

# Pitfalls in implementing a strategic early warning system

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## Abstract

**Purpose** – *The purpose of this paper is to examine the reasons why the concept of a "strategic early warning system" (SEWS) has not been widely introduced and why it fails to be implemented successfully in German corporations. The aim of such systems is to detect changes in an organizational environment ahead of time by scanning the environment for "weak signals", which come in the form of trends.*

**Design/methodology/approach** – *The questions that arise, particularly because the concept of SEWS is not entirely new, are: What are the pitfalls in implementing these systems, why do they occur, and how can they be overcome? To answer these questions, a single case study was conducted.*

**Findings** – *The study suggests that the failure of SEWS is due mainly to a lack of participation of potential future users in the implementation phase, a lack of joint understanding of the nature of trends, differing and unrevealed requirements of trends by various interested parties, a broad misconception of the "weak signals" concept and trends, an excessively heavy reliance on alleged "hard data", a lack of interaction among users, and finally a "missing link" to the strategic functions in an organization.*

**Research limitations/implications** – *The results of the study are limited due to the fact that they are derived from a single case study.*

**Originality/value** – *The identification of pitfalls contributes to the research on implementing SEWS and this can also be linked to "strategic issue management" and the foresight process.*

**Keywords** *Organizational planning, Organizational change, Strategic management, Germany*

**Paper type** *Case study*

## Introduction

In the past and even more so in the future, organizations have been and will be subjected to an environment characterized by rapid change and dynamics, and increasing discontinuities. Discontinuities are relevant changes in an organizational environment which are characterised by being new and therefore difficult to predict. The argument has been made that the "age of discontinuity" has already begun (Drucker, 1969), and that change is occurring more rapidly than in the past. The situation in which organizations find themselves can be described as "the mess" (Ackoff, 1981) perceived by organizations as the future implied by its own behaviour and that of its current environment. The aim of a strategic early warning system (SEWS) is to assist organizations in dealing with "the mess", in particular with discontinuities or strategic "surprises". By detecting "weak signals" (Ansoff, 1975), which can be perceived as important discontinuities in an organizational environment, SEWS allows organizations to react strategically ahead of time. Being theoretically rooted in the area of "strategic issue management" (Ansoff, 1980), the concept of SEWS has been a subject of research in Germany (Krystek and Müller-Stewens, 1993; Liebl, 1996). In a recent study by Roland Berger Strategy Consultants (2003), the lack of a SEWS was identified as one of the key causes of failure in strategic planning. Even though the underlining concept of "strategic issue management" has been around for some time, SEWS has not been introduced successfully to a wide range of corporations in Germany.

The difficult implementation of SEWS has been identified as the key hurdle for the success of such systems (Baisch, 2000), which Ansoff (1980) also mentions in terms of the implementation of "strategic issue management".

The issue which deserves more attention is the nature of the pitfalls in implementing a SEWS, why do they occur, and how they can be overcome? To answer these questions, it seemed appropriate to conduct a case study (Yin, 2003) and analyze a SEWS which had recently been implemented. A single case study was chosen, primarily because it was possible to conduct a reliable case study based, besides documentation, archival records, interviews, direct observation, and physical artefacts, on substantial participant observation as a source of information. The case study was conducted in a subdivision of a multinational electronics corporation with headquarters in Germany. To keep the case study confidential, the company is referred to as Company X. Before describing the SEWS at Company X and the outcome of the case study, the underlying principals of a SEWS and a theoretical model of a SEWS will be discussed.

### A theoretical model of a SEWS

The underlying assumption of SEWS is that discontinuities do not emerge without warning. These warning signs can be described as "weak signals". The concept of "weak signals" (Ansoff, 1975) aims at early detection of those signals which could lead to strategic surprises and to an event which has the potential to jeopardise an organization's strategy. Furthermore, the concept of a SEWS is intended to constitute an important part of a strategic management system, operating real time in an organization, and assisting in identifying the new, which emerges as "weak signals". The nature and importance of "weak signals" is best described as follows: "As any adult knows, a magician cannot produce a rabbit unless it is already in (or very near to) his hat. In the same way, surprises in the business environment almost never emerge without a warning" (Wack, 1985). Detecting "weak signals" is achieved by scanning the organizational environment. The concept of environmental scanning (Aguilar, 1967) describes a process whereby the environment in which an organization operates is systematically scanned for relevant information. The purpose is to identify early signals of possible environmental change and to detect environmental change already underway (Lester and Waters, 1989). Environmental scanning can be divided into two approaches. The outside-in approach favours scanning activity with a 360° focus, an attempt to avoid blind spots. This approach acknowledges that overcoming blind spots at the individual and organizational level is essential for detecting "weak signals". Unfortunately, the outside-in approach is strongly hindered by the problem of information overload, which has increased substantially over the past few years because of scanning the internet. The second, more widely used approach in practice, is "inside-out". Here, the fields of interest for scanning have been determined in advance by top management. The insideout approach limits the amount of information gathered, but carries the danger of limiting the focus of the organization and increasing the number and/or gravity of blind spots. If "weak signals" have been detected through an environmental scanning activity, it is important to monitor these findings and keep track of them. This environmental scanning activity is the first step of gathering information in a SEWS.

