationships is assumed. Unfortunately, this unique theory of systemic treatment of marketing functions did not find its logical continuation in the successive research in this field, apart from a work by Wilkie and Moore (1999) which lists as many as seventy-five different functions of the aggregate system of marketing.

Midrange (contingency) view. Kast and Rosenzweig (1974) reviewed the systems literature to date and identified several flaws with the application of the systems approach. The problems were grouped into three domains: literal thinking, convenient practicality, and confusion about system effectiveness. First, literal anthropomorphism – relating the parts of biological organisms to the structural parts of organisations – was identified as one of the flaws. It was noted that the bodily structure of bio-organisms was often used as a literal analogy for complex social phenomena. Kast and Rosenzweig argued that social systems have a looser structure and contain parts that have an ability to exercise free will. This cannot be said about biological organisms. Social organisations consist of highly variable behaviour of free-willed subjects. Second, convenient practicality was described as the practice of choosing the simplified view of complex phenomena for straightforward analytical purposes. This included such practices as judging closed systems to be always bad, opting deliberately for the lower levels of subsystem analysis, and focusing on few relationships while leaving a whole picture untackled. Finally, Kast and Rosenzweig argued that there was confusion about system effectiveness, some stressing the capacity to survive, and others pointing to the extent to which organisations serve society. However, if the principle of allometric growth is recalled, then both survival and societal service converges into a unified meaning, as serving a supra-system may increase the odds for general survival.

Kast and Rosenzweig developed the theory of *contingent midrange systems*. They argued that GST was too abstract and that organisational dynamics can hardly be

analysed within that perspective. Therefore, their model of a marketing system included so called “midrange” organisational subsystems, e.g. goals and values, technical, structural, psycho-social and managerial factors (p.459). They saw the marketing system as a collection of individuals. This idea perhaps is a contradiction in itself, because it leads to a paradoxical logic (discussed in the next part). Moreover, regardless of von Bertalanffy’s (1972) critique of the notion of evolutionism, Kast and Rosenzweig kept on emphasising the theory of the survival of the fittest.

Subsystems of a living system. Reidenbach and Oliva (1981) applied Miller’s General Living Systems Theory (1978) to conceptualise a marketing system at a firm’s level. Reidenbach and Oliva (1981) took marketing to be a subsystem, which mainly dealt with information exchange and processing within an organisation. Out of a big number of subsystems ascribed by Miller to living systems, eight were thought to be relevant to the marketing function. Accordingly, the marketing system was comparable to a set of subsystems which were divided into two sections: demand-servicing and demand-creating. The demand-servicing section comprised four subsystems: ingestor (procurement), distributor (logistics), matter-energy storage (storage systems), and decider (marketing management). The demand-creating section of the organisation included an input transducer, decoder, encoder, and output transducer. The input transducer was parallel to the function of market intelligence and monitoring, the decoder to the analysis and interpretation of market data, the encoder to the development of internal and external communication, and the output transducer to the generation of marketing communication. Through this theory, Reidenbach and Oliva equated a marketing system to one of many subsystems included in a supra-system. Their view was that a marketing system is included within an organisation.

Market system evolution. Dowling (1983) studied the dynamics of marketing evolution. He thought that knowledge gained about the character of the evolution was helpful in identifying the possible directions of marketing development in the future. Dowling defined marketing systems as “a complex social mechanism for coordinating production, distribution, and consumption decisions” (p.22). He stressed the role of marketing as a “complex homeostatic mechanism” to mediate

between a business enterprise and its environment (p.24). This view corresponds to the idea that marketing is a smaller subsystem along with other subsystems within the larger system of a firm. In Dowling's work, the marketing system's purpose was seen as promoting adaptation to environmental changes. An important insight this study gave was that the higher level of relevant uncertainty attributed to the environment corresponds to the higher level of consumer care and social responsibility. In other words, the effect specifies conditions for the emergence of a greater emphasis on interaction, dialogue, and value co-creation among society members. In constructivist terms, the conditions (context) are constructed not only as a direct consequence of "real" environmental turbulence, but also as the active construction/perception of increased levels of uncertainty.

Dowling (1983) stressed a dynamic relation between the processes of progressive segregation and progressive systematisation. He contended that the marketing system has undergone the process of progressive segregation to become more complex. Dowling noted that the different schools of marketing thought made marketing the field of science consisting of a full array of separate subdisciplines, e.g. consumer behaviour, macromarketing, and marketing research. Progressive systematisation was observed in the attempts to construct the general theory of marketing, the macroscopic synthesis of marketing thoughts. Dowling noted that the evolution of marketing occurred in line with the evolution of marketing management philosophies (Table 3).

Table 3. Evolution of Marketing

<i>Degree of Environmental Influence</i>	<i>Important system/environment connections</i>	<i>Marketing management philosophies</i>	<i>Goal of the Enterprise (Success through)</i>
Low	$L_{11}, L_{2 \rightarrow 1}$	Product Concept	Quality Products
Low	$L_{11}, L_{1 \rightarrow 2}, L_{2 \rightarrow 1}$	Selling Concept	Sales Volume
Medium	$L_{11}, L_{1 \rightarrow 2}, L_{2 \rightarrow 1}, L_{22}$	Marketing Concept	Long-run Customer Satisfaction
High	$L_{11}, L_{1 \rightarrow 2}, L_{2 \rightarrow 1}, L_{22}$	Societal Marketing Concept	Long-run Customer Satisfaction and Public Welfare

Source: Dowling, 1983

Table 3 shows that the evolution of marketing concepts happened in line with the increasing degree of recognition of environmental influences. The evolution follows the path of the much popularised marketing concepts (Keith, 1960; Kotler, 1972, 1994). The product concept of marketing dominated when the environmental turbulence was perceived to be low. As the environmental influence and turbulence increased, the marketing concept evolved from the production to selling to marketing to societal marketing concepts. Dowling suggested that as environmental complexity grew, businesses realised the importance of long-term societal welfare and consumer relationships.

However, I maintain that Dowling's article is the best example of dualistic thinking about marketing systems. On the one hand, the marketing system was thought to be a social phenomenon, a system on its own. Hence, the marketing system was defined and understood as the total of all market behaviour, the view that corresponds to that of Bartels (1976), Fisk (1967), and Dixon and Wilkinson (1982). On the other hand, in the same article, Dowling advanced the view that marketing is the appropriated and partisan aspect of a business enterprise. These distinct views taken together represent the problem of logical typing (Bateson, 1991; Whitehead & Russell, 1927). The problem of logical typing arises when the class of objects (constructs) is included in itself as one of the objects. The problem might become the basis of a paradox that might arise due to mechanical thinking (Bateson, 1991).

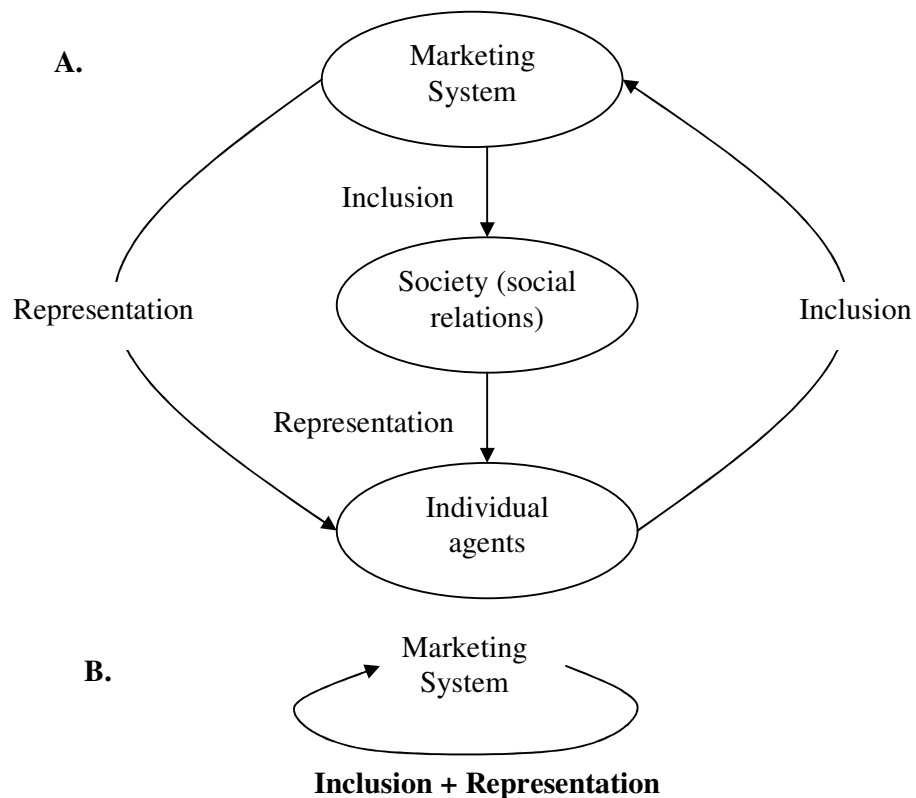
Trapped in Tautology and Paradox: Strange Loops

The review of the systems literature revealed two encompassing directions: the macro-perspective and the micro-perspective. The macro-perspective accepts the notion of the marketing system that is holistic, which transcends individuals and organisations, and accordingly, forms a greater environment for any marketplace agent. This corresponds to Dolan's (2002) view that marketing is a macro-process in operation within society, but it is often decontextualised through equating it to a manipulative mechanism of businesses. The micro-perspective considers the

marketing system to be the inherent characteristic of individuals and institutions. The perspective implies that marketing is the function of individual agents.

The macro-micro understanding of marketing systems is trapped in the “circle” of tautological and paradoxical argumentation. A tautology is the expression of exact equality, where both sides of the equality appear to be similar statements. A paradox occurs when both an assertion and its negation are considered to be true. To demonstrate this logical problem, the analysis of “strange loops” has been proposed (Hofstadter, 1979). This analysis is based on two concepts: inclusion and representation. The inclusion is activated when the individuals and organisations are seen as operating within the marketing system. This parallels the macro-perspective. The representation, on the other hand, is exhibited in the micro-view that assumes that the marketing system is the inherent aspect of the behaviour of individual agents (Figure 2).

Figure 2. Tautology and Paradox in Marketing Systems Conceptualisation



On the one hand, society may be conceptualised as a general system which includes the marketing system as an element (Kuhn, 1963; Sheth & Sisodia, 2005; Wilkie & Moore, 1999), and on the other hand, it can be seen as an individual's will to accept social contracting (Barker, 1980; Rousseau, 1968). In other words, society is a general structure that comprises all marketing behaviour, but at the same time, it consists of those fragmented social operations which drive marketing behaviour.

The combination of inclusion and representation leads to a tautological expression that suggests that the marketing system is the marketing system. The tautological expression fails to provide new insights into phenomena, except taking us for a "round trip". Moreover, a paradox is created by suggesting that the marketing system includes itself within its complex structure. This act of inclusion assumes that an extra matter is also involved as well as the self in comprising the marketing system. The meaning that arises from this is that the marketing system is a marketing system, and at the same time, the marketing system is not a marketing system, as it may include something else too. The concept of society when incorporated into this circularity of meaning creates an even more complex picture. As some researchers may see no problem in this circularity of logic, but mere necessity, I argue that this situation creates particular difficulties in conceptualising the role of the environment. Following the traditional logic, the environment of the system eventually ends up as the part of the system, and consequently, the system becomes an environment for the environment. The mechanistic viewpoint fails to provide a solution to this important contradiction in meaning. Therefore, it is of high importance to strictly delineate the conceptual boundaries of the system and the environment. Evidently, a fundamental challenge for researchers in marketing systems research is the precise definition of systemic boundaries and those of the relevant environment.

Alternative Conceptual Logic

In the following part of the section, I develop an alternative conceptual logic of marketing systems that is more compatible with the tenets of original systems thinking. The logic consists of a set of proposed insights. These propositions are

developed with regard to the essential aspects of marketing systems which have surfaced in the literature review.

Complexity and Understanding

A complex interdependence between the system's elements, is at the core of marketing systems (Meade II & Nason, 1991). Grasping the essence of the marketing system to the full extent through the conventional reductionist approaches is impossible, as researchers note that this kind of complexity "has proven to be an extraordinarily difficult concept to express mathematically in a generalizable way" (Meade II & Nason, 1991, p.72). Specifically, Dixon (1991) gave a thorough historical account of early attempts to conceptualise an economic perspective on recursive interdependence by the prominent economists, namely François Quesnay, Karl Marx, Leon Walras, and Wassily Leontief. Dixon observed that these researchers attempt was to develop the systemic view of the abstracted state of a national economy. However, because these analyses emphasised only the static and tangible elements, they failed to recognise the important aspects of *marketing-system-in-operation*. The main problem which Dixon recognised in these studies was a tendency to overemphasise the material sources of a value-creation process. In the process of searching for marketing in these classic analyses, Dixon came to the conclusion that "only when production is seen as the transformation of inputs into *satisfaction* rather than into material attributes can the place of marketing activities come within the scope of analytical effort" (Dixon, 1991, p.17). This view reflects my thesis that a purely mechanistic and rationalistic emphasis is problematic with regard to reflecting the complex nature of marketing systems. Considering that the domain of marketing systems can conditionally be divided into production and consumption loci, a similar critique in respect to the conception of consumption processes was advanced by several researchers (Dolan, 2002; Schaefer & Crane, 2005). The orthodox conceptions of sustainable consumption are seen as too "static, individualistic, and rationalistic" (Dolan, 2002, p.170), while other alternative conceptions which emphasise the social side of marketing systems are more or less ignored as far as conceptualisation is concerned (Bagozzi, 2000).

The literature review indicated that several marketing scholars are strongly inclined toward the simplistic and mechanistic assumptions of Newtonian science. Price (1997) argued that the “classical science is unable to describe the world *as it is*...objectivity becomes a more subtle concept as we come to recognize the complexity of social systems and the irreversibility of dynamics” (p.7). The complexity and chaos theories, which are newly emerging in the field of physical and social sciences, challenge the validity of research results that spring from the assumptions based on a static and passive nature of the systems (Eve et al., 1997; Peitgen, Jürgens, & Saupe, 2004). On the contrary, intense complexity and dynamism found in marketing systems (also in the physical, biological, and other social systems) suggests that these systems’ essence is far from being deterministic. The complex systems are *unpredictable, non-deducible, and non-aggregative*. System dynamics are unpredictable owing to the non-linearity of behaviour and the fact that a causal chain is unrecoverable to the extent that Wittgenstein’s “meaninglessness” becomes an appropriate term to describe attempts to derive the initial conditions of systemic cause-effect interactions (Eve et al., 1997; Wittgenstein, 1963). The relevant findings in the fields of mathematics, biology, psychology, philosophy, and social sciences (communications, anthropology, and sociology) show that complex systems are emergent, because the theoretical conceptualisation of a higher-order phenomenon cannot be deduced from laws derived at the level of their components (Luhmann, 1995; Mihata, 1997; Staubmann, 1997; Varey, 2002a). Likewise, the complex social systems are non-aggregative, because, a) compositional elements are not inter-substitutable or/and easily inter-replaceable; b) interaction among the elements is of high intensity; c) the quality of the system is not retainable by de-constructing, and then re-aggregating the elements; and d) the quality of the system is not retainable by addition and subtraction of an element one at a time (Smith, 1997). Subsequently, a whole’s qualities are hardly explained through principles derived at the level of its segregated elements. Contradictions underline a project that is directed to understand a whole by reducing it into the mere aggregation of cause-effect fractions (Angyal, 1969; von Bertalanffy, 1950). In this case, the whole would not retain its holism, and thus its accurate representation.

Besides, researchers differentiate between explanation (erklären) and understanding (verstehen) (Hirschman, 1986; Hudson & Ozanne, 1988). *Explanation* is geared toward identifying universal laws that underlie the observed events. It is believed that the universal laws would allow researchers to approximate the trends of future events (Anderson, 1983). In contrast, *understanding* is not the end product of research, but a continuous process of sensemaking (Hudson & Ozanne, 1988). Hudson and Ozanne equate understanding to verstehen. *Verstehen* refers to “grasping the shared meanings within a culture of language, contexts, roles, rituals, gestures, arts and so on” (Hudson & Ozanne, 1988, p.510). Hudson and Ozanne argue that verstehen is dynamic and directed toward grasping meaning that is existential. This means that an act of living constructs meaning, and that a meaning presupposes active social interaction. To investigate meanings in marketing systems, verstehen proves to be more suitable. Furthermore, verstehen is considered to be less susceptible to the drawbacks of the mechanistic logic. For instance, a rational logic cannot withstand self-reference (Luhmann, 2002), whereas verstehen may specifically be adapted to produce self-referential interpretation. Moreover, verstehen presupposes taking an insider’s perspective, which parallels the task of observing the observer. Hence, I believe that complex systems can only remain as systems when the investigation is directed toward empathic understanding rather than mechanical explanation (Lincoln & Guba, 2003).

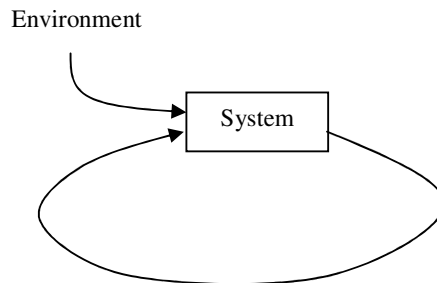
Proposed Insight 1: A marketing system is a complex, interactive, non-linear, unpredictable, non-deducible, and non-aggregative whole that is to be understood rather than merely explained.

Self-referential Recursivity

Another feature of complex and emergent systems is their inherent self-referential nature (Hofstadter, 1979; Schaefer, 2005). Self-reference occurs when the system includes itself in its every operation and observation (Schaefer, 2005). The self-reference of systems is a major reason why they develop highly emergent, chaotic, and complexity-driven structures (von Foerster, 2003). In contrast, a majority of marketing models are based on linear analysis methods. The linear analysis would rely on the assumption that predicted changes in the system would not depend on

its current state of operations but rather on an earlier, initial fixed state. For example, an incremental input of a factor to the system is expected to cause a proportional change in the output, while the ratio of these changes remains independent of how much it has already been changed. In this way a linear system could be forced indefinitely into a certain direction. As a matter of fact, real complex systems, and in some situations even simple systems, are rarely linear (Feigenbaum, 2004). Moreover, the future trends of self-referential systems are hardly predictable in a linear way. Heinz von Foerster (2003) argues that the self-referential systems are *unreliable* (not predictable), as they take their own (self-referenced) state as an input factor at each operational turn. At any phase of development, the unreliable system's end point merges into its original starting point (condition) that by this time has been changed to incorporate enactment of the last changes in the environment (Baecker, 2006). This dynamic can be seen in the Figure 3.

Figure 3. Self-referential System



Source: adapted from Baecker, 2006

The system's condition depends on its own state and the contribution from the environment. However, the system does not merely copy the environmental turbulence directly into its structure, rather it attempts to interpret the environmental changes by transforming them into resonance at the level of systemic operations (Daft & Weick, 1984; Weick, 1979, 2001). This process is called *enactment* (Weick, 1979). Enactment is not simply cognitive perception and interpretation of the environment rather it is the reflection of the environment that resonates through active operation and meaning creation. The enacted environment is co-created within the system and it is the result of interaction

among environmental events, the systems' own actions, and other systems' influences (Baecker, 2006; Luhmann, 1995; Stern, Thompson, & Arnould, 1998).

In order to be able to interpret the environment, the system must be able to interpret the self as being different from the environment (Luhmann, 1995). Thus, the "picture" of the self is referenced against the enacted environment. While the self is recursively defined at each stage in reference to noxiants (environmental events) changing *ad infinitum*, the states of the system become highly volatile, and in consequence, unpredictable (von Foerster, 2003).

Proposed Insight 2: A marketing system is self-referential and the environment is enacted.

Macro-micro Paradox

Some of the literature (e.g. Alderson, 1965; Dowling, 1983; Gunn, 1975; Kelly and Lazer, 1962; Reidenbach and Oliva, 1981; Wilkie and Moore, 1999) view marketing systems through the *whole versus parts* prism. This tradition remains since the advocacy of functionalism by Alderson (1965), in the paradigm of which the behaviour of systems is a direct derivative of lower level element interactions. For instance, Alderson (1965) assumed that changes in the marketing system can be predicted by examining the patterns of interactions among organised behaviour systems. To solve the problem of how parts at the micro-level grasp holism at the macro level, Alderson (1964) introduced the concept of a *control group*, i.e. a representative systemic part that operates within the organised behaviour system. The control group of the organised behaviour system was thought to be that very "magic force" that was able to link *local* to *universal* by a means of power and communication. Moreover, the whole versus parts understanding is strongly associated with *methodological individualism*, as emphasis is on individual agents (parts) who make up a whole (McClamrock, 1995). Though many researchers would agree that the marketing system is not just a simple collection of individuals or institutions (Sheth et al., 1988), an implicit assumption would be that a certain kind of behaviour is inherent and fixed in system actors. In this sense, conceptually constructed paradoxes such as the tragedy of the commons, the prisoner's dilemma, which are strikingly similar in reflecting the macro-micro

problem, are being reiterated, investigated, and analysed *ad infinitum* (Kilbourne et al., 1997; Palmer, 2000; Shultz II & Holbrook, 1999). The mega-division of the systems analyses into the macro and the micro parts, which has been partly disclosed by this literature review, indicates the difficulty and confusion that various researchers had in reconciliation of parts into a whole. I suppose that the main problem that burdened the researchers was to understand how micro-marketing behaviour at a business unit level, largely directed at growth and profit-making, could be equated (transformed) to the macro-marketing behaviour which is conventionally directed toward social welfare and environmental health at the societal level. The deterministic solution such as that some part of a system would take control and “speak” on behalf of others was criticised by Luhmann (1995), who considers it to be a conceptual tautology. In contrast, a difference logic has been proposed (Bateson, 1979). This logic emphasises a difference that causes a network of differences. Following this logic, Luhmann (1995) built the theory of self-differentiating systems. This theory approaches the dilemma from a totally different cut-through. A totality of factors, such as individuals (institutions), their intentions and cognitive worlds, actions and behaviour, are left out of the system within the environment, while arguing that the social system (which marketing is to be a kind of) is constructed through the reduction of aforementioned complexity into communication. The theory suggests that the system and its related environment emerge simultaneously, so each particular marketing system has its corresponding enactment of the environment.

Proposed Insight 3: Marketing systems represent difference. The macro-micro paradox is resolved in self-differentiation through which the system reduces the complexity of the environment by a means of internal difference-making operations.

Input-output Fallacy

The input-output schema, although useful, is a reductionist and relatively mechanistic way of thinking. Arguments to support this view are as follows. First, in the input-output schema, the reality is artificially deconstructed into the three parts: input-provider, systemic structure, and output-receiver (Emery & Trist, 1960; Gunn, 1975; Luhmann, 1995). However, the nature of inputs and outputs

may not correspond to systemic structure. The *inputs* and *outputs* domains accept elements from psychic, social, and ecological systems, whereas the system essentially consists of difference-making operations. Analysing all elements at the same level creates the problem of incommensurability between the elements. Second, the effect of an additional unit of incoming input is thought to cause a respective proportional change in output, the view that contradicts systemic axioms such as complexity, the butterfly effect, equifinality, and purposefulness. Finally, external observers (researchers) enforce their views on the system, while totally ignoring self-referential descriptions developed by the system itself. The alternative logic would suggest that the input-output schema exists just for the external observer, but not for the autopoietically constructed system. The more complex the system, the more complex its environment, and the environment constructed by the system appears as a unified entity, rather than being divided into separate domains such as input-source and output-receiver (Luhmann, 1995).

Proposed Insight 4: A marketing system constructs and references itself as a unity, and in the same way, it self-referentially constructs and observes its environment as a unity.

Survival versus True Purposiveness

Mechanical theories can only predict irreversible entropy: however, the observations of social and living systems indicate negentropy, i.e. ever-increasing complexity (Prigogine, 2003; von Bertalanffy, 1969). Related to *whole versus parts* thinking, the notion of *survival* is based on mechanistic assumptions. The main assumption behind the concept of survival is that those living systems which synchronically adapt to changes in hostile environments would endure (Alderson, 1964; Boulding, 1956; Dowling, 1983; Kast & Rosenzweig, 1974; Layton, 1989; Reidenbach & Oliva, 1981, 1983; von Bertalanffy, 1950; White, 1981). This assumption is rooted in conviction that everything is the product of random effects, and that nothing can self-regulate but be regulated through external forces. Von Bertalanffy (1972) considered the concept of differential reproduction (survival of the fittest) as a “circuitous argument”, or a mere tautology, as he thought that a self-reproducing system must have functioned fully even before entering a competition (p.409). He argued that the systems did not survive through

conformity with the environment, but rather through *anamorphosis*, that is developing highly complex and disassociated structures. In the case of societal relations, anamorphosis would mean creativity, originality, irregularity, and eccentricism. For instance, some researchers argued that the Nature favours the *wisest* (sporadic and flexible) systems rather than the “fittest” (Salk, 1973). However, if the environment and the system (self) are both meaningfully constructed through the system’s operations, then the metaphor of surviving *in* the environment seems to be inappropriate (Maturana & Varela, 1992). In other words, living systems (including marketing systems) purposefully construct their environments. Hence, they do not need to adapt to them in order to live (operate existentially). In contrast, it is proposed that marketing systems must demonstrate true purposiveness, that is, the internal quality of maintaining creative existence through active operations (von Bertalanffy, 1950). Metaphorically, a tree has its final form. The true purpose of any part of a plant (roots, seeds, branches) would be to evolve into a whole tree, as if this form is programmed in advance. This process is called *vitality* by biological scientists (Casti, 1991). So what is the essence of vital process in marketing systems? No research gives any indication on the purposeful character of marketing systems *per se*. Most researchers tend to see marketing in terms of an ad hoc collection of its parts (like roots, seeds, branches). Hence, this question remains open: what is the functional purpose of a marketing system? How is this related to sustainability?

Proposed Insight 5: A marketing system is driven by true purposiveness rather than survival.

Uncertainty and Wisdom

Dowling’s work (1983) pointed toward the particular qualities of marketing systems which enable construction of the volatile, turbulent, uncertain nature of the environment. This way, systems direct complex self-differentiation by a means of enacting more interaction, communication, and integration (Luhmann, 1995). Further, research in social psychology (e.g. Ardel, 2004; Baltes & Staudinger, 2000, 1996; Salk, 1973; Sternberg, 1990; Surowiecki, 2004) shows that the role of uncertainty-recognition is important in *wise* decision-making. Baltes and Staudinger (2000) explore the concept of wisdom, and conclude that

the ability to recognise relative unpredictability (indeterminacy) is one of the elements which should be included in the construct of wisdom. The uncertainty-recognition positively correlates with wise decision making (Baltes & Staudinger, 2000, 1996; Staudinger & Baltes, 1996; Staudinger & Pasupathi, 2003).

Moreover, ethical marketing actions are focused on people, especially, on maintaining social relations with them (Laczniak & Murphy, 2006). To sum up, I argue that the constructive recognition and management of uncertainty leads to the preference for integrative relationships, which could become a basis for the generation of ethical and sustainable behaviour.

Proposed Insight 6: A marketing system that can enact the environmental uncertainty into its own network of operations to a greater extent can possibly succeed in attaining sustainable existence.

Marketing System Elements

The concept of communication is proposed as the basic element of social systems (Luhmann, 1992, 1995). Communication is the emergent product of interactive social relationships (Varey, 2002a; Vickers, 1983). Communication is neither a thought nor a physical element rather it is a difference that is capable of making a difference (Bateson, 1991).

Proposed Insight 7: Marketing systems consist of communications.

Communication can be seen in terms of actions performed by agents. However, communication does not discern between the roles such as producer and consumer, provider and user, or seller and buyer. These are all active communicators, so the identity of a communicator is not fixed to a particular way of communicating. Luhmann (1995) differentiates between action and communication. An action is shaped in an anticipation of others' action. This phenomenon refers to "double contingency" (Luhmann, 1995, p.103). Double contingency occurs when an ego acts in anticipation of an alter's action, while the alter acts in anticipation of the ego's action (Parsons, 1977). This circularity does not allow clear delineation of discrete actions. The beginning and end of actions are not discernable (Bateson, 1991). Action-in-reference-to-action is *interaction*

and it represents social communication. Hence, communication has distinct properties *vis-à-vis* communication-composing discrete actions (von Bertalanffy, 1969). One needs to examine a bigger picture, i.e. how actions and operations are linked to each other. Also, communications never persist in time. They are contrived and temporal (Katz & Kahn, 1966; Seidl & Becker, 2006). Therefore, the marketing system is driven to regeneration (autopoiesis); it is fully reconstructed at each occurrence (Luhmann, 1995).

Proposed Insight 8: Communications within marketing systems are characterised by the following aspects: a) their unique function in society, which is represented in the maintenance of expectations of value acquisition through marketing action; b) valuation, that is, the application of binary coding “value versus non-value” to each marketplace event.

Various forms of social systems have been discussed in the sociology literature (Luhmann, 1995, 2004; Seidl & Becker, 2006). This literature shows that a political system operates with a distinction power/not-power, whereas a legal system distinguishes between legal and illegal. An economic system is based on a distinction payment/non-payment (Luhmann, 1989). In contrast, the locus of meanings for marketing systems is the dimension value/non-value (Holbrook, 1994; Prahalad & Ramaswamy, 2004b; Vargo & Lusch, 2004). A marketing system operation cuts the locus of meanings into value/non-value sides. For instance, sustainable value/non-sustainable value is one of the options (Dolan, 2002). The establishment of non-value is deemed equally important to identifying value within the system. For example, a sustainability discourse, that is initiated, developed, and maintained by corporations, agents, and publics, emphasise (an ecological) *value* of hybrid car technology. However, in this context the discussion is also extended at identifying the *non-value* status of other automobile technologies. Without the attribution of unsustainability (non-value) to the other automobile technologies, the discourse on the value of hybrid car (alternative fuel) technologies would not find its logical extension within this particular marketing system.

Systems Homogeneity versus Heterogeneity

Are systemic elements heterogeneous, as some researchers argue? (Kelley & Lazer, 1962; Lazer, 1969, 1971). There is no definite answer to this question. However, interdependence was thought to occur among homogenous components (Dixon, 1991). In view of this, the literature mentions two types of marketing systems: the marketing system (a locus of practice) and the system of marketing thought (a locus of thoughts). The self-description of marketing as a field of science makes an assumption that practice is quite different to theory (Bartels, 1970; Brown, 2005). Most behavioural and psychological research also supports the view that actions never exactly follow thoughts and attitudes (Ajzen & Fishbein, 1980; Juarrero, 1999; Zaltman, 2003). Hence, based on the works of systems thinkers, I note that the prominent elements of complex systems are communications, thoughts, and bio-physical reactions. Respectively, they represent marketing systems, the systems of marketing thought, and the eco-system. This is what Georg Simmel meant in his *Philosophy of Money* (1978), where he suggested that the emergent social phenomena “cannot be traced back to the environment from which it emerged, nor can it be explained in terms of that [psychological and biological] environment” (Staubmann, 1997, p.83). The relationship among the systems is not that of cause and effect, rather it is mutual coordination (Luhmann, 1995).

Proposed Insight 9: A marketing system consists of homogeneous elements that operate on a different level of meaning construction in comparison to thoughts (consciousness) and bio-physical substance interactions.

Thoroughness in distinguishing among the types of general systems is of great help in alleviating a confusion that exists in systems thinking. Luhmann (1995) points out four types of mega-systems: social systems, psychic systems, organisms (biologic systems), and physical systems. The latter two can be combined into a single system that underlies ecological processes in the nature. Marketing systems are viewed as consisting of interactive actions (communications), whereas the psychic systems represent the unity of conscious states, i.e. interactive thought processes (Luhmann, 1995). Using the same line of logic, the ecologic system is the unity of organic/inorganic substance interactions.

The argument here is that a systemic analysis should respect these borders of delineation, that is, social, psychic, and ecologic systems must be investigated as separate unities, and their *inter-action* should be treated as an *inter-system relationship*. The confusion arises when an attempt is made to include all these phenomena, namely communicative actions (Varey, 2004), the interactive states of mind (Staudinger & Baltes, 1996), and ecological elements (Hart, 1997) into a single system for the purpose of analysis. This is not to argue that marketing systems are autonomous. As a matter of fact, a marketing system could not exist without ecological or psychic systems (Luhmann, 1995). However, the relation among them is as they are separate autopoietic systems. The marketing system does not operate on the level of thoughts; it cannot intrude into the minds of participants, and will never be able to produce communications using thought structures. “Thoughts cannot become part of the network of communications, nor can communications become part of the network of thoughts” (Seidl & Becker, 2006, p.21). Their relation is that of enactment (resonance): thoughts may only resonate within marketing systems in the form of communication, while communications may only resonate in the form of thoughts within the network of marketing thought (Luhmann, 1995).

Unity of Difference

Taking into account the aspects of marketing systems discussed so far, the following definition of a marketing system is proposed.

Proposed Insight 10: A marketing system is the unity of difference between a marketing system and an environment depicted in marketing communication.

The definition reflects the self-referential character of marketing systems. The concept “unity of difference” suggests that both the marketing system and the environment are a unified occurrence (Luhmann, 1995, p.20). An alternative understanding of the *unity* is the concept of meta-communication (Bateson, 1991). The system consists of smaller systems. Meta-communication is the product of communicative interaction among systems, but it is not taken as a straightforward aggregation of them. The meta-wholeness of a marketing system is built upon two

main concepts: differentiation and potentiality. A marketing system sustains its difference *vis-à-vis* other types of systems, which in unity make up the environment. Differentiation is repeated at each level. Not only a unique difference, but also the horizon of potentiality, is actively developed. For any differential communication, the potential paths of development are instantly created and maintained within the system (Luhmann, 1995). In each of its reappearances, marketing systems go further selecting among alternative differentiations. This means that autopoiesis never repeats itself exactly, but a kind of a developmental drift can be discerned. The system that keeps a wider horizon becomes more robust than one with limited potentiality.

Summary

Table 4 summarises the discussion on the alternative logic of marketing systems. Proposed Insight 1 states that marketing systems are complex and this complexity cannot be grasped through mechanical explanation. Continuous understanding (*verstehen*) is more germane to the systems' meaningful essence. The system does not retain its wholeness, if the researcher attempts at a mechanistic explanation. Proposed Insight 2 postulates that marketing systems are self-referential. Marketing systems communicate about the self when they operate, and at the same time, they construct their relevant environments. The mechanistic view assumes that it is possible to study marketing as the reality that is separate from mind, and thus describe it from the perspective of a third person who would be placed out of the system. However, the observer cannot escape out of the boundaries of the system, and both the marketing system and its environment become the unique outcome of the system's own operating. Proposed Insight 3 posits that the meaningful nature of marketing systems is exhibited in differences. Elements are not real objects; rather they are concepts that only have meaning in reference to each other. Marketing systems are not constructible as a macro-aggregation of micro-elements. They are better understood as self-differentiating systems. Proposed Insight 4 maintains that marketing systems do not represent input-output mechanisms; rather they are a unity that creatively distances itself from the equilibrium state by developing purposeful, meaningful, and symbolic complexity. Proposed Insight 5 suggests that the notion of a mechanistic survival within the environment is meaningless for the system's self-observation. Instead,

the true purposeful character of the system needs to be examined. Proposed Insight 6 grasps a crucial character of marketing systems that is exhibited in enacting a higher degree of uncertainty in reference to the environment in order to attain wise operative bases. Proposed Insight 7 detects the interactive social nature of marketing systems. Communication, rather than discrete action, is considered to be its basic element. The element must be a system in itself; communication is a system, while action is not. Proposed Insight 8 proposes the basis of difference of marketplace communication to other social communications. Marketplace communication is unique due to its function and valuation. Its function is to *maintain value expectations* rather than *facilitating exchanges*. Its valuation is geared toward identifying both value and non-value, whereas the mainstream exchange models assume only positive values (Bagozzi, 1975b). Proposed Insight 9 is the direct consequence of Proposed Insight 7. It posits that a marketing system is homogeneous. Communication is social, and it is different to thoughts (psychic processes) and physical-biological reactions. The latter forces cannot directly determine marketing systems' structural operations. This closedness of meanings in marketing systems suggests that sustainability meanings cannot be operatively determined by resonances in the ecological habitat, the external environment. Psychic processes concerned with the environment are limited in terms of affecting the meaning of sustainability in marketing systems. This dynamism needs to be deeply examined. Proposed Insight 10 offers a self-referential definition of a marketing system, according to which a marketing system is accepted as the unity of difference between a marketing system and the environment. This definition suggests that a marketing system is constituted when communication affirms the difference between the system and the environment.

Table 4. Alternative Logic and Its Comparison to the Mechanistic View

Proposed Insights	Alternative Logic concepts	Respective mechanistic concepts
Proposed Insight 1: Marketing systems are a complex, interactive, non-linear, unpredictable, non-deducible, and non-aggregative whole that is better be understood rather than explained.	Non-linear, non-deducible, non-aggregative Whole Understanding	Linear, deductive, aggregative Fragmental Explanation

Proposed Insight 2. A marketing system is self-referential and the environment is enacted.	Self-reference Enactment	Third person reference Autonomy
Proposed Insight 3. Marketing systems are built of differences. The macro-micro paradox is resolved in self-differentiation through which the system reduces the complexity of the environment by a means of internal difference-making operations.	Difference Self-differentiation	Cause-effect relations Macro-micro problem
Proposed Insight 4. A marketing system constructs and references itself as a unity, and in the same way, it self-referentially constructs and observes its own environment as a unity.	Unity	Input-output schema
Proposed Insight 5. A marketing system is driven by true purposiveness rather than survival.	True purposiveness	Survival
Proposed Insight 6. A marketing system that can enact the environmental uncertainty into its own network of operations to a greater extent can possibly succeed in attaining sustainable existence.	Uncertainty	Predictability
Proposed Insight 7. Marketing systems consist of communications	Communication	Action
Proposed Insight 8. Communications within marketing systems are characterised by two factors: a) their unique function in society, which is represented in the maintenance of expectations of value acquisition through marketplace action; b) valuation, that is, the application of binary coding “value versus non-value” to each marketplace event.	Value expectations Binary coding	Exchanges Positive value
Proposed Insight 9. A marketing system consists of homogeneous elements which operate on a different level of meaning construction in comparison to thoughts (consciousness) and bio-physical substance interactions.	Homogeneous elements	Heterogeneous elements
Proposed Insight 10: A marketing system is the unity of difference between a marketing system and the environment depicted by marketplace communications	Unity of difference	System and environment are separate

Conceptualising the Hybrid Car Marketing System

A researcher can use the proposed alternative logic to conceptualise a particular marketing system. I use this logic to construct an alternative view on a hybrid car marketing system. The hybrid car marketing system is the unit of analysis in this investigation. According to the alternative systems logic, the hybrid car marketing system is a complex whole: it is neither the aggregation of exchanges nor that of agents, nor that of physical products. Its *meaning* must be interpreted rather than predicted in order to be understood in *verstehen* terms. Particularly, the hybrid car marketing system operates through communications of hybrid car manufacturers and users. The environment is constructed and given meaning in ongoing communicating among multiple parties. Specifically, the hybrid car marketing system is not conceptualised as consisting of individual agents (e.g. profit-maximising producers and utility-maximising users) who more or less have realised the value of common environmental welfare (this mechanistic view parallels the concept of the tragedy of commons) in using a green product. This pattern indicates a strange loop: micro accommodates macro which consists of micro. Instead, this investigation scrutinises how sustainability communication that is constructive of the hybrid car marketing system helps system agents to interpret the self as being different from the environment. I do not conceptualise the hybrid car marketing system as a mechanism that imports resources and exports benefits and externalities. Rather the system represents flows of meaning created in communications which form patterns in the background of societal relations among manufacturers, their extended value networks, consumers, and other stakeholders. I consider the hybrid car marketing system as a common relational context of two analytical domains: the subsystem of marketer communications and the subsystem of consumer communications. I stress it again: this system's elements are not individuals, but communications, whereas subsystems in themselves represent meta-communication.

Conclusion

Essentially, the tenets of the systems perspective do not rely only on rigid, technocratic, and quantitative methods, but also enable, and even require, a soft,

humanistic, social, and interpretive attitude. The general conceptualisations of marketing systems are flawed by their mechanistic rationality. This is demonstrated by the review of business, economics, and social sciences literature on marketing systems. In order to attain the viable systemic perspective, the alternative logic of marketing systems is proposed. This logic does not erroneously separate the system and the environment, but rather identifies one in terms of the other. This alternative frame of analysis can incorporate a sense of purposefulness, and this is nearer to humanistic, sustainable economic development than to inter-firm competitive advantage. This frame of analysis allows the researcher the possibility of positioning marketing systems at the “heart” of societal processes, and thus, creating a unique point of observation from which a previously unobservable side of system-environment dynamics can be observed. Surprisingly, the original ideas of GST are still underrepresented in the marketing discipline. This suggests that systems research is not at the stage of maturity, as it is commonly believed, but may still be at its starting point. This may be disappointing for some. However, on the other hand, it suggests a world of opportunities for ensuing systems research in the future.

Section III

Systeming: Interpreting marketing system communication

Introduction

In the preceding section, I proposed a loose conceptual logic that can provide unique insights into the relation between a marketing system and the environment. The alternative logic is used as a basis for conceptualisation of the hybrid car marketing system and reformulation of the guiding research problem. I argue that the concept of a sustainable marketing system can be understood through interpreting a marketing system's enactment of sustainability meanings. This argument is not a simplistic conjecture. It is grounded in a particular worldview, a set of interlinked assumptions about social and life events, discussed in this section. In this section, I review and synthesise a set of methodological and methodical principles which underlie original systems thinking. To differentiate this worldview from other perspectives, I have named it *systeming*.

This section introduces systeming as the philosophical, methodological, and methodical basis for *interpreting meanings of marketplace communications*. The discussion of systeming unfolds as follows. Foremost, the three levels of developing an interpretive basis are discussed. These levels are a) philosophy; b) an interpretive model; and c) interpretive procedures. Guiding assumptions behind the general philosophical background of systeming are initially discussed. Next a specific systeming model for interpreting market communications is derived from this broad set of assumptions. Then systeming is discussed as a method consisting of research-specific, contextually-unique research and interpretive procedures. The section concludes with the discussion of ethical considerations and research limitations.

Three Levels of Research Paradigm

Interpretation can be accomplished through application of different research paradigms that are based on implicit and/or explicit presuppositions about the world and the nature of knowledge (Bateson, 1979; Guba & Lincoln, 2005; Kuhn, 1962; Lincoln & Guba, 2003; Poerksen, 2004; Thompson, 1997; Thompson et al.,

1989). “What must the world be like in order that man may know it?” asks Thomas Kuhn (1962, p.173). He implies that one must be aware of various paradigms, especially, *general philosophical assumptions*, which guide scientific investigation (Lincoln & Guba, 2003). Thompson (1997) argued that the essence of doing interpretation could not simply be reduced to the implementation of a particular method: rather the researcher must be aware of fundamental presuppositions implicit in a perspective taken. Bateson (1979) maintains that a general worldview as a set of linked presuppositions represents a tautological domain of knowledge generation. He argues that the results of interpretation are potentially incorporated within meaningful relations among underlying presuppositions. Consequently, a research process – a transformation of presuppositions into conclusions – does not create “new” information per se; rather it offers an anticipated “different” understanding of a problem. The “unexpected novelties” are hardly ever created (Kuhn, 1962, p.35). A researcher who is aware of this *systemic nature* of the research process has an advantage of understanding a broad range of perspectives (Anderson, 1983; Bateson, 1991). The systemic nature of the research process is rooted in its recursivity. If the researcher understands a whole of recursive operations, he may be able to distinguish it from other recursive wholes, i.e. research paradigms. This is the essence of relativism (Anderson, 1983). The relativist researcher is not bound within a single paradigm. He understands the limiting character of recursivity, and therefore, does not contend to discover “truths” only. Moreover, a distinct perspective (i.e. the system of logically linked views) is about activating subtle shifts in the underlying assumptions of traditional perspectives (Denzin & Lincoln, 2005; Lincoln & Guba, 2003; Thompson et al., 1989; Wittgenstein, 1963). Accordingly, systeming in this investigation can be described as *a set of shifts* away from the traditional and orthodox scientific assumptions. Bateson (1979) notes that researchers take for granted a single worldview to represent the reality. Bateson quotes Alfred Korzybski who argued that a map is not the territory, various versions of the map can be constructed on the same territory. Hence, we can only know about the world through our interpretation (Fay, 1990; Weick, 2001).

There is no one best map of a particular terrain. For any terrain there will be indefinite number of useful maps, a function of the indefinite levels and kinds of description of the

terrain itself, as well as the indefinite number of modes of representation and uses to which they can be put. (Fay, 1990, p.37)

It is in human nature to observe life events in a mapped, ordered, and logical manner (Luhmann, 1995). However, the same social event may be observed, ordered, and described in many different ways, which create diverse “crystallisations” within which social life events and experiences appear in a uniquely meaningful form (Denzin & Lincoln, 2005; Janesick, 2003). This suggests that various interpretations are directed at the same complex “interpreted” (what name it may be), which accommodates *contradictions* along with commonalities if looked at from different perspectives. The research process can then be taken as a system that is directed at a *logical reduction* of contradictory complexity. In other words, a research paradigm is a single *solution* out of the possible *many*, which logically order complex and chaotic social events. Contradictions become visible when self-reference of perspectives is addressed (Hofstadter, 1979). A logical question would be to ask if a research perspective can be applied to the analysis of the self. How positivist is positivist research? This is a point of the relativist critique of positivism (Anderson, 1983). If positivism orders everything in the world as either truth or falsity, can it evaluate the self, a research paradigm as a world phenomenon, as true or false? Must then positivism be always “true” in order to be operated on the part of researchers? The same logic applies to other perspectives too. How relativist is relativism (Hunt, 2003)? How tolerant and open is post-modernism in itself (Brown, 1995)? Following the same logic, one can ask how systemic is systeming? This suggests that systeming must be able to scrutinise itself as the system of knowledge generation (Bateson, 1991; Luhmann, 1995).

Here, systeming is presented in terms of the three levels of description suggested by Morgan (1980). Thompson (1997) successfully used this straightforward approach in ordering the presentation of the hermeneutical framework for deriving meaning from consumer narratives. In a similar vein, I first discuss the philosophy of systeming. Second, I develop a systeming model for interpreting marketing communications and discuss major differences and similarities of the model in respect to the Cartesian, mechanical systems, and existential-phenomenology

models. Finally, I discuss specific procedures through which systeming interpretation is accomplished.

Systeming Philosophy

Systeming draws from research on the systemic nature of observation and operation in physical, biological, social, linguistic, and even logical entities (Bateson, 1979, 1991; Eve et al., 1997; Luhmann, 1995, 2006; Maturana, 1981; Maturana & Varela, 1992; Peitgen et al., 2004; Varela, Thompson, & Rosch, 1991; von Bertalanffy, 1950; von Foerster, 2003; Wittgenstein, 1963). In fact, systems-as-concept is one of the most exploited concepts in the academic research across diverse fields. This concept comes to represent a broad range of phenomena such as a physical mechanism (Boulding, 1956), a cell or a biological organism (Maturana & Varela, 1992), an individual and his mental structures (Capra, 1997; Varela et al., 1991; von Foerster, 2003), an organisation or a company (Daft & Weick, 1984; Dowling, 1983; Reidenbach & Oliva, 1981), social organisation (Taylor, 2006; Vickers, 1983), a formalised body of knowledge (Hofstadter, 1979; Whitehead & Russell, 1927), culture (Bateson, 1991), language (Wittgenstein, 1963), and interactive behaviour (Alderson, 1964; Bateson, 1979; Varey, 2002b).

The systeming worldview can be explained by attending to several issues which confront each research paradigm (Lincoln & Guba, 2003). The major issues are ontology, epistemology, and methodology. Also, there are a number of practical issues (e.g. inquiry aim, nature of knowledge, knowledge accumulation, goodness or quality criteria, ethics, voice, training, accommodation, and hegemony), which are to be evaluated in respect to the position of systeming among other research paradigms (Guba & Lincoln, 2005; Lincoln & Guba, 2003). These aspects of systeming are discussed based on the contributions of the several prominent authors, namely Luhmann (1995), von Foerster (2003), Maturana and Varela (1992), Spencer-Brown (1969), von Bertalanffy (1950), Bateson (1979), and Hofstadter (1979). The major axioms derived from this synthesis are presented in Table 5 in comparison to the axioms of other perspectives, which have been described by Guba and Lincoln (2005).

Table 5. Metaphysics of Alternative Inquiry Paradigms

<i>Item</i>	<i>Positivism (P), Postpositivism(PP)</i>	<i>Critical Theory</i>	<i>Constructivism</i>	<i>Systeming</i>
<i>Ontology</i>	P: naïve realism PP: critical realism	historical realism	relativism	systemism
<i>Epistemology</i>	P: dualist/ objectivist; findings true PP: modified dualist/ objectivist; critical tradition	transactional/ subjectivist; value-mediated findings	transactional/ subjectivist; created findings	relational/ systemist; enacted findings
<i>Methodology</i>	P: experimental/ manipulative; verification of hypotheses; quantitative methods PP: modified experimental/ manipulative; critical multiplism; falsification of hypotheses	dialogic/dialectic al	hermeneutical/ dialectical	second-order observation
<i>Inquiry aim</i>	explanation: prediction and control	critique and transformation: restitution and emancipation	understanding: reconstruction	distinguishing: systems transcendence
<i>Nature of knowledge</i>	P: verified hypotheses established as facts and laws PP: nonfalsified hypotheses are probable facts and laws	structural/ historical insights	individual and collective reconstructions coalescing around consensus	knowledge of self- reference
<i>Knowledge accumulation</i>	accretion – “building blocks” adding to “edifice of knowledge”; generalisations and cause- effect linkages	historical revisionism; generalisation by similarity	more informed and sophisticated reconstructions; vicarious experience	wisdom; self scrutiny
<i>Goodness or quality criteria</i>	internal and external validity, reliability, and objectivity	historical situatedness; erosion of ignorance and misapprehension; action stimulus	trustworthiness and authenticity	inter-system coherence; enabling; knowledge redundancy; aesthetic seduction paradoxicality
<i>Role of values</i>	excluded – influence denied	included – formative		
<i>Ethics</i>	extrinsic; tilt toward deception	intrinsic; moral tilt toward revelation	intrinsic; process tilt toward revelation; special problems	existential; tilt toward attraction
<i>Voice</i>	“disinterested scientist” as informer of decision makers, policy makers, and change agents	“transformative intellectual” as advocate and activist	“passionate participant” as facilitator of multivoice reconstruction	“inquiry system” as the enactor of changes in other systems

Source: adapted from Guba and Lincoln, 2005

Although the major paradigmatic issues are helpful in describing a research paradigm, systeming does not easily fit into these frames of description. This may

be because of a tendency towards looking at any issue through macro-lenses. For example, systeming refuses to participate in the “realist-relativist” discussion on the *nature* of things. This kind of discussion limits thought patterns into predefined paths, which represent the operations of observers with a certain purpose. Von Foerster (2003) notes that if a statement is deemed irrelevant, its negation must also be irrelevant. This argumentation conveys a typical systemic pattern of thinking. This is based on the idea that “p” (idea, axiom, thought) and “non-p” are equivalent, and that they make up a common tautological system (Wittgenstein, 1963). Therefore, in the systeming space, the realist-relativist discussion is considered as a recursive system, while the systeming perspective offers another “system”, a set of lenses, to consider the issue.

Ontology

Systeming delineates the world as the complex of relations that comes into existence in intra- and inter-system spaces. It is assumed that only the holistic systemic mode of *operating-in-being* makes apprehension of various realities possible. Yet this apprehension is a simplified version of the *unknown* that is being apprehended. This approach, which I call “systemism”, is based on the idea that a reality is the product of the totality of changes which are uniquely enacted within a system. The “world” comes forth (Maturana & Varela, 1992), computed (von Foerster, 2003), differentiated (Bateson, 1979), severed (Fichte, 1970; Spencer-Brown, 1969), distinctioned (Luhmann, 1995), invented (von Foerster & Poerksen, 2001) through interactions among system elements. Although the essence of a systemic element is not determinate in these various views, it is the unity of relations and differences among these elements that brings forth a world in its complexity of various forms (Bateson, 1979; Spencer-Brown, 1969). The elements create differences, and these differences create *the difference* (Bateson, 1979). This meta-difference is deemed to be the essence of a reality.

In contrast, *positivism* postulates the existence of real objects, while relations among them are considered to be a consequence of their reality. Systemism takes *relations* rather than real entities to be the primary bases of systemic realities. Accordingly, the object is not an object per se; it is rendered entitative via unique *relational positioning* in reference to related entities within a common system

(Angyal, 1969). A systemic entity is deemed meaningful in difference, namely when it is positioned in the background of other entities. In contrast, *constructivism* recognises the role of individual consciousnesses in constructing global and local realities. Constructivism holds that multiple realities can be constructed in interactions between a) individual minds; b) individual minds and objects. This idea underlies the concept of co-created realities (Guba & Lincoln, 2005). Although systemism generally concurs with the concept, its perspective is broader in scope than the concept of co-creation because (1) systemism assumes that a co-created reality is brought forth not only among individuals, and essentially their consciousnesses, but also among the various forms of being (e.g. parts of cells, organisms, organisations, theories, languages, logic etc.); (2) co-creative interaction occurs within the system's context; the system becomes meaningful in relation to other systems, rather than being meaningful in itself; (3) higher-order, meta-interactions among local co-creative interactions are also considered; (4) it is maintained that a reality reflected within the system is just one of many trivial pictures of complexity that is reflected by many other parallel and non-parallel systems at the same time.

Systeming neither confirms nor ignores the existence of the "real" reality. In this sense, it manoeuvres in relation to two "chimeras" of ontological assumptions: realism and solipsism (Maturana & Varela, 1992). Realism accepts the existence of the "real" reality which can be apprehended, while the weaker notions of realism (in the case of postpositivism and critical theory) maintain that the nature of the reality depends on the extent of perfection of inquiry tools and values. Solipsism is the claim that everything is the product of mind (Poerksen, 2004). If naïve realism and solipsism are taken as the extreme points in an imagined ontological continuum, constructivism may occupy the middle point with the view of created and co-created local realities. Some systems researchers tend to identify themselves as radical constructivists, thus suggesting a position for systems thinking in between constructivism and solipsism (von Glasersfeld, 1995). However, other systeming gurus posit the question differently. They argue that mapping the perspective onto the ontological map makes this perspective vulnerable to "the doctrine of ontological existents", which is about steering a discussion into the assumption of outer-world existence (von Foerster &

Poerksen, 2001, p.26). The formulas such as “it is...”, “this is...”, “there is...” are thought to denote the “real reality”, while systems thinking re-directs the attention to the contrived, contingent, non-trivial, and existential realities about which only systems can enact something, if anything. Systeming approaches both relativism (the rejection of realism) and realism (the rejection of relativism) indifferently, as both options imply relating, and thus constructing the self, in reference to other parallel paradigms. Therefore, the realism-relativism debate in itself becomes a meta-system from which systeming disassociates itself. Participating and taking sides would mean that systeming becomes a part of the “ontological existent” doctrine. Instead, systeming accepts that a reality becomes equated to communing as a unity (system), especially, acting and existing in harmonised *communing* (von Foerster, 2003).

However, systemism is linked with constructivism in many aspects. For instance, for both perspectives, *antiessentialism* is a main characteristic (Schwandt, 1994). Accordingly, the world is not composed of preexisting *facts*. Instead, they are “the product of complicated discursive practices” (Schwandt, 1994, p.125). However, differing from constructivism, systemism maintains that *the essential* is either *brought forth* or *dissolved* depending on a switch in existential intentionality toward relevant systems. Perhaps the fundamental uniqueness of systemism is that it stresses the difference of systems from the environment. Systemism emphasises that the facts of the world are the product of systems-in-operation, while the world stands for a reality created within the system. The reality outside the system, the environment, is complexity, chaos, noise, a set of *difference-creating-perturbations*, the nature of which is objectively impenetrable, but can be systematically probed:

...this should not come as a surprise, for indeed “out there” there is no light and no color, there are only electromagnetic waves; “out there” there is no sound and no music, there only periodic variations of the air pressure; “out there” there is no heat and no cold, there are only moving molecules with more or less mean kinetic energy, and so on. Finally, for sure, “out there” there is no pain. (von Foerster, 2003, p.215)

This statement is constructed with the view of a cognitive apparatus of a human being accepted as a system. The author could not avoid terms such as “there are”

here, which perhaps is not the indication of realistic assumptions, but the manifestation of a limited capacity of the language to deliver *systeming* meanings. Here, systeming meaning is delivered through the use of realistic expressions. Thus, *the reality* is transformed into *a reality*. In other words, *impenetrable complexity* is transformed into a *descriptive reflection* of the reality enacted in and by a system. Analogously, Luhmann (1995) argues that social realities are co-constructed and reduced from complexity through communications, which form social systems. In the same vein, Bateson (1979, 1991) argues that any live phenomenon is co-constructed, and thus comes into existence out of chaos through differences which make a difference. In parallel, Maturana and Varela (1992) argue that a biological reality comes forth in autopoietic unities, which create their relations as autopoietic unities. In any of these cases, events are observed is an enactment on the part of a system, which draws on many available potential directions in interpreting complexity (Daft & Weick, 1984). A constructed reality is multilayered, that is, it comprises the interpretation of interpretations, and even higher levels of logical ordering such as the interpretation of interpretation of interpretations (Hofstadter, 1979). In this sense, there is nothing, but computation, concerted contemplation, and interpretation by systems (von Foerster, 2003).

Epistemology

It is somewhat limiting to analyse systeming by the means of conventional categories such as subject, object, and the process of knowing, when the perspective refuses to talk this type of language (Poerksen, 2004). Under systeming, knowing is not considered to be dualistic and static which symbolise that a subject passively accepts information about an object. Neither is it *transactional*, which means that a subject and an object interact to create information. Knowing is seen as acting. A system “knows” when it is able to operate and maintain its unity (Maturana & Varela, 1992). In other words, knowing is *existential*, it is a mode of being. Systems do not *transact* with each other, or with the environment. They *enact* information through relating themselves to changes in other systems. Systems are sensitive to a difference in the environment. However, this difference does not cause a linear difference within the system, rather it triggers the whole system of differences-causing-

differences (Bateson, 1979). Knowing then becomes the complex operation of a system that brings forth a reality, which is only relevant to this system and is a result of relation to other systems. Knowing requires relation, therefore it is *relational*. The *relation* triggers a closed network of operations and computations within a system, so systemic knowing is both relative (subjectivist) and autonomous (objectivist) at the same time. I name this view a *systemist epistemology*. This epistemology is based on the difference between two theories: the *confirmation theory* and the *correlation theory* (von Foerster, 2003). The confirmation theory postulates the reality is intersubjectively certifiable, i.e. in naïve terms, an individual confirms the hunch of another one that *this object* really is *this* object (Hunt, 1993). Constructivism, and in general, relativism, recognises various limits to the possibility of an inter-subjective verifiability of phenomena (Anderson, 1983). The systeming framework offers the correlation theory, that holds that a system, *in correlation* to other systems, generates an experience, which allows the system to delineate an object, and invent the object's character in action (von Foerster, 2003).

What is the result of knowing? Here again the distinction “true/not true” is rejected. The traditional philosophy of truth is based on the correspondence between thought and being (Hunt, 2003). The systeming perspective refuses to participate in the discussion about the extent of correspondence of cognitive maps to the something objectively ideal, such as “the territory” (Bateson, 1979; von Foerster & Poerksen, 2001). Rather an emphasis is shifted toward analysing the *consequences* of knowledge operations. The *consequence* theory of epistemology proclaims that one needs to be aware of the implications of enforcing a systemic enactment as the only “true” enactment. The truth is considered to be the “invention of a liar”, who precipitates “truth wars” in order to convert others to his/her point of view, the process of which has disastrous consequences to humanity in general (von Foerster & Poerksen, 2001, p.30). The system must be aware of a number of options in enacting a reality, and act in harmony in relation to other enacted realities.

Methodology

According to logical positivism, universal statements (hypotheses) are accepted as being true if they can be verified through empirical tests (Anderson, 1983). Later, the principle of verification has been changed into that of gradual confirmation (logical empiricism). Popper (1962) argued for falsificationism, which is underlined by the process of “conjectures and refutations” (p.46). It is assumed that universal claims should be tentatively accepted, if they cannot be falsified by empirical tests and experiments. What is implicit in this idea is that the explanatory statements based on causal and deductive hypotheses would be able to address any kind of research problem. This is refuted by systeming (von Foerster, 2003). The refutation proceeds by asking a simple question about whether falsificationism can falsify itself. In other words, what is the capacity of the approach to see its blind spot? Accepting that positivism and postpositivism are based on logical explanations, certain problems and phenomena would not be seen, because they cannot be explained logically (e.g. self-referential recursivity). Thus, this set of methods cannot address their own blindness. This is called “second-order deficiency” (von Foerster, 2003, p.284). Similarly, it is argued that mechanical methods create trivial worlds, problems, and corresponding solutions. The solutions to trivial problems might not be germane to the essence of social life, which might be full of contradictions, paradoxes, and illogicalities (Bateson, 1979; Luhmann, 1989, 1995; von Foerster, 2003).

Systeming is guided by a method that allows for *second-order observation*. What is the second-order observation? It is to observe an observing system (Luhmann, 1995; von Foerster, 2003). Systems do first-order observation. The researcher observes this observation. Von Foerster (2003) argues that systeming does not pose a question of whether the properties of an observer *should enter* (or not enter) the interpretation of observation. Is relevant knowledge objective or subjective? Subjectivists and their opposition, objectivists, are seen to be immersed into a trivial discussion. Instead, an alternative question would query the properties of a first-order observer (von Foerster, 2003). A system observes the self, and produces information on its own properties when it operates (Luhmann, 1995; Maturana & Varela, 1992). In this sense, operation is self-observation. So, in systeming, the properties, motives, and character of self-

observing systems are studied. Thus, it can be concluded that the second-order observation is the observation of systems' self-observation.

Practical Issues

Research goals. Foremost, a *research inquiry's aim and goals* are addressed when comparing various research paradigms (Guba & Lincoln, 2005). The positivist strives to develop an explanation that accounts for observed differences in the states of phenomena. These explanations are considered to be universally true, and utilised in predicting and approximating the future perturbations. The critical theory's goal is to critique imbalances in social interactions, and transform the current situation into a better one. Differing from this, the constructivist approach is to develop empathic understanding of the underlying meanings, motives, culture, and language in human behaviour (Hudson & Ozanne, 1988). A positivistic explanation is about discovering generalisations, while a constructivist understanding is an ongoing project of interpretations, and re-interpretations. Positivists would see a rational understanding as a result of inquiry, while constructivists would see it as a process (Hirschman, 1986; Hudson & Ozanne, 1988). Yet again, systeming considers the explanation-understanding discussion to be the self-referring reduction of complexity. In contrast, systeming's overriding goal is to distinguish systems, their self-reference, and operations. Once one is able to construct a system and its privileged operational patterns, then one will be able to see the blind spots of these systems. One will also see the operations of alternative systems. The purpose is to distinguish the systemic patterns of social life, living experiences and practices, and suggest the ways of improving a systemic existence. So transcendence beyond the grips of a single "dogmatic" systemic operation is emphasised. The transcendence is systems transcendence. An agent is a researcher, who relates the self to various systems, thereby transcending the frames of a dominant one thus increasing the options and possibilities of action for the self (von Foerster & Poerksen, 2001). The assumption here is that people's actions are implicated in certain dogmatic systems, which are often taken for granted. Bateson (1991) explains how actions, thoughts, rituals, and social routines become ingrained into a purposeful structure of systems. They transform from "software", contingent actions, into "hardware",

the identity of a system, that is, they turn rigid. They become dogmas, the existence of which is deemed necessary and natural. This is called the paradox of evolution. Evolution here means development in a general sense rather than simply a biological progress. A system survives because of a trait (quality) privileged by selection. However, by the time a continuous emphasis on this trait makes the system inflexible, the trait is moved from an operational level to a meta-level (Bateson, 1991). For instance, in biological organisms, a trait shifts from adaptive behaviour to DNA structures, whereas in social organisations, it moves from actions to rituals and dogmas. All in all, systeming is directed towards detecting entrenched, dogmatic systemic operations, and suggesting ways to transcend dogmatism in operations.

