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Title:

Dilemmas of a Sustainable Strategic Management

Options for a Corporate Balancing Efficiency and Sustainability
through Autonomous Co-operation in Decision Making Processes

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1. INTRODUCTION

Despite its broad acceptance as a concept of social development the idea of sustainability focuses in particular on the inter- and intragenerative distribution and allocation of property rights in the management of economic, ecological, social and cultural resources. In terms of a sustainable strategic management, however, decision making processes are still lacking the implementation and operationalization of the sustainability calculus.

This article initially wants to give an overview of the various patterns of interpretation while highlighting those perspectives, which permit the realization of the sustainability concept on an individual business level. Furthermore, the question occurs whether a recursive approach could optimize a sustainable strategic management. Therefore, the limitations and opportunities of recursivity will be examined. In a second step different types of dilemmas and dilemmatic management situations will be classified and discussed based on the premise that concept-immanent dilemmas connect with sustainability on an individual business level. It needs to be analyzed whether intra-conceptual dilemmas exist along with inter-conceptual dilemmas. Thirdly, different options for handling the identified management will be pointed out. The concept of autonomous co-operation as one among these alternatives, which will be analyzed from a system-theoretic point of view in regard to sustainable strategic management as a possible approach to a systematic, competence-based dealing with arising dilemmas. In a final step, possible potentials for corporate decision making processes, developing from the concept of autonomous co-operation will be presented and future perspectives of a sustainable strategic management within this conceptualization shall be outlined.

2. SUSTAINABILITY – GALLERY OF DEFINITIONS

The concept of sustainability has its source in the English-speaking regions. According to Gray, sustainability indicates the ability to develop, to strengthen and to preserve by one's own opportunities and potentials (Hülsmann, 2004a). Looking at the term of »Sustainable Development« from an etymological point of view it will turn out that it stems from the Latin »sustenerere« and in a general sense means supporting the avoidance of a fall. In a closer sense it can also stand for the assurance of survival. For example, Mathieu sees this in reference to developments directed at the assurance of a company's survival (Mathieu, 2002).

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Originating in the 12th century, the first record of the idea of sustainability as economic principle of housekeeping was created in the monastery of Mauermuenster in south-west Germany. However, the idea was not adapted in practice until the 16th or rather 18th century, when it was applied in the area of forestry under the policy of not using more wood resources than possible to restore within the natural regeneration cycle (Vorholz, 2002). Today's perception of sustainable development builds upon »The Brundtland Report«, published in 1987, whose main idea grew into an essential component of management discipline.

Due to the scope of research disciplines working with sustainability as a leading principle, the concept made its way into a variety of different understandings. An overview of these various definitions is provided by the »gallery of definitions« created by Pearce/Markandya/Barbier. The following classification filtered out the basic principles of sustainability prevailing in the context of management discipline (Hauff, 1987).

2.1. The Normative Perspective

The normative interpretation stands in close relation to the idea of »The Brundtland Report«. JÖRRISSEN/KNEER/RINK examine this interpretation with regard to an intra- and intergenerative fair economic development (Jörrissen et al., 2001). Instead of consuming the substance, the main idea of the normative principle is to induce actors on the common as well as on the individual level to live off the output (Schaltegger/Dyllick, 2002). Given that third world nations use up their substance for economizing, this situation presents itself unfair, as the industrial nations (25% of the world's population) consume 75% of the global resources (Hülsmann, 2004a). Thus, the effects of one's decisions on others ought to be considered along with the resulting reactions and, in addition, short-term and long-term effects of these decisions have to be evaluated.