However, what exactly are "weak signals"? Trends and various other issues related to strategic management can be regarded as the fundamental "weak signals" in an organizational environment. Trends can also be regarded as the precursor of issues. Yet, while trends are characterised by being new, issues are characterized more by societal conflict and the mobilization of societal forces. Strategic issues are defined as emerging developments which decision makers consider likely to exert a significant impact on organizations at present or in the future (Dutton *et al.*, 1983). The focus of the observed SEWS remains primarily on the detection of trends. Therefore, it is of particular importance to understand the precise nature of trends. In general, there are two definitions of trends. One is the more "classic" definition, perceiving a trend as an ongoing, fundamental societal change over an extended period. The "modern" trend definition treats a trend as a short term phenomenon, e.g. in fashion or music. The present case study will follow Liebl's (2000) approach. He views a trend as a phenomenon which is always complex and which cannot

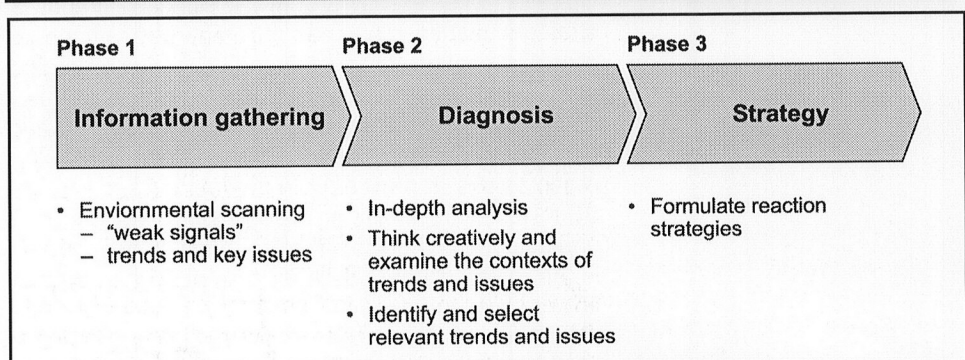
be perceived simply as a fashion and neither can its lifespan be measured accurately, as suggested, for instance, by the concept of megatrends (Nasbitt, 1982). A trend represents a connection, an association which is defined clearly by crossing the borders of contexts (Liebl, 2000). The underlying assumption is that the new emerges when the boundaries of contexts are crossed. This assumption implies that there really is a trend when the objects of this trend can be divided into different contexts in the past. For this case study, a trend definition was chosen which regards all phenomena as trends which can be interpreted as providing new linkages between objects whose contexts were previously separated. The clear advantage of this trend definition is to understand trends not only as a phenomenon over a certain period of time, but also to consider their characteristics. Researching for trends means looking out for the new. Whereas the objects linked in a trend do not necessarily need to be new, they are likely to be reconfigured and the trend itself must constitute a new phenomenon. The sport-utility-vehicle (SUV) trend demonstrates how various contexts which were formerly separated, form a new phenomenon, linking cars for off-road purposes with a need for individualization in urban areas and a demonstration of being sporty.

After describing the fundamentals of a SEWS, it is important to analyze the "ideal" process of such systems, thus establishing a reference point for analyzing the findings of the case study. The ideal SEWS process is derived from Liebl (2000) who describes three phases (see Figure 1). The first phase is characterised by the information gathering of "weak signals", or trends and issues. The scanning itself relies primarily on examining various media sources, the technique of content analysis (Nasbitt, 1982). The scanning activity is complemented by monitoring trends and issues that have already drawn attention. The second phase is one of diagnosis, which is characterized by three steps. The first step contains an in-depth analysis of the trend or issue, examining the core and the various contexts of this phenomenon. The aim is to gain an impression of the possible potential development of an issue or trend. The second step has several objectives. Firstly, the attempt should be made to think creatively about how the particular trend or issue could evolve. Secondly, the nature of the contexts needs to be examined in order to cluster several trends or issues, thus providing an understanding of the mutual influences on and of trends and issues. In the final step of the diagnosis phase, it is important, due to the limited resources in any organization, to identify and select those trends and issues that are particularly relevant. Finally, the third phase of the SEWS describes the formulation of an appropriate strategy to react to the trends and issues which have been identified and labelled as relevant.