The nature of knowledge. Another practical issue is the *nature of knowledge* (Guba & Lincoln, 2005). Systeming provides the knowledge of self-reference (Luhmann, 1995). Self-reference is recognised when observation shows that systems include themselves into what they indicate by operations. The self-reference is considered to be the “destroyer” of a common linear logic (Hofstadter, 1979; Whitehead & Russell, 1927). As any first-order (positivism, constructivism, critical theory) observation is predominantly based on developing logical descriptions, the illogicality (self-reference) tends to be systematically removed within these frames of thinking (Luhmann, 1995). A self-referential insight into social action is simply non-existent in such research paradigms, except when it is attributed to the consciousness of “subjects” (Thompson et al., 1989; Thompson et al., 1990). However, everything, including phenomenological consciousness, needs to be richly described through narration and language. Considering that the narrative is about ordering the universe and experiences (Polkinghorne, 1988), the fact of self-reference is left out of argumentation as it represents a case of disorder. Moreover, social systems and their self-referential nature are less likely to be conveyed through the analysis of the mental structures of individuals:

The social cannot be entirely reduced to individual consciousness. It neither enters completely into consciousness, nor can it be interpreted as the adding up of the conscious contents of different individuals, nor is it the reduction of the contents of consciousness to the domain of consensus. The experience of the social, and even more so its practical

activation in nexuses of social meaning, always begins from this nonreducibility. Because of this one can, for example, deceive or fear being deceived, hold back information, communicate in an intentionally ambiguous way, or generally know the meaning of ignorance. This is how temporal difference in different persons' states of information is relevant and how communication is possible. The experience of the nonreducibility of the social helps constitute the social. It is nothing more than the experience of the self-reference of the social. (Luhmann, 1995, p.438).

Self-reference is a social and relational phenomenon. It is at the core of existing and operating socially (Bateson, 1979, 1991). Although the linear ordering of experiences fail to communicate meaningfully the essence of self-reference in systems, several systeming analytical tools, such as the qualitative calculus (Spencer-Brown, 1969), the calculus for self-reference (Varela, 1975), and the inclusion-representation schema (Hofstadter, 1979) deal with the issue. Nevertheless, when one attempts to express the self-reference in narration, one must face the paradoxicality of meaning-creation. In consequence, the knowledge of self-reference is relegated from mainstream research which became the locus of linear logic construction (Hofstadter, 1979). The systeming analysis, instead, may put the self-reference back into the analysis of social structures.

In the positivistic paradigm, the knowledge is assumed to be accumulated through gradual contribution to the edifice of knowledge (Guba & Lincoln, 2005). It is assumed that knowledge constitutes a set of real representations of the world, while "gaps" in this kind of representational "mosaic" continually need to be filled by new research. In contrast, knowledge is less "real" in the constructivist paradigm, and it is assumed to be enhanced through improvements in the extent of creativity and viability of local/social constructions. Hence, enhanced sophistication and flexibility in constructing the world according to socio-cultural contexts is thought to be a substantial contribution to a body of knowledge (Guba & Lincoln, 2005). The review of literature on systeming indicates that this perspective encourages *the knower* to the increase in acuity and the accumulation of experience regarding a) the acts of *relating* in a *context* of relations; b) *self-reference*; c) *blind spots* and rigid action *frames* in operating and communicating; d) the *ethical* consequences of communication; e) *macro-micro* and logical typing transformation; f) systems *transcendence*; and g) *complexity* of the environment (Hofstadter, 1979). I maintain that these concepts can be summarised in a single

concept – wisdom. In systeming, the accumulation of knowledge is about attaining a relevant wisdom of life (Salk, 1973; Surowiecki, 2004; Weick, 1979). However, wisdom is a very complex concept (Baltes & Staudinger, 2000; Kadirov & Varey, 2005; Small, 2004; Sternberg & Jordan, 2005). Five aspects relate wisdom to systeming. First, self-reference has long been considered to be a basis of knowledge for wise people and philosophers since the rise of ancient Hellenic, Eastern, and Middle Eastern cultures (Luhmann, 1989). Second, wisdom is seen to be about being mindful of the fundamental uncertainty and complexity in the world (Baltes & Staudinger, 1996; Weick, 1979). Third, research indicates that evolutionary dynamics, natural and social selection trends, and survival odds appear to privilege systems with *wise* rather than linear adaptational structures (Bateson, 1991; Salk, 1973). Fourth, not only procedural and substantive knowledge generated intra-systems, but also the knowledge of contexts, logical levels, and forms constructed in inter-systems is considered to be an aspect of wisdom (Ardelt, 2004; Hofstadter, 1979; Kunzmann & Baltes, 2003; Sternberg & Jordan, 2005). Fifth, systeming opposes mechanical, Newtonian, and Cartesian constructions, and in this, it is identical to the *wisdom versus rationalism* debate (Bateson, 1979; Luhmann, 1989, 2002). Finally, systeming is inherently ethical, as it re-instates self-responsibility in making choices. Any action, be it morally negative or positive, is the self-referential operation of a particular system. Systeming avoids the attribution of problems to other parties. Thus, virtues and vices are considered to be relational, systemic, and not fixed in individuals (Bateson, 1991; Luhmann, 1989; von Foerster & Poerksen, 2001).

Quality criteria. The next practical issue that needs to be considered is the *goodness or quality criteria* of the paradigm (Guba & Lincoln, 2005). Several questions need to be answered in this respect. They are:

1. How do we know whether to have confidence in the findings?
2. How do we know the degree to which the findings apply in other contexts?
3. How do we know the findings would be repeated if the study could be replicated in essentially the same way?
4. How do we know the degree to which the findings emerge from the context and the respondents and not solely from the researcher (Lincoln & Guba, 1985)?

The positivist perspective offers the criteria of internal validity, external validity, reliability, and objectivity, respectively, to answer these questions. The relevant criteria proposed by constructivism are credibility, transferability, dependability, and conformability (Wallendorf & Belk, 1989).

In systeming, the first criterion that parallels the notions of internal validity and credibility is *inter-system coherence* (Poerksen, 2004). Intersystem coherence refers to the extent to which systemic realities are coherently enacted within a research project that is a system in itself. The relation between systems under research focus and a research system represents *inter-systemic interaction*, and both are closed in their self-referentiality (Luhmann, 1995). Hence, these systems pose complexity to each other. A researcher can deal neither with point-to-point enactment, which parallels with the concept of internal validity, nor with the aggregates of enactments, which parallels achieving credibility by a means of representing the social through the analysis of discrete consciousnesses. Creative transformation within the research system is expected, through which the aspects of systems under focus are transformed into a set of a researcher's interrelated views. How can adequacy in this *system interpenetration* (Luhmann, 1995) be assured in this case? Several issues must be attended:

- a) a research issue is to be analysed in the intersection of several systems rather than a single system, the process which would enable the confirmation of the extent to which the issue is deemed meaningful to the systems under focus;
- b) the research system is to be kept passive, so it does not enforce its own distinctions to the systems under the study;
- c) the complexity of studied systems is to be reduced to holistic structures rather than cause-effect fractions;
- d) the created (enacted) knowledge is to allow the system to continue its autopoiesis; the research system must maintain its continuation.

Regarding the last point in the list, the concept of systemic "rightness and adoption" can also be proposed (Goodman, 1984). Rightness is a broader concept than validity, and refers to the act of "fitting into a context or discourse or

standing complex of other symbols” (p.158). Consequently, the systemic rightness of insights created by an investigation can be judged according to their “fitting and working” in the context of the systems under focus (Goodman, 1984, p. 158). Adoption means the acceptance of systemic operations as a research starting point. Accordingly, initial systemic constructions (e.g. concepts, routines, and processes) are adopted as a stepping stone into the analysis. Then emergent conceptualisation is assessed “not in order to arrive at truth about something already made but in order to make something right – to construct something that works cognitively, that fits together and handles new cases, that may implement further inquiry and invention” (Goodman, 1984, p.163).

Another criterion to assess the goodness of generated insights is the *measure of enabling*. The knowledge of systems is to be assessed according to the extent to which it enables enlightened operation, i.e. action with a bigger “degree of freedom”. In this sense, von Foerster (2003) suggests that acting, the researcher’s operation, should increase the number of options for others. Knowledge should not limit, rather it should emancipate action from the grip of dominant systems. However, knowledge is simply a suggestion to act, the illumination of alternative paths. It is not a claim for truth and enforcement along this valid essence. Therefore, it is assumed that enlightenment is attained when generated insights shed light on the extensive range of available options of acting within the systems, which otherwise remain unseen. Knowledge is acting and living (von Glasersfeld, 1995) that communicates ways to circumvent the myopic nature of the systems. The potential to accomplish such tasks is what is assessed.

The issue of applicability of findings in other contexts is resolved through assessing *knowledge redundancy* in systeming (Luhmann, 1995; von Foerster, 2003). The objective is to construct and enact the conceptual forms of recursive dynamics, which apply to systems, a) at the same level; b) at sub-levels; and c) at supra-levels. For instance, if a particular social interaction is fitted into a certain conceptual model, then the applicability of this model to other contexts of interactions needs to be assessed. Also, the same construction may be applied to the interaction of the contexts of interactions, i.e. a meta-level (Peitgen et al., 2004). What is applicable at sub-systems (individuals) may also be applicable to

supra-level systems, i.e. interactions and the interaction of interactions. The extent of knowledge redundancy shows how a conceptual model can separately describe the system, its elements, subsystems, and the environment at the same time. The model would represent a *fractal* which is the same pattern seen regardless of zooming in and out of systemic structures (Peitgen et al., 2004).

The third question of replicability of research findings presupposes positivistic values. The emergence and contingency of the research system is less likely to be repeated in an exact manner. However, generated wisdom is not a substantive knowledge. It is an ephemeral feeling of aesthetic rightness. Maturana and Varela (1980) discuss *aesthetic seduction*. The manner in which to arrive at systemic insights cannot be transferred. Each researcher has to discover “systems” for themselves:

The ultimate truth (premise) on which a man bases his rational conduct is necessarily subordinated to his personal experience and appears as an act of choice expressing a preference that cannot be transferred rationally; accordingly, the alternative to reason, as a source for a universal system of values, is *aesthetic seduction* in favor of a frame of reference specifically designed to comply with his desires (and not his needs) and defining the functions to be satisfied by the world (cultural and material) in which he wants to live. (Maturana & Varela, 1980, p.58)

The fourth question in regard to objectivity is taken to be inadequate within systeming. This is based on the impossibility (nonsensicality) of the dynamics “subjective versus objective” in the systems paradigm (von Foerster, 2003). The researcher will never be able to create (enact) *the social* by being confined to his/her mental structures only (Varela et al., 1991). Any research proposition is the enactment of a system, in which the researcher situates him/herself socially. Maturana and Varela (1992) argue that “anything said is said by an observer”, while von Foerster (2003) adds that “anything said is said to an observer” (p.283). In systeming, the observer is a social system that observes the self. So the result of observation is neither subjective nor objective. In contrast, it is an active state of being and acting, bringing forth the world, on the part of the system, which reduces the complexity of the environmental challenges it faces. Moreover, this last issue is the direct consequence of the first one, systemic coherence, so the

quality of the process depends on the extent to which the research system is able to enact differences in the systems under inquiry.

The role of values. The next practical issue that needs to be considered is the *role of values in inquiry*. The positivist and postpositivist paradigms are based on the claims of being “value free” (Guba & Lincoln, 1994), while the critical and constructivist theories stress the central role of values in research. The systeming perspective once again disassociates itself from “value/no value” debate through the observation of the paradoxicality of valuing. The guiding question asks how valuable the operation of valuing/no valuing is. The observer rather than an operation is observed which represents a second-order observation. For instance, the consequences of dogmatic attitudes to truth/falsity may be observed or the extent of morality of bad/good distinctions may be judged. It is argued that the observer can never be able to remove the self and his/her discriminating valuations from his/her observations, while anything communicated tells a great deal about the observer and his/her values (self-reference) rather than about the outer reality. However, the directions of valuation are not taken as indispensable, fundamental, and natural, as in the constructivist paradigm, but very contingent and paradoxical. The meaning of values arises from the unity of difference. Both good and bad are not apprehensible without their relation to each other. Value is specifically fitted to the system’s purpose. Thus, systeming calls for awareness of the valuation of valuing operations.

Ethics. Ethics is external to the positivist and postpositivist paradigms, whereas it is intrinsic to the critical and constructivist paradigms (Guba & Lincoln, 1994). This stems from settings that an inquiry process is controlled by external procedures in the former case, while in the latter case, the inquirer’s values are intertwined with the inquiry process. In systeming, ethics is existential. The inquiry process is an ethical endeavour in itself, while acting ethically represents an inquiry into systemic meanings. The researcher’s action can be considered as an attempt to disentangle his/her ethical existence within the network of systems. The inquiry process culminates at a total self-critique of the system, while abandoning other-critique that is, attributing problems to other parties. The responsibility of making action and inquiry choices is fully recognised by the

researcher, while this attitude is hoped to be extended to others through aesthetic seduction. There is an existential tilt toward persuasion that the inquiry become an exemplary in understanding and living in the world rather than deceptive, as it is in positivism, or revelatory, as in constructivism.

Inquirer's voice. The *character of "voice"* reflected in the researcher's actions is also one of the main practical issues (Guba & Lincoln, 1994, 2005). The positivist and postpositivist paradigms stress the voice of a "disinterested scientist" who informs other interested parties on problems and solutions. A critical theorist is a "transformative intellectual", whereas the constructivist is "passionate participant" who facilitates the construction and re-construction of various realities (Guba & Lincoln, 2005). In systeming, the voice stands for an "inquiry system" that enacts changes and perturbations in other systems. The inquiry system is a result of interaction between the researcher's contexts of living (e.g. education history, background, attitude, concepts, academic community, and so on) and the existential contexts of systems under investigation.

Systeming Model

Thus far I have discussed the main philosophical assumptions that underlie systeming. However, the description of these assumptions is not sufficient in itself for the purpose of interpretation. Therefore, a specific interpretive model needs to be developed. In this part, a systeming model for interpreting communicative meanings is introduced. I discuss major differences and similarities of the model in respect to other interpretive models, namely Cartesian, mechanical systems, and existential-phenomenology.

Unity

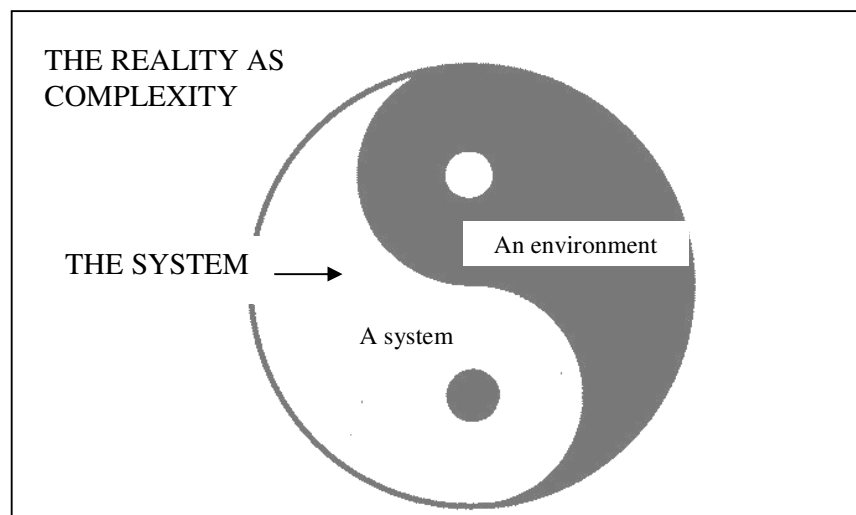
Systeming emphasises a *system* rather than an *individual* as an agent of operation and observation. In other words, the system is "personified" (Bateson, 1991; Luhmann, 1995; Taylor, 2006). Although there could be no doubt that social systems and organisations cannot operate without human beings (Poerksen, 2004; Varela et al., 1991), some researchers argue that the basic element of the system is not necessarily an individual. Especially, the social character of phenomena is not

directly linked to discrete psychic and mental structures (Baecker, 2006, 1999; Luhmann, 1995; Seidl & Becker, 2006). This stems from the fact that a human being can become the hub of many systems, namely psychological, biological, physical, and social (Luhmann, 1995). Accordingly, there exists a certain tension in defining the *social* as opposed to the *individual* nature of systemic elements. Although the complexity of social dynamics, which emerges at a supra-level from individual interaction at a sub-level, is recognised by many researchers as the defining characteristic of social systems, this, nonetheless, is considered from the perspective of an individual, who is somehow taken for granted in referencing a social whole (Kleine III & Kleine, 2000; Reed II, 2002; Reed II & Bolton, 2005; Thompson, 1997). The essence of this problematic is depicted by Bagozzi (2000, p.388), when he points out that it is “the social side of consumption” that is predominantly neglected by marketing research. The systeming analysis is based on the view that intrinsic psychological processes are less likely to reveal the full extent of the contingent nature of social events (Juarrero, 1999; Parsons, 1977).

Systeming is based on the concept of self-differentiation. It is argued that the system is *the unity of difference* between the system and the environment (Luhmann, 1995, 2006). This definition is built on two premises: a) systems come into existence through differentiation (distinction employment); b) systems are self-referential (Capra, 1997; Schaefer, 2005). The occurrence of the term “system” in the definition is deliberate, as the emphasis is on difference rather than substance. Thus, systeming accepts a unique angle to observation through focusing on the unity of the difference and potentiality of communicative actions within the relevant environment. The emphasis is on the perturbations of a systemic unity, which represents the wholeness of complex, chaotic interactions. The unity of difference and potentiality is the phenomenological term which assumes that systems employ meanings, which acquire difference *vis-à-vis* the background, and dynamically interact with the world of potential interpretations (Luhmann, 2006). A useful schema to represent a system is the old Chinese symbol of Yin and Yang. This symbol represents the unity that emerges through the dialectic interaction of two oppositional forces. In the context of this research, I accept these forces to represent the system and the environment within the boundaries of the very system (Figure 4).

Figure 4 emphasises the dialectic character of the system's emergence. The systemic operation is an ongoing interpretation of the self *vis-à-vis* the environment, and vice versa. However, the system is meaningful at the level of the general context, where it can be compared to the reality. The holistic vision of both the system and the environment is never achieved from within the system. Interpretation by researchers and systemic agents happens just inside the systems, where the holistic phenomena are endlessly approximated, fragmentalised, severed, and differentiated (Fichte, 1970; Giddens, 1991; Luhmann, 1995; Spencer-Brown, 1969).

Figure 4. Unity of Difference of the System and the Environment



The reality and the system as such are not accessible in their “platonic” forms (Casti, 1991, p.396) from within the system. *The* system is transformed into *a* system in reference to *an* environment, whereas the reality is interpreted as *an* environment in reference to *a* system. The dialectical unity of a system and an environment forms the basis of the self-observation for the system. The self-observed, interpreted self of the system presupposes the interpreted environment (non-self) in order to attain meaning within the structure of the system, while the oppositional unity of both can never be taken to be equal to the system, as it is located in the higher logical level. The difference of this model from other

accounts is that logical typing boundaries are not violated (Bateson, 1991). Mechanistic accounts violate the logical typing boundaries through assuming that interpreted environments and interpreted systems are equal to the reality and the system. In other words, the terrain needs to be differentiated from the map (Bateson, 1979; Fay, 1990; Weick, 2001).

Model for Interpretation

Social events or facts are transformed into communication within social systems (Luhmann, 1995). Communication is the process of ongoing interpretation (Weick, 2001). A researcher needs to be aware of the qualities of both interpretation and the self as an interpreter. However, these two aspects are not totally separate. It is the interpreter who is living and operating through his/her interpretation. Systeming allows observing the combination of the interpreter and interpretation, which together form communication. Thus, the process of interpretation is not simply the re-construction of others' constructions, but it is a self-reconstruction in reference to the system of constructions. Interpretation is brought forth through existing and communicating via systemic structure and processes.

Figure 5. Model for Interpreting Systemic Communication

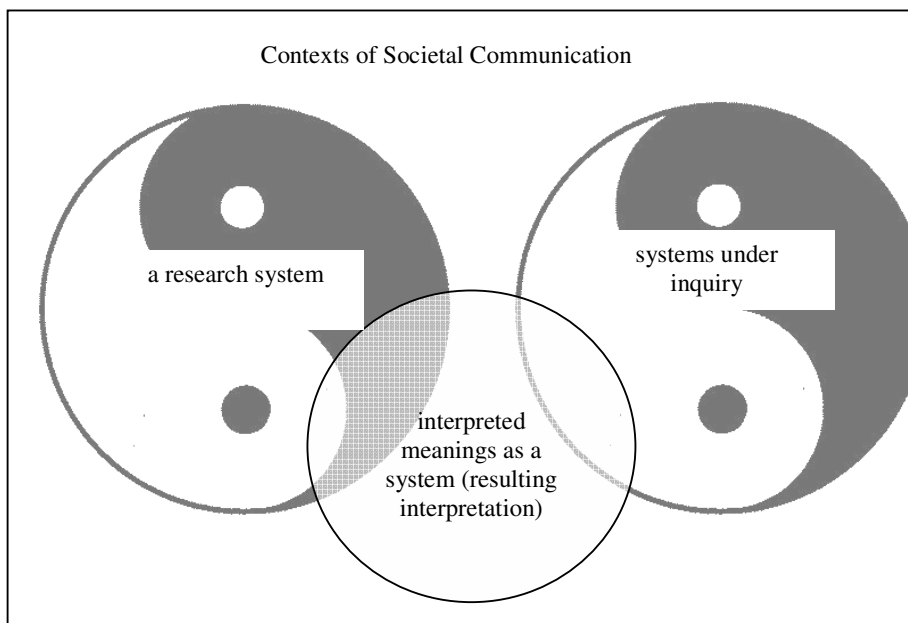


Figure 5 shows that the result of inquiry, the interpretations and findings, is seen as a product of interpenetration of the researcher's system and the systems under inquiry. The inquiry takes place in the *context of societal existence* depicted in diverse communications. Society is defined as the locus of relationships of different systems that transform societal complexity into communications (Luhmann, 1995). Hence, the system refers to the meaningful pattern of communication that emerges in the context of social events. In this context, the inquirer becomes represented through the system of research communications. The inquirer's goals, aspirations, and actions are shaped through the communications, which help in defining his/her research system *vis-à-vis* the research environment. The researcher's actions become a part of a bigger discourse in making sense of a world. The research system comes into existence in relation to the systems which are being investigated. There could be various units and levels of the systems under inquiry. Each system is a unity that observes the self in reference to the self-constructed environment, and the interpreted meanings emerge as a result of observing self-observations in both types of the systems. So the resulting interpretation is a complex interaction among self-referential elements: a research system and its environment, a system under inquiry and its environment.

The model indicates that interpreted meanings in the form of the thesis presented here become a system in itself, and it is neither the 'real' representation of systems under investigation nor a picture of the research system, but the mode of being that enacts perturbations in those systems. The interpretation does not convey the point-to-point picture of the systems under inquiry; rather it takes differences created in those systems as triggers, which activate creative and existential formulations. Moreover, a particular interpretation is to be taken as one of many possible views that could be constructed on systemic interactions. These points of open-endedness and flexibility relate the model to ethnography (Kozinets, 2002; Sherry, 1991). Ethnography emphasises "the acuity of the researcher-as-instrument" (Sherry, 1991, p. 572) in terms of personal interests, experience, and skills in the research process. Especially, "no two ethnographies have ever been conducted in exactly the same manner" (Kozinets, 2002, p. 62). Similarly, the model of systeming interpretation is open-ended and flexible.

Comparison to Existing Interpretive Models

I have discussed the systeming model of interpretation, which can be used to interpret the social, specifically, marketing behaviour. The question would arise of how the systeming model for interpretation is different to the other models of interpretation. Here, I would like to compare the systeming model and its basic tenets to the following perspectives: cartesianism, mechanical systems, and existential-phenomenology. Cartesianism is closely linked to the mechanical systems model, while existential-phenomenology correlates with the systeming approach.

Cartesianism and the mechanical systems model. Thompson et al. (1989) discuss several metaphors which characterise the Cartesian model. The main metaphors discussed are the machine metaphor and the container metaphor. The machine metaphor is based on the following assumptions:

1. Properties of the machine, such as psychological ones, can be calibrated and measured.
2. The machine has primary qualities that are essential to its function and are measurable, such as mass and motion. Any aspects of the machine not quantifiable are viewed as incidental to its function.
3. The machine is composed of independent components. By taking the machine apart and studying the components in isolation, the essence of its function can be determined. Analysis does not change machine function, since components in isolation are assumed to operate the same as components in unison (Thompson et al., 1989, p. 134)

The container metaphor is based on the following principles:

1. External events, those occupying outside the body container, are objective, while internal events, those occurring inside the body container, are subjective. Experience is a private, internal, and therefore, subjective event.
2. Mind is an entity that manipulates symbols representing the external world. These manipulations allow the external world to be brought into internal consciousness. Since the cognitive processes by which the symbol is manipulated are internal, cognitive structures and functions can be isolated and studied in a decontextualized manner.
3. Objects in the world exist as a brute reality independent of human experience and, thus, there is one true description of the world waiting to be discovered. This true description

will be mathematically precise and free of linguistic ambiguity (Thompson et al., 1989, p. 135)

Orthodox systems thinking based on mechanical and rationalistic assumptions simply reiterates the aforementioned axioms. The mechanical systems model, that is implicit in some macro-marketing investigations, holds that the phenomena can be reduced to calibrated deterministic mechanisms that represent a linear aggregation of analytical constructs and relationships (Eve et al., 1997; Layton, 1989; von Bertalanffy, 1950). A system viewed through the lenses of this perspective is conceptually constructed in the following way: the system becomes a direct aggregation of components, such as individuals, unities of consciousness, actions, experiences etc., and relationships among these components (Dowling, 1983; Reidenbach & Oliva, 1983). A single element of the system is isolated and studied, while it is assumed that a systemic effect is the result of identical elements acting together. For instance, the consumer or the producer is studied as a unit, and then implications are drawn to the imagined mechanical system of marketing that is seen as the aggregation of “out-of-context” units. The primacy of the context and behaving in the context of the systems in a concerted way is ignored (Bateson, 1991). For example, consumers may be considered to be a main source (and reason) of ecological degradation (Heiskanen & Pantzar, 1997; Reidenbach & Oliva, 1983). In this case, the marketing system’s effect on the environment is equated to the elements’ effect.

In the mechanical systems model, the container metaphor is depicted in the separation between the system and the environment. The system is studied as being totally separate from the general background. For example, marketing can be seen as an autonomous system that is able to affect and be affected by society (Hunt, 1976; Wilkie & Moore, 1999). Bateson (1979) compares the mechanical account to the case of impacts between billiard balls, where autonomous unities collide and inter-change energy. Moreover, the mechanical view leads to the construction of the corresponding types of problems. For example, a macro-micro problem or the theory of a commons dilemma, which depict problematic tensions between individual and social motivations may become the focus of research (Kilbourne et al., 1997; Shultz II & Holbrook, 1999; Smith, 1997). Although rarely explicitly distinguished, this fundamental problem would “beg” for an

appropriate analytical resolution. Such concepts as wise operating decisions (Forrester, 1958), civic professionalism (Thomas, 2003), caring organisation (Lindgreen & Swaen, 2005; Livesey & Kearins, 2002), altruism (Sober & Wilson, 1998), sustainable consumption (Connolly & Prothero, 2003; Tanner & Kast, 2003), love and agape (Hill, 2002), and competratism (Gunn, 1975) may be proposed as the factor that brings a sense of social into the individual mind and behaviour. Alternatively, the centre-periphery distinction could be employed. Some actors (elements) may be positioned in the centre of the system as a major force which drives all systemic action (Alderson, 1964).

The Cartesian model, the input-output schema, may run as an assumption in the background of the systems research. The system may be taken as a “black box” while the relationships among inputs (antecedents) and outputs (consequences) are investigated (Bagozzi & Dholakia, 2006; Dixon & Wilkinson, 1982). This kind of model is often found in consumer psychology research, such as the theory of reasoned action (Ajzen & Fishbein, 1980) and the elaboration likelihood model (Petty & Cacioppo, 1996; Petty, Cacioppo, & Schumann, 1983). However, the concept of “black box” is not only applicable to mental structures, but also to more general systems and their processes. Thus, the system might become either the issue of efficiency, when inputs and outputs are taken as resources (Emery & Trist, 1960; Layton, 1981a, 1981b), or that of knowledge, when inputs and outputs are information (Reidenbach & Oliva, 1981), or that of experience, when inputs and outputs are mental processes (Petty & Cacioppo, 1996; Thompson et al., 1989), and or that of culture, when inputs and outputs are norms and traditions (Holt, 1998; Katz & Kahn, 1966).

Existential-phenomenological and systeming models. Existential phenomenology is explained through the metaphors of pattern, figure/ground, and seeing (Thompson et al., 1989). The pattern metaphor implies that various perceptual patterns emerge from the general context, and that these patterns are studied as “the world of lived experiences” in the context of “life-worlds” (p.135). The patterns are a human experience “as it is lived” (p.136). It is maintained that the human experiences and the world are not to be objectified and separated; rather the experiences need to be described as they are lived within the context.

Thus, the meaning of experience is only understood in relation to relevant contexts of occurrence.

In parallel, the systeming model maintains that any system, including the system of conscious experience, is the product of meaningful ordering of the chaotic background. The system is the pattern that emerges out of unrecognisable noise and perturbations in the environment. For example, society as the environment can be taken as the locus of complex communicative perturbations. When these perturbations are ordered and made meaningful according to a particular purpose, the system is formed. The process of pattern forming is the mode of being and communicating, so it is existential. The difference between the existential phenomenology and systeming is the matter of scope. The existential phenomenology takes human mental phenomena as a focus of analysis, whereas the systeming perspective emphasises the differences and difference-making-communications of any kind. This stems from the direction indicated by Bateson (1979) that the principles of operation of both mind and nature are analogous. To summarise, meaning is defined as the function of mental operations in existential phenomenology, whereas it is the function of the system of social communications in the systeming perspective.

The figure/ground metaphor is based on several premises (Thompson et al., 1989). First, human experience is understood as a process of constructing “figures” from the ground of life-worlds. It is argued that once a figure is distinguished the remaining parts of the ground recede into indistinguishability. The complexity of a life-world allows a great number of figures be distinguished and re-distinguished in a dynamic manner. Second, the figure and ground comprise a unity, they are inseparable. The meaning of both emerges in relation to each other. Third, human experience is intentional. This intentionality can be defined in two ways. It may refer to “the property of all mental states as being directed toward something”, and also the property of actions that makes them “purposeful, meant, or done intentionally” (Malle, Moses, & Baldwin, 2001, p.3). The existential phenomenology focuses on the former account of the concept of intentionality. To sum up, the existential-phenomenological model stresses the *contextual* character of human experience, and it is considered to be neither subjective nor objective.

The systeming model accepts these principles in relation to social communication. Communication is accepted as a figure whereas the environment, in a form of interacting systems, becomes the ground. In this perspective, the figure is any action that attempts to reduce the complexity of the ground into a meaningful system rather than being a mental operation. The intentionality is about recognition and understanding of the system in a process of communicating socially. The intention reifies the system rather than an experience. Here, yet another dimension of the intentionality, *social interactivity*, is recognised in addition to *contextuality*. The existential-phenomenology stresses the private mental operations of individuals, whereas the dynamic account of the intentionality recognises social contexts and the role of interactions (Gibbs, 2001). The systeming model grants the intentionality one more dimension - social. The intentionality is seen as the product of social interactions. It is assumed that the intentionality is directed toward distinguishing the systems of communication rather than distinguishing mental patterns of life-worlds. In the systeming model, the representation of the figure/ground picture is not simplistic as it has been depicted in existential-phenomenology. Operating that brings forth the system may become a figure, while the environment is left as a patternless background. However, this patternless background may allow for the construction of many other figures through intentionality shifts. From an existential-phenomenology perspective, a distinguished figure may simultaneously be paralleled by a meaningful background (Thompson et al., 1989). This means that a researcher is supposed to select meanings from a broader field of meanings. A meaningful figure complemented by a meaningful ground is rare in social settings. The systeming model maintains that the equivocal environment (Weick, 2001) gives birth to an unlimited number of systems. Therefore, the environment as a background is accepted to be too complex to become meaningful. Rather, a meaningful form emerges from chaos (Eve et al., 1997; Gleick, 1987)

Thompson et al. (1989) describe the *seeing metaphor* through the concepts “reflected and unreflected experiences” (Thompson et al., 1989). The reflected experiences form a figure, whereas the ground is formed from unreflected experiences. They argue that reflection *discovers* previously unreflected

experiences. The example of a consumer, who in the process of an interview has discovered a previously unseen aspect of her shopping experiences, and that she is “happier with products bought on impulse rather than those purchased for practical reasons” (p.137) is given. One thing that goes without mention, however, is how the context of conversation (interview) has affected such a mode of discovery. It may also be true that the respondent has constructed the “discovery of unreflected experience” as an outcome of social interaction with an interviewer in the context of this research setting rather than really reflecting on the unreflected.

The systeming model deals with *operating* rather than reflecting. However, “unoperated” is not assumed to exist in the environment. The environment is not an aggregation of unoperated communications. Neither is it the locus of discovery. The systems bring forth their beingness in their internal operations by which they compute the descriptions of descriptions and reflect things in a concerted manner (von Foerster, 2003). The ground remains merely as a paragon of chaos and uncertainty (Casti, 1991; Poerksen, 2004). Communications are not discovered operations, rather they are ongoing social constructions in relevant contexts.

Summary. Table 6 exhibits the summary of main tenets which differentiate the Cartesian, mechanical systems, existential-phenomenological, and systeming models. The description of the Cartesian model given by Thompson et al. (1989) that the model views the world as a *mechanism* of linear and deterministic relations. The nature of being is seen to be *dualistic*, in which human experience is separated from the natural world. The research is focused on discovering underlying *theoretical structures*, which are told from the perspective of a *third-person*. The research logic centers on *predicting* or estimating the future conditions of phenomena based on universal laws discovered in the process. The research strategy is *componential*, as components are separated and analysed, while findings are generalised to other similar phenomena. Finally, the research goal is to *reduce* the world into discrete causal relationships.

Table 6. Main Tenets of Interpretive Models

<i>Tenets of models</i>	Cartesian	Mechanical Systems	Existential Phenomenology	Systeming
<i>Worldview</i>	Mechanistic	Mechanical systems	Contextual	Contextual and social systems
<i>Nature-of-being</i>	Dualistic	Synergy (parts versus whole)	In-the-world	Communicating the system versus the environment
<i>Research focus</i>	Theoretical structure	Systemic structure and processes	Experience	Communication
<i>Research perspective</i>	Third person	Third person	First person	System
<i>Research logic</i>	Predictive	Functionalistic	Apodictic	Self-referential
<i>Research strategy</i>	Componential	Aggregative	Holistic	Holistic
<i>Research goal</i>	Causal reductionism	System reductionism	Thematic description	Understand systemic observation

Source: adapted from Thompson et al., 1989

The mechanical systems model shares the majority of underlying assumptions with the Cartesian model. However, the worldview is slightly modified by assuming that micro-phenomena can be compiled into macro-unities, which exhibit the properties of *mechanical systems*. The nature of being is that of *synergy*, i.e. the smaller parts exist within the whole that is seen to be more (in both a quantitative and qualitative sense) than the sum of parts. However, the whole is defined deterministically, namely it is measured as the sum of parts, plus the extra allowance for synergy. In this way the mechanical systems model resolves the problem of logical typing (Bateson, 1991; Whitehead & Russell, 1927). The research focus is on determining *systemic structure and processes*, which universally underlie the relationships among phenomena, and this story is told from the perspective of a *third person*. The research logic is *functionalistic*: systems' structures are discovered and ways to improve these structures are proposed (Alderson, 1965). The research strategy is *aggregative* and seeks to understand the macro-behaviour of the aggregations of phenomena. The place and

role of the phenomena in the aggregation is determined. The research goal is to *reduce* the macro-phenomena into a set of quantitative parameters which change proportionally in relation to changes in the dimensions of smaller constitutive phenomena.

The contextual worldview of existential phenomenology depicts the world of experience “as a pattern that emerges from a context” (Thompson et al., 1989, p.137). The human experience is located “*in-the-world*”, and both the experience and world are seen to be interactively co-constructed. Individual *experience* is accepted as the main focus of research. The description of the experience is developed based on the perspective of a first person. The researchers argue that the research logic of existential phenomenology is based on *apodictic* revelations. Apodicticity refers to the idea that experience as it emerges cannot be doubted. The objective reality of things reflected in cognition is unlikely to be known (therefore the dualistic assumptions are bracketed), whereas the reflection in itself is taken to be absolute and certain. The research strategy is taken to be *holistic*, because different experiences are posited in relation to each other and the general life-world. The research attempts to develop the *thematic description* of experience. Some researchers see parallels between Cartesianism and phenomenology (Crowell, 2002). This might be the case, because of phenomenology’s attitude to disassociate from and reject Cartesian conceptions, while self-referentially utilising Cartesian criteria to model descriptions. Here again one can see the systemic logic – the rejection of the concept does not mean complete disassociation from the referenced opposite. Both support and rejection may communicate the same information (Bateson, 1991).

The systeming perspective views the world as the unity of systems, which *contextually and socially* arise from the environment (Luhmann, 1995). The ontology is based on the vision that anything exists in *communicating*, in which the system is differentiated from the environment. The nature of being is that of difference creation. Differences characterise unities, and the unities inter-relate to form meta-unities (Bateson, 1979). The research focus is on *communication* as observed from a system’s view. The observer and communicator here are the system under focus, whereas the research *observes the observation* of the system.

The research logic is *self-referential*. This means that observation does not tell much about the properties of the observed, but those of the observer. The research learns about the observer (system) through analysing its observation, and in the same manner, one may learn about the systeming model through learning about how it describes the observation of systems. The research strategy is *holistic*, but this holism differs from that of phenomenology. It is holistic in the sense that communications are observed forming a unity in the background of societal events. The unity is the unity of meaning, and the system is the system of meaning (Luhmann, 1995). In the systeming perspective, meaningfulness is unavoidable, whereas meaninglessness does not exist within the system. Any communication must indicate a certain meaning. Thus, holism is depicted in the coherence of meaning. The research goal is to *understand* the interrelations of systemic self-observations.

Systeming as Method

The description of the systeming philosophy and the systeming model are simply an initial step toward conducting interpretation. They comprise the theoretical background of systeming methodology, whereas concrete practical procedures must also be developed. The interpretive endeavor cannot start without the delineation of specific research procedures. Therefore, next I develop a method that is based on systeming insights. I focus on specific, context-focused research procedures, through which systeming interpretation is accomplished in accordance with research objectives.

The systeming method in this work is specifically developed to address the special case of the sustainable marketing system problem. This is the *sustainable mobility* problem. Therefore, in developing the systeming method, I first discuss the overall rationale of focusing on sustainable mobility issues depicted in the production and consumption of hybrid cars. The domain of hybrid-car-related practices is the context of systeming observation. I discuss why this context is important with regard to the research problem. Next, I describe how data are retrieved from this context. Specifically, I focus on such issues as interaction artifacts, netnography, data collection, selection, and the nature of data. Then, I

discuss particular interpretive procedures. The following interpretive procedures are distinguished: distinction identification, re-entry description, and logical level tracking.

Sustainable Mobility

Some researchers argue that there exists a positive relationship between mobility enhancement and living standards (Gersovitz, 1989; Jacoby, 1998). Mobility is considered to be one of the main factors in improving the living standards of the world population, and thus overall sustainability (Gersovitz, 1989; Jacoby, 1998; World Business Council for Sustainable Development, 2004). Researchers believe that the problem of substantial enhancement of mobility is resolved in ongoing interactions between vehicle providers and users, namely, in the domain of the marketing system (Bickers, 1999; de Haan, Mueller, & Peters, 2006; Kadirov & Varey, 2007; Kirsch, 1997).

The role of both production and usage of the means of personal mobility in the life of a human being has grown substantially in the last century (World Business Council for Sustainable Development, 2004). The mutual relation between automobile marketing systems and society is enormous. For instance, it is estimated that there are approximately 700 million vehicles worldwide, which may increase up to billion units in the next decade ("Driving Trends", 2007). The key issues in sustainable mobility are access to transportation means, financial outlay, travel time, reliability, safety, security, transport emissions, impact on ecosystems, the level of transportation noise, resource use, and land use (World Business Council for Sustainable Development, 2004). The World Business Council for Sustainable Development (WBCSD) (2004) estimates that personal transport activity (kilometers traveled) worldwide will grow by 1.7% per year in the next fifty years. In the same period, the total worldwide transport-related fuel use for all modes of vehicles will increase from 2.1 to 5 trillion (10^{12}) litres gasoline-equivalent per year. For light duty vehicles, it is expected that energy efficiency per vehicle unit will improve by merely 18% by 2050, which will not be enough to offset 123% increase in total transport activity in the same period (World Business Council for Sustainable Development, 2004). The amount of the light-duty-vehicle-related greenhouse gas emissions is expected to rise from 2.9 to

3 gigatonnes carbon dioxide (CO₂)-equivalent per year. Some suggest that a litre of petrol which weighs about 0.6 kilograms, when burned, enters to a chemical reaction with oxygen in the air to result in approximately 2 kilograms of CO₂ ("Global Warming", 2007). Moreover, the World Health Organisation (2004) estimates that more than 1.2 million people die annually in road accidents, whereas 7.8 million get seriously injured. These statistics about the massive role of automobiles in human society can be extended ad infinitum. However, this is beyond the main purpose of this investigation. The argument is that mobility as a life issue occupies a significant share of human activity, and thus that of the marketing system. However, recent trends in mobility development cannot be considered sustainable (World Business Council for Sustainable Development, 2004). How sustainable should mobility be? This question exhibits one of the great dilemmas of modern society. The *sustainable mobility dilemma* stands for a situation in which a tension exists between the increasing needs for mobility and the long-term environmental and societal health. Sustainable mobility is defined as "the ability to meet the needs of society to move freely, gain access, communicate, trade, and establish relationships without sacrificing other essential human/ecological values, today or in the future" (World Business Council for Sustainable Development, 2004, p. 2). Seven goals have been identified by WBCSD to tackle the dilemma. These are shown in Table 7.

Table 7. Sustainable Mobility Goals

Sustainable Mobility Goals	
Goal one	<i>To reduce conventional emissions from transport so that they do not constitute a significant public health concern anywhere in the world</i>
Goal two	<i>To reduce greenhouse gases emissions from transport to sustainable levels</i>
Goal three	<i>To reduce significantly the number of transport-related deaths and injuries worldwide</i>
Goal four	<i>To reduce transport-related noise</i>
Goal five	<i>To mitigate traffic congestion</i>
Goal six	<i>To narrow mobility divides that exist within all countries and between the richest and poorest countries</i>
Goal seven	<i>To improve mobility opportunities for the general populations in developed and developing societies</i>

Source: World Business Council for Sustainable Development, 2004

Adopting Initial Observation Point: Context of Observation

In the vein of Goodman's (1984) perspective of rightness and adoption, the systeming analysis must start with the adoption of an arbitrary point in a marketing system. In this analysis, this arbitrary point is represented by the *category of hybrid cars*. As a matter of fact, any product category could have played the role of an arbitrary point. The character and direction of the systeming analysis depends on the selection of particular starting points. Thus, systems which are built in reference to divergent arbitrary points might end up being differently conceptualised. The current assumption is to *adopt* that there exists a marketing system in respect to the category of hybrid cars, the sustainability of which needs to be characterised. This strategy of selecting a point of observation is a relevant steppingstone for systeming interpretation (Baecker, 2006). Although it is arbitrary at the outset, subsequent steps in the analysis render it increasingly significant.

The hybrid car marketing system is not an imaginary conception, however. The system has come into existence as the result of an innovative move by Toyota Motor Corporation in 1999 to introduce the first hybrid car brand – Prius ("History", 2007). Currently, the third generation of Priuses is on the roads. The competitors, Honda, Ford, General Motors, and DaimlerChrysler, have jumped onto a hybrid bandwagon by developing their own versions of hybrid car brands (Halliday, 2006). The brands proliferated; and at the time of analysis (March 2007) one would have a choice of a few hybrid car brands such as Toyota Prius, Toyota Camry Hybrid, Lexus GS 450h, Honda Civic Hybrid, Honda Insight Hybrid, Honda Accord Hybrid (compacts and sedans); Ford Escape Hybrid, Lexus RX 400h, Toyota Highlander Hybrid, Mercury Mariner, Saturn Vue Green Line (sport utility vehicles); Chevrolet Silverado, GMC Sierra (trucks). It is expected that in two or three years these ranks will be augmented by Nissan Altima, Hyundai Accent, Honda Fit, Chevy Malibu, Chevrolet Tahoe, GMC Yukon, Porsche Cayenne, Dodge Ram ("Cars", 2007). Most of the major players in the automobile industry are becoming involved in the hybrid car marketing system to a greater or lesser extent. There is no need here to go deeply into the technological intricacies of hybrid drive train technologies. Briefly, the hybrid

technology is based on the combination of different power sources which drive a car engine. Usually, energy sources are electricity and petrol. The complex technology of transmission allows an on-board computer to monitor how much power from which source is needed in every driving situation. The hybrid technology offers significant fuel savings on average in comparison to the traditional drivetrain (sole petrol engine) technologies. The question might arise at this point of why to focus on hybrid cars with regard to the issue of a sustainable marketing system. There are several reasons.

Hybrid cars are considered to be the paragon of sustainable mobility (Byrne & Polonsky, 2001; Fiscbetti, 2005; Train & Sonnier, 2003; Wolcott, 2005). Many experts consider hybrid cars as a first (partial) step toward solving the sustainable mobility dilemma, and especially ecological problems (Berman, 2006). Sustainability and hybrid cars are often invoked together (Byrne & Polonsky, 2001; Rubach, 2006; Saad, 2006). In many layers of society, namely politics, legislation, economy, science, and folk culture, the popular distinction that is discussed in reference to hybrid cars is that of sustainability. This means that the discussion – communication – is directed toward why hybrids should be considered sustainable (e.g. green, ecological) versus unsustainable, and vice versa (Commercial Carrier, 2006; Marketing Week, 2006; Robinson, 2006; Solheim, 2006; Stewart, 2006; Wall Street Journal, 2005). Marketers are employing this distinction. For instance, Toyota Motor Corporation has launched a US\$ 60m advertising campaign to promote Prius and its other hybrid brands as the only robust solution to sustainability problems (Economist, 2005). The copies of print advertising which differentiate hybrid brands on their ecological performance are given in Appendix 2. The print advertising is directed toward creating association between a hybrid car brand and sustainability. It reads:

“Environmentally friendly” meets “fun to drive” in the Toyota Prius, the world’s best-selling hybrid vehicle. The Prius is just one example of how Toyota brings “opposites” into harmony for a sustainable future. What can we harmonize today? Toyota.

Mainstream public policy has also become involved. For instance, some US states offer tax incentives and an exclusive access to high occupancy vehicle lines

(HOV) for hybrid cars. Some EU countries (e.g. Netherlands) offer tax breaks for buying a hybrid car (Environment Daily, 2006). Recognition by third parties reinforces a sustainability distinction too. For example, in 2005 Toyota was awarded the status of “Top 3” in the 2005 Global 100 Most Sustainable Companies in the World list. This list is compiled by an industry watchdog group called Corporate Knights and Innovest Strategic Value Advisors. The list includes 100 large companies around the world, which demonstrate “the strongest sustainability performance among their peers” and the ability to manage “the environmental, social and governance (ESG) risks and opportunities they face” (CKISVA, 2005). The statement of recognition by the institution emphasises the role of hybrid cars:

The automotive transportation sector has significant environmental impacts, especially with respect to climate change. Toyota Motors has developed and successfully commercialized the marquee environmental technology of the decade for the industry, the hybrid drive vehicle. Its Prius model was the fastest selling car in America in 2004 and the company is doubling production in 2005 due to strong demand. Toyota is also licensing some of the technology to Ford Motor for its *hybrid vehicles*, thereby vastly expanding the positive impact this technology has made on the automotive sector. Additionally, Toyota has made a strong commitment to environmental management at its facilities and has engaged its suppliers in an effort to improve the eco-efficiency of its operations throughout the value chain. (CKISVA, 2005).

Moreover, a Geneva-based organisation, Covalence, releases the annual ethical ranking of multinational companies across ten major industrial sectors. In Ethical Ranking 2005, Toyota Motor Corporation was found to be a leader in the nominations of the Best Ethical score and the Best Ethical Progress in the automobiles sector. This shows that introduction and proliferation of the hybrid technology has substantially affected Toyota Corporation’s sustainability image on the part of stakeholders.

The product attribute “hybrid” represents the *category* of cars rather than a particular brand. Indeed, there was time when Prius was the only hybrid car brand in the market. In that case, the reference to brand community would have been relevant (McAlexander et al., 2002; Muniz Jr. & O’Guinn, 2001; Schau & Muniz Jr., 2002). Currently, there are more than a dozen hybrid car brands which represent different corporations. The hybrid car marketing system comprises

communications relevant to all brands, corporations, consumers, and stakeholders. Consequently, this investigation is not limited to a particular brand, but the product category. Hence, when this study refers to a hybrid vehicle it does not necessarily have to be Toyota Prius; the reference includes a large range of hybrid brands produced by different corporations. I do not delineate the system along the lines of brand differences. This is justified by the fact that human activity is organised through cultural similarities and differences rather than product attributes (Schouten & McAlexander, 1995; Yankelovich & Meer, 2006). In contrast, brand community is possible when only a single brand can signify relevant ethos, shared beliefs, values, and rituals (Muniz Jr. & O'Guinn, 2001). However, when many brands are used as an interchangeable cultural artifact, then it is a communicative action that takes a centre stage (McAlexander et al., 2002). Brands recede into the background, whereas a product category becomes significant in representing cultural communication. Schouten and McAlexander (1995) refer to “subculture of consumption” in an identical situation (p.43). The *subculture of consumption* signifies “a distinctive subgroup of society that self-selects on the basis of a shared commitment to a particular product class, brand, or consumption activity” (p.43). However, I emphasise the concept of a *marketing system*. The concept of the marketing system is more relevant in the context of systeming investigation because a) not only the demand side, but also the supply side, including intermediaries and agents, determine the nature of the subculture; b) not only self-selection, but also self-observation is an important characteristic of the phenomenon; and c) communing (shared commitment) is resolved in communication.

Thus, a robust marketing system (consumer and producer community) that focuses on ethos and identity of utilising hybrid car brands as a theme in communication is emerging (Byrne & Polonsky, 2001; de Haan et al., 2006; Kadirov & Varey, 2007; Reed II & Bolton, 2005). The formal reincarnation of these relations can be seen in an example of the association of Hybrid Owners of America, which is operating under the auspices of the Civil Society Institute. The association’s website provides a wide range of information about hybrid cars and activities of the consumers (<http://www.hybridownersofamerica.org/>). The hybrid technology became the central artifact in communication, the emphasis of which

is on concern and care for environment, social welfare, and the sustainable future. For example, a recent article in the Economist (2006) describes how hybrid car enthusiasts are cooperating to co-create ecological value through improving fuel efficiency and emission controls. The hybrid car market is transformed into “a forum of co-creation experiences” (Prahalad & Ramaswamy, 2004, p.12) directed at resolving sustainability dilemmas.

Retrieving Data: Interaction Artifacts

Interaction artifacts. To conceptualise the hybrid car marketing system, an empirical context that is realised in communications of system agents (e.g. company employees, marketing managers, consumers, and stakeholders) is to be explored. In this investigation, I use the method of reifying *interaction artifacts* (Kadirov & Varey, 2005, 2007). Interaction artifacts refer to “traces and sediments” left from communicative interactions that take place within the marketing system. The interaction artifact could be in any form. In relation to this, for example, Bateson (1991) mentions three types of data, with which the cultural anthropologist works:

- 1) an identified individual in such-and-such a recorded context said such-and-such, and was heard by the anthropologist;
- 2) an identified individual in such-and-such a recorded context was seen by the anthropologist to do so-and-so;
- 3) artifacts (tools, works of art, books, clothes, boats, weapons etc.) made and/or used by such-and-such individuals in such-and-such contexts. (Bateson, 1991, p.38)

Bateson argues that these kinds of data are not straightforwardly interpreted, rather they represent extreme complexity. The contexts of interactions are not fully recoverable, so any small shift in reifying a context may construct totally different aspects of phenomena. Hence, each datum is unique. Bateson (1991) argues that the data that represent the “complex pattern of events occurred” cannot be treated statistically (p.40). The statistical approach is based on random or representative samples, whereas social artifacts represent unique momentary cases, which are devoid of continual progress. The systeming method is directed at reifying the context (form) of communication. The unique characteristic of the

systeming method is that data are not considered to be communication *per se*. Data do not contain information, specifically, communication. Communication is re-constructed. The result is the systeming re-construction of the system's communication, which can be traced in interaction artifacts. Communication can only be observed retrospectively (Luhmann, 1995). I would add that it can only be *traced* retrospectively rather than discovered in full. The assumption of traces would mean that they must be re-constructed, whereas assuming the existence of ready information would suggest that it will be discovered. Systeming emphasises the former perspective.

The purpose is to observe the self-observation of the system. This observation becomes documented in the form of text, which is stored in different media. For the purpose of reporting, any observation (of behavior, action, artifacts etc.) is reduced into a textual form. The systeming method observes the constructors of the text, and from this retrieves the characteristics of the constructor. So, it is particularly important that data are not constructed under the researcher's direct influence. The textual data should represent observations of systemic agents. Consequently, textual artifacts are recognised, retrieved, ordered, and utilised in a story construction process about a particular marketing system. This process is comparable to the science of archaeology or paleontology (being different from Foucault's Archaeology), within which researchers attempt to re-construct the view of ancient by investigating discovered fossils. The system's interaction "fossils" can be used to reconstruct the marketing system. Some fossils are materialised in texts stored in online media. Interaction artifacts are the result of the use of languaging (Maturana & Varela, 1992; Wittgenstein, 1963) that is the main medium for conveying meanings (Luhmann, 1995). Languaging is a social action (Maturana & Varela, 1992). Comparably, for Wittgenstein (1963) the textual discourse represents communicative interaction, which he calls a "language game". Posting a message online is a communicative act in itself (Kozinets, 2002b). In this situation, a communicative act communicates about the communicator (the system) (Luhmann, 1995). This approach corresponds to Mead and Morris's (1934) approach of observing behaviour rather than people's intrinsic qualities. Thus, the unit of analysis becomes a set of interrelated actions

rather than humans. Social behaviour crystallised in the online media illuminates systemic processes, which underlie a sense-making process (Weick, 2001).

Systeming as netnography. Systeming offers potential to work on the various types of textual and observational data. However, the data must comprise the descriptions of the system agents (self-descriptions) which are not affected by intrusive research actions. In the case of a hybrid car marketing system, the systeming method is used in conjunction with netnography (Kozinets, 1998b, 2002b; Langer & Beckmann, 2005). Netnography refers to “qualitative research methodology that adapts ethnographic research techniques to study the cultures and communities that are emerging through computer-mediated communications” (Kozinets, 2002b, p.62). The systems studied through netnography are not simply “virtual” and/or “less real” because of the locus of interaction - the Internet – they refer to situated live social organisations (Kozinets, 1998a). Netnography enables an unobtrusive observation of the “naturally situated consumer behavior” (Kozinets, 2002b, p.62). A challenge is to access communicative interactions without creating an additional “researcher-respondent” context. An obvious intrusion of the researcher into the space of communication creates irrecoverable deviations in otherwise free-flowing contexts. Kozinets (2002b) argues that such data collection methods as market-oriented ethnography, in-depth interviews, and focus groups are too obtrusive, artificial, and decontextualising. In contrast, netnography can totally be unobtrusive. This feature of the technique fits the purpose of the observation of self-observation.

Sources and data collection. The empirical content of this investigation came from online sources. The hybrid car marketing system was arbitrarily divided into two mega-domains: marketers and consumers. The former domain included the sources that project *the perspective of corporations and their value networks*, while the latter comprised the sources which indicate *the perspective of consumers*. The communicative interaction reflected in both the marketers’ and the consumers’ domains were observed during eighteen months from October 2005 to March 2007. During this period these sources were followed and their content downloaded.

The sample within the domain of marketers included several current hybrid car manufacturing corporations. These were Toyota Motor Corporation, Honda Motor Corporation, Ford Motor Company, and General Motors (GM) Corporation. It should be noted that this sample does not equate to a marketing *system*, or to be more precise, to a *subsystem* in both physical and conceptual terms. The objective of the investigation is to construct appropriate conceptualisation of how sustainability is enacted within the *(sub)system of communication*. In order to accomplish this task, textual data which represent communication by these entities were collected. This included corporate environmental reports, the content of corporate websites, and corporate generated news and PR stories (see Appendix 3). I maintain that the texts generated by corporations are not the territory but maps which represent communicative acts. The data downloaded from these sources are interaction artifacts which are directed at, reference, and converse with, implicit partners (stakeholders) within the broader discourse on sustainability (Porter, 2005).

The volume of downloaded text from the marketer domain amounted to 946 pages of single-spaced, ten-point font. This comprises 209 pages from Ford, 299 pages from GM, 237 pages from Honda, and 186 pages from Toyota affiliated sources. The volume of downloaded data represented a huge base of corporate utterances; this included a large volume of statistical, technological, technical, and descriptive information.

Communicative interaction in the consumer domain was traced in so-called “computer-mediated environments” (Kozinets, 1998b, 1999; Muniz & O’Guinn, 2001). The consumer communication was retrieved from the online forums and weblog sections of several Internet website dungeons: hybridcars.com, priuschat.com, greenhybrid.com, autoblog.com, and greencarcongress.com. Hybridcars.com is owned and maintained by Bradley Berman, an independent researcher of hybrid car markets, and it is considered as concurrently a web journal, an online community, and a market research organisation. It had 1,167 registered members, who created 916 threads, and posted more than 8,700 messages to December 2006. Priuschat.com features 18,187 registered members, who have made more than 341,000 online postings to date. It is assumed that

according to the “1% rule” there could be from eight to ten times more visitors than members. The “1% rule” suggests that merely 1% of online population start a certain online group, whereas just 10% of them interact actively, and 90% of the user population simply comes in and out of the website to track discussions (Arthur, 2006). The countries represented as shown in the members map were USA, Japan, Australia, UK, Greece, Italy, Portugal, Netherlands, Belgium, Switzerland, Sweden, Norway, and Finland. The other domain, Greenhybrid.com is owned by a private entrepreneur Jason Siegel. The number of members is 7,535, who have posted more than 101,000 messages on 10,494 topics to March 2007. The unique feature of the website is that it allows the visitors to report the fuel efficiency readouts from their hybrid cars. All the sources enable visitors to chat, discuss and express their views freely, and most of the content is presented in an unedited form, and then archived.

The principle of operation of forums and weblogs is identical. In forums, discussions are organised by threads, the topics of discussion, whereas in weblogs they are organised by discrete contributions of main authors. A thread can be created by any forum member, whereas a contribution in the weblog is under the control of a weblog author. However, both forums and weblogs represent an interactive discourse domain, as threads and topics can be commented on by any member, and even by domain guests. For example, each weblog provides a possibility of commentary on a posted item, so a data source turns into a very long chain of interactive discussion. The list of downloaded threads and weblogs is given in Appendix 4. The total volume of downloaded text from the consumer discourse domains amounted to 3,173 pages of single-spaced, ten-point font which represents 7,387 postings containing 1,317 distinct user names and e-mail addresses (message posters). These postings have attracted at least 259,313 page views from the online user community.

Selecting. In systeming, the primary concern is to enable the development of a body of in-depth, rich, unique description, interpretation, and theory that is relevant to a particular set of purposefully selected cases. The representativeness of some general imagined population is not pursued (Kozinets, 2002b). The instance of seeking representativeness connotes the positivistic view of the

situation, where the properties of a larger population are assumed to be discovered. In contrast, treating selection as a world-in-itself depicts systemic constructivism that is about understanding the world through the momentary construction of systems which come forth within this limited but rich discourse. Consequently, downloaded documents from the marketer domain are not assessed in terms of how well they represent the marketing system's structure. Instead, the instance of the existence of such utterance is crucial. The system cannot avoid communicating, and thus existing. This communication is self-descriptive, so any combination of selections from the pool of communication would enable the identical characterisation of the system. Here, choosing purposeful cases is not to reveal the quantitative aspects of the phenomenon, but is about selecting the various live manifestations of the system under examination.

In the case of consumers, selecting among discrete threads and weblog discussions rather than among whole Internet domains was accomplished. The following criteria offered by Kozinets (2002b) were used to select threads: 1) the relevance of the topic; 2) substantial number of postings; 3) large number of interacting individuals; 4) rich description; and 5) on-going interaction. Moreover, the simple rule of thumb was to consider the number of postings and page viewings. For example, the thread and weblog topics which generally attracted more than thirty-five commentaries were selected. The number of postings and viewings tends to express the extent of salience, preference, and importance given by the participants to a topic. However, several low-volume discussion threads which were highly relevant in terms of the content were also selected. Most often, a forum posting would cite other relevant threads and domains, which were, in turn, accessed and assessed for relevance. It should also be noted that this type of selecting corresponds to the method of purposive sampling in market-oriented ethnography and netnography (Arnould & Wallendorf, 1994; Brown, Sherry Jr., & Kozinets, 2003; Kozinets, 2002b). Each thread and weblog was assessed and their content retrieved. The purpose was not to select a sample that is representative of some population (Kozinets, 2002b), the sample of carefully selected threads and weblogs is treated as a unique case, which needs to be interpreted in terms of a momentary conceptual depth and insight into the system.

Nature of data. It should be noted, however, that text *per se* is a complex object of interpretation (Schwandt, 2003; Thompson, 1997). In a textual form, several contexts and layers can be distinguished. Kozinets (2002b) states that two types of data are collected in online contexts: 1) data copied directly from online conversations; and 2) the researcher's observation of online behaviour and meanings. A person relates a story about his experience. This very act may happen either in an online discourse or a physical context. Also, people can talk about their online experiences *vis-à-vis* physical world experiences. This can also be related in either physical or online contexts. In turn, the researcher observing the Internet can describe a) an online system; or b) a communicative system that is being observed via online conversations. In the former case, the researcher observes how people interact through computer mediation. In the latter the researcher observes how a system observes itself through description. The systeming method emphasises the latter case. Narratives related through a computer medium may be identical to narratives mediated in the process of physical conversations. For instance, in-depth interviews and focus groups are methods that require the physical presence of participants. In the context of these studies, the researcher ignores the context of the interview or the focus group study, and directs his/her attention to the content of conversation. The interview situation in itself, a newly created conversation context, encompasses researcher-participant interactions. The effect of these interactions on the participant's constructions and meaning-creation is usually ignored. Similarly, the systeming method directs attention to the content of online discussions, while maintaining awareness of limitations with regard to textual, context impoverished, and computer-mediated descriptions. Thus, the content of online conversation is about acts that happen in physical contexts. These acts, in turn, happen in reference to other interactions, including online discourses. The question arises with regard to which layer of communicative acts must be observed. This depends on the purpose of the investigation. The purpose of this investigation is not to observe a system that emerges as a result of online interaction, although it plays a significant role in the system's formation. Systeming looks beyond the online behaviour of individuals, where contexts, descriptions, and actions relate to the situated hybrid car marketing and consuming experiences. In comparison, the researcher studying consumer satisfaction via focus group interviews discards the context of a focus

group setting. Similarly, the researcher studying the hybrid car marketing system does not observe online interaction *per se*, rather he/she observes the related context of hybrid car usage. This means that, within systeming, netnography-as-online-behaviour-tracking is only helpful as far as data collection is concerned.