Therefore, decision making processes embedded in the normative principle have to take into account an economic, ecological and social dimension; not to mention a cultural or technological dimension, which might as well be considered (Barbier, 1987). The question of a satisfying intra- and intergenerative, and especially individual fairness, may only be answered from a subjective and context-related view due to the fact that it is impossible to obtain an objective and rational reasoning for one specific sustainable

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behavior. Consequently, this situation reflects a concept-immanent problem (Hülsmann, 2005). The postulate of economic fairness, developed by Balzer/Wächter, states that the satisfaction of all actors' needs is supported and, furthermore, is regarded as being a major value in terms of a reasonable and responsible economizing in society (Balzer/Waechter, 2002). On no account does the principle of a normative recursivity only look back on itself, but it rather accounts for the effects of decisions that might have an impact on other economic units, whose opportunities also play a major role in the decision making process. Looking at recursivity from a normative point of view, the system possesses the ability to identify the environment's requirements, to value their importance, to adapt to its own environment as well as to assure the supply of resources and therewith becomes more sensitive. In a system-theoretic interpretation this will cause the system to permanently reflect upon the fairness of its decisions towards others as well as the resource supply of environmental systems and interaction partners (Hülsmann, 2005).

A realization remains difficult given the individuality of the normative interpretation. However, an attempt to operationalize these may be exemplified by two other principles, which provide formal guidelines for a rational and objective decision making.

2.2. The Rational Perspectives

The idea of the efficiency-oriented rationality focuses on optimizing the input of resources through product- and process-innovations. There are two options to achieve this. One is to concentrate on the absolute conservation of the substance in reducing the consumption of resources by means of innovations, as for example "by saving costs through minimizing the input of resources and energy" (ECOM AG, 2000). The second option is to utilize resources more efficiently and, therefore, to preserve the substance in relative proportion to the consumption of resources. Overall, this principle of sustainability constitutes itself on the efficiency calculus of a rational economizing and implies economic as well as social sustainability (Hülsmann, 2004a). The aim is to realize a rationalization of resource consumption by regarding economic growth and the input of resources separately. This separation shall be based on the innovation itself, concerning

1 technologies, processes and products,

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- 2 intra and inter business coordinational and organizational forms,
- 3 political frame work and conditions of infrastructure.

In doing so, this perspective of sustainability becomes supportive for the realization of the normative principle (Minsch, 1996).

By applying this rationality in managerial decision making, specifically system robustness could yet be increased. The environmental sensitivity of a system is considerably influenced by two major aspects. The first one is based on the fact that the different efficiency concepts of the environmental systems need to be taken into account. This problem is solved by Luhmann in suggesting that the different efficiency concepts of diverse systems undergo a leveling process during which the system integrates the efficiency expectations of the environmental systems (Luhmann, 1964). The leveling can either focus on the input side by using less resources for the system's production. Or, the leveling may be targeted at the output side by producing more resources for the environmental systems, which will make participation more attractive to them and consequently increase their willingness for co-operation. Eventually, both cases will raise the system's attractiveness towards its environmental systems (Hülsmann, 2005).

The second aspect concerns the possibility of reducing a system's environmental impact. A system-theoretic perspective sees the willingness of the environmental systems to provide the system with resources from a different angle. As they have to compensate lower external costs for their production the system's attractiveness increases even more (Hülsmann, 2005).

The main focus of the substance-maintaining-oriented rationality is the maintenance of the resource basis by taking into consideration the effects of decision making processes. Thus, two aspects have to be accounted for: first, maintaining the resource-base means investing in its reproduction, and secondly, the establishment of a balance between consumption and supply of resources is required (Müller-Christ, 2001). Overall, this principle implies that the reproduction of resources must be ensured in order to allow for their utilization (Müller-Christ/ Hülsmann, 2003). Therefore, the concept of substance-maintenance can only be carried into effect if the compensation between resource consumption and resource supply is provided.