### Case study: identifying the pitfalls

The case study, which relies mainly on participant observation, was conducted in Company X over three months. The concept for the observed SEWS was drawn up in the beginning of 2002. The problem to be solved by the SEWS was defined by Company X as their reacting too slowly to changes in the business environment, especially in their primary markets. The

**Figure 1** The SEWS process



primary goal of the SEWS should be to respond rapidly to dynamics in the business environment. The implementation phase started in April 2002 and the SEWS was finally implemented in May 2003. Even in mid-2004, the SEWS manager had changed for the second time and no successor had been appointed. Consequently, the system was jeopardised by a lack of interest, especially by top management. Before examining the pitfalls in the implementation of the SEWS at Company X, a brief overview of the SEWS will be provided.

### The SEWS at Company X

The SEWS manager is at the core of the SEWS at Company X. He is responsible for scanning and monitoring various sources in order to identify trends. Environmental scanning follows a strict inside-out approach, directed by what is called the "early warning architecture". This architecture is based on six scenarios which were constructed at the beginning of the implementation phase, mainly to provide a framework for the SEWS and especially for the scanning activity, but also to provide a structure for the software tool which was implemented to store data relating to news and trends. An important aspect of this software tool is the interaction between those using it. The aim of the interaction is that news and trends be rated and commented on, leading not only to a broad discussion between managers of Company X, but also to evaluating the probable consequences and impacts of trends for and on the business. In addition, a team consisting of marketing, strategy, and R&D experts was set up to assist the SEWS manager in his activity and to form a forum for discussing trends. It was observed that the output of the SEWS activity is only irregularly presented to managers who have indicated an interest in the process, but, for instance, there is no periodic reporting of trends combined with a feedback loop, which would have been favourable and advisable.

The evaluation of the SEWS of Company X shows that this system does not assist in detecting changes in the company's environment ahead of time. Several reasons lead to this conclusion: Firstly, the strict inside-out scanning approach, fostered by the "early warning architecture", leads to a scanning which remains within the limited business perspective of Company X, and fails to challenge blind spots or the mental models (Fahey and Randall, 1998) of management. Secondly, the generated trends do not meet the needs of those who are supposed to be the beneficiaries of such a system. The trends either fail to cover the relevant issues, or the relevant time frame. Between the users of the SEWS, there is no common understanding of what a trend actually means. This ultimately leads to a situation in which the outcome of the SEWS does not meet the needs of the recipients. Thirdly, the SEWS in Company X simply does not detect trends. For various reasons which are explained later in more detail, it is evident that, in terms of the trend definition in this paper, what are labelled as trends, are really little more than descriptions of developments which are already underway, such as existing products and developments to which a strategic reaction would be far too late. Fourthly, there is no interaction within the SEWS. The core of a SEWS should be the interaction between various participants from various departments in an organization, bringing together as much knowledge and insight as possible. Interaction, discussion, and interpretation are the key elements for the diagnosis phase. However, in the information-gathering phase as well, multiple perspectives are essential. An analysis of user statistics in the software tool proves that there is in fact no interaction and the team whose mission is to assist the SEWS manager in discussing trends, meets seldom and irregularly. The SEWS of Company X, set up to be a process of broad participation, has only one regular participant, the SEWS manager, whose intended responsibility was to administrate the process, not to be the process itself. Fifthly, with the point of reference of an ideal SEWS in mind, the inevitable conclusion to be drawn is that the system labelled by Company X as a SEWS, simply does not have two of the three phases described above. The phase of diagnoses is covered very briefly, and the most important phase of formulating reaction strategies is completely absent.

How could the SEWS in Company X fail so fast and so completely, and what led to this failure? These questions are answered in the following section by identifying the pitfalls in the implementation phase. The focus is on implementation, because the description of the case

study will demonstrate that the pitfalls in implementation lead to the failure of the SEWS in Company X.