Kozinets (2002b) reports that data downloaded from the World Wide Web embody a context that is “novel, computer-mediated, textual, nonphysical, [and] social cue-impoverished” (p.62). Again, this is true as long as the immediate online system is concerned. The same could be true in respect to transcribed interviews, where the very nature of transcriptions is textual, nonphysical, and social cue-impoverished. The important matter is that the systeming method takes the text (whether online or offline) as simply symbolising interaction artifacts which reference social, physical, rich interaction contexts. Another issue is that an online discussion is considered to be either on-topic or off-topic (Kozinets, 2002b). The systeming method maintains that every bit of conversation is relevant to the process of system characterisation. There could be no off-topic or meaningless communication; each communication communicates meaning. Another issue is that “the identities of conversants are difficult to discern” (Kozinets, 2002b, p.64). This is less critical within the systeming framework, as the identity that is traced is the identity of the social system rather than that of individuals.

Data Analysis

The volume of the downloaded data was overwhelming. Information overload is one of important problems that needs to be dealt with prudence in this situation (Kozinets, 2002b). The systeming method is not to be confused with conversation analysis (Allen & Guy, 1974; Perakyla, 2005; Prevignano & Thibault, 2003). Conversation analysis is an empirical research method that studies both the qualitative and quantitative characteristics of interaction patterns (e.g. turn taking, utterance, and talk sequences) and such practices as telling and receiving news, making assessments, and arguing (Perakyla, 2005). In contrast, the objective in this work is not to describe meticulously either the quantitative attributes of the data set or a meaning represented in a turn of conversation. The data are taken as the ethos of a system’s self-reference. They are synthesised to gain insight into the

underlying system that has been self-referencing through communicating. This process is sometimes called the contextualisation of textual data (Brown et al., 2003; Kozinets, 2002b).

To accomplish the task of analysis and synthesis in an efficient way, I used the qualitative data analysis software QSR NVivo 2.0. This software allows document storing, document manipulation, node (theme) creation and manipulation, data linking, modeling, displaying and searching (Gibbs, 2002). The first step was to transform textual data into an appropriate textual format. The documents were transferred into .rtf or .txt extension files. The documents were ordered and distinct identifying tags applied. This allowed tracking any part of a selected text into the original source. The chunks of text which were assessed as representing holistic communicative acts were assigned into distinctive categories. These categories were classified into bigger themes, which were relevant to my research objectives (Spiggle, 1994). The interpretation of these themes and their meaning in the bigger context of systemic dynamics was informed by the systeming model and method. The themes were not taken as stand-alone theoretical categories which project the reality, rather they played a role of symbolic marks and narrative forms, which underline the boundaries of the system (Polkinghorne, 1988). I used the themes to derive a meaningful story about the system. It should be realised that the result of such an endeavour is a narrative form that meaningfully re-constructs the system under investigation.

Interpretation

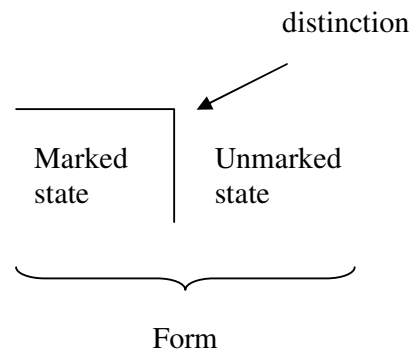
The systeming interpretive process is not easily described in a step-by-step logical manner. This process is more emergent than planned. Through immersion into the contexts and meanings of discourses, and sense-making via NVivo, I allowed a more philosophical, intellectually constructive, impressionistic, and *macro* rather micro interpretation to emerge from the data. I identified recurrent and repeating communicative forms and compared them to the underlying premises of the systeming model of interpretation. In this process, findings led me to stretch the boundaries of original expectations about the system, and thus, construct new insights. Several research techniques were of help. These were communication analysis, distinction identification, re-entry description, and logical level tracking.

Communication analysis. The system is taken as the unity of communications. A particular communication can also be taken as a system in itself. Luhmann (1992) indicated that communication could be reified through recognition of the unity of three elements: information, utterance, and understanding. Information is a particular differential selected from among available information alternatives, whereas utterance is a particular mode of communication chosen among alternative communicative forms. Understanding is an active process of distinguishing between information and utterance that links a communication to other communications. For example, an agent in the system makes an observation about him/herself recycling some materials. Here, a series of actions which is observed as “recycling” constitutes utterance. Also, the act of self-observation is utterance too, because it is one of this agent’s operations. The label “recycling” connotes care for the ecological environment. So environmentalism is the information that bestows meaning to discrete acts in this particular situation. Information can be uttered by many ways, e.g. acting, languaging, narrating, observing (Czarniawska-Joerges, 1998; Czarniawska-Joerges & Gagliardi, 2003; Livesey, 2001; Porter, 2005). Depending on the systemic context, various types of information can be attributed to the same series of acts. For instance, this series represents recycling in the context of environmentalism, whereas it can also be hailed as “cost pruning” in the context of profit maximisation or “compliance” in the context of public policy regulation or even “ethical marketing” when they exceed policy expectations. Interacting agents must understand information, utterance, and also the difference between them in order to actualise communication as a whole. Therefore, understanding becomes a key that finalises communicated meanings (Luhmann, 1995). Understanding is manifested in an ability by the agent to continue similar utterance-information combinations.

Distinction identification. The system observes its own systemic nature by a means of distinctions (Cooren, Taylor, & Van Every, 2005; Luhmann, 1992, 2002; Spencer-Brown, 1969). The main point of reference would be to observe latent distinctions operated by the system, and watch how these distinctions unfold within the “languaging” operations of interacting agents. The observation of distinctions is straightforward. The main premise is that any operation

including communicative acts is based on cutting and imitating distinctions (Baecker, 2006, 1999; Luhmann, 2006). The distinction cuts an operative space into binary, opposite values such as true/false, bad/good, beautiful/ugly. For example, if a corporation states that such-and-such brand achieves that many kilometers per litre of petrol, then the distinction employed is that of *fuel efficient* versus *non-efficient*. A communication is the imitation of some other distinctions. Even an original distinction must first be considered as the imitation of the self that has been alienated (Luhmann, 2006; Tarde, 1969). Spencer-Brown (1969) developed a qualitative calculus that allowed formalising and displaying the self-referential operations of distinction makers. He suggested using a mark called a *symbol of distinction* that divided the space into two states: marked and unmarked (see Figure 6).

Figure 6. Symbol of Distinction and Its Observed Form



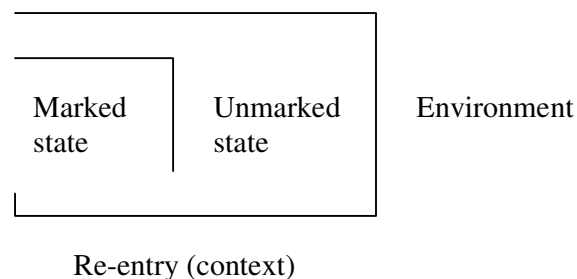
Source: adapted from Baecker, 2006

The distinction-maker doing “distinctioning” only observes a marked state. The second order observation indicates the form of the distinction, which includes both the marked and the unmarked states and the operation of distinctioning. In the case of the aforementioned example, the corporation stresses the level of fuel efficiency of a particular car model. This utterance is marking the *fuel-efficient* side of the distinction, whereas the second-order observation indicates that the reference is to *non-efficient* models, which recede into background and bestow meaning to this communication. Moreover, the distinction of fuel efficient versus non-efficient is distinctioning of a certain system of operation that is being copied

by the corporation. In the context of a different system, the corporation can, for instance, resort to a distinction *strong* versus *weak* engine power.

Re-entry description. A manner in which the system applies an operated distinction onto the self can also be observed, and possible contradictions and implications arising from this operation be investigated (Baecker, 2006, 1999; Luhmann, 2002). In other words, the form is *re-entered* into the form, or the distinction into the distinctioning operation. This self-reference is impossible to treat either logically or mathematically, as it causes all kinds of paradoxes of self-reference. Re-entry is not easy to describe in a logical manner, but it can be displayed symbolically through Spencer-Brown's qualitative calculus (Figure 7).

Figure 7. Symbol of Re-entry



Source: Spencer-Brown, 1969

Luhmann (2002) argues that re-entry symbolises the mechanism of serially nested communications, in which communications refer to other communications. The cascade of re-entries indicates a process of how a communication takes another communication as a point of reference. Communications link to other communications through re-entering them into their space of indication, while this cascade of operations remains inside the system. The environment is not known inside the system but through the re-entry of distinctions. This instance allows the distinguishing of two types of the environment: internal and external. The environment referenced inside the system as the unmarked state represents the internal environment, while the external environment depicts what is differentially left out from the context of re-entry. For instance, in the previously mentioned case of the communicating corporation, the distinction efficient/inefficient can be

re-entered (observed) as being a unique context of the system. This means that the corporation references the self as an entity that is communicating about fuel efficiency. However, this context is different to other available contexts in the environment. Re-entry suggests exploring the issue of how efficient/inefficient the selected context is *vis-à-vis* other contexts. The re-entry description is about explicitly stating that which has already been implicitly contained in communication (Luhmann, 2006). A communication is capable of referencing other communications, and at the same time becoming a topic of subsequent communications.

Logical level tracking. A contradictory character of communication can be understood via observing community operations from a *meta-level*, the level which is one step removed from the level of operating. The meta-level is the locus of *observing the observer*, that is, second-order observation (Luhmann, 1995; von Foerster, 2003). Bateson (1991) gave a particular importance to distinguishing between communications at a basic level and a meta-level. Bateson warned against a trap of “logical typing error” that ruins Bertrand Russell’s theory of types (p.60). The theory of types is based on the idea that a class of names (e.g. objects, communications) cannot be a member of itself. A meta-class comprises basic elements. But a logical order requires that the meta-class be kept separate and not confused as a basic element. Similarly, meta-communication encompasses a set of basic-level communications. However, meta-communication must not include itself as a basic communication. Meta-communication and inclusive communication do not share identical qualities. For instance, the corporation engages in a range of communicative acts such as designing and producing green products, recycling, cutting emissions, saving energy, innovating etc. At this level, these acts are given meaning through comparison to each other based on their differences and similarities. The corporation may engage in meta-communication through reporting these acts as sustainable. The meta-meta-communication would state that this corporate reporting is transparent, realistic, and that it manifests care about the environment (Livesey & Kearins, 2002). The matter becomes more complex when all these communications are considered at the same level. Corporate reporting cannot be “sustainable” in the same sense as a basic communicative act, although it is the report that is constructing sustainability

meaning. The logical question is about how sustainable this kind of “sustainability” is (Dolan, 2002). Bateson (1991) notes that “being human, we shall continue and shall inevitably be liable to certain sorts of confusion” by classifying meta-communication at the same level as communication. Without discrimination, corporate meta-communication and corporate actions are regarded as a portrayal of sustainability, and this, in turn, leads to so-called “surprise” discoveries that the rhetorical and practical aspects of corporate communication are diverging (Kangun & Polonsky, 1995; Peattie, 1999; Schaefer, 2005; Smith, 1998; Welford, 1997).

Ethical Considerations

The online research context prompts the researcher to consider several ethical issues. Kozinets (2002b) extensively elaborates on a number of prominent issues pertaining to the netnographic approach. In his work, Kozinets reconstructs the debate on whether online forums should be considered a public or a private site. Having reviewed several prominent points of view on the issue, he tilts toward considering online domains as a private site. He concludes that the researcher must disclose his/her “presence, affiliations, and intentions” to the online community, secure anonymity and confidentiality of the forum participants, get and reflect on the feedback of online community members on research findings, and be cautious about “the public-versus-private medium issue” (p.65). This also includes the responsibility of seeking permission to directly quote the postings of individuals. In contrast, Langer and Beckmann (2005), drawing on the traditions of the communication and media research, argue that these procedures are too restrictive, and they may inhibit meeting research objectives which are based on unobtrusiveness:

Hence, the largest difference in the procedures of this study compared to Kozinets' recommendations is related to ethics and member checks. As it would have been difficult to obtain similar data in another way, data collection occurred based on the before mentioned pragmatic position towards covert research. However, and as argued above, we claim that the chosen procedures fully satisfy ethical standards for content analysis of public media texts. A comparable example could be an analysis of readers' letters in newspapers. Here - and due to the fact that these are intentionally public postings by the

authors - it would be absolutely unusual to seek permission to use direct quotations. Moreover, the disclosure of the researchers' presence or contacting community members to obtain their permission to use any specific postings, as suggested by Kozinets (2002b, p. 65), would weaken one of the major advantages and strengths of content analysis, namely its unobtrusiveness. It would potentially endanger the whole research project if participants in IMB's (internet message boards) oppose the research. Moreover, some hesitant users might engage in "the spiral of silence" mentioned above by not producing postings. This would ultimately result in misrepresentations of consumers' accounts of a given topic, where only the most articulate users of an IMB and those, who feel less affected by the sensitivity of the topic, are included in the analysis. (Langer & Beckmann, 2005, p.197)

Thus, Langer and Beckmann tend toward the idea that online spheres such as forums and weblogs represent a public domain. In their study of cosmetic surgery ethos in Danish online forums, they chose to not identify themselves, avoided doing member checks, and prefer not to seek permission to report the postings of participants.

In this investigation, the ethical issues are tackled according to the specifics of the study. Consequently, I did not introduce myself as a researcher to the online community, as it appears to be inappropriate in this situation because a) almost all information is available in public openly (for instance, corporate reports, corporate website contents, forum threads, weblogs); b) the observation is historical (tracking archived threads) rather than current; and c) forums are momentary and fractionalised, so the introduction of the self in one of the threads is soon forgotten and even may be missed by many. Moreover, anonymity is doubly secured in my investigation. Notably, most of forum participants use usernames rather than real names to identify themselves. These usernames were changed, while personal information (e-mail addresses, the names of cities and geographic locations, etc.) was removed from the content of postings. However, these procedures were unnecessary in the case of corporate communication. The informed consent of forum participators was not sought, as the consent is already implicit in the act of posting in the public area (Langer & Beckmann, 2005). Moreover, the systeming method does not investigate individuals as such, but systems. The communication is attributed to the system rather than individuals, and the systeming method is not directed toward tracking and describing individual characteristics.

Limitations

Systeming is directed toward developing in-depth *understanding* of phenomena rather than *discovering* universal logical patterns. However, the systeming method creates an even greater distinction on its own. This distinction emphasises systems and systems' operations, whereas it ignores the unmarked side of the issue, that is, a non-system world and prediction possibilities. This could be one of the points of critique that would be able to turn systeming's "weapon" onto itself. Nevertheless, this recursive critique does not undermine the value of the perspective, as the critique would have to use the systeming method in order to construct such an argument. The response to the critique leads to an infinite regress, because one has to introduce a mega-analysis that encompasses a system/non-system (understanding/prediction) distinction. The mega-analysis would introduce its own distinction and also its unmarked side, so a mega-mega-analysis would be necessary, and so forth. A mega-level analysis is still a systeming inquiry. The systeming method in any case is unavoidable. Furthermore, the principal disadvantage of the perspective might be seen in its greater degree of complexity and a higher level of abstractness (Luhmann, 2004). However, this may be what is needed when tackling as complex and holistic issues as macro-marketing problems. This does not mean that practical applications are impossible. In contrast to logical deductionism, the pragmatic value of the perspective may not become actualised in terms of programmed *shoulds* and *should nots*, rather valuable insights are expected to "happen rather sporadically and incidentally, rather more at random and in the form of irritations than in the form of logical conclusions" (Luhmann, 2004, p.65). This may mean that practical implications occur as a result of sparks of intuition and creativity informed by knowledge gained through the understanding of systems, which could not be predicted in advance. This is in a rather stark contrast to the mechanical following of instructions.

The usage of qualitative software is about reducing complex data into simpler themes and patterns. Therefore, some may argue that the systeming method is reductionist. Moreover, data classification and patterning "inevitably involve

trading off symbolic richness for construct clarity” (Kozinets, 2002b, p.64). However, my counter argument is that reduction here is to *wholeness* rather than *fractions*. As a result, systeming constructions are organised to represent a holistic, recursive, and circular logic, which is different to fractional, linear, and causal conceptualisations.

The data set retrieved from the Internet sites consists of highly unstructured and chaotic contributions by a large number of participants. As online nicknames are used for identification, it is highly improbable that contributors can be fully identified unless they identify themselves openly. A concern might arise that these domains are likely to be “contaminated” by agents other than consumers, e.g. marketers and promoters. However, this is to be expected. Communication is far from being akin to one-way message channeling on the part of a particular homogenised group, but is the chaotic appreciative interaction of the many who are involved in the process. This investigation should not be confused with a factor-controlling experimentation that is based on random or systematic samples. The understanding of the problem of *organisation* calls for the representation of complexity in the form it is brought forth in life-worlds. So, I see the marketing system as comprising all acts of *citizens* and their communication, regardless of their temporalised role-taking practices.

The critique may suggest that those people who post on weblogs and forums voice extreme views (green extremism) rather than representing the points of view of all hybrid car users. I propose several arguments to negate this critique. First, the population in question is the community of “real” hybrid car drivers, who change their communication according to systemic meaning. I do not intend to study out-of-the-system consumers and manufacturers. Second, hybrid car fans are thinly distributed globally, and the Internet is a viable means of fast and cheap communication. The Internet is becoming the locus of convenient and accessible communing (Bagozzi & Dholakia, 2002; Kozinets, 1998a; Rubach, 2006). Online discussion boards are simply one of many channels people communicate through. Some researchers argue that online communication is not much different from social embodied communications (Bagozzi & Dholakia, 2002). Third, my focus is on *what* hybrid car fans are communicating about, and not on *how* they are

behaving in their forum/weblog participation. To compare, researchers usually ignore the behaviour of interview participants during interviews, and instead, focus on the content of conversation. Fourth, manufacturers are increasingly turning to online forums and weblogs as the alternative media of involving consumers, which suggests that weblogs and forums are taken very seriously and as the representative of most populations (Economist, 2006; Kirby & Marsden, 2006; Sharma & Sheth, 2004). Finally, Gladwell (2000) in his book *The Tipping Point: How Little Things Can Make a Big Difference* discusses the so-called *Law of Few*, which postulates that the opinions of a small part of the target market (around 10%) drive the rest of the market's purchase behaviour. These influencers are called opinion leaders. Gladwell discussed several methods of identifying opinion leaders. Two of these are relevant to the case of hybrid car fans: self-designation and digital traces. Opinion leaders usually self-select to represent the views of a majority and they are more likely to leave digital traces (online interaction artefacts). Hybrid car forums and weblogs are the representation of loci, in which opinion leaders self-select and leave digital trace. Furthermore, I argue that the Law of Few is a systemic effect that is linked to meaning-creation. Meanings do not have to be created by all and at each instance of interaction. Few co-create meanings and others simply emulate them. Therefore, those who post on online media are not at the extreme of phenomena, but they are at the heart of meaningful transformation. They lead meaning-creation in the system.

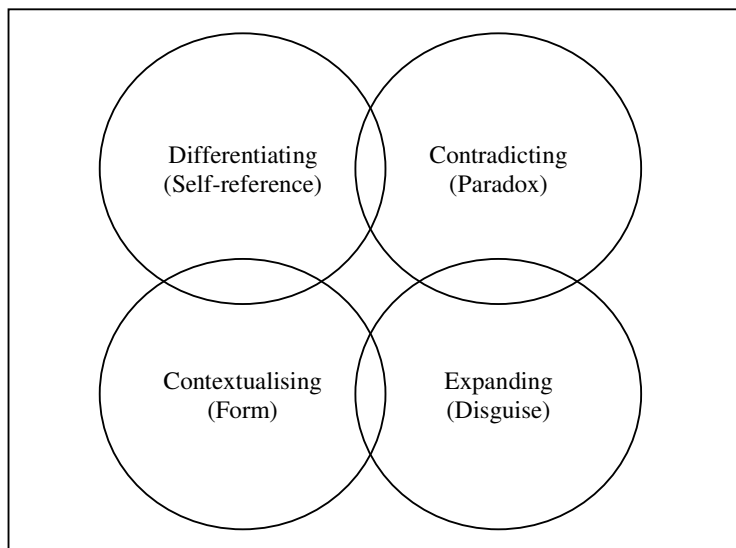
Section IVa

Analysis: Subsystem of Marketer Communication

Introduction

This section presents the systeming interpretation of the *(sub)system of hybrid car manufacturer communications*. This subsystem is referenced as *SMC* or *the system* hereafter. SMC represents the network of successive linked communications initiated by hybrid car manufacturers and their extended value-chain partners in relevant context(s) of operation. The research objective is to conceptualise the process of meaning enactment in the system. In this section, data retrieved from marketer discourse domains are used to illustrate the character of a meaning-creation process in a complex communicative system. The basic essence of a resulting interpretive construction is presented at the beginning of the section in order to clarify main issues in this interpretation in advance. I use the term “crystallisation” to depict the interplay of meaning enactments (Denzin & Lincoln, 2005). The crystallisation symbolises the system that emerges in various meaning contexts which is reminiscent of light’s diverse deflections in a crystal’s structure. The simplified version of the crystallisation is given in Figure 8.

Figure 8. Meaning Flows that Construct the System



The figure shows that SMC comes forth as a series of *meaning-flows*. Four distinct meaning flows are observed that are called differentiating,

contextualising, contradicting, and expanding. Here I am using the verbs in the gerund form to connote the active character of the system. Systeming views the system as a flow of activity. Hence, SMC is formed in continuous differentiating or contextualising rather than in a discrete “differentiation” or “contextualisation”. *Differentiating* is a general pattern observed in the self-observation of corporations that actualise a unique system in characterising themselves and their environment. The corporations as observers exhibit uniformity in referencing the self in the background of a constructed outer reality. This observing brings forth the system that is unique, ordered, and different to complexity. *Contextualising* is a pattern of meaning-creation in various interaction contexts. A set of interlinked contexts reveals the meaning *form* of the system. The corporations actualise the form to create internal complexity – the same event with diverse meanings – which is constructed consistently in every turn of observation. *Contradicting* is an aspect of meaningfulness. The corporations create meanings by emphasising a positive value that simultaneously references a negative value. Although they insist in an observation content that their actions are sustainable, the form of observation contradicts the content. This paradox is disguised through *expanding*. Expanding is accomplished through maintaining decision premises, constructing a functional hierarchy, re-defining a temporal space, and diffusing identical communications. The system can thrive only because it successfully expands its inherent paradoxical nature.

In this section, I first explore the self-referential nature of SMC. Then, the form of the system is constructed through the analysis of different contexts in which the meaning of the hybrid car is located. Next, the contradictory character of meaning-creation is identified. Finally, purposeful expansion within SMC is described. Four expansion strategies are distinguished: hierarchical expansion, functional expansion, temporal expansion, and communicative transvection.

Self-reference

The corporate environmental reports and other information sources such as corporate websites observe corporate activities and position them within the

constructed picture of surrounding realities. One would expect creativity in this respect, which means that very idiosyncratic “corporate worlds” would be communicated regarding sustainable development. However, views expressed in the reports end up constructing very standard, consistent, and synchronised communications. I shall demonstrate this in several examples. My argument is that corporations are acting (operating and observing) to actualise a single common system of meanings, SMC, the characteristics of which are evident in observed self-observations.

The reports start with the introduction of a context that is critical for stable meaning-creation. A typical message can be in this form:

We have changed the name of this report from the Ford Corporate Citizenship Report to the Ford Sustainability Report, reflecting an evolution in our thinking. (Ford Motor Company, 2005, p.1)

The change of emphasis mentioned in the passage is not simply the “evolution” in the company’s “thinking” (p.1). This change means that the system as social interaction between corporations and their stakeholders has been shifted. These opening words in the environmental report by Ford Corporation signal the context of further interaction. Here differentiation occurs: utterance which comes next is given meaning according to the *sustainability* context, whereas other contexts are simply alienated. Consider an example from Toyota Corporation:

Sustainability [is] Toyota’s everyday commitment to the future. Every day, all over the world, Toyota acts on policies to make it an eco-friendly corporation – and a welcome presence in society (Toyota New Zealand, 2005, para 1).

Future is complex. The complexity of interaction with stakeholders in the future, especially, must be reduced into a coherent meaning. Sustainability becomes a common context and theme of such interaction. The context both sets boundaries and provides opportunities. The corporation signals the reduced form of complexity, so successive meaning-creation happens within the boundaries of this sustainability-related domain. Also this domain has to be ambivalent to allow some extent of creativity in terms of acting. Sustainability can have various shades

of meaning in the system. The process of meaning-variation can be seen in the fractal formation of the system.

The fractal structure of SMC emerges through internal transposition that references constructed self *vis-à-vis* constructed environment. Sustainability becomes information when it is depicted in various factors in the environment. At the same time, the concept becomes utterance when corporation observes its own activities in the light of this concept. The meaningfulness of identity is formed in linking the two sides of communication. The meta-difference to complexity is created in differences between the self and the environment. This dynamic can be seen in Figure 9.

Figure 9. Fractal Formation of the System

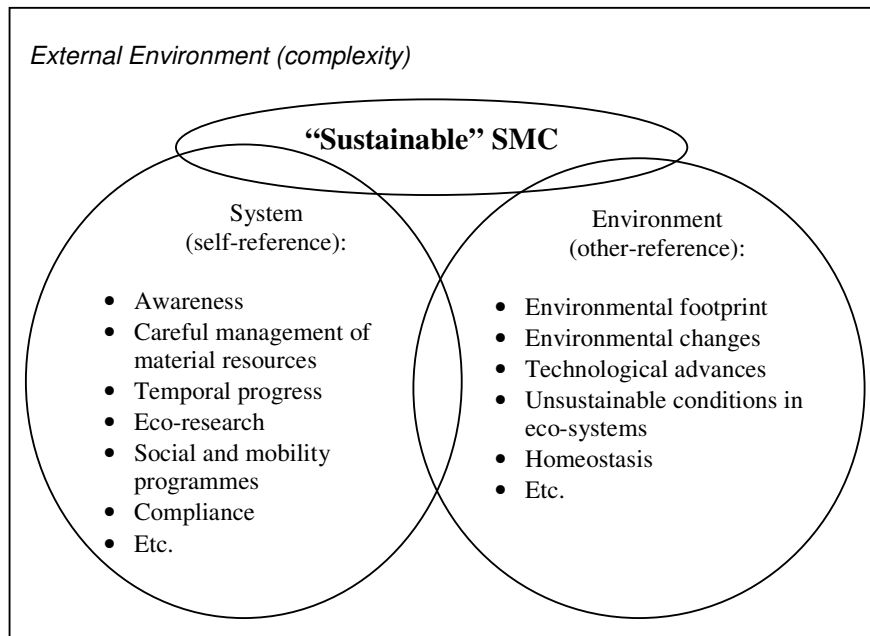


Figure 9 shows the two fractals of differentiating. The first fractal is in an observed content in which self-reference constructs the view of corporation and the other reference builds the particular view of environment. The second fractal is depicted in dialectical construction of the overall systemic identity labelled Sustainable SMC, which symbolises the self-ascribed sustainability that is different to complex environment. The two sides of the first fractal do not exist independently, rather they define each other. The observed self includes utterance

categories. I have identified several categories such as awareness of impact, temporal progress, material resource management, eco-research, social and mobility programmes, and compliance. The observed environment comprises information categories such as environmental footprint, environmental change, technological advance, unsustainable conditions in eco-systems, and homeostasis. When communicative acts elaborate on an aspect from the *system* side, meaning is created when they are linked to *the environment*. This process corresponds to Baecker's (2006) explanation that system formation is only possible when the system can distinguish between self-identity and other-identity. The process indicates that SMC is self-referential (Luhmann, 1995; Maturana, 1981; Schaefer, 2005), since the system recreates itself and its view of the environment within the very network of self-observation.

For instance, the most recurring pattern in self-observation of corporations was about stressing the automobile industry's colossal effect on society. The magnitude of an "environmental footprint" (Hart & Milstein, 1999) generated by car manufacturing, marketing, and use is conveyed in the example of the following passages from the environmental reports:

The sheer scale of our industry is enormous. In the United States, the auto industry is responsible for 6.6 million jobs, which is about 5 percent of all private-sector jobs and nearly 4 percent of Gross Domestic Product. No other single industry is more linked to U.S. manufacturing strength or generates more retail business and employment. The U.S. auto industry purchases 60 percent of all the rubber and about 30 percent of all the aluminum, iron and stainless steel used in the United States. (Ford Motor Company, 2005, p.3)

The rate of fatalities and injuries is much higher in developing countries. On a global basis, the World Health Organization estimates that some 1.2 million traffic fatalities occur annually. This number could increase to 2 million in four years if present trends [e.g. the increasing rate of road accidents in developing countries] continue. (Ford Motor Company, 2005, p.14)

To give you an idea of just how important this initiative [e.g. GM's commitment to tackle sustainable mobility problems] is, it's estimated that by the year 2020, there could be as many as 1.1 billion vehicles on the planet. That's enough to circle the earth 125 times! (General Motors website, 2006, para 24)

A total of 1.67 million tons of raw materials and supplementary materials, 34.5 x 10⁶GJ of energy in the form of electricity and fuel, etc., and 14.3 million cubic meters of water, were used at Toyota. 1.54 million tons-CO₂ of greenhouse gases and 11.84 million cubic meters of water were released into the atmosphere and waterways respectively. Of 546,000 tons of the total volume of waste generated and not processed by Toyota, 540,000 tons was reused as recyclable resources in the form of raw material for steel, and 6,000 tons was disposed of in landfills. In logistics, CO₂ emissions during the transport of 3.5 billion ton-kilometers of completely built units and parts amounted to 285,000 tons-CO₂. (Toyota Motor Corporation, 2005, p.30)

Corporations pinpoint the problem of their own perverse effect on the natural/social environment. This particular operation suggests that SMC consolidates in observing a difference between *awareness of* and *ignoring* the system's own environmental footprint. Awareness is depicted in a *minute management* of material and natural resources:

We will make efforts to recycle materials and conserve resources and energy at every stage of our products' life cycle from research, design, production and sales, to services and disposal. We will make every effort to minimize and find appropriate methods to dispose of waste and contaminants that are produced through the use of our products, and in every stage of life cycle of these products. (Honda Motor Company LTD., 2005, p.12)

Important information underlines the passage – the current condition of ecosystems is *not sustainable* – the idea which runs behind reflected actions, including future action commitments. In its current form, this observation takes for granted that the audience addressed is deeply concerned about ensuing ecological crises. Therefore, actions and commitments regarding the management of resources appear to be prudent. This prudence or meaningfulness is self-referential, as it is completely constructed within the system.

Within the system side in Figure 9, *temporal progress* identifies patterns through which communications refer to changes that occur with the flow of time. The temporal progress – a *past-present-future* continuum - is plotted to depict the development from the least sustainable to the most sustainable condition:

To me, the idea of sustainability is simple. It means thriving, adapting and prospering as the world continues to change around us...Today, however, the connections between

companies and the world around them are far more complex. Society holds businesses increasingly accountable for their impact on environmental and social systems. (Ford Motor Company, 2005, p.36)

Honda has long been engaged in environmental conservation, aggressively undertaking measures suitable for the time. In the 1990s, amid the increasing momentum toward environmental conservation and the acceleration of environmental measures all over the world, we improved our organizational structure and system step by step. (Honda Motors Company website, 2005, para 6)

... at GM we have a long history of technological innovations with positive environmental impact — the first catalytic converters, the first extensive emissions control systems, and among the first unleaded fuel systems, to name but a few. Our goal is to play a proactive role in bringing advanced technology vehicles to markets around the world, in high volumes...Of course, we also have a responsibility to our shareholders to make good business decisions. That is why we are constantly improving the performance of today's vehicles and the processes used to manufacture them, through technology, partnerships and process improvements. (General Motors website, 2006, para 23)

In the first passage, the temporal progress is explained as maintaining harmonious relation to ensuing environmental changes. In the second and third passages, the temporal progress is seen as the natural reaction to growing *unsustainable conditions* and *technological changes* respectively. The system regulates which factor is emphasised and when it is emphasised. Therefore, current environmental conditions are often constructed as “unsustainable” or as in progressive transition to unsustainability. Technological changes are attributed with a quality of “positive environmental impact” to connote the technocratic character of sustainability progress. These constructs are meaningful selections, and they are the selections which belong in this particular system.

The corporations stress *homeostasis*, a steady state of functioning, through directing their operations toward *compliance*, i.e. developing communications in accord with limits thought to be imposed by the environment. The compliance can be either re-active, as in the case of accepting state regulations on greenhouse emissions, or pro-active, as in the case of developing vehicle models which comply with expected regulations in the future. The following observation is relevant:

In 2001, the California legislature passed a law directing the California Air Resources Board (CARB) to promulgate rules limiting greenhouse gas emissions from motor vehicles. In 2004, CARB voted to adopt a set of fleet average standards expressed in grams per mile of CO₂. The standards would take effect beginning with the 2009 model year and become increasingly stringent through the 2016 model year. In 2005, several other states, including New York, Connecticut, Massachusetts, Vermont, New Jersey, Pennsylvania, Oregon and Washington, began the process of adopting such regulations or processes or announced their intention to do so. Ford supports the reduction of vehicle CO₂ emissions and is working aggressively toward the development and implementation of real, market-based solutions. However, the entire automobile industry is united in opposition to the AB 1493 rules because they constitute state fuel economy standards. State-by-state regulation of fuel economy is unacceptable to the industry because it raises the prospect of an unmanageable patchwork of state standards. Moreover, the AB 1493 regulations impose limits that are drastically more stringent than the federal standards. In December 2004, the Alliance of Automobile Manufacturers filed an action in federal court in California seeking to overturn the AB 1493 regulations. All members of the Alliance (BMW, DCX, Ford, GM, Mazda, Mitsubishi, Porsche, Toyota and Volkswagen) supported taking this action. The Association of International Automobile Manufacturers (AIAM), which includes Honda, Nissan, Aston Martin, Bosch, Delphi, Denso, Ferrari, Maserati, Hitachi, Hyundai, Isuzu, Toyota, Suzuki, Subaru, Renault, Peugeot, Mitsubishi, Kia and JAMA (Japan Automobile Manufacturers Association, Inc.), is seeking to intervene in the litigation on the side of the Alliance. The Alliance, AIAM and many individual auto manufacturers including Ford also voiced their opposition to the regulations in comments filed with the California Air Resources Board. (Ford Motor Company, 2005, p.24)

This passage presents a narrative about corporations opposing to a pro-environmental move initiated by Californian air quality regulation authority. The dilemma for the observing corporation is how this event must be observed in the light of its own motivation for sustainability. In a literal sense, the character of the action directly opposes sustainable identity. To give this problem a proper character, the corporation observes the event as a struggle for ensuring *homeostasis* and counteracting environmental *chaos*. This is seen in the statement that “state-by-state regulation of fuel economy is unacceptable to the industry because it raises the prospect of an unmanageable patchwork of state standards”. Thus, the anti-environmental move is transformed into a “sustainability action” through creative utterance-information linking. However, it is not quite correct on the part of the researcher to refer to the observed event as anti-environmental *per se*, as this reference can only tell about the researcher’s perspective in signifying a

complex event. Events are simply events, but they become meaningful when observed within the system.

Researchers often label similar cases in reporting to be hypocritical, because it would seem to them that firms' actions are not consistent with their commitments. Systeming disagrees. Inconsistency is in the researcher's observation that imposes its perspective on systemic operation. For the system, such operating is natural and self-constructive, as its acting and observing (which is acting too) is geared toward ensuring the coherence of the system. In this, the system becomes the structure of recursive operations, which presupposes that the self-observed state of the system is included in a subsequent operation as a defining factor (Baecker, 2006). However, this process of formation is *non-trivial* (von Foerster, 2003) or *emergent* (Luhmann, 1995), that is, the observed state of the system is never repeated in an exact manner owing to a continuous inflow of changes observed in the environment. The environmental events are part of self-reproduction. These events are interpreted uniquely within the system and become the systemic *enactments* of environmental events (Daft & Weick, 1984; Weick, 1979). The system constructs self-identity (sustainability) recursively by differentiating it from the picture of the environment constructed at its operative level. Thus, the difference between the self and the environment becomes the basis for self-construction.

Figure 9 indicates that a communication moves selectively from the horizon of information to the horizon of utterance to create the network of understandings. In this, the system is very contingent and flexible; it can communicate by selecting particular items from a set of similar items, while maintaining a range of new possibilities in/as the background. The difference between the system and the environment, internally enforced by communication, is characterised as the *identity of the system* or the "*eigen-value*" of communication; it is essentially kept constant (Baecker, 2002, p.91). The identity evolves around the issue of sustainability, which is a nebulous concept (Dolan, 2002; Schaefer & Crane, 2005). The ambivalence of the concept makes the system flexible. A communication finds its continuation by referring to endless possibilities enabled by this ambivalence. This may be a reason why *sustainability* is so successful a

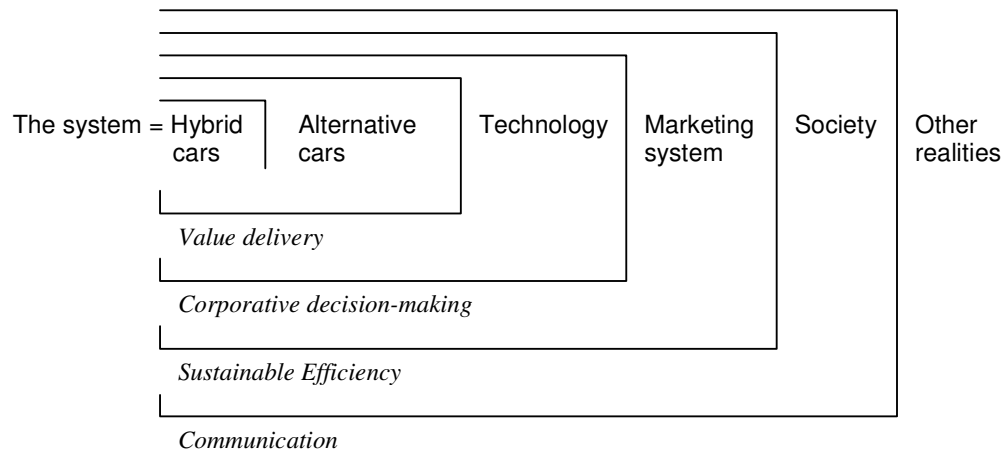
concept in becoming popular, despite obvious difficulties to define it operationally (Schaefer & Crane, 2005). A systemic enactment may require that the concept is to be elusive enough to be introduced into a wide range of communicative acts.

Form of the System

General Form

The form of the system refers to a nested pattern of contextualised self-observations. The Form contains three components: a) communicative acts by SMC's participants, i.e. first-order observers; b) communications by self-observers, i.e. second-order observers; c) contexts, in which these two types of communications occur, which, in turn, become re-entered into the level of original communication, thus necessitating the next level of a context, and so on. This analysis is based on the model of *the form of a firm* proposed by Baecker (2006). The resulting Form is presented in Figure 10.

Figure 10. The Form of the System



The distinction of a product category, here it is *hybrid cars*, is initially introduced. The first distinction provides the initial point of observation. The hybrid car represents a set of complex environmental perturbations as long as the ontological aspect of the object is concerned. Its meaning is not fixed. Therefore, emphasising simply a tangible (material) aspect of the product is not sufficient in

understanding its meaning. The form demonstrates that this example of “goods”, state-of-art technology, has various “service-dominant logics” depending on context(s) enacted in the system (Vargo & Lusch, 2004, p.7). Vargo and Lusch (2004) argued that goods are inherently service-based, i.e. their symbolism dominated their physicality. The form shows that the meaning of a good is not single and universal. On the contrary, the product’s meaning (its symbolic logic) can be multifaceted depending on the contexts of social interaction.

To show the interplay of meanings, five distinctions and four re-entries are described. The hybrid car’s meaning is reified through the following contextualisations: 1) the hybrid car is a unique set of workplace injunctions; 2) the hybrid car is the most suitable current selection from among similar car technologies; these two distinctions are considered as a core value delivery process; 3) the hybrid car is the consequence of modern technological process; value delivery and technology are unified as the context of corporative decision-making; 4) the hybrid car is a sustainable option generated within the marketing system that is driven to sustainable efficiency; and 5) the hybrid car is an epitome of the rational sustainability that is attained in current society. The last re-entry posits that society is communication, so the hybrid car can also be understood as a societal communication that is distinguished from other realities.

Hybrid Car

The corporations provide the hybrid car’s unique technological description:

Hybrid propulsion systems use two sources of power to move a vehicle — an internal combustion engine and electric motors. The engine charges the electric motors' batteries and their load is then reduced by the motors. ...There are many ways to configure a hybrid drive system. In some hybrids, the batteries power electric motors, which drive all four wheels. In others, the engine may drive the rear wheels while the batteries power the electric motors, running the front wheels. In others, the batteries or another electrical source act as auxiliary power. (General Motors website, 2006)

Why has this product become a paragon of sustainable action in the industry? The description above tells nothing but the principle of the product’s operation. For on-ground employees, designers, managers, suppliers, dealers, and other agents operating at the first-order of SMC, the hybrid car is simply part of daily routine.

These communicators are guided by a set of discrete injunctions that references the product category (Casti, 1991). For instance, the corporations' public relation officers *promote* the hybrid car, whereas the research and development staff *invents* hybrid car technology improvements, engineering *enhances* its environmental performance; environmental committees *audit* life-cycle impacts of the vehicle and so on. The injunctions specify who does what in what conditions. For instance, for an engineer in Toyota the hybrid car can become a very specific problem of placing a car battery in the right place:

The THS II is a system with an extremely wide application range. It represents a sophisticated fusion of environmental performance and power and can place greater emphasis on either environmental performance or driving performance depending on how exactly it is employed... According to Chief Engineer Okane, "The one problem that we struggled with until the end was the installation of the battery. With the Kluger, which has a third-row seat, making the battery smaller and cooling it were the key issues." If the spaciousness of the interior were sacrificed, the functionality and comfort of an SUV would be lost, even if the vehicle is made a hybrid. No compromises were made so 'environmental performance could be enhanced without losing any functionality'. (Toyota Motor Corporation, 2005, p.48)

The whole needs to be fragmented into actions in order to be observed. Thus, the holism of value, sustainability, is severed within the system (Fichte, 1970). First-order observers are "condemned" to work with and within *severed realities*. Reflecting on a similar phenomenon, but in a different context, Giddens (1991) describes the paradoxical nature of the dynamics of self-emancipation. In his view, in the context of dominant social systems, the self has to progress toward the ideal – the emancipated self – through self-reflection and life-politics depicted in a finite set of existential actions. These actions reference a transcendental concept, the ideal self, but can never reach it. Thus, the project of the reflexive self fails to find its completion. My interpretation of systemic identity in this study differs slightly from Giddens' view. Although the holistic concept is what bestows a unique identity to the system, I think that fragmented actions are necessary for maintaining a stable wholeness. The system strives to attain holism, however, its holism is left in the background, while concrete activities in the form of injunctions come to the foreground of observation (Casti, 1991; Hofstadter, 1979). It is only through self-reflection in the form of strategic thinking that the system

can develop capacity to transcend its internal recursivity (Baecker, 2006; Hamel & Prahalad, 1994) .

The first-order observers have the ability to reflect on their first-order communication. This is exhibited in viewing hybrid-car-related-acts within the background of alternative products, e.g. fuel-efficient car technologies the corporations are able and considering to offer. The hybrid car acquires a distinct meaning when it is observed as a figure in the background of alternative fuel efficient car technologies. The product category is not the set of injunctions anymore. It is a current prudent choice that enables continuation of communications, and thus, the autopoiesis of the system:

...the Prius is a response to the automobile requirements of the twenty-first century and is a starting point for further such responses. Considering just environmental performance, the electric vehicle may also be a response. At the time, however, electric vehicles faced many practical problems with regard to cruising distance. Customers will not purchase vehicles that forsake other functions for environmental performance, and this means that such environmentally weighted vehicles will not proliferate. It is from this perspective that Toyota has continuously made improvements to the hybrid system...The new Prius is an expression of Toyota's thinking that 'cars with good environmental performance alone are not enough — it is the development of products with excellent environmental performance that also maintain the core appeal of automobiles and are chosen by customers that will lead to their widespread adoption throughout society, and harmonious existence within society'. (Toyota Motor Corporation, 2005, p.46).

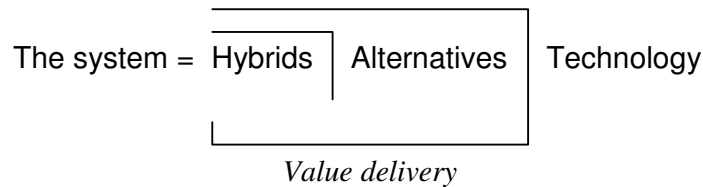
The alternative technologies SMC is currently able, and will be able to offer in the near future are many, including such vehicle categories as compact cars, diesel vehicles, natural gas vehicles, dual (biologic) fuel vehicles, fuel cell vehicles, flexible fuel vehicles, and plug-in electric vehicles. The hybrid car's value as being environmentally friendly is deduced from this horizon of selection. In this, the system loses its flexibility, as it distinguishes only those sustainable routines which can be defined within the alternative assortment horizon. The corporations can only hope to create products which do not challenge the boundaries of this horizon:

In the meantime, GM will offer a range of hybrid cars and trucks and continue to improve the internal combustion engine. Beginning this year, we will introduce our first hybrid

electric powertrains, which will eventually power over a dozen vehicle models, including pickup trucks, SUVs and sedans. (General Motors website, 2006, para 7)

The hybrid car and the alternatives are in the domain of *value delivery* (Figure 11). Value delivery comprises the first distinction (hybrids/alternative technologies) and is different to *technology*, the next level of context.

Figure 11. The Form of SMC Marked by the Domain of Value Delivery



Corporations believe that hybrid cars are a good response for modern demand in the marketplace which stresses high fuel economy, less emission, and driving comfort in combination:

Since fiscal 2003, Honda had been promoting the earlier compliance of all its models with the 2005 exhaust emissions standards and made all the models comply with the standards. Honda is promoting the approval of its models as “three-star low emission vehicles” and “four-star low emission vehicles.” ...For the hybrid model Insight, which provides both high fuel economy and the joy of driving, Honda adopted an engine under-cover to improve the car’s aerodynamic performance. At the same time, the IMA system was improved. As a result, the Insight’s fuel economy was improved from 35.0 km/R* to 36.0 km/R, achieving the world’s highest class performance in fuel economy. (Honda Motor Company LTD., 2005, p.26)

...achieving compatibility between excellent driving performance and high fuel efficiency...How could compatibility between fuel efficiency and driving performance be achieved? The hybrid system was perfect for resolving this issue. (Toyota Motor Corporation, 2005, p 47)

The corporation believes that value is delivered to consumers by means of the product. For this reason, the view of “rational” consumers must be maintained. Rational consumers would choose products which supposedly maximise value

criteria (Schaefer & Crane, 2005), i.e. here fuel economy, ecological performance and driving comfort. In this context, the hybrid car is seen as a vehicle (both in literal and metaphoric sense) of sustainable value delivery.

The meaning-creation occurs when the *value delivery* context is positioned in the environment that is referenced as *technology*. The former is about such processes as product conception, design and development, production, promotion, sales, and after-sales services, whereas the latter domain includes all the actions above augmented by corporate social responsibility actions. The value delivery domain provides a sharp focus for product-related communication, while differentiating them from the technological domain of the corporation:

Honda is determined to strengthen the characteristics that make Honda unique in the development area to give joy and excitement to customers and to become the world's No. 1 in "creating new value." In other words, we will further advance our "value creation" to differentiate Honda from other companies and make us a leading company in the world in each area of our business. ... By improving individual associate's "initiative," "technical skill," and job "quality," we can further drive Honda to increase its "value creation". (Honda Motor Company LTD., 2005, p.5)

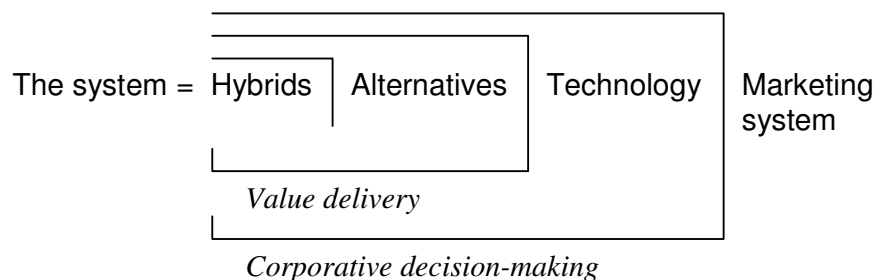
Technology

Technology refers to "all kinds of ways of making sure that we can do what we want to do... [including] material access to resources, knowledge of procedures, technologies, availability of people to do the job and ways to convince society that you are doing what you are doing in the proper way" (Baecker, 2006, p. 129). Technology is a corporate activity domain that comprises the value delivery context, and also, corporate citizenship issues, social responsibility action, sustainability programmes, ethical and moral policy, facility greening initiatives, energy saving and recycling activities. In reference to technology, the hybrid car attains another level of meaning. It is seen as the inevitable consequence of sustainable technology that is available to a firm. The hybrid car becomes the paragon and manifestation of corporate social responsibility. Although the offer of the hybrid car in the marketplace remains a very technical enterprise considered from the point of the value delivery context, it reflects apprehension of societal dynamics at the same time:

Developing vehicles that help build a sustainable society is always a challenging undertaking. It is important to pursue environmental technologies that improve fuel efficiency and reduce exhaust emissions, as well as to manage and reduce the environmental impact throughout the entire lifecycle of vehicles (Toyota Motor Corporation, 2005, p 24.)

This notion of technology is not an innovation. In fact, systems research referred to this particular concept so often that it is taken for granted, and thus analytically indistinguishable. In the input-output frame of analysis, a comparable concept is the notion of *process*. The process is considered to be a “black box” of the system by which inputs are transformed to outputs (Dixon, 1991). The process is often taken as a simplistic set of operations. However, it has complex social connotation too (Emery & Trist, 1960). Although its nature is rooted in the mechanical routines of action, it references the social environment by operationally linking the systemic structure with external inputs and outputs. Therefore, Emery and Trist (1960) described the technological nature of the system as a socio-technical system. The system refers to both internal technicality and external social links at the same time, which means that marketing can represent both micro-managerial technology and societal process simultaneously. However, it has never been easy to represent this kind of a paradox in a coherent conceptual way. The form represents it by the notion of re-entry. Technology allows distinguishing the boundaries of corporative decision-making within a broader marketing system (Figure 12).

Figure 12. The Form of the System Marked by the Domain of Corporation



Corporate decision-making indicates the flow of managerial activity that can be communicated in terms of manipulating technical factors in hybrid car production and marketing. Also, the picture of a responsible manager, who is engaged in serving the cause of social welfare can be stressed (Forrester, 1958; Gronroos, 1990; Laczniak & Murphy, 2006; Varey, 2002b). The form shows that both notions are used in the system's communication: the former as the internal reference *vis-à-vis* the technology and the latter as the external reference toward societal sensitivities:

Social Performance Principles: [We will] express our support for universal human rights and, particularly, those of our employees, the communities within which we operate, and parties with whom we do business; promote equal opportunity for our employees at all levels of the company with respect to issues such as color, race, gender, age, ethnicity or religious beliefs, and operate without unacceptable worker treatment such as the exploitation of children, physical punishment, female abuse, involuntary servitude, or other forms of abuse. Respect our employees' voluntary freedom of association. Compensate our employees to enable them to meet at least their basic needs and provide the opportunity to improve their skill and capability in order to raise their social and economic opportunities. Provide a safe and healthy workplace; protect human health and the environment; and promote sustainable development. Promote fair competition including respect for intellectual and other property rights, and not offer, pay or accept bribes. Work with governments and communities in which we do business to improve the quality of life in those communities - their educational, cultural, economic and social well being - and seek to provide training and opportunities for workers from disadvantaged backgrounds. (General Motors Corporation, 2005, p. 7-23)

However, the ideal of both technical and social perspectives is not easily achieved. It is quite likely that some communications violate both. This kind of violation is used as a basis of self-critique and opportunity to generate more communication:

CO₂ emissions attributed to energy use in the production domain came to 467,600 CO₂-tons in fiscal 2004, up 5.1% from the previous year's level (445,000 CO₂-tons)...These results were mainly due to increase in production, the influence of the weather, and the implementation of measures...(Honda Motor Company LTD., 2005, p.35).

The hybrid car is taken as the necessary and natural consequence of corporate decision processes that complies with the current level of technology. This aspect

differentiates the necessary causality in the fact of the availability of the hybrid car offer in the market from complex indeterminate non-causal states, which underpin this market situation. As Toyota Corporation explains (advertises), its *hybrid synergy drive* technology has been inspired by two causes: the drive to attain high performance (the depiction of technological sensitivity) and the passion for environmental welfare (the depiction of social sensitivity). This account eliminates any reference to uncertainty. The non-trivial machine (the self-referencing system) transforms into the trivial, grounded, and definitive structure of cause-effect relationships.

Marketing System

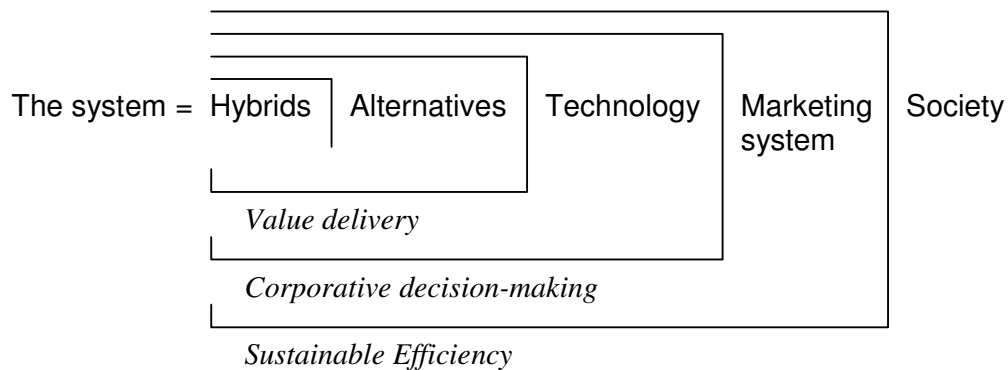
A corporation positions itself within the general context of the marketing system. This means that it differentiates itself from other socio-technological systems within these boundaries. The marketing system introduces the general frame of reference that allows the meaningful construction of corporative communication within societal boundaries. The corporation attuned to its marketing context builds its communication in reference to the general maxim of marketing: organisations should function to maintain value expectations. This is done by generating and keeping promises (Gronroos, 1996). The marketing system context creates some certainty by promoting particular expectations with regard to the ways of organising the sustainable value delivery process. The context brings into the horizon of attention such notions as value, markets, profits, positioning, segmentation, customers, and exchange. The code imposed by the marketing system (value/non-value), specifically, the distinction sustainable value/unsustainable value in this case, puts formidable constraints on the functioning of corporations. I should note here that identifying non-sustainable acts is as important as the establishing the sustainability of actions:

...Toyota employees leaked proposed questions for a government-sponsored written examination for auto mechanics. Toyota treated this incident with the utmost seriousness and in FY2004, established “Reinforce compliance based on corporate ethics to earn credibility throughout society” as a company-wide Implementation Priority (Toyota Motor Corporation, 2005, p. 7)

Society

The marketing system operates within society. However, the marketing system can be viewed in various forms from the perspective of society. For instance, marketing systems are differentiated by the typology of goods, the domain (production, consumption, intermediaries), the temporal factor (retrospectives, current, post-modern), the geographical factor (national, global markets), and so on. The marketing system differentiates itself from other systems. It establishes itself within the society as the nexus of power that promotes efficiency that is sustainable. Efficiency is the domain which is re-entered to the original conversation (Figure 13).

Figure 13. The Form of the System Marked by the Domain of Efficiency



All the distinctions discussed so far, namely the hybrid car, alternative cars, and technology are different from other societal sustainability undertakings because of a profound emphasis on efficiency:

According to our Ford research, a vehicle's fuel efficiency is an increasingly important element of car purchasing decisions. In our survey, 61 percent of people said fuel economy was important when they bought their current vehicle. Yet an astonishing 80 percent said it would be a key factor in their next auto purchase. Trends typically move in 5 percent increments, so this 19 percent leap demonstrates a significant change in consumer thinking. (Ford Motor Company, 2005, p. 37)

The procedures in the marketing system are implicitly laden by the pressure of the perceived level of efficiency. The application of this distinction is total: any

procedure is either efficient or inefficient. This assessment is repeated in every level of communication: the hybrid car should offer fuel-efficiency; the alternative technologies are introduced into the market only if they are assessed as efficient; recycling and energy saving procedures are initiated because they promise increase in material and energy efficiency; and so on. Society will develop the expectation that any social action must be reflected within the marketing system in the light of this distinction. The concept of sustainability that is more transcendental rather than rational (Luhmann, 1989) cannot escape the assessment. For the marketing system, sustainable operations must be efficient, otherwise they are not considered appealing by corporations.

The form of the system delivers a message: the hybrid car is the result of the drive for sustainable efficiency that is uniquely communicated in society. Society is considered as social communication, which is distinguished from other types of reality (Baecker, 2006; Luhmann, 1995, 2006). In this sense, the form demonstrates that the hybrid car is a mode of social communication, and in this the product's identity is different from anything else in the reality (Figure 10). The implication of this profound epistemological issue is beyond the scope of this discussion. However, the form of the system shows that meaning formation is not a straightforward activity. A number of layers of contextualisations and re-entries underlie this process. The meaning of value, in this case, that of the hybrid car's sustainability, changes from context to context. I note that meaning construction in the system is far from being a linear progression or a causal relationship.

Contradicting

Corporations evaluate changes apprehended in their horizon of self-observation. Their valuation dissects a systemic space into binary states. However, self-referential valuation involves a contradiction by default (Casti, 1991; Gödel, 1986/1929-1974; Hofstadter, 1979; Whitehead & Russell, 1927). A paradox emerges if value is re-entered into the self-referential focus of the system. In SMC, valuation is unique: it cuts an observed space into sustainable and unsustainable patterns. This particular way of valuing constructs *sustainability* that is positioned in relation to *other than sustainability*:

I deeply recognize that Honda will become more closely involved with environmental issues as it expands its business operations. To turn that expression around, I strongly believe that we will not be able to expand our business unless we fulfill our environmental responsibility. (Honda Motor Company LTD., 2005, p.5)

While the growth in vehicle demand around the world presents great growth and sales opportunities, it also presents major challenges. The key ...corporate responsibility issues: sustainable mobility, conventional air emissions, greenhouse gas emissions and road safety, are discussed in the ...report. (General Motors Corporation, 2005, p. 3-14)

Contradicting happens when events observed are labelled as being either sustainable or unsustainable. The question arises whether this act in itself can be a subject of valuing. The system contradicts the self-essence if it considers sustainable/unsustainable valuing to be always sustainable. The valuing act cannot be unsustainable, as this may ruin the logic of valuing. Valuing, however, indicates one of the values explicitly, whereas the other one is referenced implicitly. As it was observed in the form, sustainability is not realised in its holism and ambiguity, rather it is transformed into operationally-defined, system-specific communication. The sustainable is the self-descriptive state which is posited in reference to the unsustainable (Figure 14).

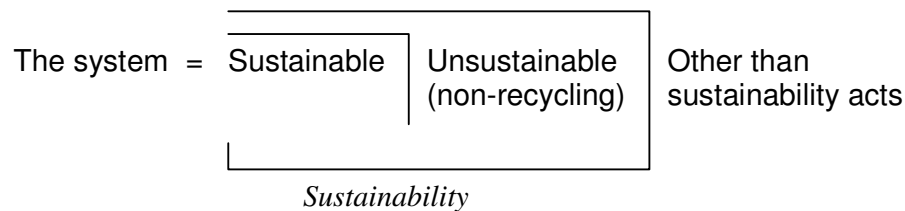
Figure 14 shows that the unsustainable re-enters into the operative level. This turn reveals the *unity of difference* in observed sustainable/unsustainable transpositions:

GM has set aggressive performance targets and has achieved significant gains in 5 key areas in 2004 – vehicle safety, quality and fuel economy, global facility energy consumption and GHG emissions reduction. (General Motors Corporation, 2005, p. 1-3)

Toyota recognises that future growth will become dependent on responsible technologies, and the principles of reducing, recycling, and reusing – the active principles of sustainability...Toyota supports the environment by increasing local environmental practices through recycling and reducing waste, and by employing local people who have a stake in the wellbeing of their community. But Toyota also underpins its commitment with local support for specific environmental causes and initiatives. (Toyota New Zealand, 2005, paras 29-31)

For example, the Toyota Corporation emphasises three key areas of sustainability: *reducing, recycling, and reusing*. These concepts are constructed in action, but they would not attain their intended meaning unless they are contrasted to their negative side. The act of observing these concepts dialectically, for example, as recycling versus non-recycling, is a communicative act in itself. This act constitutes the system and defines the context of corporate sustainability. But how is this particular way of acting evaluated? SMC contradicts its valuing convention when it simply accepts this acting as being simply sustainable by default (Figure 14).

Figure 14. Paradox of Re-entry and the example of recycling



The emergence of the sustainable/unsustainable communication can be seen in Table 8. The table shows that unsustainable events become information and provide meaningfulness to corporate actions (utterances). In this context, utterances are those processes in which corporations engage in such domains as *safety, impact, efficiency, and diffusion*, while information resides in the background seen as the set of deviations from environmental and social sustainability. Corporative utterances are directed into the following streams: *the hybrid car, alternative cars, technology, and the marketing system*. The synergy between utterances and information, which are chosen among many possibilities, represent the understanding through which communications that differentiate sustainable/unsustainable actions come into existence within the system.

Table 8. Emergence of Sustainable/Unsustainable Communication within SMC

Sustainability Domains	SMC utterances				Society (information)
	Hybrid car	Alternative technologies	Technology	Marketing System	
Safety	<i>Improving driver safety</i>	<i>Striving for maximum safety</i>	<i>Improving employee safety</i>	<i>Achieving balance between efficiency and safety</i>	<i>Risks and uncertainties: road accidents; traffic congestions; workplace accidents; global mobility imbalances</i>
Impact	<i>Reducing harmful fuel emissions</i>	<i>Striving for zero emissions</i>	<i>Reducing harmful facility and production emissions</i>	<i>Attaining efficient emission reductions</i>	<i>Ecological problems: deteriorating atmosphere; the ozone-layer problem; global warming; increasing landfill, corporate footprint etc.</i>
	<i>Recycling parts and end-of-life vehicles</i>	<i>100% recyclable vehicles</i>	<i>Recycling materials, waste and containers</i>	<i>Constructing efficient recycling network</i>	
Efficiency	<i>Improving fuel efficiency</i>	<i>Searching for alternative fuels</i>	<i>Saving energy and materials in value chains</i>	<i>Attaining growth and survival</i>	<i>Increasing cost of natural resources; global turbulence; regional conflicts</i>
Diffusion	<i>Promoting new versions of hybrids</i>	<i>Setting-up networks of cooperation to promote alternative concepts</i>	<i>Administering social and environmental programmes</i>	<i>Effective corporate citizenship</i>	<i>Ignorance and apathy about environmental issues; erosion of traditional community and culture, values, and ethics; destructive globalisation</i>

The table shows the general picture of communicating in the system, which is interpreted straightforwardly. However, the synthesis of the picture, and its background, i.e. the unity of differences reveals the paradox: the referenced domain (*unsustainable constructs*) “comfortably sits” within the activated domain of *the sustainable*, and offers a possible definition of what is happening in the system. To become understood as sustainable, communication needs to function as sustainable and not unsustainable; otherwise its inherent meaning within the system gets blurred. Thus, unsustainable becomes a part of the self-reflection based on the concept of sustainability (Figure 14). This is better understood via the following example. It appears that the only condition for a corporation to

register a progress in attaining sustainability within a certain period is to construct itself in a very unsustainable position at the beginning:

As a result, CO₂ emissions decreased by 29,000 tons in FY2004, achieving the reduction goal. However, an increase in the volume of production and a shift of production sites to distant locations increased the total transportation volume and distance, resulting in a total CO₂ emission volume of 285,000 tons. (Toyota Motor Corporation, 2005, p.36)

CO₂ emissions attributed to energy use in the production domain came to 467,600 CO₂-tons in fiscal 2004, up 5.1% from the previous year's level (445,000 CO₂-tons) (a 24.0% reduction over the fiscal 1990 level). CO₂ emissions were thus reduced by 2.8% compared with the numerical target of 481,000 tons. (Honda Motor Company LTD, 2005, p.35)

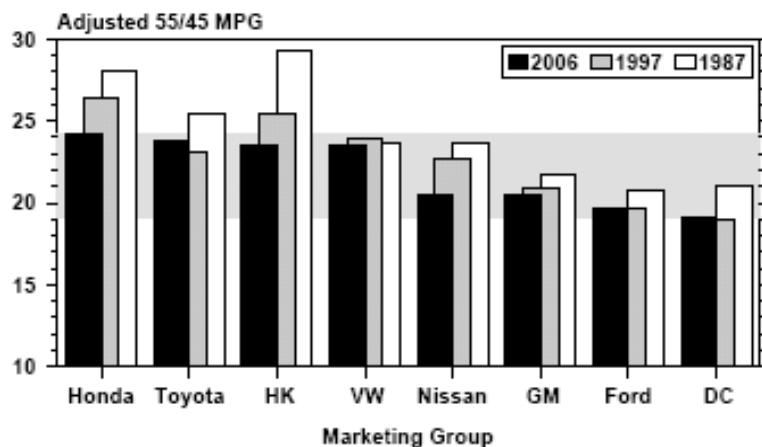
...emission levels of carbon monoxide and combined emissions of hydrocarbons and nitrogen oxides have been reduced by 97 percent since 1970, when emission standards were first introduced. The most significant reductions will be achieved between 1993-2005, with CO emissions reduced by 83 percent, combined HC + NO_x by 69 percent and particulate matter (PM - from diesel engines) by 82 percent. (General Motors Corporation, 2005, p. 4-27)

As follows from the examples, the corporations cannot self-reference themselves as being sustainable or in a state of struggling to achieve sustainability unless a major unsustainable condition is attributed to their own operation. The condition is that deviations from sustainability should be seen as being continuously managed and curbed, which indicates to the dynamic nature of developing the self-definition. This event invokes a question: Does the system that cannot (is reluctant to) observe and define its own unsustainability have any prospect of being considered sustainable? Alternatively, Is being unsustainable the necessary condition of becoming sustainable?