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A system constitutes itself through the interaction of resource exchange processes, according to the interpretation of Hicks/Gullett (Hicks/Gullett, 1975), which relates to the idea of interdependency between a system and its environmental systems. Hülsmann even refers to as symbiotic interaction (Hülsmann, 2003). This construct of ideas, regarding the system in relation with its environment, may even be specified as a survival co-operation, in which both parties have to face the challenge of substance-maintenance together (Remer, 1993). To assure this kind of co-evolution in the long-term the system as well as its subsystems and environmental systems have to work collectively on the continuity of their substance in a global context (Müller-Christ, 2001). For this reason a permanent critical analysis of decisions as well as of their consequences for the symbiotic interrelation by means of an intersystemic self-reflection is crucial (Luhmann, 1994). Recursivity is only applicable as substance-maintaining-oriented rationality, if the environmental systems maintain their capability of producing resources and stay unaffected by the system's external costs. Consequently, a sustainable balancing of demand and supply will only be achieved in the long-run.

Finally, it can be stated that recursivity can be understood as an attribute of sustainability since every decision affects other economic units (for instance social groups) and therefore needs to receive a response. Instead of only considering the realization of one's own goals, a balance needs to be established, which equally includes the consequences of the respective decisions for others (Hülsmann, 2005). The divers interpretations of recursivity according to the different understandings of sustainability will be shown in the following classification. A recursive management approach as shown in the different concepts of sustainability always implies the need for a decision and respectively trade-off, either seen from different perspectives of at least two companies or systems, or even within the specific concept of sustainability. Thus, a systematization of how to classify and structure this complex issue has to be found.

3. RESULTING DILEMMAS OF A SUSTAINABLE STRATEGIC MANAGEMENT

3.1. Dilemma – A Definition

So far only very few publications have dealt with the issue of management dilemma in strategic management, and specifically in the area of sustainable strategic management. According to Neuberger,

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the contradiction between employees and management goals may possibly lead to a conflict for the company as a social system (Neuberger, 1995). Hampden-Turner examines the dilemma of successful management by delineating the discrepancy between "inner-directed-motives" and "outer-directed-motives" in relation to the logic of forming the organizational structure of a specific system (Hampden-Turner, 1990). The diverging demands of a system's necessity to absorb complexity by opening and its ability to process the absorbed complexity by closing are presented by Gebert/Boerner (Gebert/Boerner, 1995). Aram highlights conflicts in the relationship of the individual and its surrounding organization as a major dilemma of management (Aram, 1976). Dilemmas are considered to be a principle problem of management by quite a few authors, as for instance Remer, Fontin, Grimm or Hülsmann (Remer, 2003; Remer, 2001; Remer 1997; Fontin, 1997; Grimm, 1999; Hülsmann, 2003; Hülsmann, 2004). Fontin explains dilemma as a particular form of a logical conclusion. The destructive dilemma describes the impossibility of choosing between two alternative options, whereas the constructive dilemma reflects a problem of decision making, in which a goal can be attained in two different ways, but for neither one a specific reason is given. The destructive dilemma distinguishes itself due to the fact that both options result in a rational decision, but yet they are not simultaneously realizable (Fontin, 1997).

3.2. Types of Management Dilemmas

Dilemmas can be classified into different types, which correspond to the perception of dilemma management. Initially, it shall be demonstrated how generating a system within a complex and dynamic environment leads to a situation of logical conflict. The dilemma of decision in management is specified by an area of conflict, which Remer describes as one determined between the two poles of reality and idea in respect of the system. The needs of the system's environment (in reference to reality, e.g. customers) will possibly not meet the system's requirements (in reference to idea, e.g. those of the owner). Only in a best case scenario will the two poles meet their respective demands, but barely ever in management day-to-day activity (Remer, 2003). While reality and therewith meeting the system's environmental needs play an integral role in the system's well-functioning, the idea as an antipole must not be neglected, especially as its disregard will cause the system to lose track of its aims. A system's inability to counterbalance these opposing demands may result in its downfall (Luhmann, 1973; Etzioni, 1960; Etzioni, 1961). This example

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provides a classic type of management dilemma by illustrating the impossible task of a rational decision making as either one of the poles may be favored for various reasons. In reverse, this means that the two poles can neither be accomplished simultaneously nor can they be completed to a maximum degree (Hülsmann, 2003). The concept of the dilemma of decision mainly concentrates on how to achieve the system's aims and clearly demonstrates that decisions, specifically in the context of strategic management, have to be thoroughly balanced between the demands of reality and idea to be considered sustainable.