The manifestation of the paradox is evident in the following example. Corporations claim that the hybrid car brands (e.g. Prius, HCH, Silverado, Sierra, Escape Hybrid) offer substantial improvements in fuel-efficiency. The meaningful difference is maintained only if inefficient vehicle categories are in place as a point of reference. Were the traditional vehicle technologies to become more efficient, the hybrid car appeal would vanish. In consequence, SMC ceases to

exist. It does not mean that the hybrid cars would disappear from the market, rather it means that SMC (including all actions, meanings, and networks) that is built on the logic of differentiating what is sustainable from what is not sustainable would stop its meaningful operation. SMC would have to turn to other differentiating bases. Thus, the system finds itself in a constant struggle (contradiction) in introducing both “sustainable” and “unsustainable” value offerings. Hence, in contradiction to the common perception that the value of a sustainable offer is reduced or mitigated by an unsustainable one, SMC operates by means of enlarging a fuel-efficiency chasm between models. The latest report by United States Environmental Protection Agency (EPA) not only supports this view, but also provides detailed information on the historical dynamics of the phenomenon (EPA, 2006). In stark contrast to the corporations’ claims that fuel-efficiency has been improving in the last years, EPA reports that fuel-economy for all model light-duty vehicles (passenger cars, wagons, sport utility vehicles, vans and pickups) remained constant (!) for almost eighteen years. The current level 21.0 mpg (miles per gallon) is the same as in 1994, and less (!) than that (22.1 mpg) in 1988. Moreover, all marketing groups (Toyota, Honda, Hyundai-Kia, Volkswagen, GM, Nissan, Ford, and DaimlerChrysler) reported an almost steady decrease in the average fuel efficiency since 1987 (Figure 15).

Figure 15. Fuel Efficiency Data for Three Base Years by Marketing Groups in the Light-Duty Automobile Industry



Source: EPA, 2006

Two trends are visible in Figure 15. First, differences in average fuel efficiency among the groups are stabilising and narrowing down. Second, the level of fuel efficiency is steadily decreasing for most members. The first trend indicates the tendency of solidifying, when the system gets reorganised (progressive centralisation) around the unique meaning of value. This also is the indication of increasing importance for the sustainable/unsustainable (in this case in the form of fuel efficient/fuel wasting) distinction being operated within the system. The second trend is very controversial and taken as an example of hypocrisy by some commentators. The average level of fuel efficiency has actually been decreasing for the last eighteen years amid communications by the corporations that sustainability has historically been, and is now the main prerogative of corporate action.

This is the manifestation of the system-in-operation. The systemic actions are based on communications that are underlined by paradoxical meaning-creation. The system needs to enforce and maintain a meaningful difference, which has been created self-referentially, in order to be able to operate as the unity within the environment.

Expanding the Paradox

Contradictions created are made indiscernible in the operative level of corporations through expansion (moving away from an entropy point). Expanding is the purposeful behaviour of a system, which is depicted in becoming as dynamically different and meaningfully organised as possible in comparison to the outer complexity. Systeming interpretation distinguishes the following strategies of expansion used in SMC: hierarchical expansion, functional expansion, temporal expansion, and communicative transvection.

Hierarchical Expansion

The paradox is removed if a growing number of levels is incorporated into the hierarchy of meaning, so the unity of the difference is hardly detected (Hofstadter, 1979). Operating at two levels – the basic and meta-level at the same time – is prohibited. Bertrand Russell has used this technique to maintain consistency in the

logic of a formal mathematical system (Casti, 1991; Whitehead & Russell, 1927). In the same vein, I argue that SMC develops the hierarchy of meanings which distance it away from collapsing back into its own paradox. For example, addition of a level is observed when the maxim “*sustainable is sustainable*” is transformed into the description “the set of saving, reusing, and reducing acts is sustainable”. The next expanded level would focus on specific actions in the context of saving, reusing, and reducing, e.g. Honda is recycling the bumpers of disposed vehicles.

Several hierarchical patterns are distinguished. This includes decision premises. A *decision premise* refers to a structure of communicative flows, within which a communication takes preceding communications as a premise that is deemed to be established, unchangeable, and correct (Seidl & Becker, 2006). Consequently, past communications are not questioned, and are taken for granted to serve as a basis for the following communications. SMC operates on the basis of such decision premises as *heuristics, appreciative routines, and a decision-maker fiction*.

GM approaches the application of new technology to its vehicles with two simple and direct principles in mind: [1] GM needs to offer vehicles that people want to buy. Only if people buy new technologies in large volume will they become affordable and achieve the company's business objectives. [2] GM must meet its basic business objectives. Technology cannot be sustained if it must be heavily subsidized. (General Motors Corporation, 2005, pp. 4-3)

In the passage above GM is explaining why the corporation was too slow in adopting hybrid technology. Two heuristics are mentioned: innovation must be in high demand and it must not be subsidised. *Heuristics* are decision patterns crystallised over time (Strauss & Corbin, 1998). These are the practices of managers that become programmes to tell what routine to follow at what situations (Luhmann, 2004). Heuristics are strategies to deal with complexity in an efficient way; however, they may not always be effective. For instance, the story of success of Toyota and Honda in introducing hybrids to world-wide markets and other corporations following suit shows how these heuristics have not been particularly appropriate.

Heuristics are “rules of thumb” that direct and simplify decision-making and action. In this sense, they are the approximations to the complex state of constructed realities and the perceived history of action:

...as evidenced in such ways as their amenability to continuing kaizen (improvements)...[Toyota] also believes that it is important to conduct continual and constant follow-ups. (Toyota Motor Corporation, 2005, p. 58)

Historically established assumptions about the consequences and the meaning of action are thoroughly maintained in articulation:

They [Honda employees] continuously try to improve their activities based on the PDCA (Plan, Do, Check, and Act) cycle. (Honda Motors Company profile, 2005, para 91).

Toyota and Honda assume that a communication which sticks to a kaizen or PDCA rule respectively is a successful one. For communications which follow from this point on, it would be impossible to step out of the system to challenge the prudence of this programming. Kaizen or PDCA cycle goes on to incorporate more and more communications: however, someone who is doing, for example, planning within the process, would not be able to plan the process itself. Actions directed toward kaizen or PDCA are unlikely to transcend the basic premise. The premise remains constant, while follow-up actions work according to this premise. In this, communications are limited, and thus, regulated by the system. Relevant to this, Hamel and Prahalad (1994) discuss “managerial frames” – the patterns of previous successful managing behaviour – which transform into dogmatically followed formulas and programmes as time passes. The successful heuristics of the past are not necessarily relevant in the present, as systems evolve abruptly (Salk, 1973). I argue that heuristics are rooted in the systemic dynamics of meaningfulness, as the purposeful expansion of a system is impossible without basic premises for communicating.

The other type of decision premise is an *appreciative routine*. The appreciative routine is a way by which the system constructs its environment. Appreciation is developed through active interaction when the system engages unities apprehended as other than self (Vickers, 1983). This process is developed in the form of enactment, which involves continuous interpretation of changes (Weick,

1979). The appreciative routine is existential. Existence and interpretation are not different steps in the reality of the system, but the different sides of the same coin. The system exists to interpret, and it interprets (appreciates) to exist. Here, I will discuss ways through which corporations appreciate the consumer of the hybrid car. For example, consumers are conceptualised in the following manner:

No matter how good the environmental performance, customers will not purchase vehicles that sacrifice driving performance...If the spaciousness of the interior were sacrificed, the functionality and comfort of an (hybrid) SUV would be lost, even if the vehicle is made a hybrid. No compromises were made so environmental performance could be enhanced without losing any functionality. (Toyota Motor Corporation, 2005, p. 46)

The notion of customers, who are considered as rational “choosers” is offered (Schaefer & Crane, 2005, p. 79). Consumers are perceived as rational decision-makers driven by individual choice patterns. In other words, they are:

thought to be motivated by strong environmental values and attitudes, therefore seeking environmental product information, rationally weighing the utility provided by a particular product against the environmental cost attached and making a purchasing decision based on these environmental criteria in conjunction with more conventional considerations of price, quality, and convenience. (Schaefer & Crane, 2005, p. 79)

Why must this view be maintained? Schaefer and Crane offer their explanation of this fact by arguing that in this way “no fundamental challenge to market-based economic and political systems” is exhibited (p.82). I concur with this explanation in broad lines. I argue that SMC eliminates any threats to its autopoiesis. Alternative thinking may pose a threat to the existence of the system by revealing the paradox of used distinctions. For example, the interpretive routine of seeing consumers as driven by hedonism undermines the prudence of the concept of sustainable consumption as used by the system (Dolan, 2002; Schaefer & Crane, 2005). The concept of hedonistic consumption suggests that excessive and non-rational consumption is good for consumers’ well being. Therefore, the enforcement of sustainable consumption view would restrict the well being of citizens. The mechanistic account of consumption has a trivial connotation, so there could be no doubt that it represents the product (enactment) of the self-

defined trivial structure of the system. Regarding the issue of trivialisation, several studies explored alternative perspectives through which a marketing system could observe and define itself (Dolan, 2002; Kilbourne et al., 1997; Schaefer & Crane, 2005). Schaefer and Crane (2005) maintain the possibility of activation of two alternative views of consumption in this context – the trivialised (mechanical) view and the enriched cultural view – along with the advantages and disadvantages of the views, and also the parties who would support/oppose these views. Dolan (2002) argues that although the latter view provides a more robust explanation, the former approach “effectively decontextualises” the macro-essence of the enriched approach (p.170). Dolan thinks that the macro-view is made “fit” into a micro-context. This effect is what is meant by trivialization. However, I suggest that the concept is broader than this. A transcendental, holistic meaning of any complex social concept is trivialised within the micro-structure and communications of the system. Only in this manner may the system find the possibility to rationalise the basic premises of communication, and thus, hide the paradox.

The purposeful expansion is also accomplished through the introduction of the *fiction of a decision-maker*. Communications can be seen as direct consequences of rational moves and motives exercised on the part of decision-makers. In this way, contradiction is “merely moved out of sight” (Seidl & Becker, 2006, p.29). Often the role of the decision-maker is played by *environmental committees and/or environmental management systems* in the organisation:

...the company established an Environmental Committee in 1991, as a body that would take the central role in corporate environmental activities. The organization was subsequently expanded for environmental conservation in the Americas, Europe, Asia, and Oceania. In 1995, the World Environmental Committee was established to plan and implement worldwide environmental conservation activities. In 1999, the Committee was given a position equal to the Executive Committee, which enabled the company to make management decisions more speedily and more globally in the environmental field. At [the Company], environmental activities are conducted as follows: First, the Executive Committee decides upon medium-term environmental policies, based on which each department makes their own plans. The Environmental Committee discusses and approves the plans and then each department subsequently conducts environmental

activities based on the approved plans. The results are then examined and evaluated by the Environmental Committee. (Honda Motors Company profile, 2005, para 26)

In FY2000, [The Company] introduced consolidated environmental management, which unites Japanese and overseas consolidated companies in concerted environmental action. In addition, Environment Committees were established in Europe in FY2003 and North America in FY2004 to reinforce local environmental activities...In the future, [The Company] will reinforce local environmental management in South America and China, thus promoting environmental management on a global basis. (Toyota Motor Corporation, 2005, p. 12)

Observers may think that an organisation has a “core” (apex) that controls all actions. Consequently, any communication can be seen as the rational initiative of the centre. Von Bertalanffy (1950) explained this process as progressive centralisation. Here, progressive centralisation is attributed to the enactment of meanings as decision premises. Centralisation drew the attention of many systems thinkers. For instance, Alderson (1964) introduced the concept of a *control group* to explain how the system links its micro-action to macro-societal issues. The control group represented the system within the environment, and also the environment within the system. It would therefore seem obvious that this depiction is a simple repetition of the phenomenon in which the macro, the whole system, is thought to be represented by the micro, an environmental committee. I view centralisation as the expansion strategy. The system, the network of communications, is unlikely to be guided by the privileged place in the ontological sense, which could bind all the internal communications into the rational bases of communication (Luhmann, 1989). Furthermore, centralisation is impossible in observation. In this regard, Luhmann (1989) argues that the creation of a real centre to guide communication about sustainability simply presupposes another distinction, in this case, that of the core versus its periphery. Then this fiction serves as a basis of another paradox, which is depicted in higher self-ascribed rationality of the centre in accomplishing impossible tasks. The centre’s task is impossible, partly owing to the fact that it is presupposed to guide the relationship of two wholes: the system and the environment, whereas the centre in itself is only a differentiated (trivialised) state of a whole. Beyond this, the unity of the difference of the centre and its periphery would call for more variations in hierarchical expansion strategies.

Functional expansion

Observers deal with sustainability at the functional level of the system, which means that it is considered as a sum of discrete operations. Particularly, its enactment within the system does not come as a full description, rather the sustainable value is constructed via structured sets of injunctions (Hofstadter, 1979; Spencer-Brown, 1969; Wittgenstein, 1976) which represent a programmed indication to act in a certain way. Value is simply taken as a macro-problem that should be functionally differentiated in the system's operation. This could be observed as a particular case of the general rule of trivialisation (Baecker, 2006). In this respect, Luhmann (1989) said that:

...the general rule of beginning from reference problems and looking for their functional equivalents can be seen, to a greater extent, as a generalizable principle that accepts unity (a transcendental whole) as a problem, i.e. only for the sake of the difference that can be created through it. (p. 136)

This rule can be seen in the self-observation of corporations, where sustainability is accepted as the general problem to be handled, and its notion is used to create distinctions in functions. Capitalising on the advantages of the software Nvivo 2.0 such as text labelling, searching, and ordering, I have collected the examples of functions which best illustrate the system's strive toward sustainability. The functions are interpreted as difference, whereas these differences are posited in reference to each other. The meaning of a single example could only be understood when it was compared to other similar functions. This notion allowed me to construct the matrix of the system's functions (see Appendix 5). The matrix shows how sustainability enacting communications relate to each other. The matrix is based on the self-observation of the participants of the system, namely Ford, GM, Honda, and Toyota. The functional categories identified were: *emission management (reduce)*; *recycling activities (recycle)*; *material and energy efficiency enhancement (reuse)*; *safety enhancement*; *planning, design and technology (PDT)*; *product externality management (PEM)*; and *local impact management (LIM)*. The patterns of functions are broad, and in some areas they overlap. Although the complexity of the relation between the system and its environment is not easily mapped, this is not seen as a limiting problem. Quite to

the contrary, messiness in the flows of communication indicates a contingent and chaotic structure, through which the existence of the system comes into the foreground.

A discrete act depicted in the matrix (refer to Appendix 5) stands out as the *utterance* which takes other actions as background *information*. While each utterance represents a first-order activity, the information becomes the result of second-order self-observation. The interrelatedness of the actions indicates the flow of communication. Communication arises in the matrix's cell in a quite contingent way through linking the utterance to the information. Here, the purpose is not so much to describe the general structure of SMC, but to understand the limited character of discrete communications, which fragment the system into actionable injunctions. In brief, "a communication does not communicate the world, it divides it" (Luhmann, 1994, p.25).

In the matrix (see Appendix 5), *emission management* is the most frequently recurring pattern. The types of emission observed were greenhouse gases (nitrogen oxide, methane, carbon dioxide, carbon monoxide, hydrocarbons), CFC-12, sulphur dioxide, the substances of concern (lead, mercury, cadmium, and hexavalent chromium), volatile organic compounds in paint solvents, and industrial oils. The corporation observes only those emissions that can actively be engaged with. Hence, the system's "the emission" is not a static substance, but it is an active process. Corporations not only *reduce* the emission, but also *prevent*, *detect*, *monitor*, *control*, *isolate*, and *reuse* it. In this context, the emission represents only those substances which can be manipulated. This means that the non-emission emissions are overlooked. For example, new compound materials which are free of the emission can be introduced, while it is not of concern if these new compounds could have other types of harmful substances because of their non-observability. The question thus arises if the system is able to observe its own blind spot, i.e. its ignorance of both the emission and the non-emission. This system keeps silence in this regard, hence, seeing/not seeing distinction is not activated in subsequent communications (Luhmann, 1994). Beyond this, the expected condition of society in the future – *the zero-emission society* – is the concept that gives meaning to emission-managing operations. The zero-emission

society only becomes possible when the selective definition of harmful emission and the silence about ignorance are kept constant (Figure 16).

Figure 16. Condition of Reaching the Zero-emission Society

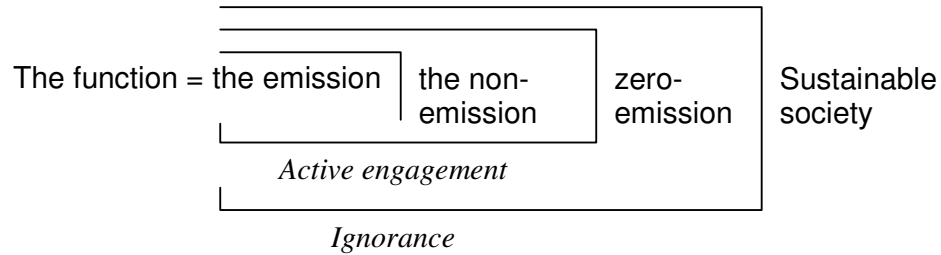


Figure 16 shows that the emission is differentiated from the non-emission by engaging with only those types of substances which are defined as the emission. In this manoeuvre, functional communication is unable to reference the other side of the distinction. At the same time, these operations happen in the context of evolving toward the sustainable society, and one of the ways to get there is through accomplishing the zero-emission society. However, the zero-emission society is only possible when the system cannot see that it cannot see (control) certain emissions, and especially, its failure to distinguish the unobserved types of harmful emissions.

The other patterns of functions included in the communications matrix (see Appendix 5) can only be defined as the common umbrella-type domains which comprise a wide range of various actions by various agents. It is not a constitutive set of actions that defines a function, but it is the reference to other functions that gives it a unique identity. Each function in the matrix has its own unique identity. Actions have no power as such to constitute the meaning of the matrix's cell or a function. Rather it is the matrix that steers communications in accordance with its systemic "maze" of inter-cell relations. For example, recycling is a set of acts which agents engage in at a basic-level of operations. For them, recycling is recycling, and it is that which can be differentiated from non-recycling activity. Corporations communicate by recycling (recycle by communicating) in the light of emission management (equally, efficiency enhancement, safety enhancement,

etc). The intersection, a matrix cell, provides a blueprint to construct follow-up communications. It becomes a prototype of functioning. The patterns in the matrix are not to be dismissed as being invalid only because they are retrospective and conditions change fast. The conditions change, but the *prototypes* of action remain stable (Hofstadter, 1979). They guide subsequent communications. To follow SMC, or in other words, to intentionally act within the system, the agent does not have to change in terms of his/her cognitive processes, but only learn to distinguish prototypes and copy them in operating. In this respect, the structure of the matrix demonstrates how communications expand and find their continuation.

Another use of the matrix is that it identifies predominant routes and also, underemployed routes of, communicating. For example, SMC makes a heavy use of the prototype “*recycling as efficiency improvement*”, while the “*recycling as safety enhancement*” is underemployed. This pattern could suggest that either recycling activities are unable to contribute to the enhancement of social/individual traffic safety or the system has not figured out yet to make a full use of this prototype to create a sustainable value. Moreover, sustainability actions do not always have a positive contribution. Certainly, the negative sides of the phenomena are silenced by SMC. So an empty cell may suggest that the activity has a potential to harm the cause. For example, the impact of new car bumpers produced from recycled substances on safety goes without a mention.

The system explores opportunities to generate more innovative communications. In the case of the empty cell “*recycling as safety enhancement*”, the introduction of an account of how recycling could contribute to social/individual safety may become an innovative advancement for any agent. Besides, more empty cells exist in the matrix. This pattern offers a wealth of interpretive possibilities to link communications.

Temporal Expansion

SMC attains credibility through ordering its communications along a temporal continuum. The system develops its own timeframe to create the temporal meaning of communications. SMC’s time flows at a different pace than that of the

environment. The system develops an “internal clock” that registers the time flow for various aspects of the system:

But what really hits home is that “shifting landscape” part. This industry has always been about as dynamic and fast-paced as you can imagine. And it seems even more so these days. I would submit that no facet of this business is shifting and evolving as quickly as advanced technology and alternative propulsion. (General Motors website, 2006, para 11)

The meaning of sustainable activities would not be brought forth without the internal registration of time. While the environment is complex and its pace of turbulence is uncertain (Dowling, 1983; Emery & Trist, 1965), it is the system that filters down this complexity into structured internal temporality. This is, in a sense, unavoidable, as communications have to occur in a successive manner, so the temporality is the condition for the existence of the system (Luhmann, 1995). While actions are taken as happening one-after-another in the present, the sense of a time continuum is created inside the system, which differentiates the system from its environment. This is done through *bringing the past or the future into the present*.

The past, a set of historical events, is transformed into the *past-in-the-present*. The system orders constructively all the past events into a narrative that is made meaningful with regard to the current value. The past-in-the-present strategy is maintained by a means of creating narratives, which plot self-referential history. *Emplotment* refers to interpretation that gives a particular meaningful shape to the flow of history (Polkinghorne, 1988). The meaningful narrative told by the self-descriptive entity, the system, contains a plot that has been built for realisation of the current value. Obviously, the plot is never static, it adapts to the context of communications. The history plotted attains its unique meaning according to the current systemic character:

Since its establishment..., Honda Motor Co. Ltd has remained on the leading edge by providing products of the highest quality that create new values...In addition, the Company has conducted its activities with a commitment to environmental protection and enhancing safety in a mobile society. Honda’s slogan, “Blue sky for children,” was created in the 1960s when the problem of environmental pollution became acute. To give substance to this slogan, Honda unveiled the Compound Vortex Controlled Combustion

(CVCC) engine, which used the company's unique low-emission technology developed in the United States and Japan. [The company] also undertook an aggressive campaign of environmental improvement at that time. Later, we developed the Variable Valve Timing and Lift Electric Control System (VTEC) and the i-VTEC series engines, whose innovative technologies achieved both a high level of performance and reduced emissions for production vehicles. And in 1998, we furthered our efforts to preserve the global environment with the release of hybrid vehicles with the highest fuel economy in the world. Honda, while developing such technologies to achieve "ultimate" functions, made a new, challenging decision: to introduce the new-generation designs to various engine classes, to be the world's No.1 in terms of power, clean energy, and fuel economy. (Honda Motors Company profile, 2005, paras 1-3)

In this account, because of the emphasis on sustainability, Honda appears as an original sustainable unity that has a long history of sustainable action. Actions are just actions in the face of historical evolution, i.e. they do not bear meaning in themselves. The self-observing entity, Honda, selectively constructs particular milestones in the meaningful narrative of environmental action. Consequently, in present emergence, the system seizes a control of the past, and thus the future, because future communications are ordered in reference to the past. Thus, the past is not given. It is constructed in reference to the value of the system. The *present* state of the system guides both *the past and the future* of the system. This is the power of self-reference.

For example, Toyota in its recent print advertisement of a new Lexus hybrid model on the pages of *The Economist* magazine (2006), declares that the introduction of the model has become "a true milestone" in the coupled history of transportation and luxury. In this Lexus nexus, the historical timeline for transportation reads as follows: completion of the transcontinental railroad (1869), invention of first gas-powered automobile (1892), a successful test of the first motor airplane (1903), invention of a cruise control system (1945), commencement of a bullet train service (1964), a flight of the space shuttle Columbia (1981), completion of a channel tunnel linking the UK and France (1994), introduction of a hybrid vehicle (1997), and finally, introduction of a luxury hybrid vehicle (2006). The events linked to the advent of luxury were the debut of tuxedo in New York (1886), production of a first cultured pearl (1893), introduction of a fountain pen (1924), invention of a jacuzzi bath (1968),

introduction of Lexus automobile brand (1989), opening of the signature hotel St Regis in Aspen, CO., and finally the introduction of a luxury hybrid vehicle (2006). The ad suggests that the latest achievements in transportation and luxury have found their completion in the new model of Lexus hybrid. The noteworthy point in this narrative is that the events mentioned appear not to be related between each other to any great extent, but aligned in reference to the latest current point in the history, the existence of the new car model. This point is what that gives meaning to the overall system of plotted events.

In a similar manner, the future is also brought to the present. This happens when communications attain meaning in reference to future events. For example, the role of the zero-emission society concept in driving communication regarding the management of emissions was mentioned earlier. In the same manner, the idea of the recycling-based society is often invoked to guide recycling activities:

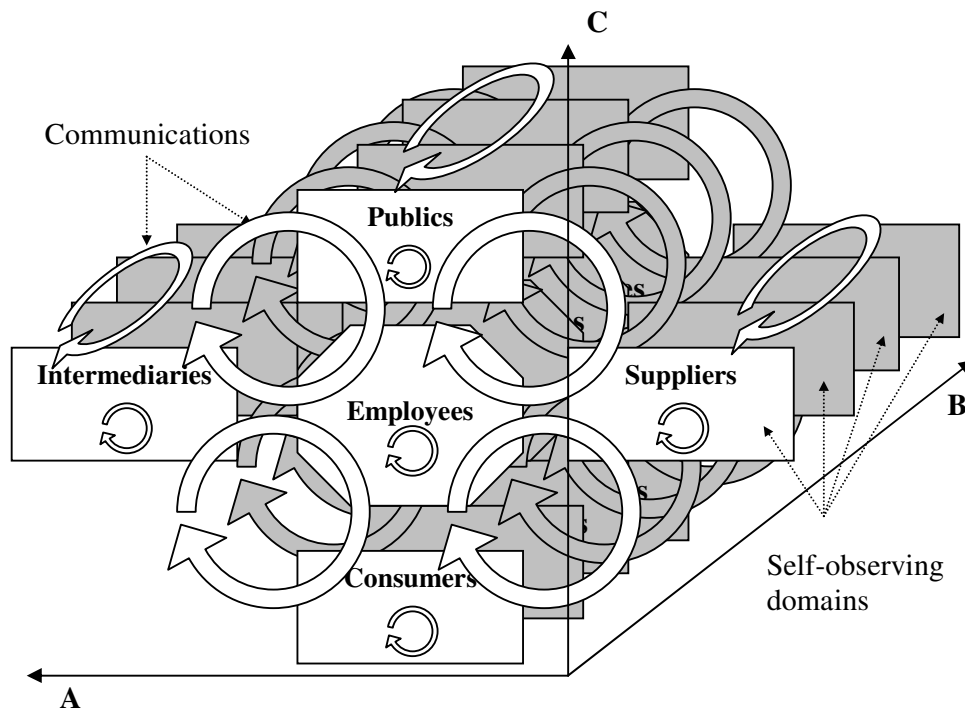
In Japan and indeed throughout the world, people are keenly moving towards the establishment of recycling societies. Honda, ahead of many others, has been implementing diverse environmental projects. In the future we intend to conduct research to establish our projected visions to enable us to steadily move towards realizing a true recycling society. (Honda Motors Company profile, 2005, para 102)

The future, in its various present enactments, is also conceptualised as a *hydrogen economy* (to emphasise fuel-cell technology), the *zero-landfill state*, the *sustainable mobility society*, the *ultimate eco-car domain*, the *dream of sustainability*, the *century of the environment*, the *harmonious co-existence*, and so on. The future becomes meaningful, because it adapts to present activities. At the same time, the present becomes meaningful, because it references the future, especially, a particular vision of it. Furthermore, this enables SMC to develop a self-critique. The-future-in-the-present creates a gap between the present state and the expected one in the future. This self-referential chasm enables the system to steer and stabilise the flow of communication. The gap needs to be preserved at all times. The contradiction is never solved, because once solved, it stops being a systemic problem. The system finds itself under a continuous pressure to create contradictions by positing the future into the present.

Communicative Transvection

Organisation is traditionally defined in terms of structure and operations that have an objective ontological existence. The alternative view, the interpretive constructivist perspective, looks at organisation as a unity of communication, interaction, and discourses (Bouchikhi, 1998; Cooren et al., 2005; Czarniawska-Joerges & Gagliardi, 2003; Daft & Weick, 1984; Luhmann, 2004; Seidl & Becker, 2006). Taking this view into account, the patterns I observe in the data can be best explained in terms of diffusion, but in this case, the *diffusion of similar communications*. The concept of *transvection* is broad enough to symbolise the process of diffusion. This concept was introduced by Alderson (1965) to explain the transformational, interactive nature of linked exchanges occurring in marketing systems. In the case of SMC, I adopt the systeming version of the view, and name this concept *communicative transvection*. The communicative transvection refers to the process of diffusing communications based on identical distinctions along the vertical and horizontal channels of SMC (Figure 17).

Figure 17. Transvectional Diffusion of Communications



The inverted arrows and their penetration along the structure illustrate the process of how similar communications are reproduced to form the system. The corporations within the system can be seen as self-observing domains. The corporation, the unity of organisational decisions and discourses, develops self-referential communication. These communications are copied along the vector B, so the organisations situated in the horizontal dimension of the marketing channel start using the similar distinction “sustainable/unsustainable” as a basis for their communications. The vertical chain in the marketing system depicted by the vector A is the locus of communication diffusion at the industrial level which includes suppliers, the suppliers of suppliers, and intermediaries. The discourse happening in the public domain, where the organisations participate as corporate citizens is depicted by the vector C.

The system’s boundaries are extended through creating a *common platform* for the diffusion. This can be done through promoting the acquisition of the international standards of environmental management systems (EMS), or internally developed audits and dealer certification programmes:

In fiscal 2004, Honda worked towards its target of having all of its suppliers acquire ISO 14001 certification. This resulted in the certification of 355 companies, which account for 80% of all Honda’s suppliers. (Honda Motor Company LTD, 2005, p.33)

Toyota...considers it important that initiatives to reduce environmental impact are not implemented by Toyota alone, but rather carried out on a consolidated basis involving all related companies, over the entire lifecycle of the vehicle from development through production and sales. Toyota, as a company that conducts business on a global level, considers it important that initiatives to reduce environmental impact are not implemented by Toyota alone, but rather carried out with the involvement of all consolidated subsidiaries. ...Toyota presents its global environmental policy to all companies subject to consolidated EMS and offers guidance and support in sharing of best practices, exchange of expertise, conduct of audits, and other areas. The percentage of vehicles produced and sold by companies subject to consolidated EMS was at 100% and 91% respectively worldwide. The consolidated EMS covers a total of 563 companies. (Toyota Motor Corporation, 2005, p. 18)

Honda has introduced the Green Dealer certification system* to its automobile dealers as the company’s unique environmental management system and promotes the acquisition of this certification by all of the dealers’ stores. As of the end of March 2004, 2,524 stores

are certified as Best Green Dealer stores. Best Green Dealer certification is the next step after being certified as a Good Green Dealer store. (Honda Motor Company LTD, 2005, p. 42)

The communications are enforced through leveraging the bargaining power of the self-referential domains within the system. The process of auditing and certification creates a chain-reaction that accelerates the diffusion of communications:

...the items on the check sheet were confirmed through audits at the processing sites of 130 key suppliers starting in September... Also, the scope of the audits will be expanded to include suppliers other than the 130 initially audited. In addition to these activities, during the implementation of supplier audits, suppliers are requested to produce their own check sheets to cover their own suppliers and to create opportunities for education concerning SOCs [harmful emissions] to the end of the supply chain. (Toyota Motor Corporation, 2005, p. 59)

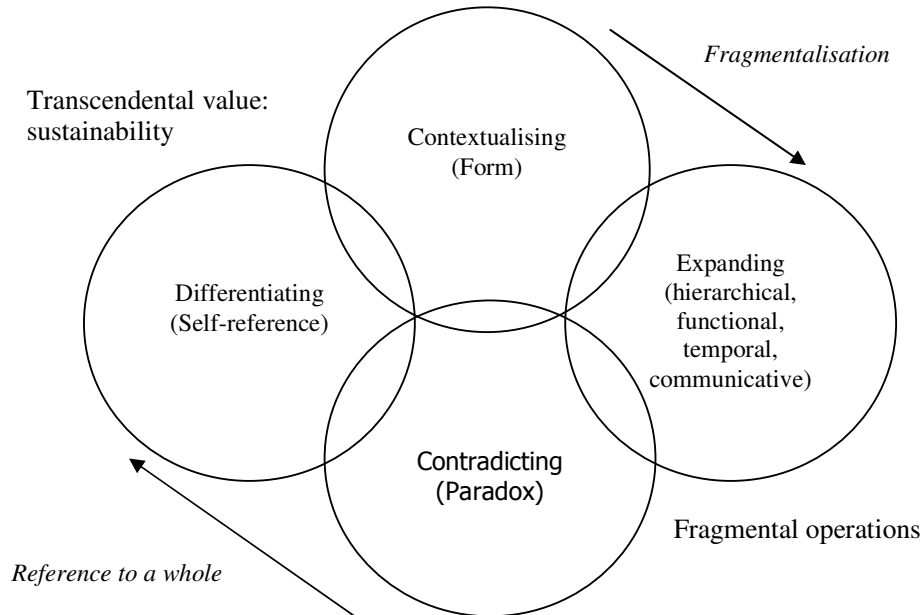
The process of communicative transvection creates and expands the common platform upon which similar communications are created and linked to each other. This common ground for understanding (of distinctions) plays a significant role in legitimising and naturalising solutions suggested for expanding the paradoxical nature of the system's emergence.

Systeming Crystallisation I

To summarise the interpretation, I present a snapshot of the dynamic state of the system, the systeming crystallisation (Figure 18). The systeming crystallisation illustrates the general view of the system's purposeful character. It does not claim universality. While recognising that the theory should be simple but not simplistic, it simply conveys the fragmental picture of highly complex social patterns. Particular caution needs to be exercised so that the crystallisation is not taken as the connotation of a cause-effect mechanism. The systeming crystallisation depicts the process through which SMC emerges as a coherent whole. SMC's emergence is purposeful, intrinsic, and its character is not governed by external forces. This emergence happens as expansion from within via

meaning transformation. The meaning transformation is represented by differentiating, contextualising, contradicting, and expanding.

Figure 18. SMC's Purposeful Expansion



Differentiating constructs the ordered view of the self and the environment within the system. The environment enacted is the inherent part of the system. It is within the system rather than without. Contextualising symbolises the purposeful flow of meaning-construction within multi-layered spaces. The system comes forth as the cascade of contexts in which observed events are mirrored in various meanings. Because of these basic-to-meta contextualisations, communicating equals to contradicting. The fragmented operations at the initially adopted context contradict communicating at meta-contexts. Contradictions are expanded hierarchically, functionally, temporally, and communicatively. In the figure, the downstream flow (from the transcendental value to fragmental operations) and the upstream flow (from fragmental operations to the transcendental value) represent the main directions along which the meaning transformation occurs. In other words, the meaning transformation happens when sustainability as a transcendental concept is enacted as fragmental operations within SMC. Also, meaning is acquired when discrete operations reference sustainability as the guiding value. The system cannot function without the transcendental concept.

However, the concept is enacted in fragmented forms, because communications can only convey the severed enactment of a whole (Fichte, 1970; Luhmann, 1995, 2006; Spencer-Brown, 1969). The system differentiates itself from external complexity and expands from within as a complex structure.

Conclusion

To sum up, the systeming interpretation constructs the marketing (sub)system represented by SMC as a purposefully expanding whole, notwithstanding the prominent role of fragmentalised activities. The system is not a mechanical entity, and it does not adapt to the environment. Rather it purposefully reduces the external complexity into the enacted environment which is constitutive of the very structure of the system. The system exists and operates through meaning transformations. This leads me to believe that not only physical activities, as suggested by Layton (2006), but also meaning-communication is the basis of the marketing system's emergence. Communicating is paradoxical (Bateson, 1991; Luhmann, 1995). In other words, the system comes forth through transforming complexity into systemic symbolism. I argue that those systems that are successful in expanding the paradoxical nature of communication are more likely to attain sustainability in a general sense.

Section IVb

Analysis: System of Consumption Practices and Communication

Introduction

In this section, the (sub)system under focus is *the system of hybrid car consumption practices and communications* identified as SCC or *the system* hereafter. The guiding research question remains identical to that of the preceding section: How does the system enact sustainability meanings? The resulting insights from the systeming interpretation are briefly presented upfront to enhance the understandability of ensuing interpretation (Figure 19).

Figure 19. Essential Aspects of Meaning Enactment in SCC

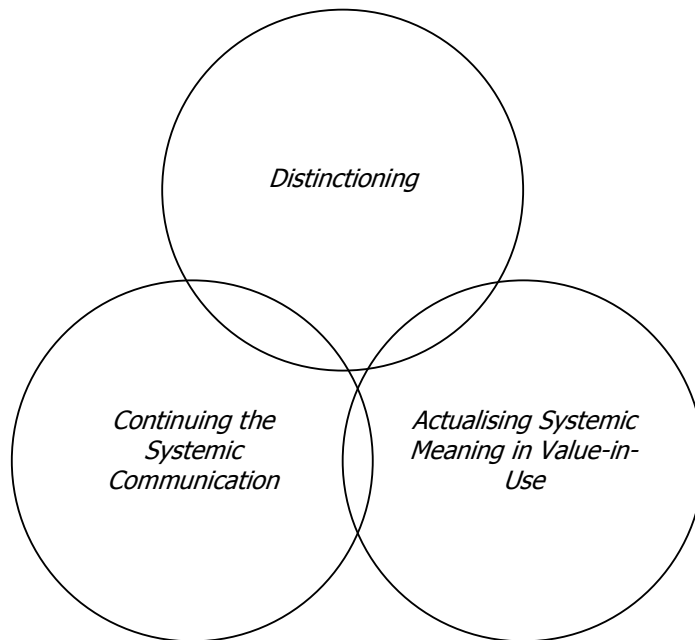


Figure 19 represents the essential aspects of a meaning-enacting process in SCC. It should be noted that the system, as it has been conceptualised in systeming, is represented by interlinked meaning-enacting flows rather than discrete constructs such as individuals or institutions. Therefore, the terms exhibited in the figure are not to be taken as the literal elements of the system, rather they must be understood as the flows of activity which create meaning, and thus the system. In brief, in this section, I illustrate the aspects of SCC's purposeful behaviour in

enacting sustainability meanings. These aspects are distinctioning, actualising, and continuing. *Distinctioning* refers to the pattern of systemic being-in-action, in the process of which hybrid car users employ identical system-specific distinctions to observe their experiential life-worlds. Distinctions activate differences such as a contrast between sustainable and unsustainable patterns. The former form is considered superior, positive, and desirable, while the latter is perceived to be inferior, negative, and undesirable. *Continuing* refers to the intentionality aspect of a hybrid car consumer who distinguishes the system. The system is not fixed in an individual. Neither is the individual fixed to the system. Individuals intentionally reify the system in their active state of understanding the systemic practices and principles. Understanding-in-action is neither a cognitive nor a transcendental process, but a dynamic act of purposeful interacting. *Actualising* refers to a systemic pattern in which consumer value-in-use for hybrid cars reflects systemic meanings. Systeming demonstrates that consumer value is a system-specific operation that actualises overriding distinctions within the system. The expectation of value is created, transformed, and maintained in purposeful interactions among hybrid car system participants. This means that value is not a stable, fixed, or permanent aspect of consuming practices. It is rather fluid, context-specific, and actively constructed depending on operating, observing, and interacting.

Distinctioning

Distinctioning is not a simple activation of distinctions. It symbolises a unifying pattern of differences that maintain a common meaningful difference. The interpretation indicates that activated distinctions in the consumer domain are not accidental; rather they are directed at maintaining *the difference*. The difference is a general systemic form, which is exhibited in the uniqueness that is attained through activating particular distinctions rather than other distinctions. This uniqueness constitutes the essence of the system. Distinctioning is observed in the following patterns: *recurring distinctions, valuing, comparing, self-differentiating, and differential contradicting*.

Recurring Distinctions

In contrast to other interpretive traditions, the systeming analyst does not immerse themselves into all the trivial details reflected in discursive data. Furthermore, the researcher does not judge the extent of validity behind statements. The researcher directs attention at how a person telling a story is operating within the system, while the system is not found *in* the story, but *in ways* stories are constructed. Consider the following extract from conversation in a forum dedicated to hybrid cars:

Confessions from a large truck driver

... for the last 5 years I've been driving a 11-seater Ford E350. A very large van with a very large engine. There you got it..... I feel a weight off my shoulders. Now that I've come out of the closet, let me elaborate briefly: This is a company-sponsored carpooling van, which I drive. So when all the occupants are tallied, we still get very respectable MPGPP (Miles per Gallon per Person). So why did I need to make this confession? because I must admit that I was guilty of some of the aggressive behavior, that some forum members complain about large SUV [sport-utility vehicle] and truck drivers. When I got my HCH (Honda Civic Hybrid), I became EDUCATED and RESPECTFUL. It is amazing how much one's driving improves when one puts attention to the way one drives. The HCH has been a great educational tool on both driving for mileage and driving for respect. Forum members already know the reasons and tricks for driving for mileage. But what about driving respectfully? Why it is that large SUV and truck drivers - not everyone, but certainly on average - tend to drive more aggressive? My theory: because large trucks and SUVs are basically designed to isolate you as much as possible from the road and its surroundings. With ultra-powerful engines, silky smooth automatic transmissions, comfy suspension, large tires, soundproofing, leather interiors, multi-zone climate control, 10 speaker audio systems, etc., one does not drive a car as much as one only rides it. And with the high seating position, one truly is on top of the world. Feedback is key to modify anyone's behavior. And when you become deprived from it...well, one misbehaves. (posted by fg1 (usernames are altered), on 16/02/2006, at www.greenhybrid.com)

This passage is the example of how observation of events change depending on a system reified. In the passage, the story teller is unifying *truck and SUV drivers*, and objectifying their behaviour as being different to that of *hybrid car drivers*. The points of difference, distinctions, activated here are as follows:

- a) the hybrid car drivers are educated rather than ignorant because of their sensitivity to social (peer) feedback (the distinction activated here is educated/ignorant);
- b) the hybrid car drivers drive more respectfully rather than aggressively in comparison to SUV/truck drivers (respectful/aggressive);
- c) the hybrid car drivers emphasise fuel efficiency rather than other motives (efficient driving/inefficient driving).

These distinctions resonate with other observers who also relate similar stories based on similar distinctions. The similarity of difference-making actions creates *the difference*, and it represents *the difference* of SCC from other systems reified through different distinctioning. Consider the following comments by other forum participants on the story given above:

Reply: Confessions from a large truck driver

fg1, you should posted done a "I have sinned against you" Jimmy Swaggart-style comment. (posted by Sg, on 16/02/2006, at www.greenhybrid.com)

This remark is an “out of the system” comment, which refuses to continue according to the suggested pattern of distinctioning. It observes the system as a whole (story + story teller) rather than operating within the system through supporting a particular distinction-making style. The passage is put in a style that specifically mocks SCC. However, implicit is an intention which negates the system as a whole. This may be an indication by the poster, Sg, that the proposed system of distinctioning is not understood, and moreover, it is not to be continued at this stage.

Reply: Confessions from a large truck driver

fg1, I have a few confessions myself. The first three years of my Insight I'd go 65-70mph - the pack speed. About 3-4 times a week someone [sic] would blast by me and I'd usually take up the challenge and let them know I was not left behind in the dust. Yes, that probably shortened the life of my recently changed IMA battery pack - no, I'm not going to race again. Also, I was often in a middle lane on the freeway. Nothing wrong or annoying keeping up in the middle lane, but being on the rightmost lane means less aggressive drivers to get me hissed off. Even with that, occasionally a few drivers would pass on the right shoulder. A Dodge Ram went so far as pass me in the middle of a single-lane exit ramp. With gas over \$2 a gallon and being on the road less during rush hour,

there is less of this to put up with. ... Aggressive road behavior is so prevalent it's very hard not to conclude the two go together. Granted, there are flying compacts and motorcycles that get under my skin from time to time. I've commented about the "High and Mighty" reclined posture and connected it with both the SUV/Truck commercials and the cultivation of proud and aggressive types in the [X] business community. Lots of people around here have "trophy" homes and vehicles - common knowledge around here. I'm simply not into getting things way bigger than my needs to impress others or stroke my ego. I have problems understands [sic] those that feel this is a need and feign a utilitarian "need" for say - a Hummer. (posted by Df, on 16/02/2006, at www.greenhybrid.com)

In contrast to the former comment, Df indicates acceptance of the distinctioning style. In this, Df employs the distinction such as aggressive/respectful in his/her own account of events. This distinction brings the system of hybrid car consumption practices again to the forefront of communication. In the process, Df makes an important observation: most often a vehicle category driven does not matter; aggressiveness could be exhibited by any car brand driver. However, Systeming allows posing another question: who is the observer? Is it not told by a hybrid car devotee who is, at the moment, operating within the system? Various other systemic perspectives on this issue may exist, which are temporarily not accessible to Df. Through this observation, Df once more emphasises the issue of aggressiveness, which implicitly points to Df him/herself as being the example of respectfulness. Df's communication communicates at a meta-level that hybrid car devotees are not *ignorant* (the educated/ignorant distinction) of such serious driving problems as aggressiveness. This meta-level reifies SCC.

What happens if an initial distinction is out of SCC? One may always disagree with the proposed distinction, and consider the situation in the light of another, but a system-specific distinction. Thus, SCC emerges once again. SCC emerges when distinctions considered irrelevant are refuted, and instead, relevant systemic distinctions are suggested. This process is evident in the following conversation:

With the help of my wife (read as "constant ribbing"), I have come to the conclusion that the Prius is a "chick [female] car". Almost all of the other Prius I see on the road here in the Princeton, NJ area are driven by women. Is that the trend nation wide? (posted by DS, on 28/05/2006, at www.priuschat.com)

Reply: The way I look at it, good old economics will eventually dictate who buys and drives emerging high fuel-efficiency technologies and push the question of, "how do I look driving this car?" or the statement, "That's not a man's car!" further into the back seat. Far too many people live right on the edge of their financial capabilities and exist in a situation where one burp could send them into the abyss. Holding on to a low efficiency vehicle because of its looks, or because of the way they PERCEIVE they look in the driver's seat may be the very thing that brings down the house of cards. My question: Does image eclipse the potential loss of material gains accumulated through hard work over many years? At what point will a man (or woman) say, "You know, I really love my truck (or SUV) but I can't go on paying \$75 or \$100 every time I fill up. This is insane and it's getting to the point where I can't pay my other bills. I need to get a car with better fuel mileage - one of those hybrids that gets 50 miles per gallon, maybe. I don't like how they look, with that funky rear end, and I wouldn't have been caught dead driving one a year ago, but hey, I have to get more efficient if I'm going to survive." To me, the answer is plain and simple. The survivors are going to have to get more efficient - much more efficient - if they want to prosper in the future. That's going to be the issue, not whether a man or a woman looks better in this car or that. (posted by BeL, on 13/06/2006, at www.priuschat.com)

DS is concerned about whether or not the brand of hybrid cars, Prius, is seen to be a feminine car by a majority of consumers. Accordingly, the distinction operated regarding the brand is whether Prius is solely feminine, in contrast to other brands which are predominantly unisex. The sleek design of certain hybrid car brands often leads people to think that they are designed exclusively for females. The reply by BeL refutes this distinction. He/she argues that that the *feminine/unisex* distinction is not as important as distinguishing *fuel efficient versus inefficient* brands. In this case, the initial distinction is played down, while the system-unique distinction is suggested as original.

Valuing

'Good' and 'bad' are improper labels for substances, because it depends hugely on use. Take vaccines - you inject someone with a virus, often a very dangerous virus. To this day, that puts people off of vaccines- it's a reaction based on fear. Someone needs to explain: the injection is a weakened form of the virus, sometimes a 'dead' strain, and their bodies react by building up the right immunities so that they have protection if they get exposed to a live strain, and that's the way a lot of medicine works. To fit this in with your analogy, I suppose it might be true that if you don't give them enough of the vaccine, their immune systems don't build up their defenses [sic] and they think they're protected

but they aren't, etc...I believe that our understanding of which things are 'good' and which are 'bad' is in a near-constant state of flux. Even things which are 'bad' in some contexts are good in others. (posted by lb1, on 24/02/2006, at www.greenhybrid.com)

Valuing, i.e. constructing a dialectical form that consists of binary, opposite values, consolidates communicative acts which reify the system as a whole (Luhmann, 1995). The system is not the result of valuing, but it is a process, the particular mode of valuing, copied by many agents both concurrently and sequentially. Binary values such as good/bad do not simply represent foundational criteria. They arise as systemic constructions. They are activated rather contingently to expand communication. A systemic *good* is not known unless a *bad* can be defined. For instance, the hybrid car fans talk about “radiation”. For them radiation represents radioactive waves emitted by electric systems of the hybrid car. They consider radiation as an unsustainable (bad) attribute of the car, while non-radiation is considered to be good. In this case, one can observe a distinction – radiation/non-radiation – that becomes a means for interacting within the system. Interaction expands in search for appropriate definitions for both radiation and non-radiation. However, no fundamental grounding, a guiding reference, can be detected in defining radiation. The outcome depends on how radiation *vis-à-vis* non-radiation is defined in an argument, while a subsequent argumentation challenges initial assumptions of the previous argument. Hence the discourse expands:

We touch on EMF, ionizing radiation, the whole concept of the wavelength spectrum... it's because terms like 'electro radiation,' are too general. We're all answering a slightly different question, because the original poster could have been talking about a few different things. Laymen think that 'radiation' means only one particular thing, (which isn't true) and often they're just reflexively afraid of it, like people who refuse to use microwaves. It reminds me of an exhibit I saw at a museum on atomic energy in Los Alamos, where they developed the bomb. Apparently, people way back when used to think that being exposed to radiation was good for them, and there were all these cheesy ads for 'radiation beaches' and 'radiation lotions' and so on that were marketed as health products and vacation destinations. People are funny, you know? And it just goes to show that public health manias and the fears of the moment are fads, just as much as Beanie Babies and bellbottoms, or the low-carb craze. Hopefully the hysteria will calm down over time, as it has on so many things before. (posted by lb1, on 23/02/2006, at www.greenhybrid.com)

The comment by lb1 recounts an understanding of uncertainty in valuing. He/she argues that the character of radiation/non-radiation distinctioning depends on the socio-historical background of the concept's development. lb1 observes the system-as-a-whole that approaches radiation negatively in the present, while in the past this event may have been taken positively. With this commentary, lb1 has become an outsider, as he/she is not participating in discussions and actions which are directed at distinctioning radiation/non-radiation, rather he/she is doing a second-order observing by analysing both actors and their actions. Inherent systemic actions within the system do not question the viability of a context. They flow according to the distinction:

Hybrid and electro radiation? ... [I] drove the last two mornings into work with the [electromagnetic] tester on. holding it in my left hand with my elbow resting by the window such that my hand was on the 10 o'clock position and the tester was almost on the dash above the steering wheel the readings were never below .5 mG [milligauss]. I'd say average was .6 to .7. Every once in a while it would go to 1 to 1.4 and hover for a while. Putting the tester on the drivers seat yeilded [sic] readings between .2 and .4 mG. Holding it in front of me gave .4 to .5. Setting it on the passenger seat gave .1. On the driver side floor the reading shot up to 4 to 7 mG. ON the floor of the passenger side it was .1 - .2. The readings this morning were consistent with yesterday morning. Both cold mornings and I drove both with the heat on low and with the heat off. Obviously keeping in mind there are multiple factors coming into play while driving. (posted by PRD, on 16/03/2006, at www.greenhybrid.com)

PRD is operating within the system. He/she does not question how viable radiation/non-radiation distinctioning is. PRD is measuring radiation using an electromagnetic tester and reporting the results online. For him/her, these actions are meaningful. Even though reported radiation levels are considered insignificant, the act of measuring tells about distinctioning preferences of the actor. The actor situates him/herself within a proper context, i.e. SCC, to interact with his/her peers. This means that "radiation" is not a fixed attribute of an object, e.g. a hybrid car. It is an active operation of valuing activated by the system's actors. It is a general context and a common label that marks a set of valuing-interactions among the system agents. The agents learn how to value certain events and interact with their peers within this context of valuing.

Interaction is possible when observed events are posited in complex dialectical forms. For example, the form “radiation/non-radiation” divides the life-world into negative and positive sides. Is the process of valuing in itself, the system, posited within this form? If everything observed is divided into the positive and the negative, can this operating position itself above the confines of this valuing? The system is logocentric (Stern, 1995), meaning that the positive side of the distinction is always preserved for the observer:

First: although there is a fair bit of media hype about 'radiation from power lines' and the 'danger' of radiation from cellphones and how it all may cause cancer, it is my understanding of the scientific principles involved that none of those fears or warnings are based on sound science. Radiation from cell phones, cars, even powerlines, is not going to give you cancer. You will be exposed to more radiation from spending an afternoon in the sun than you will from spending a year chatting on a cell phone. The most 'radioactive' activity you will ever experience in your life is getting on an airplane, because being above so much of Earth's protective atmosphere and being closer to the sun, even for just a few hours, exposes you to as much radiation as you would normally get in several months... and it's NOT harmful. Frequent air travellers [sic] are not endangering their lives, because levels of exposure that are sufficient to cause harm are SO much higher than levels experienced on airplanes, even cumulatively. Second, consumer safety standards in this country for acceptable levels of emissions from household products are set at incredibly low levels. To illustrate, let me give you an example of how low radiation safety standards at research labs are, and keep in mind that the public safety requirements for consumer products are about twice as stringent: I spent time working at a lab (and became certified in working with radioactive materials) where every worker had to wear a badge to work every day to track our radiation exposure. The badges were collected periodically and tested to see how much radiation we had come in contact with. The one and only time (in over twenty years) that a radiation safety incident ever happened at the lab was when a worker turned in a badge that showed an unexpectedly high exposure, and his whole department was shut down immediately until they determined the source of the 'leak' - he had accidentally taken the badge with him on a three-hour airplane trip. There used to be many more sources of radiation in our households; certain kinds of paint, particularly if it was glow-in-the dark, or the type used on a particular brand of dishes popular in the 60s, but it is all very well understood and regulated now. Now, if you're going to be taking the hybrid battery apart with your bare hands, I make no assertions either way, but as far as the normal use of normal products goes, you are safe. The sun is the most 'dangerous' source of radiation that you encounter in your day-to-day life, (so wear sunscreen!) but none of the rest of it is going to expose

you to enough radiation to hurt you- certainly not a hybrid car battery. (posted by lb1, on 21/02/2006, at www.greenhybrid.com)

According to the passage, it is *good* to assume that the hybrid car's battery pack has "no radiation", as its effect is considered to be much less in comparison to that of a number of other serious radiation sources. The *good* actions reify SCC as a distinct unity to other systems. Individuals who act in "good" ways become part of the system. Consequently, it is *bad* when someone acts so as radiation is the problem of hybrid cars. However, this valuing does not resolve the issue entirely. SCC's continuous self-affirmation of positiveness should be extended into the future. This is accomplished through alerting operations. The *alerting operation* is an observation which questions, and cautiously doubts the affirmed goodness of the system, while preserving an expectation of a positive resolution of the case. For example, one may occasionally ask whether it is "radiationally" safe to be seated near a hybrid car's battery pack for a long time. This brings the radiation distinction back into forefront of attention, and communications ensue. The other type of the alerting operation, the internal rendition of others' opinion on the issue, could also be suggested as a starting point. For example, one latest editorial published on the hybrid car's radiation can be presented. Both the questioning and answering operations pertain to SCC, and they both purposefully drive the system into the positive resolution of the issue. One might see hypocrisy in this situation, as it could be queried why someone asks a question when the answer is already known, or at least, he/she expects a positive confirmation. Nonetheless, agents in the system are not concerned by this paradox, as this is just one of many strategies to maintain systemic expansion.

The pattern of always positing the system as a positive event applies to all distinctions activated within the system. For example, the central distinction in using the hybrid car is *fuel efficiency/inefficiency*. Actions within SCC are predominantly defined as being conducive to fuel efficiency which is considered to be a positive, superior, and preferred event. In contrast, fuel *inefficiency* is attributed to non-systemic actions. The positive side becomes the perfect position to critique others. The self-affirmed positivity allows the system to suggest its own solutions to sustainability problems. For example, Walter McManus's blog

(2006) voices over and over the economist Martin Feldstein's proposal to use tradable gasoline rights as a way to promote fuel efficiency:

The idea of tradable rights is simple. The authorities decide that they will permit no more than 125 billion gallons of gasoline to be consumed by cars and light duty trucks in, say, 2010 (last year we consumed almost 130 billion gallons of gasoline powering our cars and light trucks). Then, the authorities somehow distribute the rights to the 125 billion gallons. One way to distribute them would be to give each of the country's 200 million drivers rights to 625 gallons each. If that method were chosen, then any driver who wanted more than the 625 gallons would need to buy the additional gallons from someone who is willing to use less. Think E-Bay Oil. Now, in general tradable rights would be an efficient way to reduce consumption, but I worry about who will decide the number of gallons, and who decides how they are distributed. If these can be accepted by the public, then why stop with one year's consumption of gasoline? Why not apply the concept to lifetime carbon output? (McManus, 2006)

The system sees itself as morally responsible to promote the idea of total fuel efficiency. This morality, distinctioning good/bad practices, is considered to be good in itself. Therefore, solutions must always be sought according to the systemic perspectives. For instance, hybrid enthusiasts suggest that governments must raise prices for fuel to discourage both excessive fuel consumption and demand for gas-guzzling cars:

I think that this type of gas rationing is ridiculous. All it would ultimately achieve is more invasive and inefficient government control and red tape over our lives. The only way that Americans are ever going to stop guzzling large amounts of fuel is if the price of fuel becomes so oppressively high that the American public has no choice but to curb unnecessary driving habits and start purchasing much more fuel efficient vehicles. We are seeing this as a general trend now and my guess is that it will continue. The average working American family simply will not be able to afford to drive around in inefficient SUV's and the like when the price of gas hovers at the \$5.00 a gallon mark in the not too distant future. This will result in a drastic change in consumer buying trends and driving habits. We do not need the federal government rationing our gas consumption, this is simply going to add to the problem. (posted by GoH, on 12/06/2006, at www.hybridcars.com)

GoH is assessing the situation from the perspective of the system. He/she is neither interested in all the multi-faceted opinions of society members nor is he/she able to consider others' life challenges and aspirations linked to mobility

problems. For GoH the solution of the sustainable mobility problem is both simple and clear – the government must raise fuel prices – which makes perfect sense within the context of interactions in SCC. SCC looks for the ways to expand. In order to expand, self-righteousness needs to be assumed. This approach to valuing is used to enforce system-specific distinctions on the increasing number of other agents. The higher the number of communications which employ the system-unique distinctions, the bigger (more total) is the system's domain of influence. Therefore, hybrid car enthusiasts favour strategies which morally enforce the fuel efficiency distinction on a larger part of society.

Comparing

The pattern that is distinguished in online discourses is that the hybrid car consumers construe and consolidate their identity through activating continuing comparisons to consumers of other car categories. Hybrid car characteristics and related consumption practices are taken to be different to those of non-hybrid ones. The differences observed create meaning and this meaning is at the core of SCC. The systemic essence is signified in the difference between hybrid vehicles and other comparable vehicle categories. For example, advantages and disadvantages of the hybrid car *vis-à-vis* the (bio)diesel engine car are discussed often:

Which is better: 1) Buy a diesel car. In the short term, you would be saving yourself some money (diesel isn't an expensive technology), improving your fuel economy, hurting the environment (just a little bit), and contributing to rising health care costs. In the long term, you'd be funding the research to switch to biodiesel fuel, which is cleaner and possibly more fuel efficient. It might even bring about an improvement in piston engine design that increases horsepower and torque. The engine still needs motor oil though. 2) Buy a hybrid car. In the short term, you'd be spending a couple thousand extra (vs a gasoline or diesel powered car), improving your own fuel economy (comparable to a diesel engine), helping the environment a LOT, helping to reduce health care costs, and reducing not only dependence on foreign oil, but any fossil fuels. In the long term, you'd be helping to fund battery research, electric motor research, and fuel cell research. You're still using gasoline, you're still using motor oil, but half of the engine is using NEITHER motor oil NOR gasoline. Does that just about sum it up lock, stock, and 2 smoking barrels? Furthermore (if this IS a correct summation) then can we say the REAL question is: Which is better...Fuel cell research, or Biodiesel research? (posted by Tm1, on 28/02/2005, at www.hybridcars.com)

In this case, the observer constructs the meaning of the hybrid car. This meaning is realised in a form of “how the hybrid car is different to the diesel engine car”, rather than in a form of transcendental (holistic) appreciation of the hybrid car in itself. Here, the meaning of the hybrid car also involves depiction and interpretation of the diesel [engine] car as the part of the whole. In this form of depiction, hybrid car consumption practices emerge as being *more* environmentally friendly, *more* conducive to health improvement, *more* helpful to national foreign policy, and *more* supportive of superior fuel-cell research than the diesel car patronage. Thus, SCC becomes the unity of difference between the self, the hybrid car meanings, and the other, the diesel vehicle meanings. If taken generally, the meaning of the hybrid car is constructed in the background of a set of comparable car categories. The categories such as SUVs, (bio)diesel cars, electric vehicles, or fuel-cell vehicles become a point of reference for comparison. The hybrid car is constructed as the most viable option that meets requirements of the present:

I bought the Prius mainly because I could not buy a modern EV [electric vehicle]... and the Prius was the closest I could come. I chose the Prius over all other hybrids because of the (very limited!) EV mode. (posted by dd1, on 06/08/2006, at www.priuschat.com)

There also a bonus about a hybrid that usually goes unmentioned but I like the fact I go to the gas station 3 times less than my previous car an SUV [sport-utility-vehicle]. With gas so high I hate to wait 20-40 minutes for the cheapest gas in town to save 10 cents a gallon. I've be saving over an hour of time of my life filling up gas. How much is your time worth? (posted by Wn1, on 16/10/2005, at www.hybridcars.com)

The alternative car categories are assessed from within the system. The system builds its judgment in conformity with its internal operations rather than portraying objectivity in its assessment. For example, while an SUV may be positively assessed as a powerful, spacious, and sporty car within other systems, SCC constructs it as the “radical enemy” of the hybrid car. Accordingly, the SUV is a gas-guzzler, the paragon of apathy to societal problems, and the symbol of waste and environmental destruction. Furthermore, conventional SUVs are seen fostering the habits of inefficient driving. For instance, hybrid car fans portray

non-hybrid vehicle drivers as inefficient drivers who may ruin the mileage record of a hybrid car due to their ignorance:

Enter my non-hybrid driving wife. She needed my SUV in order to pick up a piece of furniture. I offered her the keys with pride -- knowing that my 4WD Escape got better mileage than her TSX and was able to haul a large dresser. When my Escape came back, the 38.7 MPG was sitting at 25.4 MPG. She put less than 30 miles on the odometer, but crushed my dream tank. I couldn't even bring myself to calculate how many MPGs she achieved with her inefficient driving style. (Miller, 2005a, para 4)

Comparisons also emphasise the difference activated by *meaningful shift* in product usage behaviour. Hybrid car drivers argue that they change their driving *attitudes, styles, and habits* which are radically different to those of conventional drivers. This process of changing reifies a distinct communicative system, SCC. Consider this passage:

Well, here's some more truth: If you drive a Hybrid "like a regular car" and DO NOT take any actions to try to maximize your MPG, you will not get EPA [Environmental Protection Agency] numbers, and you will not be pleased with the car's MPG performance. The beauty of these cars is that they "give you the tools" to modify your driving habits in order to best take advantage of the technology. If you are not interested in "playing the game" of trying to see how high you can keep your tanks on a consistent basis, then a hybrid is probably not for you. Anyone can slow down, take a different route, accelerate more slowly, and all that stuff, in ANY vehicle, and their MPG will improve. But in a hybrid, you have instruments you can use as tools to help guide you to discovering the best MPG under certain circumstances. And you can certainly drive the speed limit in a hybrid and get good MPG. Just this past Saturday, I was driving 40 MPH in a 40MPH zone and the realtime MPG meter was registering 80 MPG. The thing that TOO MANY people do is "zoom zoom zoom" from traffic light to traffic light, in a hurryhurryhurry-gottagetthere-fiveminutesago style, and that KILLS your MPG. I love my new Hybrid driving style, and I am still learning my car after almost 15 months. (posted by ls1, on 26/09/2005, at www.greenhybrid.com)

As the vehicle driving attitudes and habits change, so does the observation of social events. The "average" (conventional) driving is thought to be conducive to fuel inefficiency. However, it is often stressed that simply possessing a hybrid car does not make one a "real" efficient hybrid car driver. This shows that the product in itself (or the possession of it) does not create a distinct consumption system and

a corresponding value. It would be conventional to think that it is the hybrid car that is fuel efficient, and hence, the mechanical aggregation of discrete fuel efficiencies brings about the most venerated state of sustainable mobility. The systemic dynamics indicate that a purposeful human acting rather than the object is the basis of the system. Thus, systeming shows that SCC is the product of dynamic purposeful shifts in human behaviour. So the incorporation of hybrid cars into the ways of meaningful communicating, difference-creating, and valuing creates SCC rather than simply purchasing or owning a hybrid car. This demonstrates that the meaningfulness of SCC is rooted in communications which distinctly enact the relation of the hybrid car to the purposeful acts of society members in interaction.