In a next step, it is to clarify how the contradiction of reality and idea in management dilemmas can be overcome successfully. The difficulty, however, lies in determining and evaluating effort and achievement in the context of dilemma management, which leads to a dilemma of success. Dilemmatic management situations are based on the reintegration of the system and its environment (Remer, 2003), resulting from the fact that borderlines are vanishing. Modern social systems fulfill a number of purposes, not at least in terms of interacting with their resource holder (Hülsmann/Berry, 2004). Along with the difficulty of determining and adhering to aims in dilemmatic management situations, the risk of substance loss may endanger the system's existence (Remer, 1997). These two diverging demands, again understood as anti-poles within the dilemma management context, distinguish a dual term of success, which must include ideas as well as realistic limitations (Remer, 2003) resulting from a permanently and increasingly fast changing environment of hyper-linking, hyper-competition, hyperturbulence etc. (e.g. in Bahrami, 1992; Fontin, 1997; Gebert/Boerner, 1995; Grimm, 1995; Remer, 2001; Weick, 1995). As the classic domination of the term of success is confronted with the conditions of the environment, it is insufficient to merely consider the ideas of management. The achieving of aims as well as of substance maintenance need to be respected equally. The dilemma of success ultimately is a problem of evaluation. While on the one hand, a dilemma of decision has to weigh between different options in order to make a choice, on the other hand, these weighed and chosen options still need to be evaluated in terms of success (Hülsmann, 2004b).

3.3. Evident Dilemmatic Situations of a Sustainable Strategic Management

According to the identified types of management dilemmas, it is to examine in how far the co-existing

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perspectives of sustainability are context-related to dilemmatic management situations. For this purpose, a classification will be established to deal with the different understandings and meanings of sustainability in respect to dilemmatic management situations. On a first level of systematization, intra- and inter-conceptual dilemmas shall be categorized based on the different concepts and their specific understandings of sustainability. The intra-conceptual dilemma exists either concept-immanent or in relation to the surrounding systems. These systems may pursue the same concept of sustainability, but interpret it in different ways, whereas the inter-conceptual dilemma, usually found in modern sustainable strategic management, has to deal with three co-existing perspectives of sustainability. Secondly, the type of dilemma, destructive or constructive, needs to be determined when different perspectives of sustainability encounter each other. Finally, it is essential to differentiate between dilemma situations of decision or success, meaning that the system either has to choose between two specific understandings of sustainability or needs to envisage the evaluation of success.

3.3.1. Inter-Conceptual Dilemmas

Corresponding to the first level of classification, the so called inter-conceptual dilemma will initially be analyzed. When relating the different concepts of sustainability to each other, two sides and their different points of view need to be considered. These are the perspective of the environment in relation to the system itself as well as the system's perspective towards the environment. For example, relating the normative and the efficiency-rational concept to each other will result in a destructive dilemma of decision for both sides. While it may be possible for the system itself to measure the success in terms of the efficiency-rational concept, the other system is confronted with the impossibility of operationalizing its success by means of a normative approach. From a management perspective the normative approach is considered an insufficient alternative for a rational decision making due to its focus on a subjective and individual rather than an intersubjective rational organization of a sustainable management. As there is no tool, which would allow the operationalization of this approach it has to be accounted for as not concrete enough (Hülsmann, 2005). Given that the surrounding system could only adhere to abstract rules, the two concepts would not be compatible from the outset (Hülsmann, 2003). The same outcome applies for the linking of the normative perspective of sustainability with substance-maintenance as second individual

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business level.