Self-differentiating

The difference of the system is also actualised in individuals' *self-differentiating acts*. The hybrid car consumers self-differentiate in order to construct distinct identities. For instance, a hybrid car driver's identity, as it is expressed in the online forums, may comprise information on attained average fuel efficiency in terms of mpg (miles per gallon) or km/l (kilometres per litre) over the period of a hybrid car ownership, the number of hybrid-driving years, and a distance driven in the hybrid-car. The statement of these aspects of hybrid car identity creates a differentiation. Besides, this identity reflects the high complexity of relations within SCC. The drivers with an impressive mpg, long experience, and a big driving distance are conceived as the legitimate opinion leaders of the system. Therefore, the word of advice to others is often coupled with the indication of hybrid car identity. The identity aspects are believed to bestow high legitimacy and respect on the guidance of an advisor. From the systemic perspective, this may be the way through which SCC ensures that only original distinctions are communicated, accepted, and continued. A newcomer cannot hope that his/her unqualifying, unsystemic, and irrelevant distinctions are accepted easily. Thus, the system prevents a destabilisation and maintains stable reproduction of particular meanings. Also, self-differentiating happens in stages of *self-contentment*. The self-contentment occurs when one is satisfied with the level of one's own achievement, and acts toward this very self-chosen target. Many forum participants refer to guys in 40s, 50s, and 60s in terms of miles-per-gallon rather

than age. This indicates the level of contentment with the totality of actions to achieve a certain level of mileage.

The identity of a hybrid-car driver is not simply an individual identity. It emerges as social identity, because it is created in communicating and interacting with other hybrid car enthusiasts. The analysis of identity ethos reveals that its meaning is embedded in the network of communications which people subscribe to. This means that identity within the system does not solely originate from within individuals' cognitive and psychic structures. Fichte (1970) discussed how an otherwise undistinguished, but unlimited absolute self acquires meaning by means of positing (*setzen*) itself as a self that is limited by a non-self. The self-reference is thought to entail two operations. First, it comprises fragmenting the observed self by referring to the non-self, and second, fragmenting the absolute self by referring to the observed self. The social identity of hybrid car users that is communicated in online discourses is fragmented in the same way: a) communications pertaining hybrid cars indicate recursively to themselves as a *hybrid-car practice*, which is defined in reference to a *non-hybrid practice*; b) the system detaches itself from the distinction (the hybrid/non-hybrid practice) assuming the role of an observer, the indivisible absolute unity, and observes the unity of the *hybrid vis-à-vis non-hybrid practices*, the divisible unity. This can be observed in the domain www.greenhybrid.com, that hosts the thread "you know you're a real hybrid owner when..." which discusses the unique behaviours of hybrid car consumers (these few statements were selected out of more than 600):

You know you're a real hybrid owner when...

18. ...you get told, "*shuuut uuupp*" when you mention your latest tank was 64.4 MPG (3.6 L/100km)!
42. ...you park at the top of a hill at the store under your wife's protest and that extra 50 feet to walk turns out to be 500...and you don't mind.
68. ...you check your tire pressure as often as you brush your teeth.
71. ...you maintain both a printed and a stored Excel spreadsheet of you[r] mileage and proudly display it to any poor soul unfortunate enough to ask, "*How do you like your hybrid?*"
92. ...you removed the side mirrors, rear wiper, and antennae to improve your automobile's wind resistance.

124. ...you chuckle at SUV owners that get frustrated and race past you, only because they used more gas during that maneuver [sic] than you will for your entire commute to work. (www.greenhybrid.com/general_forum)

These self-referential definitions have several common features. First, identity is expressed through a momentary interactive operation, i.e. communication. For example, the expression #42 “you know you're a real hybrid owner when you park at the top of a hill at the store under your wife's protest and that extra 50 feet to walk turns out to be 500...and you don't mind” indicates that “fuel efficient identity” is expressed via a concrete self-defining action in reference to a certain phenomenologically recognised object, a hill. Here, identity is not static but dynamic. However, it is fragmental, and realised through a discrete action. A unique context underlies each identity-constructing situation. Second, other-reference appears to be the inherent part of self-reference. In the aforementioned example, other-reference is hidden but implied firmly. It is implied that the “significant others” would ignore the hill, and stop at a convenient place close to the store, as their distinction would be more a matter of convenience rather than fuel efficiency. Third, meaning cannot be determined by only analysing a single expression. The repetitive enactment of the action (e.g. stopping on the top of hills) in isolation has no meaning, while the meaning becomes embedded in the total context of the system. The identity of the person stopping at the top of hills becomes meaningful when his/her action is located in the embedding meaningful context. In other words, if the observers know that SCC is a locus of differentiation between fuel efficiency from fuel inefficiency, then they can put the meaning of a story in a proper perspective. The story of stopping on a hill asserts the recognition of the importance of fuel efficiency, and therefore, it can be located within SCC.

Through identity discourses, hybrid car drivers describe the patterns of change activated to differentiate the system from the environment. These patterns need not to be exactly realistic. They are simply the *prototypes of acting* that are accepted and existentially used in SCC. The prototype of acting is conveyed in the form of stories. The following is an example of story-telling within the system:

But the difference between \$130 in gas a week and \$20 a week is a no brainer if you are not making 6 figures and you have realized there is more fun in doing other things besides tearing of [sic] the line or racing in traffic towards the breaklights [sic] ahead. Funny story: A couple of days ago I was at a stop next to a jacked up diesel dodge pickup truck. This is the kind of truck that could fit the Prius in the bed. He kept inching up, obviously anxious to get a jump on the light when it turned green. So the light turns green, he "guns" it and takes off. Meanwhile, I decide I need to get into his lane to make the next left turn - I step on it, pass him easily on the right, and stop at the next light in front of him. My wife almost... [vulgar expression] her pants because she was laughing so hard. The guy in the truck looked kind of silly sitting behind the Prius at the next light that he tried to pass. (posted by mb1, on 21/06/2006, at www.priuschat.com)

A story is the observation of the relation of the self to the other. In this story, a pickup truck emerges as a Goliath, the paragon of waste, irresponsibility, and evil power. The hybrid car, in capacity of virtuous David, outwits the giant. In its flow, the story is the unique observation of a situation. However, this story is not only informational, but also exemplary. The plot is copied in many other stories within the system. Consumers do not copy the story literally into their experiences; rather they learn the character (plot) of observation. This means that when a comparable event (in its complexity) turns up in front of their intentional focus, they render it meaningful by applying an acquired observational perspective. Thus, the story can be defined as strategies of retrieving meaningful patterns from complex totality of the environment. The iteration of identical plots expands the system.

The dynamic that arises from reciprocal limiting effects of *hybrid versus non-hybrid* practices is the necessity of social identity construction, although it leads to double-contradiction. The first aspect of this contradiction is that systemic identity is defined in terms of both the self and the non-self, whereas the second aspect is that the unified-self is represented as the fragmented self (Fichte, 1970). Trying to draw a *strange loop* to connect both the basic and meta-levels of identity-construction creates an irresolvable contradiction, while operating simply on the basic level of the system can never achieve a full explanatory power to represent a meta-level emergent event (Hofstadter, 1979). What cannot be seen cannot be seen from within the basic level of the system. In the field of the mathematical logic this was expressed as follows: "...to seek self-knowledge is to embark on a

journey which...will always be incomplete, cannot be charted on any map, will never halt, cannot be described” (Hofstadter, 1979, p. 697).

Differential Contradicting

Self-reference creates contradictions (Gödel, 1986/1929-1974; Hofstadter, 1979; Luhmann, 1995). Hybrid car fans are often perplexed by the manufacturers’ strategies which promote both fuel-efficient cars and rival gas-guzzling brands at the same time. This may be the case, because the sharper the difference between these categories as perceived by consumers, the stronger the system’s meaningfulness. However, the paradox exists not only in manufacturer actions, but also in consumers’ communications. For example, consumers believe that their actions are sustainable because they are directed at reducing emission and fuel consumption. Although this assertion might be somewhat true in reference to individual drivers, it is highly doubtful in reference to collective fuel-efficiency of all cars-in-traffic:

Gave this a little thought. You might actually LOWER the collective MPG (of all the cars on the road near you) by doing this, because you would force others to slow down (without capturing the wasted energy) and regain original speed if you drive a lot slower than permitted. (posted by Lb1, on 12/09/2005, at www.greenhybrid.com)

The passage implies that the roots of a solution for the fuel-efficiency problem (and thus that of sustainable mobility) may go much deeper than is understood. Drivers might become self-referentially closed into their own communication, while thinking in terms of discrete units, and their mechanistic aggregation. However, the situation around the hybrid-car-in-the-traffic is more dynamic than perceived. The interaction of various cars in traffic can be seen as yet another system. So the problem becomes that of the interactive ability of SCC which must be conducive to recognition of other alternative systems. The system’s ability to resonate with changes happening in other systems is an important factor in this situation. SCC may be driven by considerable fuel economies, whereas the effect of its fuel-economy-operating on other systems may become contradictory to self-chosen motives.

Furthermore, hybrid car enthusiasts employ particular driving strategies to boost hybrid car fuel efficiency. The conventional driving strategies are considered inefficient within the system's reference. The act of a change from inefficient to efficient driving practices in itself communicates that a certain difference has been enacted. At the same time, these communicative acts appear indistinguishable and even unapprehensible for those who are not initiated into the system. One of the forum participants (observers) struggles to understand this kind of event, while labelling it as hypocrisy:

The hypocrisy i [sic] love the most is the people who advocate these vehicles as being just as good as a regular [sic] car, yet they are the first ones to cry bloody murder when someone has a problem by claiming "They must have driven [sic] it too fast, they must have done this or that". Gf [a forum participant] by his own omission has proven that he himself does not see the insight as one, in his battery failure thread he talks about how he is now changing his driving style to not affect his new pack. Well according to you we have seemingly [sic] different driving styles (Although you have never seen me drive) Yet the cause of failure is because of the operator. Yeah right, its either a regular [sic] car or its not. Sorry for that little tangent but it is true. (posted by hs1, on 17-2006, at www.greenhybrid.com)

The distinction of the hybrid car battery's *failure/endurance* is a topic that is discussed often. Hybrid car fans are often worried about the duration of a service life and a replacement rate of battery packs. These battery packs are an energy source that drives the hybrid car's electric motor. However, the distinction (endurance/failure) is made meaningful by a means of acting. The hybrid car drivers usually change their driving practices to maximally extend the battery life. Yet at the same time, they may discuss how hybrid cars' batteries are durable and reliable. As a result, the observer (in the example of the poster given above) becomes puzzled in regard to the consistency of the content of discussions and the form of actions. In his mind, the long service life of battery packs is caused by the hybrid car drivers' change in their driving styles. In contrast, the hybrid car drivers see manufacturing quality, the inherently positive feature of the product, to be a cause of performance. Certainly, it may look like hypocrisy when sayings (claiming that battery packs have a long service life) are betrayed by doings (acting purposefully to extend the battery life). In contrast, the systeming interpretation indicates that, for the system, this is the issue of neither hypocrisy

nor sincerity. It is the basis of purposeful expansion. The *difference* is simply observed as a set of positive differences, and in this the system is recreated.

A similar situation is observed when the hybrid car drivers strive to reduce the overall travel weight:

I don't let other people drive my HCH (Honda Civic Hybrid) (if I had a wife maybe, but girlfriends, NO), but I do get silently frustrated carrying passengers and feeling the struggle for the same FE the current tank is getting at that point. I know I'm saving fuel by taking just 1 car, and 1 very economical car at that, but darn those people for dragging along that much more weight. (posted by hs1, on 16/09/2005, at www.greenhybrid.com)

Hybrid car drivers strive to keep the total weight of a car as little as possible. Little weight is believed to have a significant effect on fuel efficiency (mileage). However, it is in the interest of the public that a larger number of people travel with a smaller number of vehicles. This idea represents the principle of carpooling. *Carpooling* refers to the practice of sharing a means of transportation to travel together to common destinations. Here, one can see again that the hybrid car drivers' intention to serve public interests (by reducing emission and fuel consumption) is in a direct opposition to the public cause of promoting carpooling. In fact, some governments promote carpooling as a measure to reduce the total amount of traffic, emissions, and fuel waste. However, hybrid car drivers dissent carpooling as this might reduce their individual fuel efficiency, while total efficiency at a societal level is not of interest. Consequently, they consider the fuel economy at the general societal level very narrowly, i.e. as the mechanistic sum of each individual's fuel savings.

The biggest self-contradiction is that the hybrid car fans entertain the positive view of hybrid-car-related acting, which is considered to be conducive to general societal sustainability, while presupposing the negative view of other practices. This creates a basis for discrimination, ethnocentrism, and intolerance. The systemic differentiative acts marginalise the feelings, preferences, aspirations, and communications of others. In some instances, these aspects are attacked from the position of self-ascribed positivity. The systemic actions encourage the belittlement, destruction, and elimination of "opponent" meanings. The irony is

that such ways of acting are labelled as “sustainability” initiatives. The matter of how sustainable such sustainability activities are is seldom questioned. Moreover, the systemic acting of constructing “other” consolidates identity of the other. “Other” identity becomes stronger as the system keeps expanding. The system’s expansion is related to its vulnerability, because its very acting fosters the consolidation of opposite meanings.

Continuing Systemic Communication

In the system, communication is continual, i.e. a communication is linked to preceding communications. This process is depicted in relation to information, utterance, and understanding (Luhmann, 1995). SCC arises when a) relevant conditions of the hybrid car usage are recognised and thus, information is constructed; b) the conditions are engaged with through the means of hybrid car driving practices, the process which constructs utterance; c) proper continuation of conditions-practices cycles reflects an individual’s ability to continue system-relevant communications, which symbolises understanding. This conclusion is in line with Wittgenstein’s (1963) view that understanding is an ability to carry on relevant communicative operations. The system is manifested in an ability to differentiate between proper systemic communication and non-systemic complexity.

Conditions as Information

Phenomenology stresses that individuals intentionally discern “objects” that could be engaged as information. In SCC, information is represented by a set of conditions, which can be *external* or *car-related*. The hybrid car driver approaches only those conditions which are instrumental in realising the purposefulness of the system. Thus, conditions are not independent factors selected from a so-called concrete external environment, but are constructions which are self-referentially deduced from the state of complexity of the environment. In the following example, the observer calls to attention several factors when assessing the mileage tests results conducted by the US Environmental Protection Agency (EPA):

That the general public takes the EPA values as gospel and wonders why they don't get the same values in their daily drive is a difficult situation but IMO it's not one that should be changed. The well-known caveat 'Your milage (sic) may vary' is correct but therein lies the problem. Why does it vary? How does it vary? How can I make it not vary? There is a basic misunderstanding of the test and what it represents. A physical test with fixed criteria and limited variables has to be fixed for the test to have any significance at all when comparing disparate vehicles. Regarding the test parameters and results I disagree that they are bogus. I normally replicate them multiple times in my daily 150 RT commute. In addition, I've exceeded EPA City values by as much as 10% on a 50 mi trip. As [X] noted if one is observant about daily driving then creating a personal algorithm describing one's own driving is easy to do: Length of Drive, Highway Drive (Highway speed), City Drive (Type of city driving, City speed), Weather (temperature, precipitation, wind speed (plus and minus), Weight/Cargo, Tire Pressure. Each of these variables has a plus/minus effect from the EPA standardized test and resulting values. Again I normally hit the EPA criteria several times during 150 mi but overall I can say that I am exactly at the EPA values - when adjusted for my personal driving characteristics...Disregarding weather, speed, weight, etc. and just using a weighted average of Highway and City miles driven my average FE should be 52.5 mpg. (posted by Kd1, 20/07/2006, at www.greenhybrid.com)

While the conditions emphasised in the passage refer to natural phenomena, their meaningful form is shaped within the context of the system. The “rule of the game” in this system is to observe fuel-efficiency. The conditions observed are those that could meaningfully be engaged with in reference to changes in fuel-efficiency. For example, a “city drive” is not constructed unless driving practices and accompanying observation register a radical change in fuel efficiency within urban areas. What are other important conditions observed and constructed in the system? The patterns observed indicate *external conditions*, which comprise climatic and geographic factors. The climatic factors comprise weather conditions (air temperature, humidity, etc), weather events (rain, snow, storm, etc), and the seasons:

Since getting my Toyota Prius..., I have monitored my gas consumption quite religiously. As weather cooled down in the Fall, I noticed that my gas consumption increased by about 10%. I remembered that I had noticed a corresponding improvement in gas consumption in the spring as weather warmed up (before I removed my snow tires). (posted by Pb1, on 06/11/2005, at www.hybridcars.com)

What has the weather been like? I no longer live in the Midwest but in a more temperate climate but we are clearly into the fall/winter season (not much difference between either fall/winter or spring for that matter) the temps are down and as I have the Scan Gage, so I can track the engine temps, I am now very aware of how much longer it takes for the car to get up to the temp to be in full hybrid mode. In my am commute it takes about .5 to .75 more miles to get at full hybrid mode at 50 F. It is going to get worse when we are in the mid 40's... It is going to get much colder where you are! Your milage will drop. The Prius is about reducing emissions. That is "job one" for the Prius. It is going to keep the car and the catalytic converter at optimal temperatures, if you want a bit of heat for your self it will cost you!!! Getting the car up to temp will burn fuel just to heat it up. Wait till summer you will do far better than me! My summer temps are in the mid 70's for the highs! 50's to low 60's in the am. I will never get the m.p.g. you will in the summer. (posted by Hs1, on 12/10/2005, at www.priuschat.com)

This discourse indicates that the hybrid car driver constructs the meaning of the climatic condition quite arbitrarily depending on a salient distinction emphasised within the system, rather than observing a weather event in more absolute and objective terms. For instance, weather seasons are assessed by the extent of influence they exert on driving habits and fuel savings. Consequently, a weather event is not a weather event as such. It is a *fuel-efficiency-changing* event. The car driver notices rain or wet conditions only in the case where the condition affects substantially a self-appointed fuel-efficiency target. It is a noticeable jump (shrink) in registered mileage (km/l) that makes, for example, a winter period different, and thus uniquely addressable, in comparison to a summer season. These phenomenologically distinguished factors call for a unique set of intentional actions to be constructed. For instance, air temperature is differentiated through addressing it through particular actions. Although such an uncontrollable factor as a level of outside temperature is expected to be taken for granted, it is not the case for the system. This factor can pro-actively be interacted through particular intentional actions:

It sounds well deep, like walking on the rice paper and not leaving a mark like David Carradine in Kung Fu. Aside from accel [sic] work, this guy covers almost all of the front grill and half the engine room in winter, has extended the air intake pipe, and uses the equivalent of a block heater on the engine. It sounds like he is using a halogen room heater, a somewhat improvised solution. The speed limit on most Japanese roads is low, so law-abiding Japanese drivers will get good mileage in many cars outside the city. The Japanese S (no VTC) model EPA is 35.5km/l, though I think this is the first time anyone

has claimed to achieve it...They have some of their offline meetings in Aichi where my missus is from, so I might try and go to one of them for some "tane akashi" (revealing of secrets). (posted by Sz1,, on 07/06/2005, at www.priuschat.com)

The geographic conditions include local topography, road traffic, routes, and driving distances/times. These conditions are also constructed in the manner of active engagement. In this way, the hybrid car drivers notice and meaningfully construct these situations in reference to their fuel saving experiences. The local topography assumes importance as a driver tries to anticipate and use a challenging topographical difference within his/her commute for fuel-efficiency advantage. Particularly, hills and long stretches of sloped distances become the object of communication. Particular changes in a driving style are activated depending on the height, slope, and length of hills. This is described by a forum participant in the following way:

My favorite analogy to use is that of a bicycle rider. If you've ever been out on the road and huffed and puffed your way up a hill only to be passed by someone else on a bike who just glides past you without seeming to be even breathing hard, you can appreciate how hard your car works on that same hill. If you can learn to ride a bike efficiently, you'll realize what you need to do to drive your car efficiently. I see a lot of people braking their way down a hill and at the bottom, they have to accelerate up the next hill. That's a needless waste of gasoline. In a conventional car, as you coast down the first hill, the car's speed gets faster and faster. With a Prius, the car channels the energy of that momentum back in to the car's power system so you never speed up much. In either case, you develop a sense of how to begin at the top of a hill slowly enough so that when you're going down the hill, you don't go too fast. Just as importantly, that sense also tells [sic] you when to accelerate slightly so that when you start going uphill, the car is going fast enough to reach the top without your having to give it more gas. The moment of slight acceleration, for me, is usually towards the end of the descent. The trick is to know how much gas the car needs for the upward trip and give it that much before hitting the bottom of descent. Practice this a lot and it will be second nature to you. Not to mention that your mileage will go up, no matter which kind of car you drive. It's something that you just develop a sense for, not something that you have to think about much. As the cyclist's saying goes: "Love the hills because it doesn't do any good to hate 'em." (posted by Lm1, 08/10/2005, at www.priuschat.com)

In contrast to traditional car drivers, hybrid car drivers are not indifferent to idiosyncratic driving conditions such as heavy road traffic or traffic congestion. The reason for this seems to be straightforward. On the one hand, it may help

them assert their distinct self-identity in some places, where they can take high-occupancy (HOV) lines while driving alone. On the other hand, a slow stop-and-go kind of traffic is a perfect place to boost the level of mileage:

I love how quiet and smooth my driving experience is in the kinds of traffic I most hated pre-hybrid -- stop and go, rush hour, construction traffic nightmares, accident delays, etc. And the focus on fuel economy gives me something more productive to shoot for than being the first to that next light. (posted by G11 on 16/06/2006, at www.greenhybrid.com)

The system actors experiment with different alternative routes for their travel. Although they would prefer routes that are perceived to optimise fuel-efficiency, they may also try alternative routes quite often. Depending on the complexity of road networks, drivers may choose to take parallel highways, avoid undesirable traffic and roads, combine trips, plan and try out new routes, take a challenge of “curbing” difficult routes, and even simply experiment for the sake of experimentation.

You know you're a real hybrid owner when... 68) You check your tire pressure as often as you brush your teeth. (ef1, 20/08/2004, www.greenhybrid.com)

In this passage, the hybrid car driver expresses a common eagerness to pay attention to a particular factor. Thus, the hybrid car driver becomes closely attuned to the conditions of his driving environment. Within this not only the external factors, but also *car-related internal conditions* are differentiated. The car-related conditions comprise ventilation, travelling mass, speed, aerodynamics, tyre condition, a mileage calculator, cruise control, road view, and last but not least, petrol quality. The variation of these factors emerges in the driver's experience rather chaotically. Yet the user is not a passive acceptor, rather he/she is an active interactor, even a constructor of his/her experiences. For example, it is generally accepted on the part of hybrid car drivers that the extensive use of air conditioner (A/C) reduces fuel efficiency. In view of this, hybrid car drivers try out different strategies to counter this problem:

The last 2 miles of my journey home is a 30mph gentle downward slope. If the A/C is off, I can dead-band the entire span, a huge boost to my MPG average. If

the A/C is set to cool or heat, the engine will come on for part of, or the entire trip. Reducing my average MPG. The 4 minutes of thermal discomfort is less important to me than the benefit of zero fuel use, so I always shut down the A/C at the top of the hill. The thing that baffled me for a long time is this: Quite often the ICE (internal combustion engine) would run under the same circumstances that it would be silent other times. I finally figured out that when the ICE would not shut down, the vents were emitting conditioned air even though the A/C was off. This means that despite disabling the fan and temperature settings, the compressor was still working. Now if the outside temperature is between 65 and 85, I can adjust the A/C setting to match and the compressor will not activate. It is an annoying work-around, but it works. But, if the temperature is say 94F, then I can't get it to stop at all, even on Max Hot. I keep getting told (on forums and by the service techs) that the power draw of the A/C system is minor. However when I get out my calculator and compute the difference between Infinite MPG and 40 MPG multiplied over 2 miles, it comes out to be more than a minor difference. (posted by nx2 on 10/07/2006, at www.priuschat.com)

This passage indicates that the essence of air conditioning is being brought forth through action directed at the object, A/C, and self-observation of this action in reference to interaction with the wider community of hybrid car drivers. In this particular situation, the meaning of A/C-operating is considered within the distinction of being fuel efficient versus inefficient. The recursive nature of this process is evident in this example. The hybrid car is fuel efficient, because the driver constructs it and its phenomenological aspects as efficient. Similarly, hybrid car drivers strive to control other conditions: travel mass is maximally reduced, a travel speed is kept at average, aerodynamics is managed by removing extra objects from the cars exterior, tyres are inflated at their maximum and often monitored, a mileage calculator is tuned for precise performance, and high petrol quality is maintained.

Driving Practices as Utterance

How can one characterise intentional actions which are activated in constructing the conditions? This analysis identifies two broad patterns of driving practices: *principles* and *strategies*. It was mentioned earlier that self-legitimising recursivity emerges when consumers claim to attain a state of sustainability by choosing a fuel-efficient car, while interactively introducing particular driving

strategies and principles, which bestow this car category a quality of “greenness”. The strategies and principles are actively implemented and used to justify this selection. This kind of activity normalisation is actually done through differentiation, as certain relevant strategies are usually chosen from among many available in the perceived horizon of driving strategies. Once a principle or a strategy is chosen it acquires meaning *vis-à-vis* a newly expanded horizon of principles and strategies. For example, when a principle of “less braking” is activated, hybrid drivers may choose among many options of how to manage this braking experience:

In the eyes of advanced Prius drivers, the way you slow down and brake is much more important than acceleration techniques—and the goal is to “glide” (description below) at every opportunity, regardless of the traffic conditions. The main idea is to control the amount of braking that is used to regenerate energy to the batteries. (Regenerative braking is essential for keeping energy in the batteries, but a little bit goes a long way. Avoiding overuse of regenerative braking will prevent you from slowing down more quickly than necessary. Extending your glides and coasts is a key to maximizing mileage.) Native Alaskan people have many words for “snow,” and Prius hypermilers have at least four words for how to brake. Use the least aggressive method to travel as far as possible before needing to accelerate again:

1. Gliding (least aggressive) – While traveling, remove foot from accelerator. Then, ever so slightly, re-apply pressure until all arrows disappear from the Energy screen. You’ll feel slight surge forward. This technique will only work when the car is warmed up. You can glide at any speed, but it’s difficult to get the arrows to disappear at speeds higher than 40 mph. At the higher speeds, even if you are gliding, the internal combustion engine will spin in order to protect the smaller electric motor from getting damaged. Above 40 mph, the engine is spinning but no gas is being used. Under 40 mph, the gas engine is not spinning. (Some Prius drivers report a “sweet spot” at 39 mph.)
2. Coasting (slightly more aggressive) – This kind of braking is much easier to explain. Simply remove your foot entirely from the accelerator, but do not apply it to the brake. Regenerative braking is engaged, so you will slow down more quickly than gliding.
3. Regenerative Braking (aggressive) – Press down on the brakes, but not firmly. As you press, you’ll obtain more regeneration than with coasting, and the electric motors (now acting as generators) will make you slow down quickly.
4. Mechanical Braking (most aggressive) – Firmly stomp on the brakes to immediately stop. You will obviously use this style of braking if a vehicle or pedestrian jumps in front of you. (“Maximizing Mileage”, 2006)

Principles play the role of a broad umbrella to guide a set of interrelated actions. The boundaries for particular actions are set through the principles, but specific actions are left vaguely defined. Boundary-setting definitions are abounding in self-observation. For example, hybrid car drivers talk about the “seven miles-per-hour” principle with regard to braking, which is about avoiding slowing down below seven miles-per-hour when decelerating. This is believed to result in a lost opportunity to glide and regenerate extra energy for batteries. In addition, the analysis distinguishes the following patterns of the driving principles: less braking, smooth acceleration and slow driving, more manual control, less electric motor engagement, and combining short and long trips. Such in-the-system-principles are predominantly understood as having positive connotation *vis-à-vis* rival (opposite) principles or with the state of having no principles. Hybrid car drivers consider themselves as a gatekeeper and proud implementer of the systemic principles. This is enacted by enjoining the “good” and prohibiting the “wrong”:

Here are 10 easy-to-follow steps to increase your fuel economy. When you've mastered these, grasshopper, you'll be ready for the master's course in hyper-mileage. 1. Don't speed. Driving 65 mph instead of 75 mph will increase your fuel economy by about 10 percent. Pride yourself on being a slowpoke. 2. Avoid "jack rabbit" starts. Flooring the gas pedal wastes gas and leads to drastically higher pollution rates. 3. Anticipate stops. Think ahead to anticipate stops so your vehicle can coast down. Accelerating hard and braking hard wastes gas, increases pollution, and wears out your brakes. 4. Keep your tires properly inflated. For every 3 pounds below recommended pressure, fuel economy goes down by about 1 percent. 5. Avoid rush hour, if possible. Stop-and-go driving burns gas and increases emissions of smog-forming pollutants. 6. Travel light. An extra 100 pounds in your trunk reduces fuel economy by about 1 percent. 7. Combine trips. Warmed-up engines run more efficiently and generate less air pollution. 8. Leave off the air-conditioning, if possible. AC increases fuel consumption, increases smog-forming NOx emissions in some vehicles, and involves environmentally damaging fluids. At high speeds, open windows increase drag; use vents if possible. 9. Check your own fuel economy every few weeks. If you notice the numbers slipping, then think about how your driving might have changed, and consider getting a tune-up or an oil change. 10. Drive less. Give your car a rest by taking public transportation, riding a bike, or walking. The exercise will do you good. (Miller, 2005a)

Several hybrid-car-driving *strategies* are implemented within the system: pulse-and-glide, engine-off coasting, and drafting. The *pulse-and-glide technique* is the

most complicated strategy, in the process of which a driver maintains a certain speed and when necessary accelerates using electric power while the internal combustion engine is held on hold. This technique is also referred to as “feathering” or “deadband acceleration”:

The “Glide” technique places the Prius II in a similar mode to forced autostop. (Engine on but not turning over and transmission in neutral) Since you cannot place the Prius II in neutral and shut down the ICE, reboot, and coast in with the FE and mileage being electronically registered afterwards, you have to trick the Prius into this mode of operation. To achieve “Glide”, hit a speed of 41 mph, let off the accelerator just a touch for a fraction of a second to induce regeneration (best if you can skip this altogether), get right back on the accelerator ever so slightly to achieve and then maintain black arrows all around with the ICE shut down, no regeneration to the pack, and no pack to motor generator set propulsion. The black arrows on the energy flow screen will tell you that you are in or very close to being in the coast free state. The only energy output during the “Glide” portion is from the pack to maintain the Prius II’s electronics booted up and supplying the computers and displays. You will need to practice this as it is not intuitive. The “Pulse” phase is a lot trickier. During the “Pulse” phase the idea is to let the ICE send all of its energy only to the wheels during acceleration and nowhere else. This phase of operation in a Prius II is called the dead band state. In this state, power flowing from the Internal Combustion Engine to the Motor Generator Set, the MGSet to the wheels, or MGSet to the pack have been diminished to 0 or as close to this as practically possible. Achieving this requires significant experimental time or direct coaching. To achieve this, gently step on the accelerator enough to get the ICE to spin up and provide propulsion with the energy screen showing ICE power to the wheels. The digital readout will show between 30 and 55 mpg for the acceleration back up to 41 mph. In a nutshell, accelerate up to a maximum 41 mph, then “Glide” and slow to no less than 31 - 33 mph. Then begin the “Pulse” phase and re-accelerate back up to a maximum 41 mph. Repeat this over and over. Ordinarily, the target speeds make this un-sustainable for hours on end because of the speed limits, traffic, and traffic signals, or other conditions we experience. (Miller, 2005, August 10).

Drafting is a matter of getting very close to the rear of large vehicles such as trucks on highways to get an advantage from the aerodynamic corridor created by them:

Drafting... involves sucking up real close to the back end of a truck or bus, riding in their wind shadow. It's amazing how much energy it takes to drive at high speed, with your vehicle's engine having to work hard to push all that air out of the way - if you let

somebody else do it for you, your engine doesn't have to work as hard = you get better mileage. (posted by P11, on 01/09/2005 at www.hybridcars.com)

Moreover, the hybrid car drivers use an *engine-off coasting* technique. They switch off an internal combustion engine (force the engine to stop) while they are driven by the initial inertia of the car attained by prior acceleration:

...If it's a stick shift, and you are comfortable with the technique, try coasting with the engine off (may be illegal in some states). Just be aware of the safety aspects (no power brakes or steering), it is somewhat extreme. You wouldn't want to use this too often, because of wear on the starter during numerous re-starts... As far as coasting ICE off goes I agree that it should not be done very often on a non-hybrid. To further elaborate it should only be done: 1) If you are fully aware of the safety risks. (I know you already said this but you can't be too careful) 2) In light or no traffic. 3) On a downhill where you can coast for at least 1/3 of a mile. Also if time and traffic allow you should try to "drive with the load". This means you lose speed going up hill trading kinetic energy for potential energy and gain speed going downhill trading the stored potential energy for kinetic energy. You should crest hills going as slow as you can while still in top gear, time and traffic permitting of course. (posted by ld1 on.30/09/2005, at www.greenhybrid.com)

The driving strategies are unique to SCC. They are enabled by the current hybrid technology, though non-hybrid car drivers can make use of some relevant aspects of these techniques. However, the system is formed via difference-making communication. This kind of difference-in-action is made meaningful within the system itself. For a person operating outside the system, this type of abnormal driving behaviour is not understandable, and may seem to be odd in comparison to conventional driving practices. This means that the system is formed and understood from within rather than from without.

I refer to both the principles and the strategies as *practices*. The conditions and practices combine to create *conditions-practices* cycles. This means that when a condition is constructed it is followed by a particular practice, and at the same time, a particular practice constructs a relevant condition. The word *cycles* represents this dynamism and recursivity. Hence, the system's purposeful expansion requires dissemination. This is enabled by ongoing re-production of *conditions-practices* cycles. Continuous learning, educating, and experimenting

with the conditions-practices cycles occur within the system. *Learning* is exhibited in emulation of system-specific communications. In other words, it is about developing an ability to continue conditions-practices cycles:

I have been watching HG_2004's tanks [fuel efficiency results] for literally years now and not only does he own a very nice CVT (Continuously-variable Transmission) based HCH [Honda Civic Hybrid] hybrid, he has the second highest mpg of a CVT based HCH on the planet that anyone knows about! Just follow his advice. Learn, perform, and practice the first technique until it is locked down as second nature and move on to the second, the third, and so on and so on. Once you have 10 + FE saving tools in your tool box, it will become instinctive when to use which one at the appropriate time and how to use it...A few other observations. In regards to FE [fuel efficiency] saving abilities, can anyone jump in Jeff Gordon's race car and drive a NASCAR race to his abilities? After all, it is the same car? No matter how much practice or experience you have, there are probably only 20 individuals on the planet that can take his car to the winner circle. The same can be said for valedictorian class – hypermiling (posted by wg1, on 03/10/2005 at www.hybridcars.com)

Learning in this case is not simply a change in conscious states. It involves operative emulation of systemic behaviour, and in this, it depicts a difference-making communication rather than a progressive mental growth. The system creates fractal copies of itself through rapid diffusion of communications, and this creates knowledge redundancy. There cannot be any talk of structural efficiency in this kind of network, as the system does not consist of a centre which holds all the knowledge and efficiently distributes it to its peripheries. Rather knowledge is transferred in totality as a whole set of ability training. Anyone can become an educator and a learner at any time. It means that knowledge does not have to be reinvented in each case of communication, but it must be copied and emulated. Any communicator is an educator at the same time. Hybrid car drivers communicate to be observed, and possibly to be emulated. Educating would not be successful if the learners did not experiment. Hybrid car drivers continuously *experiment* with techniques and principles they have learned in interaction with their peers.

I did do some experiments over a local mountain where I couldn't get a running start (stop & turn at bottom, with windey [sic] road). there the best results seemed again to be trying to keep the fcg [fuel consumption gauge] as high as possible- but I usually ended up

going 20mph at the top of the hill, which was unacceptable if another car was behind me. plus then the car downshifts and uses more gas anyway. I think you really need to experiment with your own individual hills and approaches to work out what is the most fuel efficient and safe. (posted by K11, on 21/09/2005, at www.greenhybrid.com)

Understanding

SCC forms in continuous occurrence of discrete, momentary communications which are equipped with the system-unique meaning. The main challenge is that ceaseless continuity needs to be maintained, so the system maintains its dissipativity. This analysis delves into the mechanisms of how this kind of continuity is maintained. The hybrid car consumer recognises the system-relevant external and internal conditions and actively engages with them via hybrid car driving practices. Accordingly, the combination of the conditions, the driving practices, and knowledge dissemination allows the system to re-create meaningful structures in each communicative moment. Not only does the hybrid car driver become a source for systemic rejuvenation, but also an autonomous point in the system that can be used for a complete re-production of the whole system if it is deemed necessary. For instance, the hybrid car driver interactively constructs the meaning of for example “a hill” by a means of manipulating his braking, accelerating and other driving principles (and strategies) when he/she approaches one. These principles and strategies are instantly modified according to the perceived nature of the hill. The conditions and accompanying actions do not come in succession, rather they are co-constructed recursively. Once this recursivity is given motion, the system is recreated, i.e. continued. This process is called understanding, as it indicates that the rule of the game is understood when the driver continues acting in a proper systemic way according to the systemic meaning. Does understanding reside in the consciousness of the hybrid car drivers? I observe particular manifestations of understanding in the discourse of hybrid car drivers. But these are not pure cognitive operations. The systeming interpretation avoids the transcendental and reductionist explanations of the process. A transcendental account explains understanding as a Platonic quality hidden within a complex unobservable structure, while a reductionist account attributes this process to changes in neural networks of mind. Wittgenstein (1963) argues that understanding is neither a mental state nor an experience nor a proper quality of an actor, but ability that is manifested in a set of interrelated processes

of meaning enactment. This idea parallels the concept of systems. In other words, one understands when he/she is able to distinguish system-proper conditions and strategies, while using these factors simultaneously and creatively in expanding communications. Hence, understanding is a proper continuation, and it is indispensable in maintaining the purposeful expansion of the system.

Actualising Systemic Meaning in Value-in-Use

Value is a complex phenomenon (Holbrook, 1994; Woodruff, 1997). There are a number of various approaches to define consumer value. In observing SCC, I accept a relatively dynamic definition given by Holbrook (1994, p.27) that “value is an interactive relativistic preference experience”. This definition is in tune with the notion of value co-creation (Pralhad & Ramaswamy, 2004b; Vargo & Lusch, 2004) that stands in contrast to the mechanistic idea of value delivery and distribution. The notion of consumer value in this analysis is that of value-in-use, which recognises that “in using a product, the customer is continuing the marketing, consumption, and value-creation and delivery processes” (Vargo & Lusch, 2004, p.11) rather than the notion that the consumer is delivered a full value, which then gets consumed. What is the mechanism of value co-creation seen from the systeming perspective? Does sustainability become enacted within the system in the form of consumer value-in-use? Accepting the notion that the system is formed through creation of meaningful communication, this analysis illustrates that co-creation of consumer value is contingent on systemic meaning-creation processes. Systeming indicates that value-in-use is constructed and transformed as the particular actualisation of systemic meaningfulness that is driven to purposeful expansion.

Value Proposition

The conventional mechanistic thought places a *value proposition* in the environment of SCC as a given factor. This value is taken to be complete, offered by marketers, and accepted (consumed) by consumers. For example, it is conventionally accepted that the hybrid car delivers fuel efficiency value. This value in a broader sense represents sustainable mobility. The mechanistic notion is that this value attributed to the product is the output of SMC and the input of

SCC. The mechanistic perspective separates the process of delivering and the process of using a value. However, in stark contrast to this view, systeming shows that both value offered to consumers and value created in consumption process are the inherent internal operation of SCC. In other words, what is considered as the offer is not an absolute input taken from the environment, but it is the communication of SCC striving to interpret its external environment.

The systeming perspective of the value proposition in the example of the hybrid car is explained through the notions of synergy drive, dehumanisation, being-in-control, and potentiality. These notions are not independent constructs, the causal relationships of which are discovered, but the common patterns of communication identified in the interpretation to convey the “figural aspect” of the system’s operation (Thompson et al., 1989).

The widespread belief is that the hybrid car manufacturers develop and expand the hybrid car market. However, this analysis suggests that manufacturer actions merely comprise part of the total marketing system. Companies are only able to make a value proposition (Vargo & Lusch, 2004) while this proposition is not accepted straightforwardly by consumers. It is re-translated into SCC’s “language” and enacted in its operation. Consumers maintain their own perspective on the nature of the hybrid car value. This process is reflected in the example of accepting Toyota’s concept of *synergy drive*. From the company’s perspective, the concept of hybrid synergy drive (HSD) symbolises the hybrid car’s electronic mechanism that automatically monitors the extent of power drawn from each of both an internal combustion engine (ICE) and an electric motor depending on evolving driving situations. It is a complex automatic system supported by an on-board computer. Hybrid car drivers create the meaning of this feature on their own terms: HSD appears as too rigid a technology which actually inhibits creative experimentation with fuel efficiency. The technology becomes something which needs to be challenged, curtailed, and used for advantage:

You know you're a real hybrid owner when...

29. you think IMA (integrated motor assistance) and HSD are mortal enemies like chevy and ford. (posted by kl1, on 02/07/2004, at www.greehybrid.com)

The integration of HSD into the hybrid car depicts the intention on the part of the manufacturers to help drivers achieve optimal balance in fuel saving, while not compromising driving comfort. However, some hybrid car driver like to tamper with the features of HSD to co-create his/her own optimal situation. The synergy drive comes to the focal point of consumer communication when consumers' actions are directed at interacting with this state-of-art technology. Hybrid car users have simply discovered the additional point of differentiation in HSD. The difference stems from the fact that only the hybrid car offers this advantage of tampering with this type of technology. Also, this indicates a much deeper conflict - humanistic struggle against technology-driven rationalism – the depiction of superiority and relevance of human intelligence and flexibility over machine-like rigid rationality (Hofstadter, 1979). The value offering is based on *dehumanising* the driving experience. It is reflected in the intention by the manufacturers to relinquish human power to control life situations over to a “lifeless and soulless” technology. This causes frustration on the part of consumers:

For the record, I don't have snowies [snow tyres] on it, just the Integra's [a hybrid car brand] that came with it, regardless, you still should be able to use wheel spin to your advantage, so I put on snowies, and I get on a steeper incline, probably same thing (although I admit, I could be wrong). I swear, between this and the anti-lock brakes (which IMO [sic; Integrated Motor Assist], is more dangerous than it's worth), I just wish I could shut down all this crap. I'd drive far better without it. I guess there's such a thing as too much technology.... I just wanted to yell, "STOP TRYING TO DRIVE FOR ME!!!". (posted by Ms1 , on 09/12/2005, at www.priuschat.com)

Some hybrid car drivers wish to *be-in-control*. This creates a paradox of the hybrid car offering. While companies take pride in delivering a reliable technology which is thought to reduce fuel consumption in an automatic, predictable, and stable manner, the system operates on the wholeness of this value proposition by narrowing it down to the fact of the promise that users can take personal charge in saving fuel. By this both complexity and simplicity is attained for driving experiences at the same time. On the one hand, driving becomes complex, because of incorporation of system-unique practices into otherwise standard automobile usage. On the other hand, complexity related to the external environment – state-of-art technology, the future of the planet, the new alternative sources of energy, prominent environmental issues, sustainability, safe driving

conditions, to name but a few – is reduced to a simple gauge, a computer calculator, that shows how many kilometres (miles) are driven per litre (gallon) of petrol burned:

One of the biggest advantage of early-adopting to a gas/ electric hybrid is that they come standard with instantaneous mileage calc [calculator]. If all cars had this (constantly displayed) more people woud [sic] "learn" to drive to get better MPG. At least those who cared would! (posted by Ss1, on 30/08/2005, at www.hybridcars.com)

The autopoietic process in meaning-creation renders this simplification of the value proposition as a basis for creation of internal complexity. It becomes a source from which endless metamorphosis of communications is tapped. The value proposition represents hope (Belk, 1996) that being-in-control of fuel-saving-behaviour delivers much wanted public welfare and environmental balance:

Anti-hybrid car executives are also not likely to be dissuaded. Detroit understands that cars are an emotional purchase when it comes to size and speed, but somehow can't understand the emotional appeal of a hybrid. Dan Neil advises us to put away our calculators, "because the point is not whether I, or you will recoup penny-for-penny the hybrid investment, since the compensations are not exclusively monetary." Ultimately, the litmus test is whether or not hybrids are selling in greater numbers to satisfied customers—on its path to economies of scale and significant reductions in the hybrid premium. There's little doubt on that question. Neil hit the nail on the head: "The reason hybrid cars are flying off dealers' lots is not because they make such a galvanizing financial brief. It's because people of goodwill, conservative and liberal, are growing weary of the moral calculus of gasoline. What people are learning is that private choices have public consequences. (Miller, 2005b)

The hybrid car's appeal is not based on rational evaluation based on cost, price, and saving criteria, although this is what the manufacturers would like to emphasise in their enactment of consumer motivation. The value proposition is anything but the indicator of promised *potentiality* for consumers which must be taken the advantage of:

...see what kind of mileage is possible with hybrids. The average (mean) is not indicative of what gas saving techniques can produce in a hybrid, it simply blows away a conventional car. (posted by M11, on 03/10/ 2005, at www.hybridcars.com)

The hope for the endless potentiality to co-create value experiences is what serves as a principal point for a recursive turn of communications, while becoming a “common platform” upon which co-creative experiences are built (Prahalad & Ramaswamy, 2004a). Hybrid car users are aware that the value proposition from the manufacturing companies is not a magic bullet for all the concerns, rather it is a “pie in the sky”. It must be realised and actively pursued by relevant actions. This tells that the fact of a hybrid car ownership is not a guarantee of sustainability in itself. The way this value proposition is purposefully acted upon and enacted within the system is accepted as hope to transcend beyond the individual blindness to environmental issues.

A question thus arises on how the manufacturers should act if their intended meaning from delivering value does not have a linear impact on consumer meanings. Forum participants provide an answer - the product must be tuned into the systemic meaning:

Hybrid cars are built-in with the technology to really take advantage of gas saving techniques. It is completely true that conventional cars can take advantage of them as well. However, conventional cars most often do not have the feedback to truly get the best mileage. Caution, generalization: Those who are getting 45 mpg in their HCH are not necessarily driving their cars carefully. Those that are driving their HCH for mileage are getting at least 50 mpg and more like 55 mpg. If you are getting 31 mpg in your V6, you might be in the 55 mpg range with a HCH. I can use the same techniques in my V6 car and get 30 mpg. I do the same techniques in my 2004 Prius and get 60 mpg. The Prius is just tuned to really take advantage of gas saving techniques and gives immediate feedback to hone your techniques. (posted by M11, on 03/10/2005, at www.hybridcars.com)

The system does not maintain a unique preference for a particular product brand. Any product that becomes a point for continuing communications within the system may become a basis. Marketers should realise that a fine balance needs to be struck in order to be at the forefront of consumer communications. The product must not delimit those communications which serve the cause of the system's total identity, at the same time it should limit those communications which are

considered as the other. Tuning into the systemic sentiments of value may take various forms. Managers can observe a manner in which the value proposition is translated and used in co-creation of systemic communications and accordingly adapt the proposition itself, a task which may require a more relational and dialogical approach to marketing (Ballantyne & Varey, 2006; Varey, 2003).

Value Co-creation

Value can have many facets in terms of meaning. I observe value variability in the example of fuel efficiency of the hybrid car, as this aspect of the product is much discussed and stressed by consumers. For consumers, fuel efficiency is a cultural and existential phenomenon rather than an absolute measure that is simply expressed in miles-per-gallon (mpg) or kilometres per litre (km/l). Even the meaning of this measure is fluid, i.e. it changes depending on the nature and self-observation of consumer experiences. A particular number reported as an achievement indicates the unique flow of underlying experiences, that brings forward this number as a label to mark particular interaction. For example, a reported “42 mpg” on two different occasions indicates two totally different experiences:

I am very disappointed in my gas mileage. I follow all the "tips" shared by Honda and this web site, however I continue to get about 42-23 [mpg] highway and 36- 38 [mpg] city. I am wondering if I have a problem with my battery. (posted by lk1, on 16/12/2004, at www.hybridcars.com)

I have been getting around 40mpg (regularly registering 41-42mpg on the trip meter that i reset each tank full, the trip metter [sic] left from the beginning has 39.3 registered, it had 82 miles when bought. I do find myself watching the real time reading and backing off the pedal where possible to try to keep the reading above 40 wherever possible and find I rarely go over 60-65 MPH on the highway (in town Atlanta so at rush hour I'm often going a LOT slower than that (26 round trip miles to/from work)... Overall I like the car. (posted by Pt1, on 01/12/2004, at www.hybridcars.com)

The unique fuel-efficiency experience is not the extent of fuel spending expressed numerically as a particular quantity (km/l or mpg), rather it represents the unity of all consumer experiences which led to this level of fuel spending. This view illustrates the difference between the mechanistic description and the systeming

depiction of the happening. The former observes the distinction of measurable absolute variation in fuel-spending, while the latter indicates the totality of experiences. The *variability* in reporting unique fuel-efficiency achievements indicates that fuel efficiency comprehension depends upon a great number of factors that range from conditions, actions, and expectations to the ways of defining, calculating, and measuring it. The actual reported level of mileage, the unique fuel-efficiency experience, varies from as little as 19 mpg to more than 100 mpg. Many accounts report difficulties in measurement (*inconsistent measuring*):

I have watched the mpg calculator in my 2003 HCH and I know if I work that calculator just right I can make it say I get 70 mpg and I really don't. I know exactly the points on the mileage of a trip where that calculator takes a reading of your mpg on the scale and averages that into what it already has. If I were really being careful and watching that I could get off the gas or coast at those points and make the calculator give me excellent readings. However, all of the mpg I have I calculate the oldest way known. Start with a full tank of gas drive the distance, record the distance, fill the tank back up with gas, record the gallons of gas you buy and then calculate. That is the only real way to know what your mileage is. If you are only looking at that calculator in your car you could be getting a lot different mileage that you think. (posted by Lc1, on 22/09/2005, at www.hybridcars.com)

Fuel efficiency is not stable. Rather its meaning is co-created in interaction among consumers and most probably in relation with producers too. Hybrid car drivers co-create each and every aspect of driving. For example, the electronic control unit of the car is adjusted to the hybrid car driver's convenience:

Question: Gee guys and gals, I don't want to sound dumb...but what's the big deal in overriding the Nav [navigation] system? I just ordered my Tideland Pearl Prius with pkg 6 on Monday and I'm wondering if I should copy the sequence too? Thanks for your patience with my dumbness!!! (posted by TRy, on 13/07/2005, at www.priuschat.com)

Answer: The big deal is that, as a safety feature, the NAV system is mostly 'grayed out' and inaccessible while the car is moving. Thus, you're cruising along and decide you want to enter a destination you have to stop the car type it in, then go again. This is a good idea if you're a lone driver....it is very distracting and hard to enter an address or change zones and such while maintaining adequate concentration on driving. But, if you have a

passenger who's capable of entering that data it is a PITA to have to stop, esp. if you're on a freeway or heavily trafficked area. The override allows your passenger to have full access to all NAV features while the car is still in motion. (posted by ef1, on 13/07/2005, at www.priuschat.com)

The metaphor of trivial versus non-trivial machines can be used in this case (von Foerster, 2003). A trivial machine is an input-output mechanism that has a single internal state which works in a linear fashion through transforming proportionally the inputs into the outputs. The manufacturers treat the hybrid car as a trivial machine, which should deliver reliable performance with variations in output being the predictable effects of various environmental perturbations. This formula excludes a human being, and therefore, it can be called as a dehumanising act. If “a hybrid car plus a driver” is taken as a unity, then this combination becomes a non-trivial machine that has many internal states. A non-trivial machine with several internal states becomes totally unpredictable as its output variability is so great that it takes tens of millions of years for a supercomputer to account for all its outputs (von Foerster, 2003). In the case of this analysis, the non-trivial machine can be compared to the system, while its internal state is comparable to self-reference. The self-referential system, communications on the part of non-trivial units, the “hybrid car + the driver” combinations, is very rich in its possible states. Although the value proposition is based on the promise that stresses reliability and stability with regard to product usage experiences, the unpredictability of value experiences within SCC indicates that the concept of value can be best explained through a *co-creation* metaphor. However, unpredictability does not mean that the system cannot be known at all. While the complex system is un-analysable through mechanistic methods, it can be observed via its communication (self-observation).

Consumers copy others' actions and expect comparable results. Value expectations are actively communicated, and actions are accordingly directed to the result. Both success and failure in meeting an expectation result in more communication. In some US states hybrid drivers apply for HOV lane stickers. The application process takes some time to be processed. The system participants maintain certain expectations with regard to the acceptable period of waiting time. When the waiting time exceeds the expectation, they start worrying. This is the

effect of the system within which they operate. For example, this communication can be considered:

Quote: My check cleared on 2/17 but still no sticker. I called the DMV and they can see an "action" was taken on my car on 2/22 (hopefully the mailing of my sticker) but they can't tell what it was. Any advice on confirming that a sticker was issued? (posted by CNT, on 04/03/2006, at www.priuschat.com)

Reply: I feel your pain, only worse! Here are my key dates: (1/23/06 - Bought car; 1/24/06 - Mailed app; 2/10/06 - Check cashed; 3/2/06 - still no stickers!). what is really going on? I called the DMV field office, but they were no help. She said to call back in a week. If I don't have them by now, I certainly won't have them in another week, whats [sic] the point? Something is wrong. I guess I will have to dread another week without my stickers, and call in then and see what they can do at this point. (posted by ms1, on 04/03/2006, at www.priuschat.com)

Autopoietic Transformation

The analysis indicated so far that the value proposition is uniquely enacted within the system. The emergent value is the result of co-creative practices which are maintained through communication of expectations. What is the character of value transformation in reproducing meanings in the system? Communications must be continuously produced and reproduced. This uncertainty contributes to the alternative mode of value to that advocated by the marketers. In the system, the marketer's *efficiency* turns into the system's *play*, and the former's *quality* may be taken as the latter's *beauty* (Holbrook, 1994). Holbrook argues that efficiency-as-value incorporates motives for attaining "technical rationality" by "maximising the input-output ratio" (p.45). The manufacturers think that this industrial sensitivity is directly transferred to consumer life situations. However, this does not mean that consumers become the machines of fuel efficiency. The manner in which the fuel efficiency is constructed is totally different. Holbrook proposes the concept of play. Play is defined as an interactive experience that is an end in itself (Holbrook, 1999). Play equips experience with fun and interactivity, and it becomes a basis for communication dissemination. Play does not put the burden of necessary achievement on a person, and thus gives access to innumerable

possibilities to extend meaning. It enriches the meaningful existence of the system:

My favorite gear is neutral. Every chance I get, I run with the engine off and the ignition switch on. My kids call it driving "Soap Box Derby" style. They are all Soap Box Derby racers. We own three All-American soap box derby cars, and I am a race official. We have been doing this for five years. So you can see, coasting downhill has become a family hobby. (Miller, 2005c)

This shift in the value transforms the “extrinsic” nature of the proposition , a means to ends), to the “intrinsic” quality, an end in itself (Holbrook, 1994, p. 45), its character changes from instrumental to ludic (playfulness), from practical to autotelic (action is a reward in itself rather than being associated with some outcomes), from utilitarian to personal appreciation (Holbrook, 1999). I call this process an *autopoietic transformation* of value. The themes retrieved from the data that support this idea are “obsession” and “artful driving”. Playfulness creates obsession:

What extremes? For example this summer has been very hot. Mid 90's, 99% humid. Sticky. While almost everyone just runs their AC I have not. Many times I've brought along a 6-pack size cooler with icewater and a dabbing cloth.... (posted by hg1, on 14/09/2005, at www.hybridcars.com)

The complexity of dealing with the hybrid car shifts consumers closer to the recognition that tampering with the hybrid technology is not only the depiction of a technical expertise, but also that of an artful accomplishment:

Finding the best balance between using the battery for auxiliary power (when getting up to speed) and using the gas engine only when cruising may turn out to be an art. (posted by Rd1, on 01/12/2004, at www.hybridcars.com)

The notions of play, obsessive and artful behaviour hint at the process of *communication enrichment*. These factors make consumers get tuned onto the systemic flow of communications. This is comparable to the theory of job enrichment (Hackman, Oldham, Janson, & Purdy, 1987). According to this theory, a person’s satisfaction with an activity depends on three states: experienced meaningfulness, experienced responsibility, and the knowledge of

results. Experienced meaningfulness underlies a playful character of actions which thereby are perceived as important in reference to a particular system of values. Experienced responsibility depicts an individual's perception that he/she is the sole responsible person for the outcomes, whereas the knowledge of results requires that a person must have adequate criteria to measure the results of his actions. All these states are present in SCC. The character of SCC confers meaningfulness to hybrid car drivers' actions, while drivers perceive themselves to be in control of the situation, and have access to a fairly stable criterion (a mileage metric) to measure the outcome of their actions. These conditions enrich their actions within the system.

The analysis indicates that consumers are aware that hybrid cars are not simply about *saving costs*. A large part of discussions were about why hybrids should not be considered as a means of "return on investment". The argument was that small savings in operating costs such as fuel economy are not able to off-set a huge premium paid for acquisition of the hybrid car *vis-à-vis* alternative comparable models. Marketers urge users to note a clear advantage in fuel economy, thus emphasising a *hedonic* character of value (Podolny & Hill-Popper, 2004), that is, reducing value to a set of measurable criteria. However, experiences communicated within the system indicate that it rather fits a *transcendent* conception of value (Podolny & Hill-Popper 2004), which stands for a holistic blend of mutual appreciation that reduces a social distance between the object and the subject:

If I could buy a regular car that gets n miles per gallon, versus a hybrid version that gets n+ miles per gallon, it seems like I am making a poor choice to decide to unnecessarily use up more a limited resource than I would have if I had purchased the hybrid. Pretty much ditto. There's also a lot of other features, like the quiet, the "unique" nature, low emission, and the SMUG [being obsessively conscious of environmental degradation] that make it fun to own beyond just the MPGs as well. I doubt I'd even consider a non-hybrid, but then again, it'll be a decade or so before I'm in the car market again. (posted by Pp1, on 17/06/2006, at www.greenhybrid.com)

Actualising Systemic Meaning

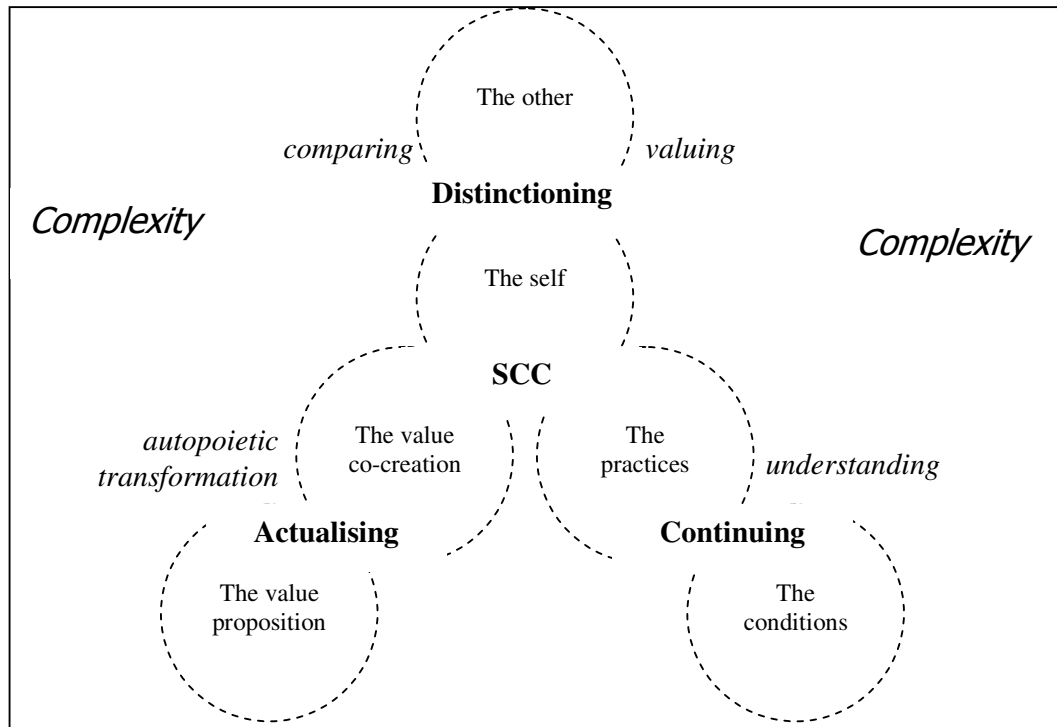
The discussion sheds some light onto the process of value creation within the self-referential system of consumption practices. The self-reference is depicted in the fact that the system only entertains its own perspective on a value offering, while being blind to the value proposition in the form of an environmental input. The value (co)creation is not a linear mechanistic process; rather it seems to be non-trivially complex. This complexity demands reduction, so value as an interactive consumer experience is ordered in reference to the system's meaningfulness. The system operates along the distinction of fuel efficiency/ inefficiency, i.e. the communications are directed toward distinguishing between the fuel efficiency consumption practices and the other types of communication. Consequently, the consumer value is not the mechanistic rendition (co-creation) of a value proposition that is the output of the system of manufacturers, but is a system-specific internal operation that actualises the overriding meaning of the system.

Systeming Crystallisation II

The insights from the discussion of the hybrid car consumers' behaviour are summarised in the systeming crystallisation given in Figure 20. The figure describes the main aspects of SCC's meaningfulness. The suggested order and structure in this figure is to be taken as merely indicative. This crystallisation is to be understood as a discrete snapshot of a dynamic system, the kind of a transient solution to a complex process. Identified domains and categories may overlap, as clear delineation of processes was not the main purpose of the interpretation.

This systeming crystallisation illustrates SCC's dynamic nature. The terms in the crystallisation can be provisionally divided into three broad groups of patterns. They are a) meaning flows, namely distinctioning, continuing, and actualising; b) core constructs such as the self, the practices, and the value co-creation coupled with enacted environment elements, namely the other, the conditions, and the value proposition respectively; and c) active processes which link the core constructs to the enacted environmental elements, e.g. valuing, comparing, understanding, and autopoietic transformation. The external environment is represented by complexity.

Figure 20. Purposeful Expansion of SCC



The *meaning flows* warrant formation, continuance, and meaningfulness of SCC. Distinctioning differentiates SCC from the external environment in the process of which the unity of difference between *the self* and *the other* is realised. The self and the corresponding other are not the system and the environment respectively, rather they are two sides of the same coin. The system is the process of a unique interpenetration and characterisation of the self and the other, while the environment is everything else, or other than this unique way of distinctioning. The active processes of *valuing* and *comparing* enable SCC to construct the conception of self-sustainability, whereas unsustainability is attributed to all “othered” constructs. SCC is recreated when a person intentionally reifies appropriate *conditions* and tackles them with proper SCC *practices*. The ability to continue the system is called *understanding*, which is an active process rather than a mental activity. *Actualising* refers to the process through which consumer value is shaped and determined through communicative interactions within the system. Consumer-value-in-use is *co-created*, whereas the *value proposition* by the manufacturers is internally interpreted. SCC maintains its unity through the stable

reproduction of identical product-use situations. The distinctiveness of the system stems from the *autopoietic transformation* of value which enables the enrichment of hybrid car consumption practices and their expansion along the underlined meaningfulness.

The enacted environment parallels the core constructs of the system. The enacted environment is the inherent operation of SCC, and therefore, it is at the heart of the purposeful expansion process that develops from within. The environment becomes the inseparable component of the system while becoming the boundary of meaningfulness. The “real” environment is the state of complexity that is impenetrable, although its interpretation is depicted in the enacted environment. Thus, the boundary between SCC and complexity becomes that of meaning, while SCC comes forth into the focus of observation as the system of meaningful operations.

Conclusion

How sustainable is SCC? I maintain that SCC is sustainable when it is able to maintain purposeful expansion, i.e. the continuous reproduction of its meaningful structure and processes at each moment of the present. Thus, sustainability becomes the problem of maintaining purposeful expansion, whereas the traditional concept of environmental sustainability *per se*, especially, sustainable mobility, is utilised as the guiding meaning for such operating. SCC is myopic, because its operating is not attuned to the appreciation of symbiotic and balanced relations with other social systems. Moreover, this issue may not be of a prioritised concern for systemic agents, as they cannot observe that they cannot “address” the holistic essence of the problem through operating within the system. The problem of sustainability of the marketing systems as defined by the external observers does not exist for SCC. In contrast, this problem becomes that of meaning enactment. SCC is geared toward managing its growing internal complexity of meaningful operations. There are no degrees in the purposeful expansion, as the system is either expanded or it is not. This emanates from the unity of all processes of the system. The purposeful expansion cannot be described in terms of more or less, i.e. it cannot be attributed with a progressive

character. The system is either reproduced at each instance or ceases to exist as a unity. Therefore, continual reproduction of purposeful expansion is more relevant to characterising the system rather than the notion of adapting progressively to the turbulent external environment. SCC neither survives nor grows within the environment. It purposefully expands through distinctioning, continuing, and actualising.

Section IVc

Synthesis: Hybrid Car Marketing System

Introduction

The preceding sections have focused on two analytically selected domains of the marketing system that are formed in reference to the automobile category of a hybrid car. These domains were the subsystem of hybrid car marketer communications (SMC) and the subsystem of hybrid car consumption practices and communications (SCC). This section synthesises the insights reported in the previous two sections.

In this section I observe the common characteristics of the hybrid car marketing system that are derived from the interpretation. These common characteristics include the principles of operation such as the purposeful expansion of the systems, complexity reduction, differences, content-form contradiction, and the intentionality of citizens and interaction contexts. It is then suggested that communicative harmony constructs the overall hybrid car marketing system. At the end, the main aspects of the sustainability of marketing systems are summarised.

Hybrid Car Marketing System

The hybrid car marketing system is not observable in its totality. I infer its characteristics from the operation of SMC and SCC. The common characteristics which could be deduced from the interpretation were as follows.

Purposeful Expansion

The hybrid car marketing system is an active process that expands in the locus of meaning. It emerges as a unity reified in the relation between the corporations' and the consumers' self-observation. Both the hybrid car manufacturers and the consumers purposefully construct their environment to differentiate, locate, and actualise the self in sustainability discourse. Purposeful expansion is observed in the patterns of meaning-creation, i.e. activating and promoting system-specific distinctions. In the case of SMC, vigorous meaning-creation leads to

contradictions that are expanded through particular communicative strategies. These strategies create depth and dimension along meaning hierarchy, functions, temporality, and transvective chains. The strategies of expansion bestow legitimacy and meaningfulness to systemic communication. The communications appear as natural, rational, and necessary in consequence. The contingency and arbitrariness of decisions, and thus total uncertainty, are removed from the focus of observation. Contradictions are made indiscernible. The system turns into a trivial, stable machine that can be consistently expanded into the new areas of operating. Identically, SCC expands through consumer valuing, comparing, understanding, and autopoietic transformation. Valuing and comparing are conducive to constructing the self and the other the constructs which guide the systemic action. The self is related to the other in specifically systemic ways, and this pattern creates the closedness and self-reference of the system. The autopoietic transformation of value enriches communicative acts, so they become the end in themselves, thereby blocking the observation of contradictions. System agents deal with what is immediate and immanent, while developing myopia about the myopic nature of their operating within the marketing system. The hybrid car drivers simultaneously construct the core of the system (the self, hybrid car driving practices, and value-in-use) and the opposing environmental notions (the other, conventional driving practices, and value proposition). All patterns are existentially created and employed within the system. Hence, both the environment and the system become a self-referencing operation of the system.

The concept of purposeful expansion is not compatible with mechanistic thinking. The mechanical view that the marketing system *survives* within the turbulent environment is not adequate from this perspective. The environment is the meaningful enactment of the system, and its character largely depends on the system's purposefulness. The environment does not determine the character of the marketing system, as it was supposed by many systems researchers: rather the marketing system enacts and determines the character of the environment. The marketing system is not a passive entity that is shaped by external factors, but it is a purposeful, active entity that expands from within in meaning spaces.

Complexity Reduction

The hybrid car becomes the basis for complexity reduction. The subsystems observed construct a simplified, reduced, and even trivialised depiction of complexity within their operations. They approach complexity in an interpretive way through means of unfolding communicative acts, which manifest preferred forms of operating. In the case of SMC, *complexity reduction* is depicted in creating the meaningful concept of time flow that changes from the past to the present to the future. Acting in the present depends on the current interpretations of the past and the future. The combination of the past and the future represents the complex space of social events. Complexity unreduced into a meaningful pattern blocks ability to interact in the future. Specifically, SMC reduces complexity with regard to alternative car technologies. A selection must be made which is given precedence over other options. Once the *hybrid technology* comes to forefront through actioning, SMC progressively centralises around this construct and uses it as a base for further communicative expansion. In this, the hybrid car becomes one of many complexity-reduction themes. In SCC, the hybrid car bestows the sense of purpose to consumer actions. Consumers consolidate their identity, construct experiences, locate themselves in life-worlds, and enrich these experiences through using the product, and also, observing this usage. For consumers, complex life issues find their solution within the system. Social interacting provides rationalised answers to complex questions, while these temporalised solutions become a basis for acting into the future.

Difference

Difference is the basis of the hybrid car marketing system rather than substantive elements such as individuals or organizations or goods. Both the corporations and the hybrid car consumers take the concept of sustainability as transcendental value, while they take the hybrid car technology as a current solution to sustainability problems. Both parties operate according to the distinction, sustainable versus unsustainable. The analysis indicated that the sustainable/unsustainable distinction had contrasting meanings within SMC and SCC. SMC enacts the distinction through the specific binaries such as managing/ignoring emissions, recycling/non-recycling, saving/wasting, safe/unsafe operating, designing/not designing green technologies, and

initiating/not initiating social programmes. In these operations the system differentiates itself from other communicative systems including SCC. SCC renders the distinction into such binaries as fuel efficiency/inefficiency, change/no-change in driving practices, hybrid cars/non-hybrid cars, co-creating/receiving value, and understanding/ignorance. To compare, the manufacturers become “sustainable” when they save energy or materials, while the hybrid car drivers become “sustainable” when they believe that they could save some fuel. This is a connecting point for the systems. For both systems, sustainability is believed to be attained via manipulation of material resources.

Content Contradicts Form

The next common aspect of the subsystems is that the corporations and the consumers operating at the basic level of the system contradict their own motives at the meta-level of interacting. Here, I distinguish two levels of operating: the communication content and the communication form. The *content* is the unity of acting and observing *within* the system, which is the basic level of operation. For instance, a driver can apply various hybrid car braking techniques and observe this acting as a fuel saving act. The form is a meta-communication that reflects the relation of the actor toward others (Bateson, 1991). The form comes forth in observing both the basic level of observing, and the context of observing. For instance, regarding the example given above, the form reveals how socially efficient the consumer’s fuel saving and observing activities are. In general, the form indicates the sustainability of the marketing system’s sustainable/unsustainable distinctioning. For example, the manufacturers perform “unsustainable”, i.e. unsustainability (e.g. emissions, waste, etc.) is given meaning by managing it through specific functions. The system becomes sustainable, when it is unsustainable, meaning that only unsustainability-generating systems can successfully manage their own unsustainability to claim a “sustainability success”. The interesting aspect of such communication is that deep ignorance about the environment becomes the basis of sustainable action. For example, the system purposefully fails to see the types of emission different to those defined within systemic processes. Hence, the emission-free society becomes only possible when this fundamental ignorance is maintained and the observed types of emission are infinitely reduced. The other side of the coin is that

the marketing system is driven to keep producing both fuel efficient and inefficient cars. The difference in the fuel efficiency of car models must be maintained in order to maintain the meaningfulness in both SMC and SCC. In this, the form of SMC becomes contradictory to the content of operating. In turn, the divergence in the form and content of communicating can also be seen in SCC. Hybrid car drivers practice specific driving styles in order to get relatively better effects (e.g. high fuel efficiency, longer battery life, etc.) than those attained through conventional driving. Nevertheless, the content of communications rarely portrays this recursivity. Any effect is attributed to an object, the hybrid car, rather than to purposeful human behaviour. At times, some meta-observers detect a contradiction between acting and sayings, and they call this tendency as hypocrisy. In another example, SCC agents act toward and observe their individual success in reducing fuel consumption, while society-as-a-whole is not a matter of concern. Hybrid driving practices may affect other systems in such a way so that both a conflicting social situation emerges and the general fuel consumption increases. In consequence, the sustainability of SMC turns into unsustainability for all.

Intentionality of Citizens

How do citizens participate in the system? Here, I cautiously use terms such as producer, marketer, or consumer, because they are system-specific roles, and they bear certain interpretive connotations (Firat, 2001). It is a citizen who decides to act in a particular way, and thus reify a system. This occurs in the process of switching personal intentionality from one system to another. Intentionality is the process of unity between experience and the object of experience (Thompson et al., 1989). In systeming, intentionality indicates the purposeful unity of communication and the object of communication. For instance, I observed that meaningful attributes of the hybrid car are purposefully constructed by consumers, while this construction is actualised via active operating. Citizens communicate in the system and about the system. When their communication and observation are directed toward SMC, the citizens are designated as marketer or manufacturer. In this role, they observe the opposite system. If intentionality is directed into SCC, then a person becomes a consumer, and he/she can observe the manufacturers in comparison to the self. Further, depending on communication, a person could

unite several systems in his/her reality. Therefore, citizens must not be taken as static identity symbols who become the exclusive elements of the system. The same individual may switch his/her intentionality from one system to another quite often and simultaneously. He/she can participate in many systems at the same time depending on his/her intentions, motives, and purposes. This means that the mechanical understanding of the marketing system as a collection of individuals with static roles is too simplistic. Personalities are rather fluid and their character depends on the systems which dominate the intentionality of societal members.

Interaction Contexts

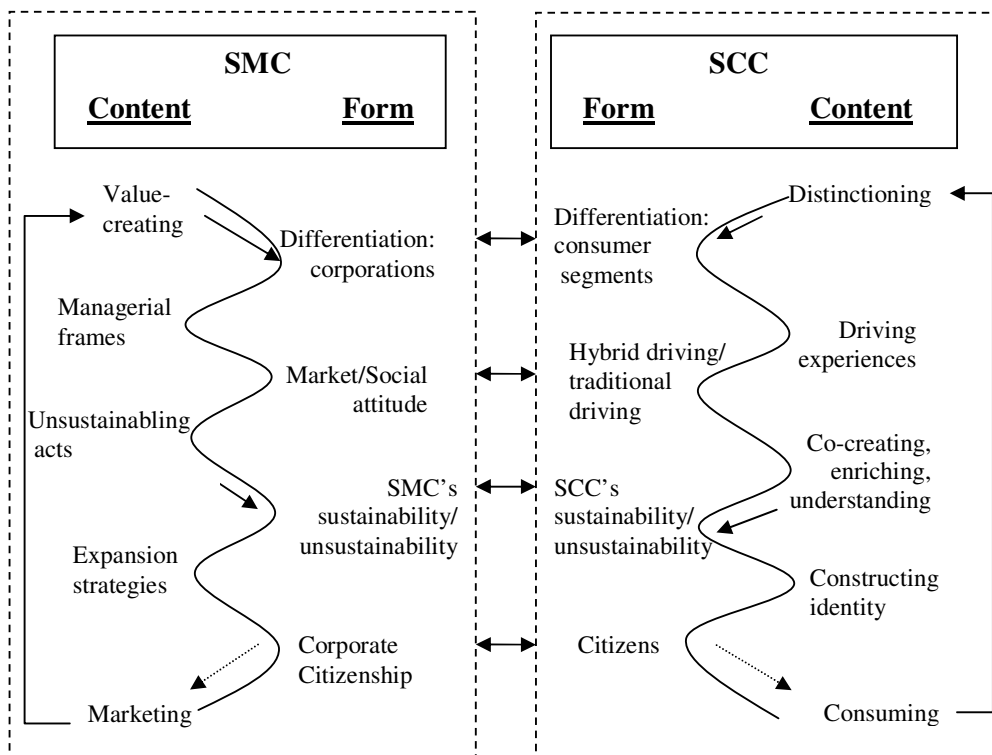
This investigation de-emphasises a stand-alone, cohesive, and rational picture of the marketing system. The marketing system emerges in rather fragmentalised, contextualised, and temporalised flows of meaningful relations. *Relation*, reflected in interaction, is an important concept here, as a social phenomenon attains meaning in a relation rather than in itself (Bateson, 1991). For instance, the meaning of *a consumer* is only understood when it is related to a concept at the same level, *a producer* (Firat, 2001). But what processes would underlie the managerial description of the hybrid car marketing system as a locus of competing for consumers? How is the marketing system observed through concepts that allude to the physical substance of happenings?

Figure 21 is drawn based on the *process-form schema* developed by Bateson (1979). The figure shows that a) the marketing system comes forth in the contexts of interaction; b) concepts which enable its observation emerge in the relation to each other; c) the naturalness of the phenomena is contestable; d) the meaning of actions is constructed in comparison; and d) this way of observation is not dominant, i.e. there could be many ways of observing the same events through different concepts. In Figure 21, each subsystem's domain is divided into two components: the content and the form.

In SMC, the basic level of acting-observing is depicted in *value-creating*. The value-creating acts are directly related to development, production, and marketing of the hybrid car. They happen in the domains of researching, designing,

developing, decision-making, collaborating, building strategic alliances, branding, and so on. These communications are performed within loose interconnected networks, value chains, and alliances, so at this level corporate boundaries are blurred, and are not considered. For instance, networking such as researching in a strategic alliance partnership, producing a hybrid drivetrain for strategic partners, or communicating to link hybrid cars to ecological concerns become a part of value. Therefore, this value is not the simplistic depiction of competitive drive and survival.

Figure 21. Marketing System as Interaction Contexts



At the same level, acting-observing is about *distinctioning* in SCC. Various distinctions are operated in the life experiences of people, and some of them become relevant to the domain of hybrid car consumption. Distinctioning in this case depicts the process of acting according to the distinctions such as fuel efficiency, motor power, reliability, vehicle design, aesthetic attributes etc. A switch between the content and the form occurs, when the rational observer attributes SMC's value-creating acts to *corporations* and SCC actions to

consumer segments. This switch is essentially a “chicken or egg” situation, where one cannot be sure of whether the actors conduct the actions, or the actions construct the actors. The intentionality concept accepts it to be interactive, yet many choose to take the existence of actors for granted. The interaction between the differentiated corporations and the differentiated consumer segments reifies the hybrid car marketing system context, which is ontologised through three categories of differences and relations: a) inter-corporative differences and relations; b) inter-consumer differences and relations; and c) corporations-consumer differences and relations. These relations can be seen in many forms. For example, if the utility maximisation concept is accepted from the economics viewpoint, then the marketing system can be constructed as the context of *competition* for scarce utility among consumers groups and corporations. If the theory of evolution is accepted as a basis, then these relations become meaningful in the context of *survival*. Many marketing phenomena can be explained in reference to the contexts of relations. For example, advertising in the mass media can be explained as a systemic and relational phenomenon. A corporation assumes a competitive attitude toward other related corporations and a dominative attitude toward audiences. The other parties show they understand the context by acting accordingly. For instance, some consumers may assume a submissive attitude and respond favourably to the message, which may drive the company to advertise further. Thus, domination-submission dynamics, and the processes of continuance/rejection of this context determine the nature of advertising and its emergence. However, direct copying of the analogous context into the “moment-of-truth” encounters may have disastrous effects (Gronroos, 1990; Gummesson, 1991; Varey, 2002b). The name of names and the observation of observations cannot be treated as a part of itself, which is called a logical typing error (Bateson, 1991; Hofstadter, 1979). Rational observers make “logical switches” to explain marketing phenomena by invoking consumers (or corporations) according to their discrete actions limited within SCC (or SMC), and propose implications for the whole marketing system, while not considering its relational character and emergence.

The next level of interaction (Figure 21) is recognised in the process through which cyclical experiences are calibrated in the view of a corresponding feedback.

In SCC, the process of driving is cyclical, i.e. a driving episode is followed by a next driving episode. A “driver + hybrid car” combination is very unpredictable in terms of particular outputs, so learning is ongoing. The hybrid car drivers continue to create unique *driving experiences* to attain their ends. Each driving attempt is undertaken based on the holistic assessment of all previous driving experiences. The meta-level of these cycles is about observing the difference between *hybrid driving versus traditional driving*. The hybrid driving pattern, its character, content, and strategies are different to those of the traditional driving. This differentiation is operated at the relational level of the marketing system, where drivers socially interact with each other. Otherwise, nobody would become aware of differences in driving. At the parallel level, corporate actors are prone to repetitive decision-making and ways of thinking. They develop “managerial frames” which are the crystallised patterns of behaviour that often transform into dogmatic routines (Hamel & Prahalad, 1994). This process is recursive; the managerial frames guide decision-making, while decisions cumulatively become a part of the managerial frames. At the meta-level, different patterns of this recursiveness are labelled as the difference between market and civic attitudes.

At this point, the relevance of recursive actions in SCC and SMC to the idea of sustainability needs to be discussed. At the basic level, operating is simply cyclical, and at the same time, a teleological purpose of continuation is maintained. Two purposes should be kept distinguished: the purpose of operating (e.g. fuel efficiency in SCC) and the purpose of the system (e.g. expansion). However, a discrete action by a particular actor cannot be invoked alone, when sustainability is the focus of observation. For example, one may observe a driver doing feathering. This event in itself cannot be discussed as being sustainable or unsustainable, as the meaning of actions is revealed in the context of systemic relations. One needs to know the form of differentiation, and the character of relation among the forms. Thus, the key to understanding the sustainable marketing system is the recognition of relational contexts and forms. Only in social and communicative domains do the systemic actors come to realise differences.

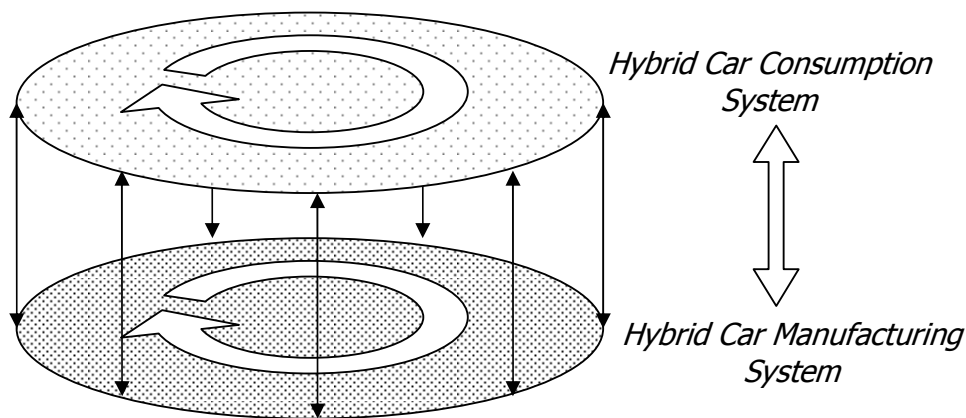
In the next level, actions are specifically targeted to enact sustainability in the system. In SCC, one observes active co-creation, enrichment of actions, and enactment of conditions-practices cycles. In SMC, these actions are in the form of unsustainability, i.e. managing emissions, energy and material waste, unsafe situations, social and ecological imbalances. However, interactive observation of relevant actions allows the actors (and the researcher) to come up with systemic constructs. For example, how would one assess the integration of wind power electricity generation systems into the manufacturing plant's electricity supply networks? The case of using recyclable containers? The comparison in the context of relations to other parties allows the manufacturer to declare about the self being *greener* than others. In this way, the systems construct the self being sustainable, or they can even develop a self-critique of being less sustainable. The form of relations between these relations (sustainable/unsustainable corporate acts versus sustainable/unsustainable consumer practices) reifies the hybrid car marketing system.

The switch into the general societal level is undertaken when the observation focuses on legitimising the activities in the context of relations. SMC operates the expansion strategies to underlie the "fact" that the system is coping well with corporate social responsibilities, whereas SCC constructs the sustainable self and the unsustainable other, and subsequently enforces the self-created morality and solutions on other sections of society. This citizenship discourse is not a political forum as such, but is an operative relation situated within the particular context of the marketing system because it tends to happen around the hybrid cars and their use. In this case, citizen and citizenship are not above or beyond the system, but the system's enactment of societal relations. Citizen identity is constructed in the context of marketing relations, which is based on relating marketing and consuming practices. The marketing system context creates the role of a marketer pitched against that of a consumer, which indicates that individuals are only seen in their roles rather than for their human qualities (Firat, 2001). Consuming is not different from distinctioning, whereas marketing is about value-creating acts. This completes the full cycle of the marketing system that becomes a context for systemic relations.

Communicative Harmony

The hybrid car marketing system is not a direct aggregation of SMC and SCC, although these subsystems cannot exist one without the other. SMC and SCC are closed in their recursive communication, i.e. they represent independent meaning domains. It is not necessary that they are operatively related to each other as far as direct impact-effect relationships are concerned. Each subsystem is principally directed by its own internal logic of communicative flows. The systems are operatively closed to each other, but cognitively open to perturbations in their respective communicative structures (Luhmann, 1995). This means that these systems enforce only internal changes in their respective operative domains by becoming sensitive to changes in the opposite domain. In this sense, they form a unity in developing shared meaning and cannot be detached from each other. The hybrid car marketing system can be taken as meta-interaction between two systems: SMC and SCC (Figure 22). Thus, the marketing system is relational and social rather than natural.

Figure 22. Hybrid Car Marketing System as Meta-entity



The systems remain as a part of complexity for each other. The interaction becomes a form of complexity reduction. For SCC, the communications of SMC are a complex noise which should be meaningfully enacted within the systemic structure through interpretation and reduction, and *vice versa*. These two corresponding systems develop a harmonious co-existence to form the general

marketing system. The formation of the common system is not a matter of simple aggregation, however. These two systems develop sensitivity to perturbations in the structure of the counterpart and direct their communications accordingly. This process is called *communicative harmony*. Communicative harmony symbolises the extent of coordinated behaviour of two systems, when their operations form a concerted unity. This appears to be the point of emergence of the marketing system. Accordingly, the marketing system is not the mechanical aggregation of the smaller systems, rather it is the communicative harmony of the systems that coordinate their self-referential operations through developing sensitivity to and resonating corresponding changes in the respective networks of communications. No operation can pass through the systemic border to interact with “alien” operations in this locus of meanings. The system observes itself as a unity, and it is not able to observe and incorporate “other” communications without “translating” them in terms of internal operative meaning. This kind of respective translation is referred to as *enactment*, observed in the preceding analysis.

Information is not mechanically transferred from a subsystem to another; rather the unity of one subsystemic communication is reflected within the other subsystem. For example, to what extent can the manufacturers become consumer-centric? This is the issue that is both generated and reified within SMC. In other words, it is a unique operation of this system which may pose no meaning for SCC. Thus, the consumer-centredness is the reduction of consumption communication within SMC. One must always be aware that reductions are just reductions; they may not always lead to expected effects. An identical phenomenon can also be observed in SCC. The value proposition received from manufacturers is not the same within the system. SCC develops its own perspective on value offered and value in use. However, the operations of both systems create certain invariants, which are relatively stable for long time. The harmony arises when systemic expectations perfectly match these invariants. For example, the manufacturers become convinced that consumers create enough demand for hybrid cars for a substantially long period of time. Similarly, consumers develop expectation of a continuous inflow of hybrid cars, services, and innovative developments. When systemic expectations and invariants diverge,

the systems may go through internal re-organisation in reference to new invariants.

Sustainable Marketing System

In conclusion, I summarise major aspects of the sustainability of the hybrid car marketing system. In this respect, systeming points of view are contrasted to mechanistic conceptions. This is represented in the Table 9.

Table 9. Aspects of the Sustainability of the Marketing System

ASPECTS	<u>MECHANICAL VIEW</u>	<u>SYSTEMING VIEW</u>
<i>The marketing system's essence</i>	Physical substance flows	Meanings flows
<i>The system's being-in-the-environment</i>	Survival through adapting	Purposeful expansion
<i>The marketing system's structure</i>	Real entities	Relational/social constructs
<i>The marketing system's process</i>	Input-output	Expanding
<i>Individuals in the marketing system</i>	Fixed roles	Social actor
<i>Emphasised sustainability target</i>	Material efficiency	Social effectiveness
<i>Driver of sustainability</i>	Product attributes	Purposeful human behaviour
<i>Becoming sustainable</i>	Progressive	Momentary
<i>The marketing system versus society</i>	Positive-negative effects	Existential (mode of living)
<i>To attain sustainability</i>	Downsize material usage	Transcend the system
<i>Future generations inherit</i>	Sound material resource environment	Sound social forms of communicating

The mechanical viewpoint is based on the understanding that the hybrid car marketing system is underlined by *flows in physical substances*, e.g. the flows of hybrid car exchanges, related services and consumption practices, and disposal activities, which may affect the material and substance-induced emotional states of consumers and manufacturers. According to this view, the whole marketing system that comprises the production and the use of the hybrid car is the product of *adapting* to the turbulent environment. Environmental factors (e.g. manufacturer activities, consumer needs and preferences, ecological factors,

political and legal trends, etc.) shape the system directly. Causal responsiveness to the environmental factors ensures the *survival* of the system into the future. Therefore, the hybrid car marketing system as a locus of resource-saving is considered to be *more robust* and *adapted* to the current environmental circumstances underlined by imminent resource shortages and pollution. Attained savings in fuel and a smaller discharge of greenhouse gases within this system is thought to increase the chances of its survival and growth in the face of impending ecological problems. Accordingly, the marketing system's structure is considered to be the collection of real entities, which exist independent of subjective judgment. Its process represents an input-output mechanism. From this perspective, the hybrid car marketing system is a machine made of individuals and institutions that accepts natural resources from the environment and discharges waste. Individuals are considered to be fixed in their relevant roles. Role-related character features and psychological processes are taken for granted. The sustainability is taken to be about attaining material efficiency, e.g. preventing wasteful and unbalanced use of material resources. Therefore, the product's attributes become important in this context, as they can be designed to be conducive to achieving material efficiency. Sustainability is attained gradually through a slow progression toward selected targets. The marketing system's total effect on society gradually changes from negative to positive. Hence, typical recommendations are often directed at promoting a reduced material consumption in the marketing system. It is suggested that as the consequence of this move, future generations would inherit a sound natural environment which is the most important aspect of their lives.

In contrast, systeming stresses that the marketing system is the locus of meaning flows. Although the physicality of the processes is neither refuted nor supported, it is argued that in socially interactive spaces the meaning of goods and services is more predominant than their physical substance. The marketing system meaningfully constructs both the self and the environment. Therefore, instead of surviving in the environment, it expands purposefully by means of active self-constructive meaningful flows. The marketing system's structure comes forth as a set of relational contexts, in which the meaning of social constructs is built. Within the system, nothing exists in itself, i.e. in its physicality, but is constructed

through social interacting. The system's process is about expanding, the essence of which is depicted in the proliferation, dissemination, and transvection of communicative forms. An individual's personality in the marketing system is not considered as fixed, coherent, rational, but as the network of social living patterns that are made meaningful within the dominant systems of practices. In other words, individuals are "system beings" whose activities are confined in interaction systems. The sustainability of the marketing system is linked to merited relationships among system agents, which represent socially effective operating in the system. Even the matter of *resource efficiency* needs to be made meaningful in inter-individual interaction. The point is that the sustainability of the self should not become the unsustainable relating between the self and the other. The sustainability of the marketing system is driven by purposeful human actions rather than product attributes. It is more about constructing meaningful consumption experiences which reference social interactions than using products to attain individual "sustainability" targets. The social aspect of sustainable behaviour is momentary, it is not added up mechanically toward a common result. Rather each interaction in a discrete situation must become about enhancing the welfare and happiness of all. In this, the marketing system represents a mode of living, being, and acting in society, so there is no separation between these entities. Society and the marketing systems are one, and they mirror each other. The sustainability for both is achieved when individuals transcend the frames of the dominating system, and understand the complexity of events occurring around them. Such wise operating creates sound communicative forms which are inherited by future generations. Thus, the sustainability is not simply about endowing future generations with material means, but is more about endowing them with wise social forms of living.

Section V

Conclusions, discussion, and implications

Introduction

This section is divided into the following parts: conclusions, discussion, implications, and future research. Conclusions summarise the main insights gained from the systeming interpretation of the hybrid car marketing system. Discussion consists of three streams: the discussion of findings, the discussion of methodological issues, and the discussion of conceptual issues. Following this, implications for a range of marketing situations are presented. The directions of future research are suggested at the end.

Conclusions

Purposeful Expansion

The hybrid car marketing system is the locus of meaning flows that is expanded through purpose-driven activities of the system agents, i.e. hybrid car producers and users. The system agents' purposeful behaviour is seen in: a) meaning-creation through juxtaposing the self against the environment, for instance, differentiating and contextualising in SMC and distinctioning in SCC; b) inevitable self-contradiction in the process of meaning-creation (contradicting in both SMC and SCC); and c) meaning dissemination (the expansion strategies in SMC and continuing systemic communication and value transformation in SCC).

Content versus Form

The sustainability of the marketing systems has two characteristics: the communicative content and the communicative form. The sustainability attained in the content is not equal to the sustainability of the form. For the hybrid car marketing system, the form of communication often remains conducive to the aggravation of environmental, social, and ethical conflicts.

Systemic Myopia

The hybrid car marketing system as the locus of meanings is isolated from the external natural environment, the complexity of ecological systems, the social environment, and the complexity of other meaning systems. It is closed in itself, and builds the meanings of sustainability according to the maxim of greater/lesser extent of material waste and consumption, i.e. recycling, emission management, fuel efficiency etc. The meanings pertain to inter-human interaction and communication rather than the relationship between a human being and the nature. Sustainability becomes a problem of correct systemic observation. In the hybrid car marketing system, sustainability only becomes possible, if meanings reflect anthropocentric choices and myopia about the environment is maintained. Myopia refers to ignorance about self-ignorance. The natural environment in the form of ecological systems is removed from the discourse of sustainability.

Difference

The hybrid car marketing system has no observable physicality, i.e. it emerges as an interaction context. The difference implies whole systemic identity which includes both the constructed self and the constructed environment. The hybrid car marketing system becomes the unity of the difference between “systemic me” and “systemic other”. The act of positioning hybrid car driving practices (the self) as positive/superior and other driving practices as negative/inferior is a social form in itself. This social form is conducive to attacking and mocking “fuel wasters” which is not sustainable in itself. This act defines the observers themselves rather than observed individuals, so a negative social form is under the full accountability of hybrid car enthusiasts, while the others may even not be aware of this meaning.

Inter-system Dynamics

Although hybrid car manufacturers and consumers co-orient toward a common marketing system, they are autonomous in their self-referentiality. The relation between the corporations and the consumers is inter-systemic. The same product or value has contrasting meanings in these different systems. Manufacturer communications are but a small part of the whole marketing system. The

interactivity is out of the control of any agent. Hence, no system can claim objectivity in defining the meaning of sustainability. Sustainability-as-a-concept is complex and transcendent. Each system “understands and interprets” this concept in its purposeful expansion. Therefore, sustainability education and promotion in the system is not a matter of information dispatch and receipt: it is a matter of ongoing dialogue and co-creation.

Discussion

Discussion of Interpretations

Purposeful Expansion. Systeming interpretation of the hybrid car marketing system alleviates common misconceptions about marketing system processes. Conventional thinking may be that:

A marketing system is a passive purposeless entity shaped by environmental forces. The system's agents are motivated to ensure its survival. The system's processes adapt to environmental changes.

Alderson (1965) has stressed a marketing system's purpose of survival and adaptation within the environment, and marketing systems researchers have followed his convention (Dixon & Wilkinson, 1982; Dowling, 1983; Reidenbach & Oliva, 1983). Strong emphasis on the mechanical meaning of survival and adaptation has led to common misunderstandings and inhibited the development of systems research. For example, Shapiro (1964) undertook an in-depth analysis of the Ontario Hog Board to arrive at the conclusion that the concept of survival and adaptation were not robust enough to explain the situation under focus. The study revealed that the board executives refused to recognise imminent environmental threats, and thus behaved according to their own apprehension of changes occurring at that time. Shapiro argued that the environment is not separable from the system and advocated the notion of “the relevant environment” (p.120). He argued that “the environment is a dynamic rather than static component of a system” (p.120). In response, Alderson (1964) developed the typology of the environment that included the proximate environment, the aspiration environment, and the ultimate environment. Recent work by Nobel

award winning economist Stiglitz (2003) demonstrates that national markets are not mechanistic self-adapting systems rather their nature mostly depends on the meaning construction of the system agents. Stiglitz illustrates several examples of how the system's agents interpret the environment via their action choices. For instance, in the case of financial deregulation of Asian markets after the 1997 crisis, he argues that the effect of exchange rate increase in curbing investment outflow panic has not been as it is described in textbook models. In contrast, Stiglitz notes that the meaning of the exchange-rate-changing-act *per se* had possibly further aggravated the critical situation. This shows that the apprehension of the environment is driven by purposeful behaviour of agents in the system. The strong advocate of the marketing systems concept, Roger Layton (2007) argues that the environment can be divided into the task environment and the institutional environment. The task environment includes suppliers, intermediaries, customers, competitors, and other stakeholders, whereas the institutional environment comprises political, social, economic, and technological factors. Layton thinks that the environment is associated with uncertainty and the ways this uncertainty is dealt by the system. His conclusion is that the system is an environment:

...the most important point to note is that the task environment for a decision maker at one level is largely if not entirely determined by the properties of the marketing system in which the business is embedded. The characteristics of the system define the context in which the manager's decisions will take effect. (Layton, 2007, p. 239)

The remarkable aspect of these studies is that they agree that a) the environment is complex; b) the environment is an inherent part of the system; and hence, c) survival and adaptation is not an adequate concept. This investigation shows that the marketing system has a meaningful purpose in constructing both the self and the environment, and it expands in the communicative domain rather than adapting to changes.

Another misconception about a marketing system which is in contradiction to the concept of purposeful expansion is that:

The effect of an input is linear in causing an output. A marketing manager can continue making gradual manipulative changes to attain incremental

effects in response. In equilibrium systems radical events are an anomaly rather than a central phenomenon.

The theory of self-organised criticality in complex systems challenges these assumptions (Bak, 1996). This theory argues that complex systems exhibit macro-behaviour that is not causally linked to a traceable course of changes at a micro-level, rather, the concerted changes of all elements define the nature of a macro-event. For example, a national economy may exhibit self-organised criticality in generating a significant market crisis that happens without any traceable reason. The assumption behind this argument is that macro events in marketing systems can happen because of the internal dynamism of components rather than under the influence of external forces. This theory seriously challenges the concept of an input-output mechanism (Bak, 1996). If a marketing system is taken to be linear, then the assumption is that it takes a large number of “correct” inputs to make it more sustainable. Does the introduction of an increasing number of greener corporate practices and green goods make a marketing system sustainable? Most green marketing research argues that it does (see Crane, 2000). However, this investigation shows that changes in corporate social responsibility practices and green product attributes may not have an expected positive effect on the whole marketing system. In the case of the hybrid car marketing system, the introduction of a green product may have complex consequences including the aggravation of a social conflict among system agents. In general, the outcome will largely depend on the meanings of sustainability actions enacted within the whole system.

Conventionally, researchers think that:

A marketing system must be about the aggregation of micro-units into a macro-structure (Hunt, 1981; Layton, 2007; Wilkie & Moore, 1999)

This investigation shows that the “aggregation” logic is not adequate for describing a systemic essence. Shawyer and Nickels (1981) argued against using the term of aggregative marketing systems. They noted that holism of the system could not be equated to a mere aggregation. I observe that the discrete acts of fuel efficiency building by individuals cannot be equated to the total ecological

effectiveness of the marketing system. In more general terms, the aggregation of personal (corporate) sustainability experiences does not bring about the sustainability of the marketing system. More especially, the situation is paradoxical when sustainability meaning creation requires the reinforcement and consolidation of an opposite (unsustainable) identity.

Sustainable marketing system. The sustainability of marketing systems can have two communicative forms: the content-based and the form-based. The identification of the sustainable marketing system according to the content/form of communication is both simple and complex. It is simple in terms of recognising operated distinctions, the approach which is also used in structuralist and poststructuralist interpretations (Holt, 1997; Levy, 1981; Stern, 1995; Thompson & Hirschman, 1995). It is complex, owing to recursive re-entry of operating into the space of distinctioning. This investigation indicates that the problem of the sustainability of marketing systems is not only the matter of material resource manipulation that is reflected in the content of communications, but also it is the issue of constructing sound social relating, which is grounded in the form of communicating. Hence, the consequences of sustainability-directed operations in themselves must be considered. It is often the case that a particular sustainability-enactment within the system cannot be sustained indefinitely due to its conduciveness to proliferation of unbalanced social forms.

Sustainable marketing literature most often looks for linear causes of unsustainable conditions (Crane, 2000; Fuller, 1999; Luhmann, 1989; Reidenbach & Oliva, 1983; Schaefer, 2005). Accordingly, solutions suggested for solving sustainability problems inevitably lead to identification and restraint of parties who are thought to be exclusively responsible for ecological misbalance. Such a view misses, to a large extent, the systemic character of the marketing relations in society. Conventionally, researchers think that:

*Consumers are waste-generators; their consumption must be curbed.
(Dolan, 2002; Reidenbach & Oliva, 1983; see Schaefer and Crane, 2005)
Manufacturers are greenwashers, hypocrites, and their intentions are at
odds with their claims. (Peattie, 1999; Schaefer, 2005; Smith, 1998)*

Researchers observe that sustainability is becoming a shallow, surface-level rhetoric for marketing system actors (Dolan, 2002; Kangun & Polonsky, 1995; Luhmann, 1989; Peattie, 1999; Schaefer, 2005; Schaefer & Crane, 2005; Smith, 1998; Welford, 1997). Schaefer (2005) reviewed green marketing literature that argued that a sustainability concern represents rhetorical rather than substantive moves by businesses. This means that sustainability-ecological changes are reflected at a semantic level, while the pragmatic aspect of sustainable business operating remains unchallenged. Communication as being and acting within systems can have two forms of implication: semantic and pragmatic (Carpenter, Glazer, & Nakamoto, 1994; Gruenfeld & Wyer, 1992). The semantic form of communication conveys the literal meaning of a message, while the pragmatic form suggests the reasons for the message being communicated. For example, Carpenter et al. (1994) showed how companies advertise the irrelevant (not instrumental in delivering key value) attribute of a product at the semantic level, while the pragmatics of this kind of communication created a meaningful competitive advantage for a brand, even when consumers were made aware of the irrelevance of the attribute. In this case, meaningless semantics was assumed to entail meaningful pragmatics. Although the framework *semantics versus pragmatics* is an insightful approach to the analysis of communication, it connotes the conduit metaphor of communicating. Systeming suggests that semantics cannot be meaningless, i.e. every communicative act creates a meaning. In other words, any change in terms of a languaging act communicates the difference. In this context, the semantic aspect of a happening is interactive. Interactivity involves two or more parties, therefore, meaning arises as the precondition of continuance. Meaninglessness cannot be communicated or interacted with. Interaction creates meaning, which is differentiated from complexity. To convey this insight, systeming proposes differentiating the content and the form of communication. They are not taken as a linear delivery of information, rather they are assumed to be patterns of interactive operating. The conflict between the content and the form of communication evokes ethical concerns. The observer of a conflicting divergence dubs the actors of the marketing system as being unethical, hypocritical, and deceptive. However, these are not the meanings enacted in self-observation. The hybrid marketing system actors are sincere in

their meaning creation: however, they are ignorant of self-contradiction which arises from their purposeful behaviour.

In parallel, Carpenter et al. (1994) indicated the unethical side of incongruence between the semantics and the pragmatics of marketing communication. The authors conceptually resolved this contradiction suggesting that it was consumers who constructed the meaning of a brand, while marketers only delivered a communicative content. Related to this, Crane (2000) discussed the fair-play perspective that had emerged in green marketing research focused on the ethics of greenwashing. For example, he analysed the research that reported that distinctions (e.g. biodegradable, recyclable, light) used by companies in their packaging were unproven, inconclusive, and sometimes even deceptive (Kangun & Polonsky, 1995; Polonsky et al., 1998). However, Crane (2000) commented that this kind of “deception-uncovering” research lacks a deep analysis that links the marketing system to the social and natural environment. This tendency hinders an in-depth insight into the tension between the content and the form. In an analogous research work, but in a different context, Livesey and Kearins (2002) analysed environmental reports by the Body Shop and Royal Dutch/Shell corporations to find that the environmental sustainability identity was built at the content level of communication through deploying metaphors such as transparency and openness, while substantive changes (the form) were ignored. In turn, Crane (1997) observed how sustainability practices were amoralised in corporative operations. The *amoralisation* of the environment referred to “the inclusion of environmental criteria into marketing practices [that] tends to be framed in largely amoral terms of technical procedures, costs, and customer demand rather than ethical criteria” (Crane, 2000, p.151). It may be the case that Crane has observed the paradox of morality in the marketing system. Although the observation of practices is guided by moral and ethical distinctions, the actual form of the system constructed in terms of purposeful expansion is guided by entirely internal (system-specific) distinctions. Thus, amoralisation could be thought of as one of the dynamic systemic processes that bring about the conflict between the content and form of communication. Research on corporative sustainable communication simply tells a partial story about the marketing system. No research exists with regard to how both the content and form of

communication in the marketers domain affect and/or arise in respect to rhetorical and actual discourses in consumption systems (Crane & Desmond, 2002; Desmond & Crane, 2004). Some consumption research is underpinned by links between macro- and micro-forms of consumption behaviour (Dolan, 2002; Kilbourne et al., 1997; Schaefer & Crane, 2005; van Dam & Apeldoorn, 1996). For instance, Kilbourne et al. (1997) suspected the role of dominant social paradigms (DSP) in influencing marketing practices in society. They thought that DSP determined the relation between sustainable consumption views and quality of life experiences. According to them, DSP referred to the set of beliefs and interpretive frames of societal functioning. The DSP framework is the example of how a macro-level phenomenon is linked to micro-level operating. In the context of this thesis, DSP comes into play in the form of society that mirrors itself through assuming the form of marketing systems. Society depicted in the marketing system enacts sustainability in its communications. However, the key to understanding this dynamic is in distinguishing between the content and the form of communication. Porter (2005) said that “the surface-level discourse may be a thin veneer that disguises much more powerful struggles around [environmental sustainability] identity establishment, negotiation, and defense” (para.2). Porter’s “thin veneer” may well be the hybrid car marketing system’s “thick” purposeful expansion, as the content of communication disguises the contradictions of the form, which are made invisible via expansion strategies.

The issue of the sustainable marketing system is complex and meaning-laden rather than being simplistic (Dolan, 2002; Nason, 2006; Schaefer, 2005; van Dam & Apeldoorn, 1996). Conventional thinking is that:

Sustainability is achieved when absolute reduction in both material consumption and production levels is imposed.

This “objectivist” approach (e.g. see Nason, 2006; Schaefer & Crane, 2005) stresses a contradiction between absolute reduction in consumption (and thus production) and higher level of social welfare ensured by more material consumption. The conceptual tension becomes more intense when the situation of developing countries is considered. Should not materially less privileged people

have a right to a higher level of consumption? In contrast, systeming poses the question in a different manner. It asks, whose observation the “objectivist” approach is? Is it not the problem and its solution defined within the frames of the objectivist (mechanistic) systems conceptualisation? In this sense, the problem is posed in presupposition of a certain and only angle to answering it. The objectivist solution ends up suggesting particular rations of consumption (and respectively production) to citizens living in different socio-economic conditions, or to societies as a whole (Hart, 1997; Schaefer & Crane, 2005). However, this solution is framed and developed within objectivistically-defined marketing systems, and researchers are operating as agents of the grand-observer, the marketing system. This pinpoints the self-closure of communication, which is only one of many possible attempts to understand complexity of the environment. Hence, concepts such as sustainable consumption, quality-of-life, and green marketing have a connotation, which is system-specific. They only have meaning within the materialistic system. Nason (2006) points to the self-closure trap when he argues:

Is material at the root of wealth and well-being or will society move on to other forms of richness?

- Life-sustaining consumption;
- Services;
- Culture;
- Capability Enhancement.

In other words if we tinker with the current system to make it better, we are serving a dysfunctional master with our well intended but compartmentalized and impotent discipline. In a sense, “we have met the enemy, and they is us”. (p.11)

There could be many other forms of communication based on alternative concepts, which the materialist marketing system (and its operators) may not recognise. The blindness of autopoietic social systems appears to be fundamental. These systems cannot see their self-referential closedness (von Foerster, 2003).

The problem of cultural consumption has also been proposed (Dolan, 2002; Kilbourne et al., 1997; Schaefer & Crane, 2005). Consumption can be taken as an end in itself. For instance, consumption can be taken as a means of identity construction, hedonistic experience, and communication (Schaefer & Crane, 2005). The production part of the marketing system reacts to this nature of

consumption by creating and offering goods and services which fuel cultural and social use of products (Belk, 1996; Holt, 2002; Kozinets, 2002a; Sherry, 1998; Thompson et al., 2006; Thompson & Troester, 2002). The paradox of the concept of sustainability emerges when one calls for the reduction of consumption (and production that references this), whereas consumption (production) experiences represent the social and cultural bases of life satisfaction and welfare construction (Dolan, 2002). The proponents of *the cultural view* defend the legitimacy of the marketing system which enacts sustainability neither in the content nor in the form of communication. An example could be shopping as pleasure seeking (Elliott, 1994). In this context, agents are involved in cultural consumption, the process which is considered to be instrumental for their individual welfare. Sustainability of such acting is considered neither in the content nor in the form. To reconcile the cultural view and the sustainability concept, Schaefer and Crane (2005) suggested using sustainability distinctions as cultural bases when engaging in marketing experiences. The hope was that sustainability was attained when it became operated within the cultural and social experiential domains. The argument propounded in this thesis is not much different from this approach to understanding the sustainability problem. Culture is redefined as a systemic process that is about transferring the ways of constructing observation and communicational forms from one generation to another (Luhmann, 1995; Maturana & Varela, 1992). In other words, culture is seen as “the trans-generational stability of behavioral patterns ontogenetically acquired in the communicative dynamics of a social environment” (Maturana & Varela, 1992, p. 201). Sustainability becomes an issue of inter-generational communication that is constructed at the present condition of the marketing system. The argument is that citizens must realise the self-closure of the marketing system they operate in and complexity of the environment. Conventional thinking is that:

Market behaviour should be taken a given and natural, for instance, pleasure seeking or profit maximising are supreme default motives which must not be challenged (see Bateson, 1991)

Hence, sustainability-ignorant systems (e.g. consumption as hyper-real cultural force) are neither necessary nor natural. Researchers should be cautious in

defending such systems. For example, shopping as pleasure seeking is a specific observation operated within a hedonistically guided marketing system and this experience can be regarded simply one of many selections of cultural existence which is enacted by a small group of citizens residing in specific western cultural environments. There could be many alternative marketing systems which do not operate along this distinction, where the concepts of shopping and pleasure may have different systemic meanings. For example, in some countries shopping might mean a means of struggle to live, while in some bazaars it means social interaction, information, and community news exchange. Cultural systems must be open to other systems, and not closed into themselves. Even worse, they should not be defensive of their way as natural and objective. Hunt (1993) warned about objectivism that is “seeking knowledge that is absolutely true, universally valid, absolutely correct, definitive, known with certainty, or known from a unique privileged position” (p.86). Objectivism leads to “vulgar” systemic ethnocentrism believing “that our ways, because they are ours, must be closer to the truth, goodness, and beauty than are the ways of others” (Hunt, 1993, p.86). In this sense, sustainability can be opposite to objectivism, that is equal to being uncertain about the self and the environment, and open to many options as far as the systemic enactment is concerned (von Foerster, 2003; Weick, 2001). Consequently, being limited to enacting sustainability in the content of communication can become a vulgar ethnocentric operation, as it has a danger of being considered morally good and thus, the only right way of dealing with the sustainability issue. The systeming example is that the communications of hybrid car drivers posit the self on the positive side of distinctions, and then command system-specific solutions to societal issues. In this case, sustainability is the content, while ethnocentrism is the form of communication. Therefore, the observation of both categories needs to be exercised.

Differentiation and distinctions. This investigation indicates that the marketing system has to differentiate in order to communicate. The marketing system divides the self-identity into fragments (smaller subsystems), in order to guide self-observation. In turn, the systems of manufacturer and consumer communications conduct distinctioning to expand. Communication does not deliver information, it cuts distinctions in the domain of meanings (Luhmann,

1995). Autopoietic systems differentiate in order to maintain self-reproduction (Maturana, 1981), hence, the marketing system creates the stable patterns of distinction-making in order to approach complexity in an identical manner at every autopoietic turn. Conventional thinking is that:

The marketing system comprises substantive objects, e.g. goods, institutions, infrastructure etc. Systeming shows that meaningful difference is the basis of any marketing system.

Community research in marketing has argued that differentiating is at the core of communicating in brand and consumption communities (Cooren et al., 2005; Cova & Cova, 2002; Lawrence & Lorsch, 1986; Muniz Jr. & O'Guinn, 2001; Weick, 1979). In their summarising work of the last twenty years of consumer culture research, Arnould and Thompson (2005) identify the stream of research that deals with marketplace cultures such as communities, tribes, microcultures, and subcultures. Arnould and Thompson see the work by Maffesoli (1996) on neotribalism as a fundamental basis for this stream of research. Neotribalism is based on the idea that the socio-industrial forces of modernity erode traditional cultural networks, and people left in the resulting void create alternative "ephemeral" communities. These communities are constructed through differentiation (Maffesoli, 1996; Muniz Jr. & O'Guinn, 2001; Suttles, 1972). The argument in this thesis is that differentiation is not simply a community phenomenon rather it has a more general scope. It is the basis of communication, meaning-construction, and existence in the marketing systems. In other words, differentiation is total in socially constructed systems. If modernity is driven by distinctions and differentiation (Luhmann, 2002) that bring about constant fragmentalisation of society and marketing systems (Brown, 1993; Firat & Venkatesh, 1995; Thompson & Troester, 2002), would one still be able to talk about inter-systems dialogue that is based on a "common ground" of understanding to attain a sustainable existence? Taylor (2006) discussed how differentiation – developing an autonomous perspective to interpreting the environment – created impediments for the integration of organisations. Porter (2005, para. 38) argued that this process was about creating and protecting a unique systemic identity which operates through "othering". Othering is the

process of attaining the meaning of “I” through constructing “other” in action. This “I” coupled with the “other” then becomes “me” (Mead & Morris, 1934). It is noted that:

...the world thus consists of separate, individual entities with a pressing need to maintain their external boundaries: regardless of how important environmentalism becomes it is always conceived in a context of separate, strategic entities. (Porter, 2005, para. 38)

Othring is not necessarily the unique operation of an individual. Not only could agency be referenced to human beings, but also to organisations, including marketing systems (Cooren et al., 2005). The marketing system is also driven by an othering process, i.e. communicating to differentiate between the self and the other. In systeming, othering is not only about erecting “Me” in reference to “Other”, but it is also about “my observation” against “your observation”. This idea parallels the notion of consciousness-of-kind and “we-ness” that develops in a brand community (Muniz Jr. & O’Guinn, 2001). The members of a brand community develop we-ness by demarcating a difference between community members and non-members. Muniz and O’Guinn observe that the members of brand community identify non-members by observing the ways of their brand usage. Employment of “strange” distinctions may disqualify a person from being a genuine brand community member.

Researchers argue that:

Commercialism destroys traditional cultures and communities, which are seen more sustainable, authentic, and ecologically benign. (Belk, 2001; Dixon & Wilkinson, 1982; Durning, 1992; Fisk, 1971; Maffesoli, 1996; Sheth et al., 1988; Swaney, 1981)

This investigation indicates that the marketing system is in itself the form of cultural existence. So the process is not that of cultural destruction, but it is reminiscent of cultural transformation. Muniz and O’Guinn (2001) argued that consumer culture never destroyed real communities, but it created new cultural ethos through integration (we-ness) and differentiation (othering). Old distinctions were replaced with new ones.

Luhmann (1995) talked about an ephemeral “social memory” of social systems, which was a depository of all relevant distinctions. Systemic communications appeal to this social depository in order to construct the meaning of events. In a similar way, SMC operates with emission/non-emission, recycling/non-recycling, and energy saving/wasting distinctions, while SCC is essentially driven by the fuel efficient/inefficient distinction. This is consistent with the view that organisations practice sensemaking (of the environment) through distinctions (Daft & Weick, 1984; Weick, 2001). The systems may recursively do distinctioning about themselves-operating-distinctions (Taylor, 2006). Maturana and Varela (1992) argued that distinctions were operated in the linguistic domain and always occurred retrospectively. Furthermore, they argued that any action was told (narrated) by an observer, so language became a means of distinction drawing. Spencer-Brown (1969) offered a general corollary in regard to this: *draw a distinction and a universe comes into being*. This means that observation of an action starts with a distinction, and this distinction guides the nature of the constructed world. Kangun and Polonsky (1995) described a set of environmental marketing claims that were used to distinguish companies and their products from other products. The distinctions used were: degradable (versus non-degradable), biodegradable, photogradable, compostable, recyclable, recycled content, source reduction, refillable, ozone-safe, and ozone-friendly. This does not exhaust the case. Distinctions are so pervasive that the systemic actors tend to take them for granted. Such distinctions as true/false, good/bad, ethical/unethical, sustainable/un-sustainable underlie our common knowledge of the world, and especially the constructed reality of sustainable systems (Dolan, 2002).

The marketing system is built on the reciprocal observation of distinctioning on the part of market actors. This is exemplified in classic product differentiation strategies employed by marketers (Carpenter et al., 1994; Kotler, 1994; Porter, 1990; Porter & Van Der Linde, 1995), and also in consumer interpretive strategies (Arnould & Thompson, 2005; Hirschman & Thompson, 1997; McCracken, 1987; Mick & Politi, 1989). Both camps (marketers and consumers) self-referentially enact sets of distinctions as a strategy to reduce the complexity they face. Some researchers note that discursive usage of highly vague, semantic, and meaningless

distinctions creates a fundamental uncertainty in markets (Carpenter et al., 1994; Kangun & Polonsky, 1995). Environmental claims are made, distinctions are drawn, and goods are differentiated, regardless of the fact that distinction-makers know that objective information on the real matter of a situation is not obtainable (Kangun & Polonsky, 1995; Polonsky et al., 1998). This kind of distinctioning is treated as misleading (Kangun & Polonsky, 1995), uninformative (Hoch & Ha, 1986), or meaningless (Carpenter et al., 1994). In contrast, consumers have their own reference systems, identity projects, and interpretive habits (Hirschman & Thompson, 1997). So, describing certain distinctions as “meaningless” appears to be meaningless from the perspective of consumer experience, and perhaps vice versa (Thompson et al., 1989). Systeming suggests that there is no meaningless communication in social systems. Communication, including both relevant and irrelevant product attributes, has its unique meaning within a respective marketing subsystem. The issue of distinction-making must be resolved from the point of inter-system communication and communicative harmony.

Can distinctioning be sustainable? The dominant view on sustainability is underpinned via distinctions drawn by western cultural models which suggest that

...a man (the marketing system agent) is coherent, unified, and rational.
(Dolan, 2002)

However, other forms of non-western cultural models (and marketing systems) which observe the essence of the problem differently may exist (Layton, 2007). These alternative systems are often based on unconventional distinctions alien to western observers. Nevertheless, the tendency is that the dominant system engulfs referenced systems into its operational closure. The common standards are set, criteria enforced, and conforming lines of distinctions promoted. This has been observed in the case of communicative transvection in SMC. Communication becomes sustainable if it can transcend the boundaries of the single version of the meaningful of a marketing system. This would require distinctions to be drawn consciously. In this regard, Holbrook (1998) argues that citizens, not simply consumers or producers, must develop the capability to distinguish the meaning of their marketplace actions in a conscious manner. Holbrook explores the risks of

cultural and educational populism that represent the diffusion of similar communicative forms in society. This populism entails encouraging impaired knowledge and activities through suggesting that this knowledge is good enough. This tendency sways people away from self-reflection and introspection toward *indiscriminate appreciation*. In the context of this thesis, this means enforcing dogmatic forms of observation on others. In this regard, Holbrook writes:

We should learn to ferret out, to decipher, and to expose this dangerous but ubiquitous tendency wherever it exists. We should, in short, make explicit (as critique) an insidious populist ethos that often runs deep but remains implicit (as consumer-flattering propaganda) in so much of our popular culture (especially that offered up for mass consumption by commercial interests concerned with appealing to the largest possible audience). (p.419)

Holbrook's call is to develop appreciation toward what is happening around a person, his/her cultural context, and life situations. This includes the ability to critically judge, aesthetically evaluate, and morally estimate communications and their consequences in the system. One needs not to act so as if there is only the single way of dealing with life problems, identity-projects, or even consumption events, which indicates that he/she falls under a single dominant system. One needs to act so as to increase the number of options in dealing with marketing tasks by maintaining awareness of many other systems of communication (von Foerster, 2003). This may similarly be relevant to managers' work situations. There may not be a single, rational, straightforward, and necessary solution to marketing management problems, but many ways to define problems, reconsider them, and act by invoking various communication systems. Consequently, differentiation and distinctioning without being conscious of the content/form delineation of communication turns into ethnocentrism, stereotyping, and in-group/out-group racism as it has been propounded by the theory of social identity (Jones, 1999; Tajfel, 1981). Porter (2005) discussed this issue in detail:

Organizations and individuals [systems] continually engage in this categorization and identification [differentiation and distinctioning] process, in the environmental realm as in every other. It involves claiming membership in a reference group or organization through a cognitive process of "othering", or distinguishing oneself from an outside group, often stereotyping or disparaging "out-group" [the intentionality directed at the

system]. These operations very often have a pejorative, or at the very least judgmental quality. Yet the process is so ingrained that it often takes a monumental effort for us simply to notice ourselves doing it. (para 34)

Thus, the operation of the sustainable/unsustainable distinction does not guarantee the sustainability of the marketing system. Most often this kind of differentiation and distinctioning becomes unsustainable, as it could exhibit brand-related ethnocentrism. Therefore, the sustainability of distinctioning communications becomes the important aspect of acting in the marketing system. Hence, the sustainability of the marketing system in both the content and form of communication happens as a *discursive struggle* (Livesey, 2001). However, my argument is that meaning is not only the character of discourse, but also that of acting within the system. Therefore, it is stressed that sustainability in the hybrid car marketing system is essentially about the *struggle of meanings*, i.e. purposeful expansion.

Is ignorance sustainable? Conventional thinking is that the map of the environment people construct represents the true environment. This leads to thinking that:

The real natural environment can be known and taken into account when operating in the marketing system.