Each of the two perspectives of sustainability is based on an individual business level and comprises a calculus for rational decision making. Yet, they have to face another inter-conceptual dilemma, namely the dilemma of success, meaning that the appropriate way of measuring success on the individual business level has to be found (Hülsmann, 2004b). Should the calculus follow an efficiency-rational perspective or rather count on the concept of substance-maintenance? In fact, the two perspectives complement each other. The efficiency-rational approach implies the resource-holders' willingness to provide related systems with resources based on the fact that relatively limited resources are used efficiently (Hülsmann, 2004). Only in doing so and in avoiding unnecessary waste of resources, the resource-holders will be willing to participate (Staeble, 1991; Hill et al., 1994). Willingness alone, however, is not sufficient as the ability to provide resources should not be neglected and the substance-maintaining perspective is certainly needed, especially in terms of absolutely limited resources. For this reason, the substance-maintaining perspective supports the maintenance of such resources (Hülsmann, 2004a). Due to the different formal instructions for decision making the alternative rationalities may contradict each other based on their diverging short- and long-term effects of the calculus of yields and the calculus of the company's risk. The efficiency-oriented rationality suggests that increasing efficiency leads to short- and long-term yields. From the perspective of substance-maintenance increasing sustainability resulting from the compensation of resource consumption and the supply with resources will lead to long-term effects. Regarding the yield in a short-term view, negative effects have to be expected (Hülsmann, 2003).

3.3.2. Intra-Conceptual Dilemmas

Along with the inter-conceptual dilemmas and in correspondence with the different perspectives of sustainability, three intra-conceptual dilemmas will be pointed out, all of them resulting from their concept-immanent character of recursivity. Every perspective of sustainability implies a destructive as well as a constructive type of dilemma. There could be good reasons for both perspectives from a normative perspective, if they lead to the same result. However, they do not work in combination as the system itself and its related systems may operate by their very different abstract forms of ideas. The dilemma of decision presents itself in the difficulty of choosing between different normative perspectives and raises

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the question whether the system should adapt to another company's normative view of sustainability or whether it should act in accordance with its own understanding of normative sustainability.

The second intra-conceptual dilemma, which similarly poses concept-immanent problems, lies within the principle of the efficiency-oriented rationality. It becomes apparent that only to remain with one's own efficiency-oriented rationality might be inadequate, a fact that needs to be considered despite the efficiency-oriented rationality's goal to achieve higher short- and long-term yields. These yields will be accomplished, for example, by means of process innovations to decrease the consumption of resources. For a sustainable strategic management the requirement of recursivity implies opportunity and threat at the same time. If the system does not want to negatively effect its resource-holders' abilities to provide resources, it has to look beyond its own efficiency (Hülsmann, 2003). Furthermore, the realization of an equal emphasis on external ideas as well as of one's own perspective might be problematic due to the individuality of the different understandings of efficiency in relation to the respective company and its specific context.

The third intra-conceptual dilemma can be found within the substance-maintaining interpretation of sustainability. Apart from the system's resource maintenance the interpretation also implies other systems being affected by the utilization of resources. Thus, a substance-maintaining oriented perspective in respect of the system's resources has to integrate the substance or resources of its surrounding systems into its planning as they both live off the same resource basis. A dilemmatic situation may occur in regard to the supply with resources if the demands of the environmental systems do not counterbalance the system's needs. Therefore, the determination of the aims of substance-maintenance as well as the adherence to the principle of recursivity to attain a long-term sustainable strategic management are essential. Only in this way the system's success can be assured (Hülsmann, 2004b).

4. HOW TO COPE WITH MANAGEMENT DILEMMAS

Until today systems have been regarded as mere entities which possess the ability to deal with the environmental demands. Thus, the conception of reality and idea has been simplified. A system is based upon four management subsystems (organization, potential, politics and planning), all of them seeking to

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fulfill a specific purpose (Remer, 2001). Yet, this appearance of a consistent whole has to overcome its limits. Due to the fact that the system finds itself within a complex and dynamic environment, it has to include reality besides its idea. Consequently, the task of management theory is to design management systems which will ensure a balanced arrangement between the system's idea as well as its reality (Quinn/Cameron, 1988; Luhmann, 1984). The following examples will show the different options which attempt to achieve congruency with their limitations.