Dolan (2002) described how the natural environment was objectified by both consumers and producers in cultural interaction. He warned that the environment had become one of many product features that were put on sale. The systeming insights indicate that the marketing system's self-attribution of sustainability is based on ignorance about the real environment. The true essence of surrounding complexity is not known to the system. Porter (2005) argued that "all versions of sustainability are based on identities reflected from human as opposed to natural systems" (para 24). The natural environment was removed from the sustainability discourse. The marketing system is essentially contrived (Katz & Kahn, 1966), as its structure and processes comprise human communication. This human communication only enacts human communication, while the enactment of the natural environment is impossible (Luhmann, 1989). In this sense, the

sustainability concept applied to the marketing system remains anthropocentric as opposed to ecocentric (Crane, 2000; Dolan, 2002; Kilbourne et al., 1997; Rogers, 1994). In this way, the marketing system is disconnected from the eco-system of bio-physical changes, and information these systems provide is translated into human communication for the marketing system. The marketing system remains ignorant of the true nature of bio-physical perturbations. For example, SMC emphasises the attainment of the Zero-emission Society as well as the Complete Recycling Society. These targets are only achievable when the system successfully maintains myopia on “non-emission” emission and “non-recycling” recycling. The certain types of emission and recycling activities such as emission from newly introduced technology, non-commercial nature preserving technologies, and unobserved modes of resource wasting are not observed, meaning they simply do not exist for the system. For instance, Hamel and Prahalad (1994) observed a more important alternative category of industrial resource wasting that was explained by the concept of resource stretch and leverage. They observed that resource-rich companies often lost their leading positions in the market to companies that were good at stretching their limited resources:

A firm can sit atop of mountains of cash and command legions of talented people, and still lose its preeminent position. Likewise, a firm can sometimes overcome enormous resource handicaps and successfully scale the heights of industry leadership. The point here is that too often competitors are judged in terms of resources rather than resourcefulness... Resourcefulness stems not from an elegantly structured strategic architecture, but from a deeply felt *sense of purpose*, a broadly shared dream, a truly seductive view of tomorrow's opportunity. (Hamel & Prahalad 1994, p.140)

Two aspects of Hamel and Prahalad's discussion relate to my interpretation. First, resourceful companies waste resources due to inefficient use. Second, purposefully expanded behaviour in handling resources, i.e. resourcefulness, is more important than simply possessing more/fewer resources. Could these aspects be observed by the system actors? Again, Hamel and Prahalad (1994) discussed limited, narrowly focused, and dogmatic decision-making patterns. Ignorance exhibited in managerial decision patterns was built-up by time, and then crystallised as “accepted best practices” (p.55) in company work routines, and subsequently, became canonised as must-be-followed rules:

Yesterday's "good ideas" become today's "policy guidelines" and tomorrow's "mandates". Industry conventions and "accepted best practices" assume a life of their own. Dogmas go unquestioned... (Hamel & Prahalad 1994, p.55)

The analysis of SMC indicated that managerial decision-making is based on particular decision-premises, which become self-referential dogmas in operating. Although these decision-premises are retro-success patterns, they are independent from the environment. They make managers insensitive to complexity. The same view is applicable to the context of consumption practices. Usually, chaotic behaviour and experimenting with products creates various and contrasting levels of material savings, which are sometimes observed or unobserved. Saving actions do not emerge as systemic meaning unless they are purposefully observed. Essentially, ignorance builds up when system actors become obsessed with the content, i.e. fuel saving distinctions. The form is not observed. Social interaction consequences become less important. Moreover, SCC posits the self as superior, and thus assumes a moral responsibility in enforcing one-way, self-referential solutions to social problems. In this, ignorance about other systems and their dynamics must be maintained. Due to the complexity of the environment and the inaccessibility to eco-systemic perturbations, ignorance seems to be a natural systemic reaction. The marketing system is not able to construct a point-to-point relation with its environment, so reduction is unavoidable. The essence of the problem lies in the fact that ignorance is considered positive *per se*, which gives rise to arrogance. Hamel and Prahalad (1994) called this managerial frames and the lack of *humble* self-assessment. In the case of SCC, arrogance results from ethnocentrism. Spencer-Brown (1969) notes:

Unfortunately we find systems of education today which have departed so far from the plain truth, that they now teach us to be proud of what we know and ashamed of ignorance. This is doubly corrupt. It is corrupt not only because pride is in itself a mortal sin, but also because to teach pride in knowledge is to put up an effective barrier against any advance upon what is already known, since it makes one ashamed to look beyond the bonds imposed by one's ignorance. (Spencer-Brown, 1969, p. 110)

Is sustainability a matter of mutual producer-consumer education? The stable operating of the marketing system requires maintaining the simplified picture of communicating actors in referenced systems. For example, manufacturers may maintain the view of consumers as rational-choosers. This view enables SMC to tailor products with enhanced pro-environmental qualities wanted by supposedly rational consumers (Schaefer & Crane, 2005). This logic suggests that:

Sustainability is achieved when the sufficient number of consumers starts using a green product. According to this perspective, the problem of sustainability is solved through education.

What is meant by education here is the mechanical transfer of information, i.e. the diffusion of particular distinctions. The same could be said about marketers learning about consumer preferences through market research, where consumption distinctions are supposedly delivered to SMC. A mutual information exchange in the sense of a conduit metaphor is underlined by the simplified picture enacted in the marketing system. What is the implication of a simplified picture for sustainability? It would mean that sustainability would only be established, when people would really want it, e.g. buy it. As long as citizens do not enact proper distinctions, sustainable development remains as impossibility (Fuller, 1999; Ginsberg & Bloom, 2004; Porter & Van Der Linde, 1995; Smith, 1998). Schaefer and Crane (2005) discussed several possible barriers that hindered adoption of proper distinctions such as less environmental concern, apathy and limited environmental understanding, scepticism, considering environment as less important, and feeling powerless. In contrast, Varey (2002a) argued that in the context of the modern conception of communication, education occurred as the participative construction of shared communication. Educational communication involves meaning co-construction:

The new, alternative conception of communication is of a common construction of meanings. Information is not moved from one place to another but is always a means to an end, produced and used by social actors to attain their goals in daily life. Meaning is a mutual aspect of knowledge – it is a joint production manifested in and through

discursive practices. Meaning and message are often assumed to be synonymous. But human communication is not merely information processing. (Varey, 2002a, p. 26)

From this perspective, no agent has absolute power over the communicative content (Poerksen, 2004; von Foerster, 2003). Systeming reifies the agency and power of the marketing systems. I maintain that meaning is not derived from a singular communicating act: rather meaning represents the network of linked communications. Hence, the marketing system-as-a-whole constructs meaning in emulative education. This means that not only the content of communication is co-constructed, but also the form of the system. Systeming observes the transfer of the form. Citizens can choose various distinctions, while they emulate very similar social forms of communication. It is seen in consumers learning how to observe in the system. Self-contradictory form construction and emulation that is observed in both SMC and SCC suggests that the particular (autopoietic) form of communication is commonly disseminated and adopted throughout the marketing system. In this case, sustainability becomes the matter of cultural and social education among generations within the dominant systems (Kilbourne et al., 1997). This means that sustainability is not simply learned through cognitive adaptation and semantic transfer of content. The essence of education is deeply rooted in processes through which people learn purposeful interacting. The important insight learned in systeming is that sustainability communication is not only delivery of the communicative content, but also the emulation of distinct *distinctioning*, i.e. the communicative form. Why should this insight be important? Let us consider the situation of manufacturers who purposefully expand self-sustainability which is depicted in their hypocritical acting, excessive semanticising, and amoralised operating. The labels I am using here – purposeful expansion, hypocritical acting, excessive semanticising, and amoralised operating – all indicate the roots of the same socially co-constructed pattern, the communicative form that underpins the social consequences of sustainability communication. As this form becomes widely emulated in society, one can see consumers (citizens) also increasingly repeating this form in their interaction. Hence, manufacturers should not be surprised to encounter such aberrations as consumer purposefulness and hypocrisy, i.e. expressing strong and genuine interest in sustainable products while failing to act according to their expressed

intentions. Manufacturers complain that green products are not widely accepted assuming that consumers do not want to compromise price, quality, and comforts for the vague sake of welfare for all. Systeming redirects the attention to the self. Are manufacturers themselves ready to compromise their profit maximising commercialism and opportunism? If not, how much could and should we expect from others? Neither manufacturers nor consumers are to be blamed for unsustainable communicative forms. It resembles the “who first: chicken or egg?” situation. Communicative forms emerge as a whole, as a social system.

Here, unlearning is as important as learning. The marketing system develops the ephemeral memory of distinctioning forms (Luhmann, 1995), which may regulate the cyclical implementation of these forms. However, the past patterns of (unsustainable) communication should be unlearned in order to transcend to new levels. The environment is dynamic, so the marketing system needs to become a dynamically changing system in order to enact new realities (Schaefer, 2005). When orthodox, dogmatic contents and forms are discarded easily, innovative communication replaces them.

Co-orientation between SMC and SCC. What is the nature of relations between marketers and consumers? The conventional thinking is that:

Consumers and marketers directly exchange messages as it is depicted in the conduit metaphor of communication.

This investigation explored the systemic ordering of the marketer and consumer domains to suggest that the relation between the marketer and consumer systems is that of an inter-systemic coordination. SMC and SCC rarely exchange information in a mechanical sense, rather they enact the view of the other within their respective processes. A similar idea is propounded by Thompson et al. (2006), who discuss the strategies of emotional branding and the construction of doppelganger brand images. Emotional branding is based on developing brand-related stories that resonate with consumer emotions, inspirations, lifestyles, and aspirations. The concept of a doppelganger brand image depicts the tendency of the autonomous development of brand stories among consumer groups. The

dictionary meaning of the doppelganger term refers to a ghostly twin of a person. In the case of marketing communication, it means the counter-reflection of the emotional branding story. Thompson et al. (2006) contest the traditional view on brand image co-creation, which is based on the idea of participative development of the marketer-managed set of positive stories and images about a brand. On the contrary, consumers independently create their own stories about brands, which are not quite favourable, and often portray very disparaging images. This corresponds with the view propagated in this thesis that SMC and SCC are the independently closed systems of communication that reflect each other according to their self-referentiality. The reflection of a brand image attains its bias in both systems, and the bias is the result of autopoietic operations. The same event may be reflected in contrasting ways according to the systemic meaning. For instance, the hybrid car represents a contextualised solution to the sustainability dilemma for manufacturers, while this technology becomes a means of playful identity-construction, differentiation, and value co-creation for consumers. Similarly, a drift develops between the offered value and the co-constructed value-in-use. Individual experiences are reflected in many different ways, and the systemic ordering of communication and meaning creation affects these reflections. Citizens develop accounts, self-reflections on their current situations in order to explain complex postmodern reality and derive meaning from the context according to communicational goals (Varey, 2005a). However, value-construction in this sense is not a completely autonomous individual accomplishment, rather it is situated in the larger context of the systems of meaning (Thompson, 1997; Thompson & Troester, 2002; Varey, 2005a). If an analytical focus is directed at the higher level of systemic operation, or alternatively, the agency attributed to entities is moved from individuals to systems (Cooren et al., 2005), it could be seen that it is the system that is directing and framing communicating and relating acts. Following this approach, the tendencies of drift and commonality among different value constructions can be observed.

The question thus arises whether the systems frame, coordinate, and co-orient value construction, so that sustainability becomes the common pursued purpose of system actors? I maintain that when even sustainability assumes the position of a main distinction, and thus a main purpose for systemic actors, its meaning goes

through substantial changes from system to system. Co-orientation happens when the systems (SMC and SCC) accept sustainability as a purpose: however, the drift occurs when this concept is existentially constructed in diverse ways. The holism of the concept cannot be retained in acting within the system. It is actualised in numerous fragmented actions. Communicative acts occur in various contexts, such as value delivery, corporate decisions, sustainable efficiency in the case of SMC and driving practices, value co-creation, identity construction, differentiation in the case of SCC. Consequently, sustainability assumes different contextual meanings. A person situates him/herself in a relevant context by changing his/her intentionality (Malle et al., 2001; Thompson et al., 1989). In this sense, citizens are very flexible in being able to direct their flow of actions by understanding systemic intricacies, while pursuing their identity-projects through maintaining possibilities and freedom to access any system of meanings. Coordination occurs when citizens voluntarily object to ethnocentric differentiation, which limits them to the context of the system. This allows them to transcend the othering activity. Communication that works toward *inclusion* is needed rather than communication guided by *seclusion* (Varey, 2005a). This is recognised by researchers in the field of relationship marketing, the tenets of which are conducive to developing an increasing rapport between marketers and consumers (Gronroos, 1996; Gummesson, 1999; Varey, 2002b). Fournier (1998) suggests investigating the holistic character of brand-consumer relationships, which are situated within the context of othered relationships. Fournier suggests that consumers invite marketers to participate in their living activities. Hence “consumers do not choose brands, they choose lives” (Fournier, 1998, p.367).

Contradiction. There seems to be some unease with conceptual contradictions in the research community that is driven by mechanistic sensitivity. It is thought that:

Marketing systems are rational and coherent. Paradoxes must either be removed or resolved or at least be explained in a logical manner.

However, contradicting is at the core of systemic operation (Jackson, 2005; Lewis, 2000; Luscher, Lewis, & Ingram, 2006). SMC and SCC expand on the

account of operations, which are directed at creating and employing the contradictory nature of communication. The marketing system achieves internal complexity by maximally straying away from the state of entropy, i.e. the paradoxical unity of all distinctions. Luhmann (1995) argues that contradictions portray the complex and chaotic character of social events, the recognition of which socially paralyses the actor and inhibits meaningful communication. His argument is that social systems come into being as the set of paradox-disguising operations. Contradictions are the result of the operation of recursive, self-referential, autopoietic systems (Bateson, 1979; Lewis, 2000; Luhmann, 1995; von Foerster, 2003). The trivial machines of linear cause-effect relations do not create logically contradictory states. When one emphasises a non-trivial unity as the object of study, contradictions and paradoxes need to be addressed (Lewis, 2000). Accordingly, the marketing system is a non-trivial entity; contradictions literally pervade all aspects of its operation. Contradictions and paradoxes are also observed in organisational operation (Lewis, 2000; Luscher et al., 2006), marketing communication (Berthon & Leyland, 2005; Budd Jr., 1990; Zinkhan, 2005), branding (Schultz, 2005), consumption (Giesler & Pohlmann, 2003; Rose & Wood, 2005; Thompson et al., 2006), and new product innovation and technology (Baker & Sinkula, 2005; Mick & Fournier, 1998).

Bateson (1979) contended that a systemic paradox stemmed from tautology. According to his view, complex systems were based on presuppositions that implicitly contained all the possible patterns of transformations. For instance, in the case of formalised axiomatic systems, initially proposed axioms framed all the possible theorems (Hofstadter, 1979). Transformations do not deliver new information, but restate already known facts in alternative forms. Tautological transformations create complexity, but when they collapse into succinct logical forms devoid of the hierarchical, temporal, functional, and transvective dimensions, they reveal the paradoxicality of communication (Bateson, 1979). The same trend can be observed in marketing systems. Social communication may transform into or/and reference other forms of social communication, while the natural environment does not participate in social interaction. Anthropocentric sustainability gets enacted in tautological communicative turns, while the natural environment plays the role of a silent reference (Porter, 2005; Rogers, 1994). If

the autopoietic marketing system is collapsed into a succinct logical form, its sustainability becomes equal to its unsustainability. For example, manufacturers construct their supposedly sustainable identity in the content of communication. In the content, their sustainability represents the management of self-unsustainability. This recursively indicates the implicit admittance of self-unsustainability by the distinction-makers. The “sustainable self” becomes the invention of unsustainable operators.

The analysis has shown that the hybrid car marketing system operates with binary values such as sustainable/unsustainable, emission/non-emission, recycling/non-recycling, fuel efficiency/inefficiency, hybrid driving/traditional driving and so on. Lewis (2000) argues that the formal logic and language operates through “polarising” a subject matter into distinctions, which are socially constructed in paradoxical cycles. Lewis offers some examples from organisational studies that investigate tensions arising from juxtaposing quality against cost, differentiation against integration, stability against change, and cohesion against division. Following a similar analytic move, Thompson et al. (2006) observe the paradox of communication created by Starbucks’s emotional branding strategies. The Starbucks’s strategy was directed to stressing the authentic qualities of the brand, the communication of which resulted in some consumers perceiving the brand to be inauthentic. The authors recognise the effect of the larger context of meanings, which mediate consumer experiences of coffee connoisseurship and bar patronage. As the doppelganger images of the brand proliferate, the more communication of authenticity on the part of the company leads negatively biased consumers to become more convinced of the brand inauthenticity. This may be because of the tension in communication between the company that stresses commercialism and the consumer who distrusts commercial sensitivities as opposed to coffee-drinking as art (Kozinets, 1998b; Thompson et al., 2006). The company operations hierarchically and temporally disguise this original authentic-inauthentic paradox through employment of emotional branding and other strategies: however, the communicative veneer activated by these actions has eliminated competing doppelganger brand images. Systeming suggests that in such situations the company should drop the distinction, the paradox of which is revealed (Poerksen, 2004). For instance, the traditional thinking is that

corporations must aggressively communicate the reasons why they must be considered socially responsible and sustainable. This idea is rooted in convictions that the information exchange between manufacturers and consumers is linear. However, consumer systems may develop their own perspective to life issues. Therefore, the aggressive promotion of “self-sustainability” by corporations that are originally perceived to be unsustainable by consumers might not help the cause. In this sense, the distinction is brought again and again into the intentionality space of consumers, who find more and more reasons to communicate about the unsustainability aspects of corporation. Therefore, sometimes it is better to drop the distinction rather than aggressively promote it.

Paradoxes could be of many forms. The paradoxes of learning, organising, and belonging are distinguished (Jackson, 2005; Lewis, 2000; Luscher et al., 2006). The paradox of learning arises when system actors fail to unlearn old distinctions and keep enforcing them in the face of the new environmental changes (Lewis, 2000). Regarding this investigation, the learning paradox is closely related to the observed patterns of ignorance about the natural environment being the condition of attaining the self-referential status of sustainability. In SMC, recurring distinctions become entrenched as managerial frames and legitimised routines (Hamel & Prahalad, 1994), whereas in SCC these are represented by hybrid car driving habits. The more entrenched this kind of dogmatic distinctioning is, the wider is the divergence between the content and the form of communication. When the content keeps circulating the same distinctions, the form of the marketing system becomes disattached from the self-selected logic, thus dealing only with the internal complexity while the external complexity enactment is kept at a minimum. The paradox of organising occurs when the semantics and pragmatics of acting within the system convey contradictory messages (Lewis, 2000). In SMC, the organising paradox happens when the sustainability distinctions are diffused throughout all organisations along the transvective chain, while the outputs of the system do not keep up with claims communicated. This is seen in a case of failing to reduce the total volume of emissions, failing to increase fuel efficiency in absolute terms for all vehicles produced, and also in the fact that the system keeps widening the fuel efficiency gap by offering both efficient and inefficient vehicle versions. Further, as noted by researchers, environmental

claims on packages tend to appeal rhetorically rather than substantively (Kangun & Polonsky, 1995). The paradox of belonging depicts othering operations, which dissect citizens into distinct camps and groups (Lewis, 2000; Porter, 2005). In SCC, it is seen in “vulgar” ethnocentric practices such as tribalism and stereotyping (Hunt, 1993; Jones, 1999; Muniz Jr. & O’Guinn, 2001; Tajfel, 1981). Even at the general level, claiming to be “environmentally concerned” creates the alienation of certain groups, who would not want to identify themselves with environmentalists. The paradox of sustainability communication is that it strengthens and consolidates the identities of othered parties.

Complex problems and fragmentalisation. The problem of sustainability and the sustainable mobility is not a trivial one. It is a complex social problem. Lindblom (1959) argued that complex social problems cannot be solved by adhering to traditional assumptions that a) analysis values and problem-solving objectives must be clarified in advance; b) the ends are separated from means, and the best means to solve the ends are selected; c) “good” policy represents the best means to a desired end; d) all important factors can be accounted for; and e) universal theory is indispensable. In contrast, Lindblom advocated *disjointed incrementalism* that suggested that values and objectives were interlinked and not easily clarifiable, ends and means were not separable, the best policy was incremental acting, important factors were ignored or impossible to account for, and incremental comparisons replaced universal theories. Lindblom argued that complex problems were dealt with through fragmental actions. The holism, a unity of all values and preferences, was not achieved: instead, people adjusted the ends to available means, and *vice versa*. Comparably, societal sustainable development is a complex and holistic problem (Schaefer & Crane, 2005). Society solves this highly complex problem by observing the self from the particular points of observation. This means that citizens are unable to understand sustainability in its holism, but only through its fractional enactments in different systems. In this sense, copying Maturana and Varela (1992), who said that “anything said is said by an observer”, this thesis argues that *anything constructed about the sustainability of the marketing system is constructed by a specific system*, be it SMC, SCC, or other marketing systems. The sustainability of the systems cannot be evaluated and assessed objectively. This problem must be

resolved from within each communicative system. This pattern is comparable to the abstractness of the concept of marketing (Brown et al., 1996; Sheth et al., 1988). Complex, abstract, transcendent concepts serve as a basis for fragmentalised actions. Brown et al. (1996) edited a number of marketing literatures that argued that marketing became a general umbrella concept for a wide variety of conflicting approaches in business. For instance, some central concepts such as “4Ps” and “consumer satisfaction” were shown to be far from being viable (Brown & Maclaran, 1996; Brownlie & Saren, 1992; McDonagh & Prothero, 1996), despite these concepts representing the fundamental premises of managerial marketing research. The point was that the marketing concept simply became a useful holistic construction that could mechanistically be applied to a variety of complex situations in order to reduce them into a meaningful pattern. The general theory of marketing is impossible (Sheth et al., 1988), and this creates a great deal of opportunities to use it as an explanatory tool. I argue that conceptual nebulosity creates a system on its own. Corporate operations proliferate and attain meaning by reifying this unique system that is built on the differentiation between the market orientation and other perspectives (Kohli & Jaworski, 1990; Narver & Slater, 1990).

Discussion of Methodological Similarities and Differences

This part of the section highlights the differences and similarities between the systeming interpretations and those of other interpretative methods available to marketing researchers. Specifically, systeming is compared to the mechanistic systems logic, the means-end analysis, the voice of customer approach, ethnography, and the hermeneutical framework.

Comparison to the mechanistic systems logic. This investigation shows that the hybrid car and its attributes attain differentiated meanings depending on contexts in which these attributes are enacted. Sustainability is rooted in purposeful human interactions rather than in the substantive features of goods. In contrast to systeming, the mechanistic systems logic emphasises the system as the collection of substantive elements, e.g. individuals, organisations, and products (Alderson, 1964; Dixon, 1991; Dixon & Wilkinson, 1982; Layton, 1981a, 1981b; Wilkie & Moore, 1999). According to this perspective, sustainability is attained when these

elements project “green” characteristics (Connolly & Prothero, 2003; Hart & Milstein, 2003; Kilbourne et al., 1997). Sustainability is thus reduced to the creation and offer of sustainable attributes in products and services, and the acceptance of these attributes by consumers. For example, the fuel efficiency of the hybrid car is one such differentiating attribute. The systeming investigation demonstrates that the hybrid car’s fuel efficiency has different meanings depending on the contexts and domains it is invoked in. Manufacturers activate this feature as the natural result of their unsustainable operations, whereas consumers co-create its various meanings in social relating. This fact is linked to a more fundamental epistemological issue of *dualism*. The mechanistic approach sees fuel efficiency as the manifestation of an ontological existent, whereas systeming maintains that this attribute is purposefully constructed within the relevant systemic communications. For instance, the hybrid car marketing system becomes more sustainable in two cases: 1) it inputs fewer natural resources while the valued output stays the same or is increased; and 2) at the same level of input the negative externality of operating is reduced. This investigation shows that a) this input-output logic is not sensitive to the system’s holistic effects on other systems; b) non-systemic types of efficiencies/waste are not observed; and c) the emphasis on quantity may lead to self-contradicting, as a sustainability “success” in terms of an absolute quantity only becomes achievable when there exists a substantial sustainability failure.

The mechanistic approach stresses *temporal* development. The assumption is that quantified material changes progressively add up to the state of sustainability along a time continuum. In this case one can speak about less or more sustainability. For example, the hybrid car marketing system develops its unique map of temporal development. Observed communications create a picture that society is slowly moving up the ladder of sustainable marketing. In contrast, systeming observes *time-continuum construction* in the system. From this perspective, unique meaning-creation happens at each moment of time. Hence, this view shows that sustainability is not achieved by incremental progress, but at each time of the present.

The mechanistic approach is driven to eliminate paradoxes and self-contradictions. Mechanistic models symbolise an order. Complexity symptoms, e.g. illogicality, meaninglessness, and contradictions, are removed from within the boundaries of the marketing system. The marketing system expands by extinguishing contradictions, thus projecting its image in a simple mechanistic form. As researchers operate from within the particular marketing system logic, their view of world approximates a paradox-free mechanism. Systeming takes into account the contradictory nature of systemic meanings. It is suggested that marketing systems can sustain their autopoiesis if they successfully deal with self-contradiction in their agents' behaviour.

Comparison to the laddering (means-end chains) analysis. Meaning is derived from textual data in many different ways (Thompson, 1997). One of them is the *laddering* or *means-end chains* method (Botschen & Thelen, 1999; Gutman, 1982; Overby, Gardial, & Woodruff, 2004; Woodruff, 1997). The laddering analysis is based on the cognitive model of means-end chains, which assumes that an action (e.g. choosing a product) is associated with personal perceived consequences that are instrumental in realising a particular consumer value. From this perspective, consumers form associative links between product attributes (means), consumption consequences in consumption situations, and desired end states (Overby et al., 2004). The interpretation of textual data is based on the metaphor of climbing a conceptual ladder up and down, i.e. attributes-consequences-values and *vice versa*, to reveal meanings of preference actions. For example, various combinations of interpretation are possible for the hybrid car under this schema. Depending on the combinations of end-states (e.g. ecological concern, patriotism, ethnocentrism, moral domination, play), consequences (e.g. good mileage, less emission, less fuel waste, esteem, unique status, fun) and attributes (e.g. fuel efficiency, sleek design, hybrid technology), a researcher may come up with different interpretations in a variety of consumption contexts. This method could equally be used in the context of manufacturer relations. Accordingly, this method would link the issue of the sustainable marketing system into the problem of education about value-attribute linkages. Sustainability is attained when actors recognise sustainable values, become aware of personal consequences which lead to these values, and accrue these consequences from product attributes. This

model is comparable to the form of communication, because values represent systemic character, as they arise via interaction among individuals. If individual choice acts represent “patterns”, then consumer values are the “pattern of patterns” (Bateson, 1979). In other words, if actions are communication, values are mega-communication (Hofstadter, 1979). The means-end model recognises the effect of meaningful systems on choice behaviour. However, the model is based on the logical typing error that connects micro to macro on the basis of a “dormitive” principle (Hofstadter, 1979). Drawing argumentation comparable to the discussion of the causal “vehicles” by Wittgenstein (1963), Bateson (1979) defines a "dormitive" principle as accounting that explains the complexity of relations by a means of invoking unobservable "qualities" in individuals. Similarly, the means-end chains model attempts to build explanation through reference to the mechanisms of individual consciousness, the essence of which is not readily observable. The logical switch from individual to social is implicit in this model. Bateson (1979) contended that value (e.g. pride, aggressiveness) occurred in the context of interactions, not within individuals:

Only if you hold tight to the primacy and priority of relationship can you avoid dormitive explanations. The opium does not contain a dormitive principle, and the man does not contain an aggressive instinct. The New Guinea material and much that has come later, taught me that I will get nowhere by explaining prideful behavior, for example, by referring to an individual's "pride." Nor can you explain aggression by referring to instinctive (or even learned) "aggressiveness." Such an explanation, which shifts attention from the interpersonal field to a factitious inner tendency, principle, instinct, or whatnot, is, I suggest, a very great nonsense which only hides the real questions. (Bateson, 1979, p.133)

In contrast, this investigation considers *sustainable/unsustainable* to be the pattern (form) of communication that is different from the other forms of marketing systems rather than equating them to individual characteristics. The suggestion is that the problem of identifying how sustainable the marketing system is needs to be solved by examining how distinctions are created, employed, and observed in different contexts.

Another point of systeming critique is that means and ends are not easily separable. They arise as a dynamic whole pattern, linked to each other. Values are

not a given, so that one can choose a means to attain them: rather values are actively constructed in interaction within various contexts. This means that means-ends dynamics are cyclical, i.e. ends presuppose means, whereas means construct ends. This has been observed in the purposeful behaviour of the hybrid car marketing system actors.

Comparison to the voice of the customer approach. The “voice of the customer” approach is a part of the Quality Function Deployment technique that is used in a total-quality-management process in organisations (Griffin & Hauser, 1993). The purpose of the approach is to deploy *the voice of customers*, i.e. customer preferences and expectations, within the operational contexts of communication and cooperation between organisational departments such as manufacturing, marketing, R&D, and engineering. This is comparable to the objective of establishing the overall marketing orientation in organisations (Kohli & Jaworski, 1990; Narver & Slater, 1990). For this purpose, customer needs are identified and derived from their product and experience descriptions (Griffin & Hauser, 1993). It is assumed that customer needs and values can be directly understood via employment of diagnostic and projective techniques. In systeming, the problem of defining customer needs on the part of marketers is the matter of inter-systemic enactment. The present investigation indicates that customer needs are complex, and the meanings of value are variable, while value actualisations are temporally contextualised. So, which contextualised version of the “customer voice” should the company react to? The laboratory experiment or the focus group can only help to derive “needs” merely co-constructed in these lab and focus group contexts. Could there be some doubt about the relevance of non-“in situ” knowledge creation? Bateson (1979) warns that a map is not the territory. Systeming re-directs attention to both the enactment and the context of the enactment. Following this perspective, the hybrid car is observed as serving various groups’ needs in various contexts. For example, hybrid car driving is found to cater for utilitarian needs in the context of achieving fuel efficiency, hedonistic needs in the context of play, aesthetic needs in the context of technology appreciation, self-esteem needs in the context of ecological concern, and so on. In the same way, the hybrid car may manifest value delivery, corporate responsibility, sustainable efficiency, and communication in SMC. The combination of contexts would allow

the interpreter to develop a great number of complex scenarios of customer needs deployment. Inter-departmental relationships would be built on the view of the relevant contextual need in the light of internal cooperation specifics. Thus, the simplistic reduction of complexity into a single scenario can be avoided.

Comparison to ethnographic interpretations. Ethnography in reference to marketing could be in two forms: ethnographies of marketing and market-related ethnography (Arnould & Wallendorf, 1994). Arnould and Wallendorf define *ethnographies of marketing* as a study of “people in organizations carrying out the activities of marketing management: planning, product development, and strategy execution, sales activity, and service delivery” (p.484). *Market-related ethnography* focuses on the consumption side of the marketing system in order to explore behaviours of consumers, who constitute certain product/service segments, micro-cultures, or communities (Arnould & Wallendorf, 1994). In this way, both the supply and consumption sides of the marketing system can be analysed by a means of ethnographic methods.

The similarities and differences between systeming and the ethnographic traditions are several. First, both perspectives seek to reveal operations of general meaning-creation systems. In this regard, systeming focuses on more abstract levels of communication, while the ethnographic traditions are limited to cultural beliefs and behaviours. This difference is due to a difference in purpose: the ethnographies of marketing and the market-related ethnography are driven to serve and facilitate the micro-managerial goals of marketing strategy formulation, while systeming is driven to draw both the macro- and micro-level implications of marketing system operations. For example, following systeming, the sustainable marketing system emerges in the contextual variation and calibration of meanings created through systemic communications. The communicative harmony, meaning synergies, and coorientation between SMC and SCC which operate as purposeful systems are observed in the context of a societal sustainable progress. In contrast, ethnographic research attributes agency to individuals in meaning-creation, while observing discrepancies in differentiation, contradiction, and expansion. The individual is a unit of analysis for ethnographic research, while culture is inferred from commonalities discovered among individual behaviours. SMC and SCC

would be treated as separate cultural domains, while their interactive and co-creative nature may not be studied. Second, both perspectives are essentially based on interpretation of textual data. However, the ethnographic investigation differentiates between participant/non-participant observation and verbal reports. The emphasis here is that direct observation may enable objective descriptions, while subjective descriptions from informant verbal reports can then be compared to them. Implicit here is the fact that all information is transformed into a textual form first, and then used for interpretation. For example, observations are made as field notes, while photographic/video materials are turned into narratives. Systeming recognises this caveat by approaching any description as the ordered reduction of complexity, while complexity, even if observed, cannot be conveyed in its holism through communication. For example, in ethnographic research the divergent individual meanings of sustainability and the value of hybrid cars may be observed in themes such as overgeneralisations, cultural glosses, and idiosyncrasy claims, which are thought to give rise to irrational meanings (Arnould & Wallendorf, 1994). Then these variations are compared to the supposedly “real” and “objective” meaning, which is given preference on the part of researchers. The ethnographic research may thus reveal the inability, weakness, and irrationality of informants in enacting the single, preferred, and objective meaning of sustainability. In contrast, systeming indicates that all meanings of sustainability and the value (including formal and objective values) are enacted within particular systems of communication. The distinction of irrational/real meanings is the operation of ethnographic observers, but not that of systeming. Sustainability does not have a single objective meaning, but diverse content and form enactments in different systems. Third, both perspectives probe for the meanings of cultural (systemic) actions that arise from different contexts. However, divergent meanings are the operations of certain individuals in the ethnographic studies, while systeming emphasises the meaning arising in the context of interactive communicative acts, where individuals cease to exist as autonomous unities, but represent constellations of communications. Ethnography observes people within real, situated, material contexts, while systeming observes contexts and forms which are temporally, virtually created through communicative acts. Sustainability within the material contexts would require the image of real people using/wasting tangible resources in various manners. In

contrast, in communicative contexts, the sustainability is made meaningful through difference, distinction, contradiction, and expansion. So, the insights generated by two perspectives on the same phenomenon may differ considerably. Fourth, both perspectives focus on social/cultural events as opposed to cognitive patterns of communication. In this regard, Arnould and Wallendorf (1994) state that “ethnography aims to explicate patterns of action that are cultural and/or social rather than cognitive” (p.485). The difference may arise from presuppositions. When ethnographers bring attention to the delineation between cultural and cognitive, they mean the distinction between individual qualities of acting (can be observed) and thinking (cannot be observed, but can be accessed through verbal reports). In contrast, systeming differentiates between the system of communication and the system of psychic processes, i.e. social versus psychic systems (Husserl, 1970; Luhmann, 1995; Thompson et al., 1989). Textual data or verbal accounts are considered communication, and thus, social rather than individual. Researchers can infer individual psychic system processes by looking at changes in communication (Thompson et al., 1989; Thompson et al., 1990). The logical typing error occurs when one links individual psychic operations to social communications. In contrast, systeming focuses on social processes, while consciousness is considered to be a part of complexity. Ethnography would reveal differences between what people “say” and what they “do” in regard to ecological and social issues. Systeming suggests that both saying and doing is communicating, but they might be different because a) these utterances reflect different categories of information; for example, organisations may claim to be sustainable in terms of managing/ignoring harmful emissions, while still increasing the amount of total generated emissions which seems to be guided by the distinction of expansion/contraction of business; b) these communicative acts may be observed by different systems; for instance, a consumer may often discuss, calculate, and report fuel efficiency, the fact of which is viewed as rationalistic behaviour by SMC, while the same acts may be viewed as the enrichment (playfulness) of actions in SCC; c) saying and doing exhibit respectively the content and the form of communication; a hybrid driver says that he is reducing his emissions and fuel spending, while his actions create imbalance in the flow of traffic, which may increase total fuel consumption for the cars in these traffic situations; d) these communicative acts become the elements of

paradoxes; for example, consumers may express green identity, while this ethnocentric differentiation promotes, legitimises, and strengthens non-green identities; and e) meanings are enacted in expectation of divergent understanding and continuation; one may utter doubts about fuel efficiency and other attributes of hybrid cars, while this action is simply for the purpose of continuation of communication and positive reinforcement.

The key to accomplishing ethnographic interpretation is the difference between emic and etic descriptions (Arnould & Wallendorf, 1994). The ethnographies of marketing analyse emic interpretations offered by organisation personnel in the light of the formal rules and codes of behaviour. The market-related ethnography also focuses on emic descriptions endeavouring to make systematic connections between emic views to construct the plausible and credible etic description of a situation (Arnould & Wallendorf, 1994). From this perspective, the verbal understandings of and “accountings” (Varey, 2005a) about sustainability among both marketers and consumers compose the core of emic descriptions, while the direct observation of actions by researchers constructs an etic explanation. According to systeming, both linguistic narratives and actions are communications which are the product of systems-in-operation. The key question would be to ask who the observer is. There are neither emic nor etic explanations, but different enactments by the systems. Systeming maintains that there is no dominant, objective, realistic understanding of sustainability, but all understandings are equal, and they are operated by different systems.

Comparison to hermeneutical interpretations. The hermeneutic framework for interpreting consumer stories and identity narratives has been suggested by Thompson (1997). The hermeneutic framework is based on the narratological/hermeneutic model of meaning. This model assumes that consumers construct personal histories as a narration. It is assumed that consumption life-events acquire meaning within the broader narrative of self-identity. In turn, the personal histories as a text become actualised in the context of broader cultural meanings and beliefs. Consumers develop the “personalized cultural frames of reference” in order to be able to coordinate story-telling within the broader context of cultural experiences (Thompson, 1997, p. 440). Thompson recognises the recursive nature

of meaning construction – dialogical relationships – through which the interpreted stories become the part of a personal history, while the personal history as a text determines the meaning of life events. This recursiveness is referred to as an “experiential gestalt”, which comes forth in various forms within the general cultural background of “historically established meanings” (Thompson, 1997, p. 440). The hermeneutic interpretation develops the multilayered view of consumer stories. Several aspects of consumer stories are scrutinised. These aspects are plot lines, symbolic meaning of actions, personal history, existential themes, and socio-historic contexts. The relevant aspect of the hermeneutic perspective to systeming is its emphasis on positioning consumer’s (self)observations within a bigger system of socio-cultural meanings. Accordingly, the stories and narratives of hybrid drivers would be taken as personalised manifestations of the encompassing socio-historical system (Thompson, 1997), rather than systemic communication *per se*. Thompson also suggests that the system is thought to be constructed of meanings, which are incorporated into a “collective cultural memory” of society (p.449). This parallels the notion of the distinctions depository of social systems. Also, the hermeneutical approach supports the systeming concept that meaning construction is an interactive, social phenomenon, which cannot simply be attributed to human consciousness, while suggesting ways to connect individual identity narratives to the process of cultural meaning formation. Following this perspective, the sustainability narratives of hybrid car drivers would be seen as phenomenological reductions constructed peculiarly through the mental operations of consumers, which may interactively constitute and draw on the background of cultural beliefs and meanings. Consequently, the meaning of sustainability would arise within consumer life experiences in respect to the enactment of the socio-historical development of relevant discourses.

The hermeneutical framework is trapped in an ongoing struggle to explain how individuals “contain” a social concern for welfare and sustainability. If the meta-level of the system is taken as a direct aggregation of individual cognitive operations, the analysis of localised mental phenomena may simply fail to represent social transformations. Systeming resolves this problem by reversing the point of emphasis: narrative and stories are communicated by observers (systems),

rather than individuals. Thus, a macro-micro transition is kept at a minimum, while only macro differences are observed. Consequently, sustainability is not studied as the socio-historical evolution of meaning; rather it is viewed as the current operation of a system that differentiates this meaning in reference to other systemic meanings. Systeming proposes interpretations in order to shed light on the problem of positioning a sustainability enactment among other enactments, which is different to linking the individual cognitive vision of sustainability to the social system of sustainability meanings. This discussion points to two alternative meanings of sustainable consumption and production: a) the hermeneutical framework takes the micro-view through equating a sustainable action to a cognitive phenomenological operation; and b) systeming takes a macro-view by equating a sustainable action to systemic observation and operation. Hence, there is a substantial difference in the interpretations.

For instance, how would these perspectives explain widespread consumer apathy toward green and ecological product choices? Foremost, both perspectives would dismiss rational bases of choice mechanisms. The hermeneutical interpretation would link the consumer's choice to his/her conscious life-world construction patterns, which are underlined by ongoing structuring of the narrative of personal history (Thompson, 1997). This perspective explains that the hybrid car or a "green" product/service is selected depending on its symbolic significance in the personal history narrative of the individual. It would not be selected, if the person were to think that the product/service were not instrumental in actualising the "regret-free future" that is built in consciousness via structuring history narratives (Thompson, 1997, p.445). For the consumer, the regret-free future would mean that he/she is a balanced and coherent person in terms of market actions. Hence, hermeneutics explains the essence of market action through personalised life-meanings which may be unique to a particular consumer. Also, Thompson notices "chains of symbolic associations" which link the consumer's narratives to each other (p.444). In contrast, systeming observes symbolic associations (I call them social forms or the form of communication) among narratives which transcend a consumer's consciousness. Systeming interpretations probe interactive (social) mechanisms of consumer choice, rather than singular cognitive mechanisms. Hence, apathy toward the green product/service is observed as a social form that

is the emergent aspect of interaction between marketers, consumers, and other parties. The consumer fails to make a “green” choice, because he/she is simply unable to project the understanding (continuing) of a required communicative form. The “green choice” may not exist in a reduced form to be emulated in action that is interactively meaningful in the marketing system. In society, the communicative forms such as purposefulness, ethnocentrism, individualism, or economic benefit-maximisation are predominant. Therefore, abandoning these non-green forms in the context of marketing systems may seem to be too complex, and thus, meaningless for the consumer in his/her interaction with others. Complexity paralyses the action. In the same vein, unwise is a manufacturer’s attitude when it enacts sustainability in terms of profits and commercialism, while pushing the ecological (welfare for all) benefits of products/services in the market which require the consumer’s heresy towards these very forms of commercialism? Consumers are marketers too, who are driven by the identical practices and sensitivities which shape the common marketing system.

Discussion of Conceptual Issues

Meaningscape. Where does the systeming view of a sustainable marketing system fit within the theory of marketing systems? Traditional research observes marketing systems in terms of flows. For instance, Fisk (1967) showed that a marketing system comprises the set of substantive functions such as the flows of ownership, possession, finance, risk, and information. Traditionally, marketing systems as complex organisations are defined in terms of a structure and operations, which are thought to have an independent ontological existence (Dixon, 1991; Dixon & Wilkinson, 1982). In contrast, non-orthodox literature takes organisation, and especially, systems, as flows of communications, discourses, narratives, and interactive networks (Bouchikhi, 1998; Cooren et al., 2005; Czarniawska-Joerges, 1998; Luhmann, 2004; Seidl & Becker, 2006; Smircich & Calás, 1995). The text-based view of systems is propounded by the Montréal School of Management Communication, according to which, communication is a form of organising (Cooren et al., 2005). In line with this, Porter (2005) indicates that a corporate sustainability identity is constructed via discursive formulation of corporate responsibility issues. He thinks that the

process is based on sustainability discourses involving all stakeholders. Similarly, researchers investigating the consumer side of the marketing system report a “linguistic turn” in apprehending consumer culture and experiences (Arnold & Fischer, 1994; Arnould & Thompson, 2005; Thompson et al., 1989). Most importantly, these researchers do not suggest that text and/or narrative is the world *per se*, but they point out that language has a strong performative power, through which individual life-worlds are organised. In this thesis, communications observed are expressed in languaging operations and they do not represent a message exchange in a mechanical conduit sense (Varey, 2004; Varey & Ballantyne, 2005). Instead, I observe how communicative acts create multilayer contexts of social forms.

Systeming re-focuses attention on the form of *meaning transformations* that is different to the locus of physical transformations. This is the main conceptual contribution of this investigation. Layton (2006, 2007) observed diverse physical variations of marketing systems, which can be in various shapes and structures depending on the national, geographical, cultural, and socio-historical contexts. His main interest was to explore the general characteristics of the different forms of marketing systems, which did not fluctuate from one system to another. The conclusion was that the commonality was not easily found. However, Layton imagines that the physical forms might be contained in the broader domain of meanings, and especially, the interplay of meaning transformations that are imperative in the formation of systems. Although the systeming view developed in this thesis makes no claim of generality, it may shed significant light to that “more general” mechanism of the marketing system’s meaningful operations. Certainly, only a rich fusion of the physical and meaning(s) domains can create the so complex phenomenon called *marketing systems* (Penalosa & Venkatesh, 2006). In the marketing discipline, there are several seminal works which have explored the symbolic aspect of consumption and marketing, e.g. Levy (1959; 1981), Stern (1995; 1996), and Thompson (1997; 1989; 1990). However, the research on symbolic aspects of markets was fragmentary in terms of understanding underlying marketing systems dynamics. In macromarketing, there is no known research on the meanings dimension of marketing systems. In this

sense, this investigation is unique, although it is largely based on the contributions of key marketing systems researchers.

However, there are many cases in history where a particular meaning of a product rather than its physical attributes has driven the rise and collapse of marketing systems. In *Connected Marketing*, Marsden (2006a) describes how the tulips craze has developed and created a marketing system in medieval Dutch society. People had come to believe that tulips had magical powers. The product had soon become the symbol of status and richness. The expansion of this meaning had brought the apex of the system where a Viceroy tulip bulb was sold for “the equivalent of US\$ 40 000: four tons of wheat, eight tons of rye, one bed, four oxen, eight pigs, 12 sheep, one suit of clothes, two casks of wine, four tons of beer, two tons of butter, 1000 pounds of cheese and one silver drinking cup” (p. xvi). The tulipmania had continued just for few years. The collapse of the marketing system was as fast as its expansion. The shift in meaning that tulips were devoid of magic has perpetuated the Great Tulip Crash in 1637. Netherlands as a nation has lost big fortune in this business, become unable to defend its remote settlements, and had to yield New Amsterdam to British forces. This place was renamed to New York.

Another example is the case of Post-it Notes by 3M, which clearly demonstrates the importance of meaning-in-action that is created through communicative interaction. Marsden (2006b) retells the story of Post-it Notes. He recounts that regardless of the active effort by Art Fry, the brand champion, the concept was initially considered a failure based on the results of lab-tests and limited market launch tests. The success came when the company identified the secretaries of CEOs of major companies across USA as a “seeding trial” market (p. 3), sent them the product, and asked them to come up with ideas about possible brand usages. The secretaries created a marketing system on its own: they have become the pioneers of new habits which took Post-it Notes as a basis. Marsden (2006) explains the effect via the Hawthorne effect and the Law of Few. The Hawthorne effect implies that a person who is approached for an advice or involvement feels “valued, special, and important” (p.6) and then becomes a strong advocate of the cause. The Law of Few postulates that few customers drive the opinion of the majority (Marsden, 2006). Both effects were observed in the hybrid car marketing

system. This once again supports the idea that products are not meaningful in their inherent qualities, but their meaning must be constructed purposefully in interaction.

Another distinct feature of this investigation is the integration of the meanings aspect of marketing systems and the concept of sustainability. Researchers argued that the concept of marketing systems as a *flow of goods and exchanges* was insensitive and restrictive toward sustainable development prerogatives (Ballantyne & Varey, 2006; Vargo & Lusch, 2004). This concern has called for an alternative way of thinking about marketing. The present investigation attempts to resolve this conceptual deficiency. Systeming provides some insights into reconciling the marketing system and society. Hence, the marketing system as a locus of meanings integrates system participants in their operations of meaningfully valuing goods-in-use. Marketing system actors negotiate sustainable existence, as “goods produced which are not valued-in-use create waste” (Ballantyne & Varey, 2006, p.345). The meaningscape model of marketing systems sheds light into the mechanisms of meaning co-creation in the context of service (hybrid cars as the paragons of sustainable mobility)-dominant logic (Vargo & Lusch, 2004).

Marketing system and society. The traditional conceptualisations see a marketing system and society to be separate unities (Hunt, 1981). Systeming suggests that there is no divergence in a literal sense (Sheth & Sisodia, 2005), but a convergence. The hybrid car marketing system is one of many manifestations of a societal form. Society does not emerge separately from the marketing system. It is mirrored in the operations of the marketing system. The hybrid car marketing system becomes a life-issue (world) for system actors when they operate within it. Some researchers argue that society is not mono-contextual, but poly-contextual (Gunther, 2004, February). Contextuality represents a societal context, in which a *tertium non datur* (no golden mean) distinction is applied. The mono-contextual society is considered “being” (in reference to non-being), where, for example, a negative marketing action causes problems for other social actors. However, the poly-contextuality implies many meaning contextures, which are referentially closed in themselves. In this case, a negative/positive marketing action can only

be seen as a process of becoming. Similarly, the hybrid car marketing system is built upon the sustainable/unsustainable distinction, and the process of distinctioning may indicate the ethnocentric (negative) side of cultural becoming. Hence, systeming reveals inadequacies in causal reasoning, where an individual is accepted to be responsible for some “causes” that bring about unsustainability. In contrast, the view of the system, which consists of communications, but not of personal consciousness, implies that negative (positive) communications are the interactive result of action by many parties co-creating a common reality. Unsustainable action should not be taken as the inherent characteristic of a particular type of people. The unsustainable communications may be communicated by any agent participating in the marketing system, and the responsibility for the consequence of certain actions does not exclusively lie within the capability of these people. Traditionally, to direct a public policy, a cause is identified, and then a responsible party is found and convicted as guilty, while this action ignores *non-causes*, i.e. other parties considered as not responsible, and thereby innocent (Luhmann, 1989). However, it is unjust to fix a certain identity (for example, an unsustainable individual/organisation) to an individual. The individual is not *bad per se*, only his/her activities may lead to undesirable consequences. This view recognises the potential to change, and thus provides individuals with an opportunity to rectify their communications. Otherwise, inherently *bad* individuals may become stripped of this ability simply by definition. For example, some researchers consider consumers as being the sole responsible party for unsustainable situations (Heiskanen & Pantzar, 1997). I suggest that interactively constructed consumption and production communications need to be researched in a holistic manner in order to identify solutions to the pressing problems. Furthermore, focusing on only one party (identity) would decontextualise activities from interactive interdependencies built within marketing systems, and in this way this would transform a macro-problem into a micro-manipulation (Dolan, 2002). This investigation is a step toward arguing that the marketing system is not separable from society. Communication is social, therefore it leads to consideration of interpersonal ethics, i.e. the sustainability of its social form (Varey, 2002a). For instance, Maturana and Varela (1992) stress the ethical bases of communicative interactions that underlie cultural links among human generations:

Every human act takes place in language. Every act in language brings forth a world created with others in the act of coexistence which gives rise to what is human. Thus every human act has an ethical meaning because it is an act of constitution of the human world. This linkage of human to human is...the ground-work of all ethics as a reflection on the legitimacy of the presence of others. (p. 247)

A human being in the context of marketing systems is not a given entity. He/she constructs him/herself in relation to others. Relations, and also the relation of these relations construct social systems, including marketing systems. Marketing system actor's identity is ethical, because it involves *relating* to others.

Future of the marketing system. The key conceptual issue regarding marketing systems operation is to identify what kind of reform is needed to make marketing more sustainable in the future (Brown et al., 1996; Brownlie & Saren, 1992; Holbrook & Hullbert, 2002; Hullbert, 1998; Kitchen, 2003; McDonagh & Prothero, 1996; Sheth & Sisodia, 2006). Systeming shows that focusing on less/more production or consumption is too mechanical. Neither is it about reducing purposefully defined "harmful" substances. Reform must be located in the domain of meanings, interpersonal communications, and social relations. This is the reform of individual ethics of social relating. The reform must start from within each individual as a self-correction and introspection. It may seem that this maxim contradicts that idea that discrete individuals in their salient roles are not to blame for unsustainable behaviour. However, this idea is valid when one is considering the other. The other is not to be reviled, while the self and its operations must be reexamined. Self-correction invites self-correction in others, and this social form diffuses to actualise the reform.

Implications

Conceptual Implications

Marketing systems, Service-dominant Logic, and Consumer Culture Theory. The developed systeming vision of the sustainable marketing system offers some advantages in integrating a number of important macro-marketing theories,

namely those of marketing systems, the service-dominant logic, and consumer culture (Arnould & Thompson, 2005; Layton, 2006; Vargo & Lusch, 2004). In other words, the contribution of this work is to integrate the concept of marketing systems with the conceptualisation of the service-dominant (S-D) logic of marketing (Vargo & Lusch, 2004) and Consumer Culture Theory (CCT) (Arnould & Thompson, 2005). There are several points at which these perspectives converge.

First, the meaningscape dimension of marketing systems corresponds to the S-D logic's third premise: "goods are distribution mechanisms for service provision" (Vargo & Lusch, 2004, p.8). In a similar vein, CCT has long propounded the view that consumers do not buy objects, rather their meaningful application in various life contexts (Arnould, 2006; Levy, 1959; Thompson et al., 1990). Second, the description of the transvectional diffusion of communications in the system echoes the arguments for the premise "knowledge is the fundamental source of competitive advantage" (Vargo & Lusch, 2004, p.9). According to this premise, a value chain (transvection) not only includes the flows of material goods, but also those of information. Information is taken to be equal to culturally situated understandings in particular relational contexts (Arnould, 2006; Hudson & Ozanne, 1988; Thompson & Troester, 2002). The veridical nature of information is also repudiated by the analyses of a sustainable marketing system, which argues for knowledge that is co-created in the interaction of market system actors in various relational contexts. Finally, all three perspectives argue for the importance of co-creation. S-D logic is based on the premise "the customer is always a coproducer" (Vargo & Lusch, 2004, p.10), which propounds that true value is created in use, and that it is not delivered by marketers in a full scale, rather it is generated in the process of continuous relationships with consumers (Ballantyne & Varey, 2006). Similarly, CCT provides a rich view of how consumption activities become a means of deriving value from interpenetrating marketing/consuming practices (Arnould, 2006; Arnould & Thompson, 2005). Systeming is based on the premise that meaning, and specifically, value are impossible outside the contexts of systemic relations.

Community research. The systeming theory may provide several theoretical implications for community and subculture research. In systeming, the essence of *communing* is reflected in sustainable-value-guided practices, which are grounded in the acts of creating, communicating, and observing contingent meanings that divide the reality into distinctive forms. Community can be differently conceptualised within the systeming crystallisation of a sustainable marketing system. Community would refer to the system of meanings communicated across the transvective chains of marketplaces. This operational definition of community emphasises the operative flow of actions plus observations, which are self-referential in constituting the sense of community, which is opposite to the traditional view that community is made up of individual members. The community research has so far focused on how culturally shared and communicated meanings are utilised within certain consumption communities and micro-cultures (Cova, 1997; Cova & Cova, 2002; McAlexander et al., 2002; Muniz Jr. & O'Guinn, 2001; Thompson, 1997; Thompson & Troester, 2002; Wenger, 2000; Wenger & Snyder, 2000). In particular, Thompson and Troester (2002) conceptualised a community as a value system that consists of narratives which share, represent, and use social meanings. However, the traditional studies are limited to the description of meaning that is pertinent to individual experiences, the view which fails to represent meaning-construction in larger social networks (Bagozzi & Dholakia, 2002; Penalosa & Venkatesh, 2006). The systeming conceptualisation emphasises the functional and operative side of meaning-creation. I argue that meanings, and thus, communities, are not the result of individual psychic experiences, but they are created (distinguished) by diffusing communications that rise above any individual, and thus become contingent and germane to interactive operating in society. The systeming theory solves the problem of fixing community identities to participating individuals. No person is to be pinpointed as a genuine member of a particular community and marked with a tag of a particular micro-culture. This person can participate in many communities at the same time, and this can be done by the participation and observation of community-specific-communications. Actually, the same action or event could belong in several communities at the same time, as the communities operate with the self-created meanings of communication, and not with natural facts which supposedly make up the social environment.

Implications for Macromarketing

Hunt's definition. This investigation suggests that macromarketing as the field of observation of marketing systems needs to be attuned to the complex character of systems. Simplistic assumptions about marketing systems could result in catastrophic conclusions, e.g. consumers are destructors and waste-generators, or manufacturers are hypocrites. These views pertaining to unsustainable social relating are the direct consequence of the main definition of macromarketing that states that macromarketing is about the mutual (mechanistic) effects of marketing systems and society (Hunt, 1981). The complete redefinition of the domain of macromarketing is needed. However, this redefinition is impossible unless observers understand that operating and social relating are not separate and independent from marketing systems and society, rather their operating-through-relating constitutes both marketing systems and society. In this light, I suggest a modification of Hunt's (1981) definition. Macromarketing must be defined as *the interpretation of a) marketing systems; b) marketing systems' enactment of society; and c) society's enactment of marketing systems.* Systeming assumptions underlie this definition.

In doing macromarketing research, self-reference is a crucial issue to be addressed. Macromarketers are said to be motivated by "saving the world". The world as such may be no more than our constructions of it in social relationships. In other words, "the world" is our communication. Hence, the saving the world must start from "saving" ourselves and self-communication. How is this done? We must transcend the restrictive frames of self-constructions. We must become uncertain about "maps" we construct and avoid imposing them on others. We must learn to understand and respect other distinctions. Wisdom is about being uncertain on the self, self-critique and correction, and self-restriction. This is the condition of the sustainable world, including society and marketing systems.

Public policy implications. In many countries public policy prerogatives are centered on ensuring sustainable social and economic development. Because of the enormous size of automobile markets, the solution of the sustainable mobility dilemma is thought to lie within new alternative technologies that offer substantial

fuel efficiency. This is reflected in the US president's speech: "...and as we make our homes more energy efficient, we're doing the same for our automobiles. Hybrid vehicles are one of the most promising technologies immediately available to consumers" (Bush, 2005, April 27). The US government pledged \$2.5 billion within 2005-2015 in tax credits which would encourage consumers to buy energy-efficient hybrid vehicles. Some American states granted an exclusive access to the high occupancy lines (HOV) of motorways for hybrid cars. Netherlands has offered tax breaks for the purchase of hybrid cars (Environment Daily, 2006). The Japanese government is considering certain privileges for the users of hybrid cars. At the same time, some developing countries see their future linked to the hybrid car. For example, the Iranian government is stipulating a requirement that the national automaker Iran Khodro Company produce 280,000 light duty hybrid cars a year (Autoblog.com, 2006, August 18). Thus a great amount of public funds and effort is spent to promote this category of a "green" product, the attributes of which are perceived to be sustainable over those of other product categories. In most cases, the level of consumption is manipulated through monetary and action "carrots and sticks". How effective are these policies in meeting the purpose of sustainable development? I argue that the overemphasis on the physical attributes of the products is a self-defeating strategy. Public policy is to be guided by communicative changes in public behaviour. For instance, access to HOV lines is directed to encourage carpooling, whereas hybrid car drivers can resent the idea of having extra riders due to the effect on fuel efficiency. Also, not only the content of communication by policy-makers is emulated, but also their forms are observed by publics. For example, policy is often directed at contextualising the cause-effect assumptions through punishing or restricting responsible parties. Similarly, this kind of a fundamental attribution error is repeated in social living contexts. The sustainability theme is used to discriminate, marginalise, and punish imagined "enemies" and wage "rhetoric wars". The contingency, emergence, unity of distinctions, and the fundamental uncertainty about the environment are rarely accepted as a primary basis of policy action. Society members reflect the very acts of policy-making in their actions rather than those uttered in the policy content. For instance, the environment is discussed much, while the related action communicates the opposite. This form is reflected in the governments' actions such as opting out of the Kyoto Protocol or failing to offer substantial factual tax

breaks for hybrid cars despite these government's key figures extensively uttering the sustainability content. Such systemic purposeful action is the very social form that is followed by citizens. For them, the reoccurrence of such forms becomes entrenched in cultural becoming as citizens. Regardless of the fact that they are consciously in favour of environmental sensitivities, they would emulate the forms of policy-making in action. The social forms appear to be independent of changes in consciousness. Governments and corporations may keep complaining that citizens and consumers are not guided by environmental convictions when they reject slightly expensive but sustainable products, but fail to understand that the forms which dominate society are self-referential. The public policy-making can thus become self-referential. The communicative form of altruistic decision-making is still considered to be an exceptional, atypical, and uncommon situation (Hill, 2002).

The next point pertaining to the environmental and climate policy is that the effect of regulations on the systems (SMC and SCC) is not linear. In fact, these regulations are triggers rather than policy interventions, as they trigger the chains of changes within these systems. The systems are neither motivated nor aware of the true motives behind the public regulation, rather they develop the closed self-referential network of meanings, which are driven by an independent purposeful expansion. Straightforward intervention implies that regulation either destroys the system or boosts its expansion. Both approaches are not desirable, as this would mean harming the purpose of sustainability. The public policy-makers should learn to co-orient (dance) with systemic processes, so that the mutual effects are calibrated to achieve a common purpose. For instance, policy-makers attempt regulating production and consumption through price mechanisms (eco-tax, tax credits, sales tax exemption, differentiated parking meter fees, fuel and mileage taxes). Here, the reference emphasises monetary distinctions, whereas the hybrid car marketing system may not be sensitive to these distinctions. The analysis shows that the creation of value within the system is rarely affected by monetary valuing. Hence, we need sustainable policy-making (that enacts sustainability in both its content and form of action), instead of a sustainability enforcing policy. The difference between these two communicative acts is substantial. The latter is directed toward others, i.e. rectifying the behaviour of other responsible parties.

The former is directed to the self, i.e. rectifying the behaviour of the self. Both create communicative forms which diffuse throughout society, and become a part of cultural living. In the case of the society that is prevalently based on other-corrections, the conflicting, antagonistic, and vulgarly ethnocentric social communicating may prevail. The society that works on the basis of both the self-correction and the other-corrections (e.g. suggesting the other-correction through the self-correction) might be much closer to sustainability. This would create society where persuasion is done through *empathic and seductive aesthetics* rather than straightforward coercion. Persuasion through confrontation appears to be of no use when it comes to changing habits which are deeply entrenched as the result of the continuous repetition of dogmatic social forms (Bateson, 1991; Maturana & Varela, 1992; Verplanken & Wood, 2006). Consequently, the role of governments should change. The key to sustainability does not lie in curbing (or promoting) consumption and production as the proliferation of consumption and marketing in both material and cultural forms may be unavoidable (Schaefer & Crane, 2005). I suggest that sustainability originates within the meaningful form of marketing action. So the objective needs to be not *less/more of* material consumption (and production), but *wiser* consumption (and production).

Moreover, there exists a great number of government-sponsored or voluntary environmental programmes, which undertake to educate society members through enforcing changes in the attitudes, thought patterns, and conscious structures. In systemic terms, this refers to psychic anxiety that causes more psychic anxiety. What is the use of such education, if anxiety is not translated into communication? The redirection of the attention from meaning in “minds” to meanings in *systemic operations* may offer a number of potential improvements in conducting and managing such programmes effectively. The programmes are to be designed so that exemplary communicative forms are constructed and disseminated. The diffusion of such forms on a broad basis might change the character of the systems and society. Furthermore, this century has seen the rise of protest action against the externalities of capitalism, which is reflected in the activities of environmental groups and NGOs. Some researchers indicate that such groups form first as social systems, and then look for relevant issues to deal with rather than initially consolidating around the most pressing social issues (Baecker,

1999). So the autopoiesis of these movements is deemed more important than other matters, and in this there exists a possibility of taking advantage of environmental sensitivities. Public regulation must be aware of the fact that some movements become very dogmatic in pursuing their agenda, and thus use the theme of sustainability to cause unsustainability at the social discourse level. Habermas (1996) argued for the ideal speech act that can supposedly bring parties into consensus through a balanced discourse. However, the ideal discourse is unlikely when the systems are closed in their self-reference and operate through various distinctions. Sustainability is perhaps achieved through the co-orientation of communicative forms rather than surface level argumentation.

What should be the best social and political attitude toward the hybrid car? This problem seems to be of a social (uncertain) character, the answer to which cannot be left to only politicians and scientists (Lindblom, 1994). The indirect approach is desirable. This would mean that public policy should be directed at limiting the diffusion of dogmatic distinctions, which are aimed to control the behaviour of society. The “communication-for-control” results in impairment of the abilities of societal members to undertake a balanced and viable debate about the social issues (Lindblom, 1994, p.330). The non-proportional flow of communications (and capital) within a single system creates the non-allometric growth of this system *vis-à-vis* other systems. The system starts to dominate in the life-world of human beings, while their human reasoning is submitted to the systemic flows. In this case, systemic impairment might hinder and bias the dialogical foundations of solutions to social problems (Habermas, 1996; Varey, 2003). The dialogue becomes a closed circle of self-reference, which is confined into the systemic boundaries rather than an open ideal speech act. The resources of society are better to be redirected to appropriate educational institutions that can promote the awareness of non-triviality of life issues. This would inhibit the dominance of the particular systems and develop transcendence beyond dogmatism (Holbrook, 1998; Lindblom, 1994).

Specific action propositions for managers. The popularisation of the hybrid car technology, or in general, any environmentally friendly good/service, requires the knowledge of systems dynamics such as purposeful expansion, the form-content

contradiction, and distinctioning. From the systeming perspective, positioning the hybrid car as a complementary option that stands at the same level as the standard range of vehicles and additionally caters for the needs of “green” consumers is a grave mistake. Because, a) there arises a need to explain why these premium-charging brands are special entailing separate promotion budgets, advertising expenditures, and marketing effort; b) the straightforward differentiation strategy based on sustainability themes creates a unique marketing system underlined by environmentalist/ethnocentric meanings; this divides people and forces them to accept or reject these meanings; c) at the meta level, the hybrid car marketing system is not sustainable, because it is based on more general social and identity conflicts between hybrid car fans and non-hybrid vehicle driving consumers; d) the hybrid car meanings predominantly based on fuel saving promote, actualise, and consolidate the gas-guzzler car technologies. The only way out from the grips of the hybrid car marketing system is to reposition the hybrid car technology as a natural upgrade of traditional technologies. The hybrid car must not be proudly defined or differentiated for both employees and consumers. It must become the basis for many meanings for many parties, yet be unnoticed at the level of communication. Talking about hypercars (not a hybrid car), the innovative environmentally friendly vehicle concept in 1990s, Lovins, Lovins, and Hawken (1999) said that “Hypercars will succeed for the same reason that people buy compact discs instead of phonograph records: CD is a superior product that redefines market expectations” (p.151). Since then, CDs evolved into DVDs, and recently, to Blu-ray without much communicative hype about their social and environmental impact. The users of new technologies are not necessarily only green consumers. In the same way, the hybrid car must be repositioned as a logical and expected upgrade of the existing drive-train technology. Managers must drop the distinction “sustainable” in communicating and solve several operations, logistics, and particularly cost-related problems to bring hybrids to the mainstream of global mobility.