4.1. Hybridization of a Management System

Hybridization of a Management System presents an biology analogous approach to management dilemmas, using modern as well as classic elements and aiming at the production of a continuous moderate opening of the system. The elements should be arranged within the average of a scale from completely closed (idea orientation) to completely open (reality orientation) (Remer, 2001). In this way any kind of dilemma can be managed with this approach. The central idea of the so-called situational approach is to enable management systems to adapt to varying situations by keeping them flexible. Regarding the different understandings within the perspectives of sustainability and their contradicting demands, these should be handled in relation to the situational constraints, such as importance, influence etc. (Fiedler, 1967; Lawrence/Lorsch, 1969). One way to avoid risking substance loss, in adherence to an efficiency-rational perspective, is to keep the opening and closing of the system flexible. Only when the resource basis is secured the system will provide the surrounding system with its resources. This is achieved by the system's timely closure or its necessary reopening to absorb the needed resource quantity.

4.2. Conditionalization of a Management System

In contrast to the above option stands the conditionalization of a management system, which relates to management configurations in order to deal with diverging demands towards a system. A consistent management system including its substance (organizational and potential) and management program (politics and planning) is required by both approaches although such consistent system can hardly be found in reality (Mintzberg, 1979; Miller/Friesen, 1984; Hall/Saias, 1980; Schreyögg, 1987; Staehle, 1999).

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The system's structure itself has to be problematic and loaded with tensions to absorb the problematic environment and to be capable of coping with problematic management situations (Luhmann, 1973). For example, in modern approaches by such authors as Remer, the interrelation between the management subsystems moves into the centre of interest, which appears to be more adequate compared to the mentioned view of consistency (Remer, 2003). In order to gain more capacities, especially to deal with dilemmatic management situations, the leveling of the management subsystems (organization, potential, politics and planning) is the basic requirement. On this basis the inter-conceptual dilemma of different implications arising from the normative perspective of sustainability in relation to the substance-maintaining perspective can be solved by the subsystems. By keeping a balance between the two poles of reality and idea they can therefore assure the system's continuity (Hülsmann, 2003).

4.3. Compensation of a Management System

This option is based on the idea to deal with the contradictive demands by means of two existent variables. For example, one could be represented by the system's opening, the second one is applied to keep the system from losing its balanced orientation. Such variables are adapted to ensure a confinement of the system through profit orientation or strict controls on employees for instance. As the management subsystems themselves can be configured in divers ways for compensational means (Remer, 2002), this could lead to the possibility of combining different perspectives of sustainability with a specific management system. Balancing between different companies' strategies or intra-conceptual perspectives of sustainability could be an alternative option of compensation (Hülsmann/Berry, 2004).

4.4. Autonomous Co-operation of a Management System

The previous presented options for coping with management dilemmas and particularly related to the compensational approach demonstrate the need for keeping a system's balanced despite the fact that compensational strategies have been tried to be established before. The determination of the system's adequate point of balance poses some difficulty because various diverging demands have to be met. The system is highly dependent on the congruence between the environment and itself (Hülsmann/Berry, 2004).

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The concept of autonomous co-operation is one of the theories whose significance increasingly grew in latest management discussions, not at least because of its designability and tractability of complex systems in an unpredictable environment. "Autonomous Cooperation" describes processes of decentralized decision making in heterarchical structures. It presumes interacting elements in non-deterministic systems, which possess the capability and possibility to render decisions independently. The objective of Autonomous Cooperation is the achievement of increased robustness and positive emergence of the total system due to a distributed and flexible coping with dynamics and complexity." (Hülsmann/Windt, 2005).