Specific consumer action propositions. Consumers should have come to understand that a marketing system is the direct result of their intentionality, i.e. it is the product of their actions. Each and every hybrid car driver is personally responsible for both expansion and contraction of the system. Expansion has its

basis in inherently ethical behaviours. Ethically sound behaviour seduces people in an aesthetic way to emulate such behaviour, hence the system expands. Ethics is a social event, it is predominantly about learning how to respect, interact, and deal with others. United Nation's Human Rights Code is the guideline that consists mostly of how people must behave toward others. The hybrid car marketing system is based on difference, but the differences are not to be used to attack or denigrate others. A difference must be accepted as it is and a respectful approach to understand and deal with the difference should follow. What matters is not whether a person drives the hybrid or not, rather this person's aggressive attitude toward gas-guzzler consumers can have an impact on its own. The social forms are emulated. The content and reasons of such aggression becomes a secondary matter. The non-hybrid car drivers may respond with the same attitude (the form), while activating disparaging images of hybrid cars. Therefore, I argue that insistent promotion of hybrid car practices both expands and at the same time limits the system.

Consumers including hybrid car enthusiasts should realise that resource (fuel) economy on its own cannot be a motivating factor for expansion. Although rising fuel prices can push the system boundaries out, the radical expansion will not happen because of utility-maximising behaviour. Altruism, agape, love, and doing unto others are the key factors which underlie the long-term health of marketing relations (Hill, 2002; Sober & Wilson, 1998). Had the genuine interest in promoting and satisfying others' needs become the characteristic of a hybrid car driver, then aesthetic seduction would have automatically driven people to emulate them in everything including owning the hybrid. This tells us that the emphasis of marketing and consumption education in both family and school contexts must change. Self-indulgence, narcissism, self-actualisation, and egoism must cease being promoted as explanatory principles for marketing behaviour. All citizens including children must be taught how to do unto others, how to help others to actualise their needs, and how to transcend beyond the self in promoting sustainability principles. This task is not necessarily complex. We can start this process by simply replacing the aforementioned concepts and their lexical meanings with better alternatives in explaining complex social events (Bateson, 1991).

Micromarketing Implications

Customer relations. Relationship marketing and customer relationship management (CRM) practices are crucial in building sustainable businesses (Varey, 2002b). However, the closed self-referential actions of companies, which are initiated for the cause of long lasting relationships with customers, might recursively become the blinders and blunders of genuine relationships (Fournier, Dobscha, & Mick, 1998; Varey, 2002b, 2003). This might occur because of the failure to understand the systemic character of market relations. The faulty practices are guided by the distinctions of one party, while the distinctions of the other party(s) are ignored. For example, CRM software and automated systems can dehumanise the process of interaction, whereas consumers seek to talk to individuals rather than to machines (Varey, 2003). The systeming interpretation shows that the recognition of prioritised distinctions is the condition of the continuance of dialogue (communication). The relationship would not be established unless the parties were to stop uttering their own distinctions pass by each other. The problem is aggravated when companies stress relationship in the content of communication, while failing to create the form of it. The content of communication in this situation is the invitation to the context “social relationship” by marketers, who promote the relationship/transaction distinction in their communication. This makes consumers to form an expectation of a social relationship in the context of company-consumer interaction. The biggest failure is when customers act on the presumption of the relationship context, whereas the host party, the company that invited the customers to this context, cannot recognise the presumed context and thus fails to operate within it. There is no middle way – either a company initiates a person into the context and ensures the continuance of operations in the correct context (social relationships) or the relationship context must never be uttered, in which case consumers do not form expectations.

Furthermore, it is evident that companies could become short of resources to maintain one-to-one social relationships with each customer (Peppers & Rogers, 1997). The marketing relationship programmes would not be able to physically cover and attend each contingency in the process of product usage. The

discriminative and pick-and-choose approach adds to the frustration of customers. Moreover, not all key factors which affect value creation regarding the product/service may be under the control of the company. For example, the timely and full delivery of government benefits (tax cuts, HOV stickers, etc.) to hybrid car drivers is important, while manufacturers exercise no power whatsoever on these issues. The viable approach in this situation is to learn to act in harmony with the communicative systems built between consumers, and co-opt some of its characteristics in building relationships with them. Some product-usage problems are social. The communicative problems need to be solved socially. For example, anxiety about waiting time for a hybrid car delivery or HOV stickers is resolved through the communication among consumers. Hence, the company could refer consumers to online discussions and forums as a part of solution to such problems.

Within the relationship marketing paradigm, some companies are training their frontline staff to initiate social interaction with customers in moments-of-truth (Gronroos, 1990). A successful interaction would mean the creation of a momentary system which needs to be continued. This study demonstrates that interaction does not have to happen in a fully rational and reasoned manner, as it was supposed by Habermas (1996), or because staff members and customers share a common cultural symbolism (Arnould & Thompson, 2005; Hirschman, 2003; Holt, 1997; Thompson & Pollio, 1994). The customer might choose, among other things, to ignore, misunderstand, misinterpret, and deride the initial attempt. What happens is that social actors are at the threshold of a new system creation. In the conditions where no such system may be at hand, this process could turn into any direction. What a surprise it is for a consumer, when the accustomed context of commercial/transactional relation is switched into an unexpected context, the nature of which is still unknown. To ensure the success of such interactions the frontline staff members must be taught not only direct, linear, and standard conversation patterns, but also the skill of observation. The first mover is always at disadvantage, as this move might be responded in any manner (most often the consequences probably are confusion, miscomprehension, and dissatisfaction). The staff member needs to make the first move non-specifically, a very broad utterance may be acceptable. The first move is a risk, so this should be replaced

with observation. Therefore, the best situation is when the customer initiates a contact, and then this specific interaction must be taken up by a company, nurtured, and developed into a long-term profitable partnership (Peppers & Rogers, 1997).

Advertising. When does advertising become effective? Perhaps this is a matter of precise tuning into systemic meanings. The emulation of systemic (social) forms brings about the continuance of communicative acts, and thus, perhaps sales. For example, the self-referential statements and narratives made by consumers follow specific forms. Companies can observe and construct similar observations that make system specific distinctions which are then built into advertising themes. Advertising messages (except covert ads) carry a “virtual tag” that the certain context is going to be initiated. People react accordingly: either elaborate on a message or switch attention to other communication channels. They may elaborate in different degrees on either substantive/argumentative or cosmetic aspects of ads depending on their involvement (Petty et al., 1983). The extent of elaboration may have an effect on attitudes, while the attitude-behaviour link may be very weak (Eagly & Chaiken, 1993). What kind of message changes the action? I argue that it is a communicative form that comes as a continuation of the systemic operations and ensures the continuation after the ad exposure. The message of substantive arguments might not work, as it creates anxiety at the psychic level. What is needed is the depiction of communication which can be emulated by consumers in action. So it might be the case that advertising which fails to communicate in conformity with the systemic meanings may not be adopted (continued, understood) by consumers.

Emotional branding. Marketing communication strategies, especially emotional branding practices, can be improved through systeming interpretation. Emotional branding is a strategy which is based on developing, disseminating, and monitoring brand stories in order to appeal to consumer emotional states (Thompson et al., 2006). The recent concern is about the independent proliferation of doppelganger brand images among consumer groups, which negatively portray the brand and a company (Thompson et al., 2006). The systeming framework directs me to believe that a doppelganger story is not only an emotional tool, but

also is the way of being and acting. The stories contain the formulas of social action, so they represent both action and observation. This change of emphasis requires a different strategic approach. In the case of advertising, the objective is the continuation of a depicted communication, whereas in the case of a doppelganger image, the purpose is to discontinue the negative communication. The traditional approach would be to counteract doppelganger stories by challenging them with new stories and refuting observation. However, this may actually fuel the development of more powerful negative stories. This may happen because the doppelganger images are not the description of the true reality. They are called “doppelganger” only from the perspective of a company, whereas for the consumer system they are a way of purposeful expansion and meaning-making. Hence, the system *enacts* the company communication as an environmental perturbation. The enactment turns these perturbations into systemic “alert operations”. The distinction comes to the fore again and again, and this generates expansion cycles. So, the effect of the company communication is not of a linear nature, rather it is a trigger which might give more spin to negative (to company, but not to consumer groups) communications. Silence kills the system (Luhmann, 2002, 2006; von Foerster, 2003). The viable strategy in this context may be to ignore doppelganger distinctions, and act rather than argue. The positive action in combination with silence (“no comment” attitude) may wipe off (or at least weaken) the system which generates negative images.

Consumer identity. Marketing managers may be at risk when dealing with the irrelevant versions of social identity observed from the unspecified, perhaps, market researcher-convenient points. The research of marketing action coupled with the artificial concepts might not be sufficient; rather the observation of self-observation enacted by the relevant systems is needed. There exist two distinct approaches to developing marketing programmes and branding strategies in reference to consumer identity (Reed II, 2002; Reed II & Bolton, 2005). The traditional approach is that the identity of consumers is unequivocal and fixed. This point of view entails tailoring substantive product attributes to the demographic and psychographic characteristics of target markets. The belief is that the identity needs to be discovered, and then it can be manipulated. The social identity (or “identity marketing”) approach (Reed II & Bolton, 2005) views the

identity to be flexible and fluid that changes according to a context or situation. Quite in parallel, systeming proposes that identity is relational, contextual, and situational. Specifically, identity belongs to the system of action rather than to an individual. A person's thoughts (the psychic system) about the self may not always guide each consumption or marketing situation (Reed II, 2002). In contrast, the social (systemic) identity may affect relevant consumption activities, while consumers may activate intentionally relevant social systems in order to deal with a certain consumption problem. The systeming interpretation reveals the social identity constructed through action, where the combination of action and observation delivers information about the observer. Market actors are not only who they think they are, but also their identity is the distinctions by which they operate in action. Both the identity "aspired" and the identity "despised" are the inherent part of self-reference. For instance, concepts such as an eco-driver and a gas-guzzler are the operation of the hybrid car marketing system. These self-pictures both reside inside the system, rather than one being inside and the other in the environment. This means that the distinction forms must be examined in their completeness in order to understand consumer behaviour. In this case, a marketing manager must know the (reflected) identity characteristics of both hybrid drivers and gas-guzzlers in order to tailor his branding and strategic activities to the segment of hybrid car consumers. This may also imply a suggestion that the construct of self-identity not only must include the items on ideal selves, but also it should comprise the measurement of a distanced (despised) self's characteristics.

Marketing of a political idea. Politics employs marketing strategies and public relation methods to advance a particular agenda. One of the strategies is the creation of *political identity* that comprises the images of the self and the opponent (usually a national enemy). As systeming suggests, both the self and the enemy are the unique interpretations of the particular political system rather than being the concepts grounded in the observation of some external environment. The Bush US government has been "successfully" implementing the distinction *democracy/terrorism* in invigorating the system of acting and meaning-making both locally and globally. For the Iraqi insurgency, the same problem might be a matter of *patriotism versus occupation*. At the same time, Iran is challenging this

distinction by a counter-distinction *Iranian revolutionism versus zionism/imperialism*. Similarly, the Russian government hopes to restore its former power through the creation of communications which centre on challenging the imperial/expansionary ambitions of the West (Traynor, 2007, February 11). Cuba and Venezuela are united under the distinction *communism/capitalism*, and so on. Any participator in such systems must realise that these distinctions are contingent, artificial, and self-referential. A “terrorist” of one system might well be a “hero” of another system. Citizens should not allow themselves to be impaired (dominated) by such distinctions (Lindblom, 1994). In metaphoric terms, the impairment in a life-world occurs when the distinction becomes a “hammer”, while all social events turn into “nails”. The content/form schema suggests that the sustainable political action is not about the linear (dogmatic) pursuit of self-idealizations; rather it is about protecting citizens from such systemic impairment.

Implications for Further Research

Systeming analysis can be extended to various contexts. The context of a standard range of vehicles can be selected as a research focus. Systeming can be used to explore meanings that arise in interactions in the contexts of marketing and consumption of non-hybrid cars such as sports cars, sport utility vehicles, and diesel vehicles. The contexts of fuel-cell cars or fully electric cars are equally considered to be of interest. Moreover, consumer and marketer practices in different local, indigenous markets can be contextualised and compared. This research would be underlined by three major macromarketing motives: a) identifying alternative marketing systems and understanding their logic; b) identifying common characteristics of various marketing systems (Layton, 2006); and c) gaining insight into alternative meanings in marketing systems, including those which are at the bottom of pyramid (Prahalad, 2005). Alternatively, any coherent social and research institution, such as a university, can be scrutinised through systeming in order to reveal its self-observing nature with regard to sustainability issues.

Moreover, insights suggested in this investigation can be modelled through complex systems modelling (Boccaro, 2004), evolutionary computation (Fogel,

1995), chaos analysis (Peitgen et al., 2004), and self-referential calculus (Varela, 1975). It needs to be stressed that models as such are not meaningful without a theoretical base, in which case systeming offers rich alternative bases in creating and interpreting system models. In the same vein, systeming can be used to scrutinise particular theories in the extant marketing literature in terms of offering alternative explanations to conceptualisation and experimentation. For this, systeming as the philosophy and the method for interpreting consumer and producer communication must be developed further. For instance, the logic and meaning of competition and profit in marketing systems can be studied. It would be of particular interest whether supernormal profit levels and competitive advantage for a particular institution can result in increased robustness of a whole marketing system.

To sum up, this investigation shows that the existing conventional conceptualisations of marketing systems and the sustainability of marketing systems are not appropriate from the perspective of original systems thinking. To interpret self-observation in marketing systems, an alternative methodological and methodical foundation, systeming, is proposed. The interpretive investigation of the hybrid car marketing system demonstrated that this system is the complex locus of meaning flows. This investigation sets an alternative foundation for re-defining a set of fundamental problems in macromarketing and micromarketing and further research about marketing systems.

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Appendices

Appendix 1

Different Conceptualisations of Marketing Systems

<i>Perspective</i>	Theory	What is a system?	Fundamental elements of the system	System's role as conceptualised
<i>Original systems thinking</i>	General Systems Theory (von Bertalanffy, 1950, 1972)	A system is a whole that cannot be deconstructed into parts	Conceptually constructed components	True purposiveness
	Social Systems (Luhmann, 1995)	A social system is the unity of societal communications	Communications	Autopoiesis
<i>Macro</i>	Skeleton of Science (Boulding, 1956)	A system is complexity that is made up of lower-order systems	"Individuals" of analysis ranging from static structures to transcendental systems	Developing complexity
	Contrived Systems (Katz & Kahn, 1966)	A social system is the pattern of temporalised interrelationships among elements	Roles, norms, and values	Achieving constancy
	Unity of Market Action (McInnes, 1964)	The marketing system comprises all market potential actualisation processes	Market potentials (separation and relationship); the processes of actualisation	Closing spatial, time, value, perceptual, ownership gaps between providers and users
	Normative Theory of Marketing Systems (Alderson, 1964)	The marketing system is the function of organised behaviour systems	Organised behaviour systems (e.g. households, firms, and public institutions)	Survival and health of both given and larger systems
	Managerial Approach (Kelley & Lazer, 1962; Lazer, 1971)	The marketing system is a collection of latent marketing phenomena	Relationships, interactions, cultural sentiments, environmental constraints, and marketing technology	A manageable part of the environment conducive to achieving maximum efficiency for a business firm
	System of Exchange (Bagozzi, 1974)	Marketing is an organised behavioural system of exchange, "a set of social actors, their relationships to each other, and the endogenous and exogenous variables affecting the behavior of social actors in those relationships" (p.78)	Positive and negative actions Endogenous and exogenous variables Exchanges	Maximising subjective expected utility
	System of Three Subsystems (Dholakia & Dholakia, 1982)	The marketing system is a system of three (sub)systems: a system of institutions, a system of actions, and a system of ideas.	Institutions, actions, ideas	A locus to navigate a changing world order

	The Model of Trade Flows (Layton, 1981a, 1981b, 1989, 1991)	The marketing system consists of exchange networks that are studied as the aggregated flows of trade.	Flows of transactions	Achieving optimal inter-sector trade and production structure to satisfy a final demand for a certain category of goods
	Anatomy of Macro Marketing System (Gunn, 1975)	The macro-marketing system is an ecocybernetic economy shaped by the ideology of “competruiism” (true competition) by a means of consuming, transforming, and distributing “resources from the environment in sustaining its human element” (p.164)	The anatomy of the marketing system: Resource Environment; Consumer-Producer Segment; Channel of Distribution; Ecocybernetic System: economic and marketing control mechanisms; Marketplace; Residual Environment	Achieving higher operational efficiency
	Entropy and Negentropy (Reidenbach & Oliva, 1983)	The marketing system is a set of practices of provision and use of psycho-physical life-maintaining and life-enhancing products and services.	Product (service) provision and consumption practices	Causing negentropy at micro-level and entropy at macro-level
	Behavioural Theory (Dixon & Wilkinson, 1982)	The marketing system represents the behaviour of individuals and groups who are engaged in marketing activities.	Market behaviour	Satisfaction-provision through rational decision-making
	Scientific Marketing (Dawson, 2003)	The marketing system is a set of techniques and effort by agents of the rich to use corporate resources and management to coerce the non-rich into off-the-job habits that make the rich richer.	Habit manipulation technologies	Promoting a hidden agenda of capital accumulation by the rich layers of population
	Aggregate Marketing System (Wilkie & Moore, 1999, 2003)	Aggregate Marketing System is “an adaptive human and technological institution reflecting the idiosyncrasies of the people and their culture, geography, economic opportunities and constraints, and sociopolitical decisions” (Wilkie & Moore, 2003, p.118)	Consumers Marketers Government entities	To serve the needs of its host society
<i>Micro</i>	Flows (Forrester, 1958)	A system is the unity of firm’s dynamic flow of operations.	Intra-firm “flows” (operations), such as information, materials, capital, human, and financial resources	Solving social problems rather than daily routine challenges
	Socio-technical Systems (Emery & Trist, 1960)	A system is an enterprise that turns outputs into inputs through its internal technological processes.	Social Component: relation to external inputs and outputs Internal Component: technological processes	To achieve <i>a primary task</i> , that is, to position itself within the environment in such a way that the optimal levels of growth are

				attained
	Functions (Lewis & Erickson, 1969)	A marketing system is a smaller system within the firm's larger system, which should be defined as a set of interactive functions.	I. Objects: output and input objects, process, feedback-control, internal and external restrictions II. Attributes III. Relationships: functional, complementary, redundant, contradictory	To obtain and service demand
	Midrange (Contingency) View (Kast & Rosenzweig, 1974)	A system is an organisation which is viewed as a total "configuration of [organisational] subsystems" (p.459).	Organisational subsystems (e.g. goals and values, technical, structural, psycho-social, and managerial loci)	Balancing between the goals of survival and serving the society; an optimal relationship between the environmental supra-system and organisational subsystems
	Subsystems of a Living System (Reidenbach & Oliva, 1981)	A marketing system represents a set of critical (demand-creating and demand-servicing) subsystems within a living social organisation.	I. Ingestor (procurement), distributor (logistics), matter-energy storage (storage systems) and decider (marketing management); II. An input transducer (market intelligence and monitoring), a decoder (the analysis and interpretation of market data), an encoder (internal and external communication), and an output transducer (the generation of marketing communication).	To create and service demand
	Market System Evolution (Dowling, 1983)	A marketing system is a complex subsystem along other subsystems within the larger system of an enterprise for coordinating production, distribution and consumption decisions.	Firm's marketing activities	A complex homeostatic mechanism to mediate between a business enterprise and its environment

Appendix 2

Copies of Print Advertising for Toyota Prius Hybrid

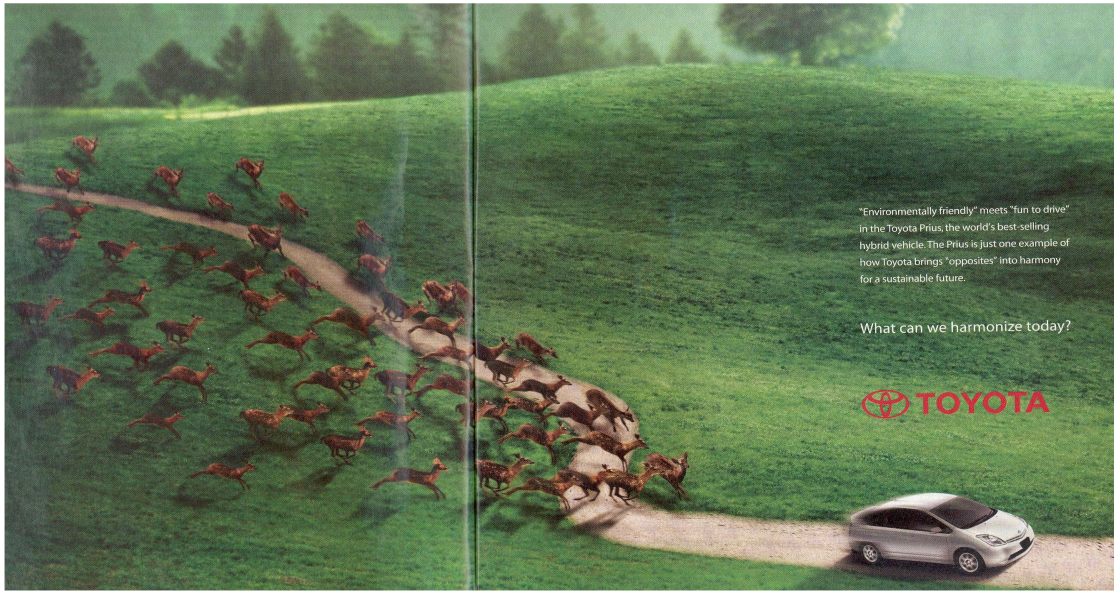




"Environmentally friendly" meets "fun to drive" in the Toyota Prius, the world's best-selling hybrid vehicle. The Prius is just one example of how Toyota brings "opposites" into harmony for a sustainable future.



What can we harmonize today?



"Environmentally friendly" meets "fun to drive" in the Toyota Prius, the world's best-selling hybrid vehicle. The Prius is just one example of how Toyota brings "opposites" into harmony for a sustainable future.

What can we harmonize today?



Appendix 3

List of Information Sources for the Marketer Domain of the System

Environmental Reports	Websites	PR sources
<p>Toyota environmental and social report, 2005 (retrieved on September 20, 2005, from www.toyota.co.jp/en)</p>	<p>Toyota corporate website content on corporate values, sustainability and environment, and the environmental action plan (retrieved on September 28, 2005, from www.toyota.co.jp/en)</p> <p>The website of Toyota NZ branch on sustainable action (retrieved on September 20, 2005, from www.toyota.co.nz)</p>	<p>Toyota news (in the corporate website) (retrieved on February 09, 2006, from www.toyota.co.jp/en)</p>
<p>Honda environmental annual report, 2005 (retrieved on October 13, 2005, from www.honda.com)</p>	<p>Honda corporate website content on environmental, social action and policy (retrieved on October 13, 2005, from www.honda.com)</p>	<p>News about Honda Civic hybrid (in the corporate website) (retrieved on October 13, 2005, from www.honda.com)</p>
<p>Ford sustainability report, 2004/2005 (retrieved on December 14, 2005, from www.ford.com)</p>	<p>Ford corporate website content on environmental/social action and policy (retrieved on December 14, 2005, from www.ford.com)</p>	<p>News about Ford's sustainable action (retrieved on December 14, 2005, from www.ford.com)</p>
<p>GM corporate responsibility report, 2004/2005 (retrieved on February 02, 2006, from www.gm.com)</p>	<p>GM corporate website content on environmental/social action and policy (retrieved on February 02, 2006, from www.gm.com)</p>	
<p>The sustainable mobility project: The full report 2004 (retrieved on September 28, 2005, from www.wbcds.com)</p>		<p>Sustainable mobility news: the content of the newsletter (retrieved on February 09, 2006, from www.wbcds.com)</p>

Appendix 4

List of Downloaded Threads and Weblogs, and Some Accompanying Statistics

#	Threads and weblogs	Pages	Posts (comments)	Views	Date of download
<i>Autoblog.com/category/hybrids: 164 distinct active user names, 5 discussion threads, 95 pages, 387 posts</i>					
1	Iranian automaker expands, steps up hybrid effort	13	48		22.08.2006
2	Is a Hummer greener than a Prius	12	45		22.08.2006
3	Do hybrids save money?	45	202		17.10.2005
4	New Subaru Imprezas are on their way (to production)	11	44		22.08.2006
5	The future of Toyota and Lexus: Ch-Ch-Ch-Changes	14	48		22.08.2006
<i>Greencarcongress.com: 187 distinct active user names, 13 discussion threads, 216 pages, 742 posts</i>					
6	AQMD Plug-in Hybrid Vehicle Technical Forum: Li-Ion Technically Ready, Manufacturing a Big Barrier	8	36		31.07.2006
7	Bill: ANWR Revenue to Support Development of Cellulosic Ethanol, Solar, Fuel-Cells and Coal-to-Liquids	10	52		01.08.2006
8	Bush's Earth Day Message: Hydrogen, Plug-Ins and Ethanol	14	54		31.07.2006
9	French Senate Report Calls for EU Action to Counter Climate Change, Peak Oil	10	40		31.07.2006
10	Fuel Consumption at Higher Speeds	12	68		31.07.2006
11	G8 Backs Hybrids, Diesels, Biofuels, Synthetics and Hydrogen for Transportation	9	40		31.07.2006
12	GM Announces First Production Passenger-Car Hybrid: Saturn Aura Green Line	15	68		31.07.2006
13	Lexus Unveils Top-End LS 600h L Luxury Hybrid	5	42		31.07.2006
14	Concept: Modified Rotary Engine with Integral Flywheel Effect	95	143		31.07.2006
15	Ricardo, QinetiQ and PSA Peugeot Citroën Reveal Efficient-C Low-Carbon Diesel-Electric Parallel Hybrid	8	40		31.07.2006
16	Report: GM Fast-Tracking Plug-in Hybrids	8	58		31.07.2006
17	Toyota Outlines 2010 Technology Plans; Plug-in Hybrids on the R&D Agenda	13	58		31.07.2006
18	US Sales of Hybrids Stay Strong in June 2006, Up 20% from 2005	9	43		31.07.2006
<i>Greenhybrid.com: 249 distinct active user names, 15 forum threads, 528 pages, 1,250 posts,</i>					

52,651 views					
19	EPA says no improvement in fuel economy	3	5	601	28.07.2006
20	Confessions from a large truck driver	28	48	997	02.08.2006
21	Considerate driving	26	52	1,228	02.08.2006
22	Reduce petroleum addiction, clean the air, go diesel	28	57	1,127	02.08.2006
23	Driving well under the speed limit: good idea or bad?	101	197	4,659	02.08.2006
24	Honda to Cut Civic Hybrid Costs by 1/3	19	47	4,163	02.08.2006
25	Virginia Allowing Hybrids in HOV Lane Irritates	21	50	1,454	02.08.2006
26	How Popular ARE Hybrids across the US? Oil Execs Claim "not very"	16	39	876	02.08.2006
27	Wife ruins mpg :)	39	35	1,079	17.10.2005
28	Myth: non-hybrids are just as efficient	83	118	2,762	02.08.2006
29	Hybrid and electro radiation?	42	75	2,012	02.08.2006
30	Hybrid total energy usage greater than SUVs?	53	80	2,715	02.08.2006
31	What is the one thing about your hybrid that bugs you the most?	15	38	1,190	02.08.2006
32	Would you buy a hybrid again?	16	39	900	02.08.2006
33	You know you're a real hybrid owner when...	38	370	26,888	18.12.2006
<p><i>Hybridcars.com: 315 distinct active user names, 13 forum threads and weblogs, 483 pages, 1,906 posts, 23,958 views</i></p>					
34	Weblog: Bankruptcy, Stockpiles, Rules, and the Fabric of Reality	5	10		04.08.2006
35	CA DMV Clean Air Stickers SUCK! I got my stickers from the DMV and they are ugly and yellow!	77	665	10,151	04.08.2006
36	Driving strategy for better gas mileage	64	181	1,669	04.08.2006
37	Weblog: Feb. 08, 2006. If You Like Walmart, You'll Love Hybrids!	8	46		07.08.2006
38	Hybrid Minivan US Availability?	27	139	2,845	04.08.2006
39	Weblog: Aug. 23, 2005. How Long Do Hybrid Batteries Last?	6	34		07.08.2006
40	Diesel vs. Hybrid: A Point Missed	69	257	6,261	04.08.2006
41	Hybrid vs. Diesel Debate	72	210	1,360	04.08.2006
42	Weblog: June 19, 2006. The Hybrid Minivan Tease	6	32		04.08.2006
43	Weblog: Apr. 10, 2006. Should We Raise the Gasoline Tax?	13	60		04.08.2006
44	Weblog: June 08, 2006. Tradable Gasoline Rights	8	32		04.08.2006
45	Driving Strategy for Better Gas Mileage	116	181	1,672	17.10.2005
46	Weblog: Apr. 12, 2006. SF Bay Area Gets a Second Plug-In Hybrid	12	59		04.08.2006
<p><i>Priuschat.com: 402 distinct active user names, 13 forum threads, 1,851 pages, 3,102 posts, 182,704 views</i></p>					
47	Why Priuses annoy me	90	110	4610	10.08.2006

48	What I hate about my Prius	86	265	16709	09.08.2006
49	Top Reason YOU drive a Prius	27	45	1425	08.08.2006
50	Smoke and Mirrors	530	703	22017	10.08.2006
51	Prius Owners: Liberal or Conservative?	110	121	6140	10.08.2006
52	Prius -- not a car for the fragile male ego	79	106	3615	09.08.2006
53	Occupation	105	161	4028	09.08.2006
54	600 mile tank ... should I go for it?	123	51	1661	17.10.2005
55	Cold weather is killing us	131	30	1624	17.10.2005
56	Most annoying thing about the prius?	86	190	10105	08.08.2006
57	Marital Status of Prius Owners	61	165	7592	10.08.2006
58	latest # of HOV stickers issued?	143	623	69993	08.08.2006
59	How many Prius do you see daily?	90	230	6406	09.08.2006
60	Found the way to override Navigation without cutting wires.	84	133	14248	09.08.2006
61	Fill up at a 1/2 tank! or pay \$159.12	46	91	5683	08.08.2006
63	Prius SUCKS in the snow...	60	78	6848	11.08.2006

Appendix 5

Sustainability Communications Matrix of SMC (Ford, GM, Honda, and Toyota Corporations)

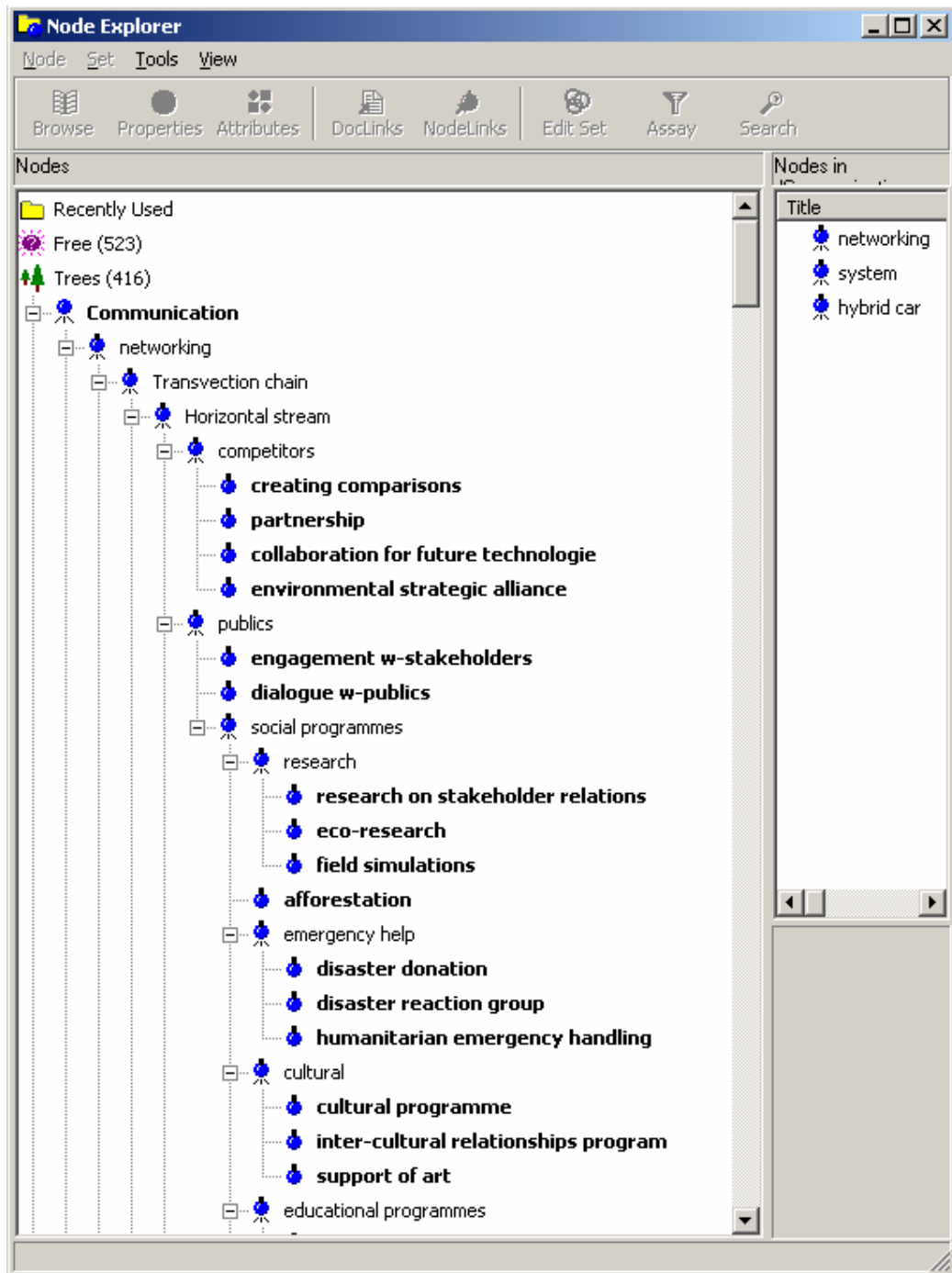
Functions	<i>Emission management (reduce)</i>	<i>Recycling (recycle)</i>	<i>Material and Energy Efficiency (reuse)</i>	<i>Enhancing Safety</i>	<i>Planning, Design and Technology (PDT)</i>	<i>Product Externality Management (PEM)</i>	<i>Local Impact Management (LIM)</i>
<i>Emission management (reduce)</i>	<p>Defining and distinguishing the types of emissions: Nitrogen oxide (NOx); Methane; Carbon dioxide (CO2); Carbon monoxide (CO); Hydrocarbons (HD); CFC-12; Sulfur dioxide (SOx); SOC (substances of concern: lead, mercury, cadmium, and hexavalent chromium); VOC (volatile organic compounds in paint solvents); Industrial Oils</p>	<p>Isolating and reusing the emissions: Fumes-to-Fuel System (Ford); Use of the closed system of waste water circulation (Honda) ;</p>	<p>Controlling and reusing the emissions: Use of alternative energies to reduce CO2 emission (all); Use of cogeneration systems (gas turbine emissions are used as a source of heat) (Honda);</p>	<p>Detecting, monitoring and isolating the emissions: Using pollutant measuring devices (Honda); Improving emission calculation methods (Toyota);</p>	<p>Preventing and eliminating the emissions: Introducing pollution prevention technology (all); Using a new type of SOC-free bolts (Honda)</p>	<p>Reducing emissions: Complying (opposing) with government emission standards (all); Total elimination of SOC from products (all)</p>	<p>Monitoring and isolating the emissions: Preventing emission leakage (all); Microphones to monitor a noise level (Toyota); Soil and groundwater monitoring (Toyota, Honda);</p>
<i>Recycling (recycle)</i>	<p>Recycling as emission reduction: Exhaust gas recirculation (GM); Use of recyclable resin materials which are SOC-free (Honda) Reducing landfill waste (Honda, Toyota);</p>	<p>Differentiating a recycling action from a non-recycling one</p>	<p>Recycling as efficiency improvement: Using reduced air pressure to drive tools (Honda); Using combustible waste to produce energy (Toyota); Recycling bumpers by using “sandwich molding technology” (Honda); Voluntary recycling activities (Honda,</p>	<p>Recycling as safety enhancement:</p>	<p>Recycling as cooperation in the system: Setting up reverse channels and the systems for recycling (all); Participation in Vehicle Recycling Partnership (GM)</p>	<p>Recycling as products’ impact reduction: Complying with to the end-of-life vehicle recycling laws (all);</p>	<p>Recycling as reducing impact on eco-systems: A plant to recycle end-of-life automobiles and automobile shredded residue (Toyota); Achieving zero landfill disposal (all); Bumper covers and other components are recycled into</p>

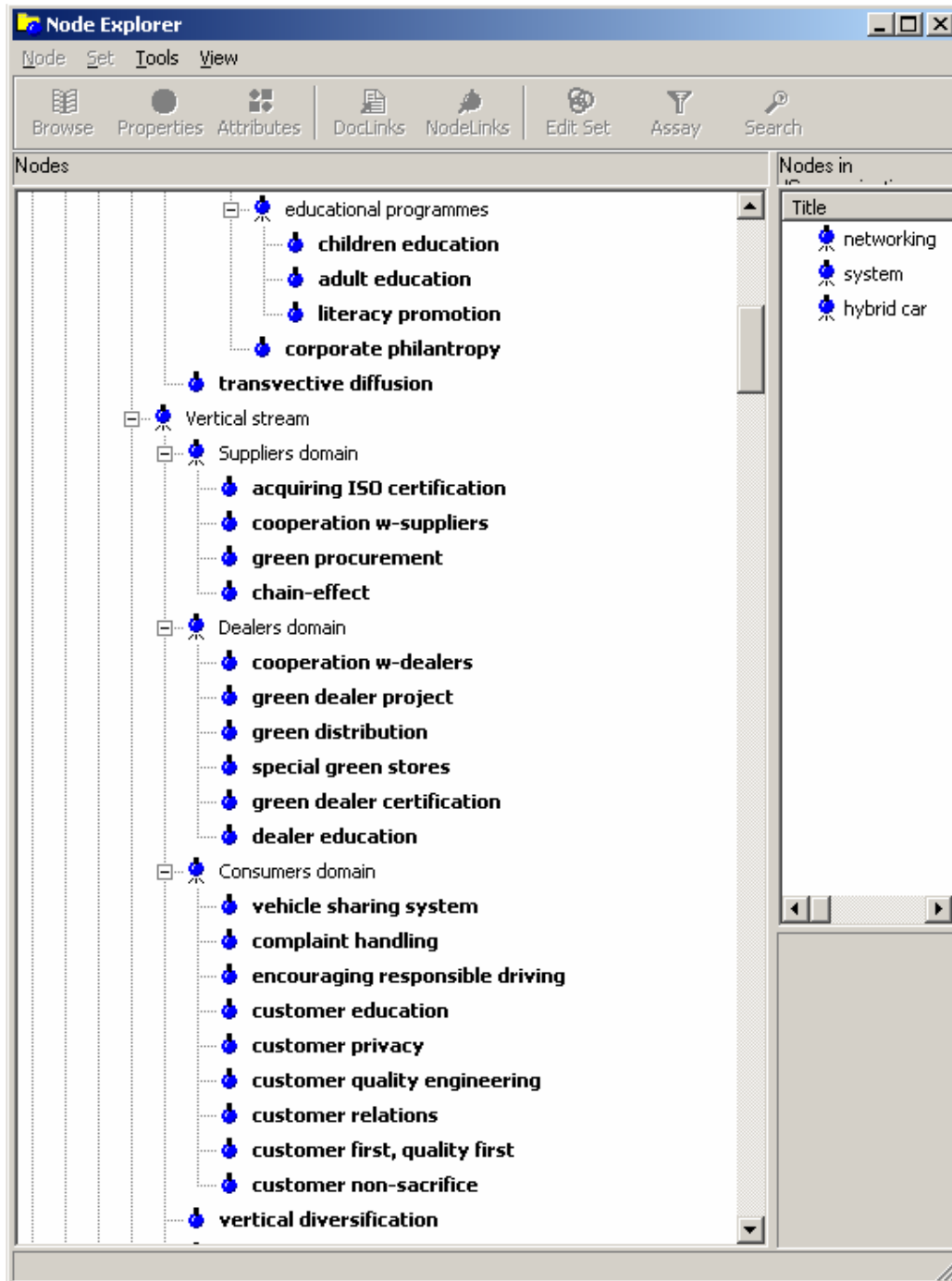
			Toyota); Charging recycling fees (Honda); Use of returnable containers (all);				floor mats (Toyota); Incineration ash is recycled as a material for paving (Honda);
<i>Material and Energy Efficiency (reuse)</i>	Efficiency as emission reduction: Solar power generation using next-generation thin film solar cells (Honda); Using marine and railway transport instead of trucks for vehicle and material transportation (all); Instructing truck fleet drivers to drive economically (Ford); Improving loading rates, sharing ship space with other companies (Toyota); Introducing alternative 'cleaner' fuels (GM)	Efficiency as recycling: Reducing of use of water by treatment and recirculation of wastewater (Honda); Use of rainwater in a production process (Honda); Using a shipping container that is then used as a raw material to make vehicle parts (Ford); Use of eco-plastic (Toyota); Using recycled resin to produce more energy (Toyota);	Differentiating an energy efficient action from a non-efficient action	Efficiency as safety enhancement:	Efficiency as technology improvement: Use of wind turbines (Ford)	Efficiency as a measure of products' eco-impact: Introducing digital tachometers to improve the fuel economy (Honda)	Efficiency as a measure of local impact: Using geothermal waters for cooling (Ford)
<i>Enhancing Safety</i>	Safety enhancement as emission reduction: Promoting responsible driver behaviour which reduces CO2 emission (GM);	Safety enhancement as recycling action:	Safety enhancement as efficiency:	Differentiating safety enhancement from an unsafe action	Safety enhancement as planning: Creation of Toyota safety education centre;	Safety enhancement as product impact reduction: Improving safety attributes of car models (all);	Safety enhancement as local welfare activity: Training driver instructors on safety (Honda);
<i>Planning, Design and Technology (PDT)</i>	PDT as emission management: Introducing Twinport engine with exhaust gas	PDT as recycling: Environmentally friendly construction	PDT as efficiency enhancement: Line integration from engine assembly to	PDT as safety promotion: Noise level control (Toyota);	Differentiating a rational action from a non-rational one	Design as a condition of product externality reduction:	Planning to reduce a negative local impact: Concentrating

	recirculation (GM); Hybrid technology development (all); Connecting to International Material Data system to monitor SOC use (Toyota); Coordination with suppliers (Toyota); Using water-based VOC-free paints (all);	method (Honda); Promoting a green factory concept (Honda); Designing recyclable vehicles (all); To enable recycling, discontinuing the use of adhesive labels for vinyl bags (Honda);	shipment (Honda); Direct shipment of packaged products by transport containers (Honda); Replacing hydraulic motors with electric motors for transporting paints (Honda); Replacing hydraulic continuous robots with electric robots, which can be operated only as required (Honda);	Use of virtual reality systems to train drivers (Honda); Creating a sound and safe workplace (all); Wireless communication among vehicles (Ford);		Designing eco-concept vehicles (all);	harmful production in a small area (all);
<i>Product Externality Management (PEM)</i>	PEM as emission reduction: Life-cycle-assessment for a brand of vehicle (all); Supplying cars with closed-loop catalytic converters (all); Improving fuel efficiency (all); Introduction of low emission vehicles (all)	PEM as recycling: Extending the service life of parts and vehicles (all);	PEM as efficiency enhancement: Life-cycle assessment for a brand of vehicle (all); Shifting to a hybrid system (all);	PEM as safety enhancement: Safety belts in all seating positions and three-point belts in the outboard positions (Ford); Improving passive safety vehicles (all); Introduction of pre-crash safety system (Toyota, Honda);	PEM as PDT:	Differentiating PEM from the technological processes:	PEM as localised impact management: Exterior and interior noise reduction (all); Using more of renewable resources (all);
<i>Local Impact Management (LIM)</i>	LIM as emission reduction: Planting trees (all);	LIM as recycling: Donating packaging materials (Toyota);	LIM as efficiency:	LIM as safety enhancement: Educating consumers to drive safely (GM); Toyota traffic safety campaign; Projects to alleviating traffic congestion (all); Road development and optimisation projects (Toyota);	LIM as PDT: Car models and unique technologies for disabled (Toyota);	LIM as PEM:	Differentiating the external local action from the internal technological process

Appendix 6

NVivo codes: SMC





Node Set Tools View

Browse Properties Attributes DocLinks NodeLinks Edit Set Assay Search

Nodes

- vertical diversification
- greening logistics
- Internal stream
 - employees, training, skills
 - improving work conditions
 - code of conduct
 - corporate ethics
 - employee communication
 - employee growth
 - employee initiatives
 - employee participation
 - employee safety and health
 - training employees
 - equal opportunities for employees
 - examples of career progress
 - experience dissemination
 - explicit value transfer
 - human development
 - employee forum
 - internal promotion of ideas
 - quality control circles
 - skills exchange
 - stable employment
 - Tshaped resources
 - communicating Toyota values
- control
 - participation_voluntary-mandatory
 - scope of audit
 - nature of control
 - internal control
 - mutual env auditing

Nodes in ...

- networking
- system
- hybrid car

Documents coded: 1
Children: 3
(no description)

Tree Node - (1) /Communication

Node Set Tools View

Browse Properties Attributes DocLinks NodeLinks Edit Set Assay Search

Nodes

- mutual env auditing
- being in control
- environmental auditing-from outside
- environmental auditing-in house
- timing
- expectations building
- communication
 - events
 - communication character
 - value co-creation
- system
 - Autopoiesis
 - costs
 - resonating political changes
 - resonating conscious states
 - resonance
 - self-observation
 - self-reference
 - self-appointing targets-goals
 - accurate representation
 - accurate reporting
 - trustworthiness of the report
 - report structure
 - self-attribution of success
 - recursive reasoning
 - system formation
 - environment
 - Env Turbulence
 - change in customer preferences
 - increasing uncertainty
 - dynamic change and adaptation

Nodes in ...

- networking
- system
- hybrid car

Documents coded: 1
Children: 3
(no description)

Tree Node - (1) /Communication

Node Set Tools View

Browse Properties Attributes DocLinks NodeLinks Edit Set Assay Search

Nodes

- dynamic change and adaptation
 - compliance
 - non-compliance action
 - proactive compliance
 - setting targets against gov standard
 - compliance system
 - compliance with standards
 - Allometry
 - beleif - all stakeholders
 - financial logic
 - growth in harmony
 - harmonious growth
 - harmony between nature and humans
 - harmony with local communities
 - long-term growth
 - proactive harmony
 - homeostasis
 - emergency handling
 - non-met plans
 - product failure
 - risk management
 - stable performance
 - Global and local
 - Global focus
 - global problems
 - global approach
 - global unit audits
 - Local focus
 - standardization
 - coop with local communities
 - local approach

Nodes in ...

- networking
- system
- hybrid car

Documents coded: 1
Children: 3
(no description)

Tree Node - (1) /Communication

Node Set Tools View

Browse Properties Attributes DocLinks NodeLinks Edit Set Assay Search

Nodes

- local approach
- local conditions
- local recycling
- local respect
- local solutions
- environmental pressures
 - env pressure by government
 - env pressure by indust bodies
 - env pressure by NGOs
 - env pressure by public
- sustainability
 - sustainability employment
 - distinction change
 - resource view of sustainability
 - believing future=sustainability
 - sustainability dimensions
- Limiting and creating
 - a new line of communication-limit
 - providing ready criteria to judge
 - recognition of limits
- Hierarchical Disguise
 - responsible - guilty
- Decision Communications
 - efficiency
 - production efficiency
 - reduction in material usage
 - improving fuel-efficiency
 - fuel efficiency vs emissions
 - research for fuel efficiency
 - Technological Space
 - braking

Nodes in ...

- networking
- system
- hybrid car

Documents coded: 1
Children: 3
(no description)

Tree Node - (1) /Communication

Node Set Tools View

Browse Properties Attributes DocLinks NodeLinks Edit Set Assay Search

Nodes

- braking
 - dehumanising
 - replacing intelligent human driving
 - intelligent technology
 - design for recycling
 - innovation for sustainability
 - IT for sustainability
- accessibility
 - car for disabled
- Recycle
 - recycling
 - recycling law
 - voluntary recycling
 - co-operation in recycling
 - recycling fees
 - green packaging
 - end-of-life parts recycling
 - vehicle recycling
 - waste recycling
- Reuse-save
 - energy-saving measures
 - preventing energy lost
 - switching energy source
 - returnable containers
 - energy from waste
 - renewable resources
- safety
 - road safety through education
 - safety
 - driving safely
 - vehicle safety

Nodes in ...

- networking
- system
- hybrid car

Documents coded: 1
Children: 3
(no description)

Tree Node - (1) /Communication

Node Set Tools View

Browse Properties Attributes DocLinks NodeLinks Edit Set Assay Search

Nodes

- vehicle safety
- safety education
- eliminating traffic congestion
- increasing product safety
- road development
- internal safety
- safety technology
- fiction_Decisionmaker
 - corporate governance
 - consolidation
 - company organisation
 - leadership
 - environmental committee
 - Environmental Management System
 - philanthropy committee
 - management promotion system
- impact
 - Vehicle unit impact
 - noise reduction
 - life cycle assessment
 - vehicle impact criteria
 - vehicle impact targets
 - Environmental footprint
 - failure to reduce
 - impact assessments
 - total impact
 - Emissions
 - exhaust emissions
 - pollution reduction
 - CO2 emission calculation
 - greening premises&facilities

Nodes in ...

- networking
- system
- hybrid car

Documents coded: 1
Children: 3
(no description)

Tree Node - (1) /Communication

Node Set Tools View

Browse Properties Attributes DocLinks NodeLinks Edit Set Assay Search

Nodes

- CO2 emission calculation
- greening premises&facilities
- emission reduction in production
- logistics emission of CO2
- reducing emissions
- SOC elimination
- VOC emissions
- Temporal disguise
 - Past in Present
 - historical evolution
 - company description
 - progress
 - factory and office domain
 - sales domain
 - subsidiaries
 - time and place
 - systems' time
 - Future in Present
 - Paradoxes
 - part-time environmentalists
 - paradox - advocate vs polluter
 - paradox-consciousness vs communicati
 - paradox-emissions vs pollution
 - Trade-offs
 - balance among interests
 - balance between individual and teams
 - beleif- reconciliation of perspectiv
 - beleiving-balance-business vs env
 - trade-off - human values & mobility
 - trade-off between performance and su
 - trade-off between technology and env

Nodes in ...

- networking
- system
- hybrid car

Documents coded: 1
Children: 3
(no description)

Tree Node - (1) /Communication

Node Set Tools View

Browse Properties Attributes DocLinks NodeLinks Edit Set Assay Search

Nodes

- trade-off between technology and env
- tr-off - max performance&zero exter
- visions
 - being dream driven
 - Future Society
 - recycling-based society
 - hydrogen economy
 - sustainable development
 - sustainable mobility
 - unsustainable mobility
 - joy framework
 - future directions
 - research for a future
 - Awareness_Environment
 - green renaissance
 - awareness of env issues
 - global warming
 - sustainability=environment
 - commitment to environmental issues
 - tackling environmental issues
 - care for nature
 - coexisting with a forest
 - environmental awareness
 - environmental footprint
 - mission - environment
 - prioritising environment
 - substantial impact on environment
 - Zero Impact
 - zero landfill
 - zeronise
 - zero environmental impact

Nodes in ...

- networking
- system
- hybrid car

Documents coded: 1
Children: 3
(no description)

Tree Node - (1) /Communication

Node Set Tools View

Browse Properties Attributes DocLinks NodeLinks Edit Set Assay Search

Nodes

- zero environmental impact
 - zero-complaints
 - Welfare
 - global and human health
 - human development
 - life enrichment through safe and qua
 - welfare through cleanliness and saf
 - directiveness to the future
 - sustainable vehicle vision
- Coding and programmes
 - programmes
 - sust-unsust transition
 - heuristics
 - pdca cycle
 - innovating strategy
 - continuous small improvements
 - incremental entry
- hybrid car
 - alternatives
 - diesel vehicles
 - fuel cell vehicles
 - alternative technologies
 - natural gas vehicles
 - dual fuel vehicle
 - developing compact car
 - visionary vehicles
 - anti-hybrid argument
 - greening automobiles
 - hybrid domain
 - hybrid car emission
 - synergy drive

- Nodes in
- networking
 - system
 - hybrid car

Documents coded: 1
Children: 3
(no description)

Node Set Tools View

Browse Properties Attributes DocLinks NodeLinks Edit Set Assay Search

Nodes

- dual fuel vehicle
 - developing compact car
 - visionary vehicles
 - anti-hybrid argument
 - greening automobiles
 - hybrid domain
 - hybrid car emission
 - synergy drive
 - hybrid car interior
 - hybrid
 - hybrid=sustainability
 - FE meters and indicators
 - fuel-efficient motorcycle
 - introducing hybrid technology
 - hybrid SUVs and buses
- Consciousness
 - Respectability
 - active interaction awareness
 - social effect
 - cooperation with society
 - corporate citizenship
 - corporate image
 - earn respect in society
 - image change
 - recognition
 - respect
 - rights and responsibilities
 - Morality
 - strategic planning
- Cases (4)
- Sets (3)

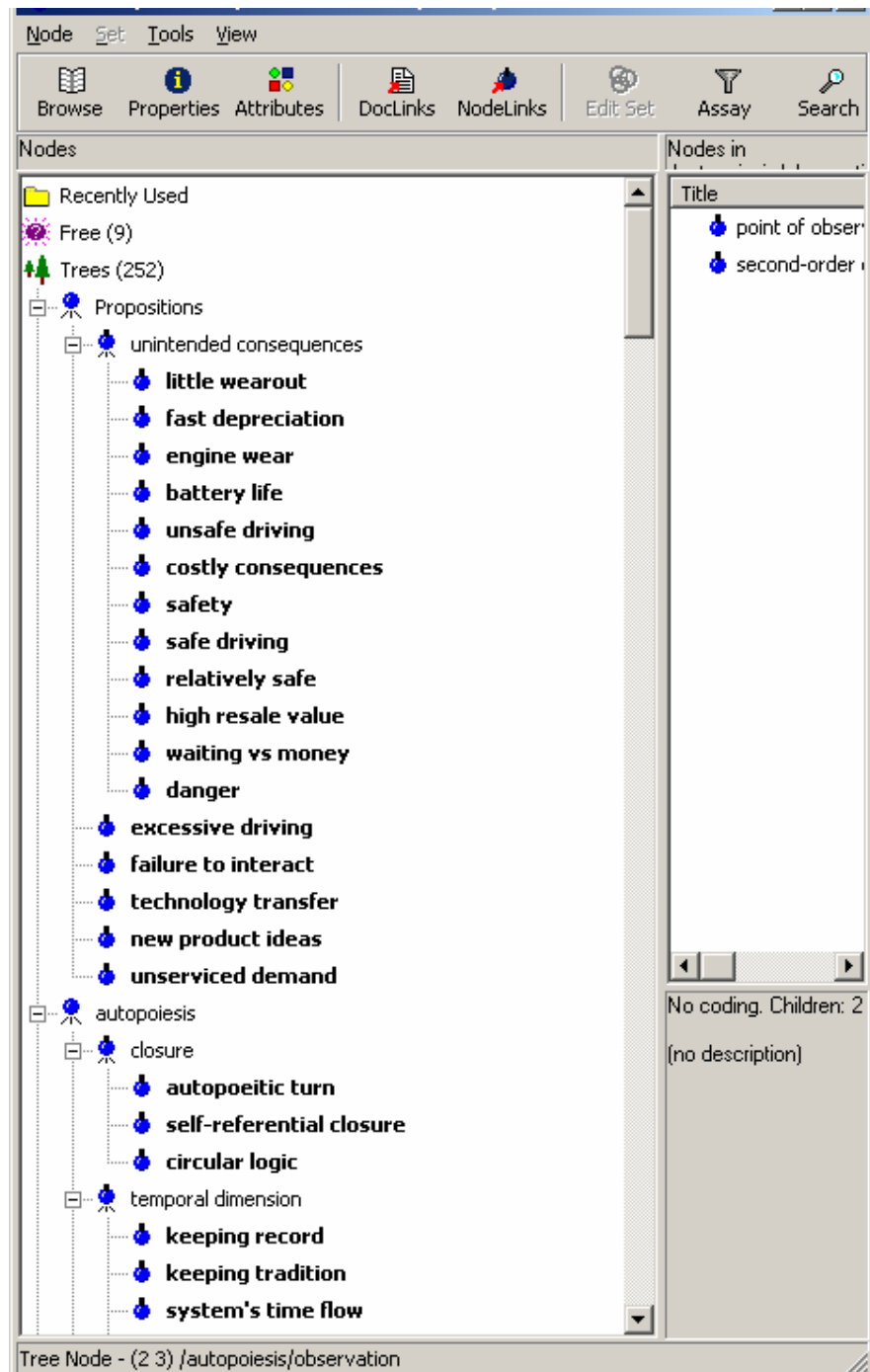
Nodes in ...

- networking
- system
- hybrid car

Documents coded: 1
Children: 3
(no description)

Tree Node - (1) /Communication

Appendix 6
NVivo codes: SCC



Node Set Tools View

Browse Properties Attributes DocLinks NodeLinks Edit Set Assay Search

Nodes Nodes in

- **system's time flow**
- **history**
- **past-present-future**
- [-] • observation
 - **point of observation**
 - **second-order observation**
- **hating is communicating too**
- **drop a distinction**
- **system promotes emulation - not cogn**
- **increase number of choices**
- **programmes**
- **self-critique**
- **system's self-reference**
- **imitate**
- [-] • environment
 - [-] • enacting economic environment
 - **conspiracy-beraucracy**
 - **wind+phev economy**
 - **voting by dollars**
 - **Wal-mart and hybrids**
 - [-] • enacting social environment
 - **reduce population**
 - **environment not seen**
- [-] • complexity
 - [-] • external complexity
 - **complexity**
 - **chaotic environment**
 - **uncertainty**
 - **possibilities**
 - [-] • objectification
 - **attribution**

Title

Documents coded: 2
No Children
(no description)

Tree Node - (2 2 11) /autopoiesis/temporal dimension/keeping record

Node Set Tools View

Browse Properties Attributes DocLinks NodeLinks Edit Set Assay Search

Nodes Nodes in

- attribution
- offering explanations
- hybrid scepticism
- uncontrolled forces
- internal complexity
- enacting ecological environment
 - sustainable
 - global warming
 - FE as environmental solution
- enacting political and regulatory en
 - access to HOV as value
 - enactment of HOV regulation
 - free parking
 - driving as political statement
 - who's law
 - FE as a political solution
- enacting technological changes
- differentiation
 - self-differentiation
 - self-description
 - self-identity
 - doppelganger image
 - identity
 - legitimacy
 - no recognition
 - stupid enviro-weenies
 - self-contentment
 - self-distinction
 - self-selection
 - bragging
 - initiating difference

Title

Documents coded: 2
No Children
(no description)

Tree Node - (2 2 11) /autopoiesis/temporal dimension/keeping record

Node Set Tools View

Browse Properties Attributes DocLinks NodeLinks Edit Set Assay Search

Nodes Nodes in

- initiating difference
 - borders**
 - efficiency distinction
 - inefficient driving**
 - efficient driving**
 - considerate driving**
 - non-reactive mind**
 - change
 - changing driving attitudes**
 - change in distinction**
 - transition to hybrid driving**
 - difference**
 - changing driving habits**
- non-hybrids
 - best available option**
 - comparison**
 - hybrids drawbacks**
 - cognitive dissonance**
 - FE by non-hybrid**
 - FE vs non-hybrid**
 - non-hybrid driver**
 - non-hybrid efficient driving**
 - non-hybrid energy**
- paradoxes
 - weight paradox vs carpooling**
 - system enforces both values**
 - FE paradox**
 - hate-love**
 - hating big corporations**
- positive side
 - defending a product**

Title

Documents coded: 2
No Children
(no description)

Tree Node - (2 2 11) /autopoiesis/temporal dimension/keeping record

Node Set Tools View

Browse Properties Attributes DocLinks NodeLinks Edit Set Assay Search

Nodes Nodes in

- defending a product
- imposing system's view from 1 side
- taking the positive side of distinct
- contingency
- story
- subjunctive imagining
- unity of distinction
- value as meaning
 - Value Transformation
 - trancendent value
 - toward transcendent value
 - unique
 - costs
 - breaking even
 - development costs
 - high acquisitive cost
 - improving cost structure
 - hidden costs
 - enrichment
 - art
 - game
 - obsession
 - pleasure driving
 - FE value co-creation
 - expectations
 - maintaining expectation of value
 - contrasting experiences
 - differing expectations
 - pain of not being in
 - co-creation
 - non-tirivial system

Documents coded: 2
No Children
(no description)

Tree Node - (2 2 11) /autopoiesis/temporal dimension/keeping record

Node Set Tools View

Browse Properties Attributes DocLinks NodeLinks Edit Set Assay Search

Nodes Nodes in

- non-tirivial system
 - variability
 - hybrid sensitivity to a driver
 - difficulty in calculating
 - machine-driver interaction
 - trivial machine
 - fuel-efficiency
 - pareto
 - noticable drop
- value proposition
 - synergy drive
 - hope
 - being tuned into the system
 - external source of value
- being in control
 - mileage calculator
 - impossible to co-create
 - dehumanising
- a product
 - low emission
 - reliable
 - spacious
 - place of a product in life
 - internal space
 - looks cool
 - linking value of the product
- pie in the sky
- potential
- demographics
 - age
 - consumers

Title

Documents coded: 2
No Children
(no description)

Tree Node - (2 2 11) /autopoiesis/temporal dimension/keeping record

Node Set Tools View

Browse Properties Attributes DocLinks NodeLinks Edit Set Assay Search

Nodes Nodes in

- consumers
 - is there a distinction
 - waiting list
- understanding-continuation
 - conditions
 - external conditions
 - weather conditions
 - air temp
 - hot
 - warm
 - cold climate
 - climate events
 - hurricane
 - rain
 - snow
 - storm
 - wind
 - season
 - weather
 - geographic conditions
 - local topography
 - route
 - driving time&distances
 - traffic
 - car-related conditions
 - ventilation
 - AC
 - windows down
 - weight
 - battery replacement
 - view

Title

Documents coded: 2
No Children
(no description)

Tree Node - (2 2 11) /autopoiesis/temporal dimension/keeping record

Node Set Tools View

Browse Properties Attributes DocLinks NodeLinks Edit Set Assay Search

Nodes Nodes in

- view
 - control panel view
 - road view
 - cruise control
- petrol
 - filling a tank
 - monitoring gas consumption
 - petrol quality
- speed
- aerodynamics
- Tire condition
 - tire pressure
 - tire resistance
- principles and strategies
 - principles
 - purposeful human control
 - continuous control and check
 - hand control
 - highest gear
 - rpm below 2000
 - Motor
 - electric motor
 - minimize petrol engine work
 - lengthening a trip
 - combined trips
 - smooth driving
 - start & acceleration
 - slow driving
- strategies
 - engine-off coasting
 - coasting

Title

Documents coded: 2
No Children
(no description)

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Node Set Tools View

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Nodes Nodes in

- continuous control and check
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 - minimize petrol engine work
- lengthening a trip
 - combined trips
- smooth driving
 - start & acceleration
 - slow driving
- strategies
 - engine-off coasting
 - coasting
 - forcing autostop
 - pulse and gliding
 - deadband acceleration
 - pulse&glide strategy
 - combining strategies
 - drafting
 - Braking strategy
 - less braking, stop&gos
 - regenerative braking
- dissemination
 - educating
 - learning
 - experimenting
- rapid diffusion

Cases (0)
Sets (2)

Documents coded: 2
No Children
(no description)

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