The main idea is that, on the one hand, systems can be regulated by an external force, but on the other hand, this ability is also found in the system itself. A system will alter its shape over time including its varying of the balance structure, if its development is left to its own behalf. In view of this the concept of autonomous co-operation appears to be the ideal approach to analyze dilemmatic situations as well as the realization of a dilemma management (Hülsmann/Berry, 2004).

In terms of a sustainable management the concept globally implies to leave operative decision making in its sub-systems, -units, and -elements. Therefore, the individual system components can form and adhere to their individually needed perspective of sustainability in relation to their individual situation since they are independent from any external instances. Moreover, by targeting smaller organizational units including their relation to other external or internal units the system's flexibility grows. Thus, capacities of planning and particularly managing will expectedly improve, which also entails higher flexibility in regard to adapting to environmental demands. To eventually gain more capacities for discovering alternative ways of dealing with management it is essential to regain and keep the system stability of its system elements.

In which way is autonomous co-operation able to balance sustainability and efficiency now? It provides the system with the opportunity to react as much flexible as stable to its environmental efforts. The system has to face opposing demands, but can absorb complexity in form of dilemmatic management situations. A sustainable strategic management can integrate diverging interpretations of sustainability, although it has to abide with the principle of recursivity and consequently must in an inter-conceptual view take into

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account the sustainability perspective of its surrounding systems. The character of a decentralized decision making in heterarchical structures through autonomous co-operation makes this possible. The system's goals of sustainability and efficiency present opposing demands, which need to be realized at the same time. However, to achieve this, a balance needs to be established between these goals, instead of strictly keeping to just one of them. To deal with the required trade-off between these poles autonomous co-operation might be the appropriate approach. Following this approach, the system as such as well as all its sub-divisions have to deal with the system's absorbed complexity, interpreted as dilemmatic management situation. For a sustainable strategic management the advantage could lie in leaving the decision making to construe the efficiency-oriented rationality in the specific company's division irrespective of the fact that other divisions have to ensure their resource supply and therefore should follow the substance-maintaining perspective. The sub-elements and the respective managers could eventually decide on their relations to internal departments or to elements of the surrounding system and find the individual trade-off to cope with a dilemmatic management situation. In this way, autonomous co-operation helps to reduce complexity for the entire system and at the same time does not neglect the surrounding system's demands by means of decentralized and direct ways of decision making within a recursive management approach.

4. PROSPECTIVE DEVELOPMENT

With the goal of a robust long-term sustainable strategic management in mind a solution needs to be found to determine the identified abstract contributions of autonomous co-operation in a concrete way. A tool to classify and to quantify the optimum degree of autonomous co-operation and which also corresponds to its characteristics has to be established. Thus, measuring autonomous co-operation becomes the central aspect. The decentralized decision making in heterarchical structures as antipole to a centralized perspective presents the main characteristic of the concept.

A sustainable strategic management is now confronted with the problem of defining the optimum degree between autonomous co-operation and external control. One possible solution for its determination could be a monitoring (the permanent controlling and simultaneous measurement of the system's behaviour) and therewith the support of the sustainable strategic management. In the future it shall be possible to

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concretely determine company departments where more autonomous co-operation is needed or will be more effective, which relates to three different levels, namely the management level (human resources), the information level (data) and the technical level (machines).

In connection with this the next future requirement of autonomous co-operation becomes apparent. The contribution of autonomous co-operation regarding its relation between cost and benefit needs to be clarified apart from the implementation of a measuring system to quantify the organizational effects. This aspect will be of importance to see if the outcome of the concept's realization is beneficial in respect of its cost (monetary, organizational etc.). Therefore, the costs for its implementation must not be exceeded. As a consequence, future research has to consider the establishment of a consistent measuring system, which will support companies in their decision of whether they should introduce this management concept as well as enable them to estimate the contribution to a sustainable strategic management. Every company that aims at a serious sustainable strategic management should make it their long-term vision to approach a corporate balancing efficiency and sustainability through autonomous co-operation in decision making processes (Herzog, 2003).

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