#### *Pitfall no. 1: starting out with scenarios*

Since the scenarios and subsequently the “early warning architecture” play a crucial role in the SEWS of Company X, it is important to take a closer look at the scenarios that were constructed specifically. The main aim of scenarios is to identify existing trends and key uncertainties and combine them into “pictures” of the future, not covering all eventualities, but attempting to discover the boundaries of future outcomes (Schoemaker, 1992). Most importantly, scenarios should cover essentially different futures rather than variations of one (Schoemaker, 1995). It is all about “thinking about the unthinkable”. In examining the six scenarios constructed at Company X, it is evident that these scenarios do not describe six generically different futures, but variations of only two futures. What is missing, therefore, is a scenario dealing with the “death” of the business, the absolute worst case. The constructed scenarios describe futures which are almost exclusively favourable to Company X and its products. They do not challenge the mental models (Schwartz, 1998) of the participants of the exercise and ignore the opportunity to create a “memory of the future” (van der Heijden *et al.*, 2002; de Geus, 1997), which would enable managers to “visit” the future ahead of time, creating a matrix in their minds to make sense of new developments in the environment. The constructed scenarios, which, in this case study, are the starting point for the SEWS, are too narrowly conceived and miss the essential point of the scenario technique, which is to create alternative “pictures” of the future and to challenge mental models.

#### *Pitfall no. 2: the lonely SEWS manager*

The lack of interaction within the SEWS has already been mentioned. The SEWS manager suffers from isolation, and clearly lacks interaction and discussion with others. This ultimately leads to a SEWS that represents little more than the perspective of the SEWS manager, guided heavily by the static “early warning architecture”. However, not only does the SEWS manager himself suffer from isolation, his organizational position does so as well. As mentioned in the ideal theoretical concept of a SEWS, the final phase is the one in which a strategy is formulated in response to trends. What is therefore essential for a SEWS, is its connection to and interaction with corporate strategy. This does not happen in Company X. There is no organized or formalized interaction with the strategic planning department and this missing connection renders the existence of a SEWS quite superfluous. The value of a trend can only be estimated by analyzing and interpreting it in the context of an organizational strategy, especially when it comes to reacting strategically to trends. In order to be successful, a SEWS needs broad interaction and participation within the organization.

#### *Pitfall no. 3: scenarios limiting scanning and monitoring*

The flaws in the constructed scenarios have already been explained. The consequences of these flawed and constrained scenarios become even clearer when considering the scanning and monitoring activities. These activities take place only within the limited confines of the scenarios, constraining these activities to a narrow focus which is generally favourable to Company X. Furthermore, the “early warning architecture”, which is based on the scenarios, reflects the narrow-minded scanning and monitoring focus of the SEWS. What really emphasizes the weakness of the scenarios is the fact that they were formulated by the end of 2001 and were not reviewed or revised by 2003, when the SEWS started operating.

#### *Pitfall no. 4: a trend is a trend*

Some attention has already been devoted to the definition of trends. In the case study, it seemed appropriate to analyze the definition of trends in Company X and to raise the question as to whether there is a common understanding of this definition among those involved in the SEWS. In order to answer these questions, interviews were conducted with managers from various departments participating in the SEWS. The interviews clearly demonstrate that there was no joint understanding of what constitutes a trend. In addition, the proposed definitions of trends were intrinsically unsatisfactory. Understanding a trend as a “mass

movement" or "a product sold by more than two companies" misses the point about SEWS. When a trend is already a "mass movement" or sold by more than two companies, a strategic reaction will be certainly too late, so that the fundamental objective of such systems to react ahead of time will not be achieved. The interviews also revealed that there are differing requirements of trends in Company X on the part of the various interested parties. Managers from the strategic planning, marketing, or R&D departments all have different expectations and requirements from trends, that is, if they were to consider them a valuable input for their projects in terms of time horizons and content. Comparing the requirements articulated in the interviews with the generated trends, the latter clearly do not meet the requirements of the managers. Their main criticism was that the time horizons of the generated trends were too short and concentrated mainly on technological aspects, while in particular consumer or design aspects were of interest. The interviews showed that there was no common understanding of a trend and that the generated trends did not meet their requirements. Summarizing at this point, it is evident that, prior to the implementation of the SEWS, no time was devoted to creating a joint understanding of a trend or really analyzing the requirements from the trends by the various departments and managers.

***Pitfall no. 5: the quantitative temptation***

A serious problem in the SEWS of Company X was the question of how exactly to deal with "weak signals", in particular trends. What, in fact, is a weak signal? How many weak signals in the form of news clippings are needed to formulate a trend? There has been criticism that Ansoff's concept of weak signals lacks a clear definition of the concept. However, this may be caused by their very nature. One can best define a "weak signal" after it has evolved to a "strong signal". The fundamental and inherent problem of dealing with phenomena like "weak signals" or rather trends is, therefore, that their strategic potential is high when the signals are weak, but precisely then, the possibility of misinterpreting such "weak signals" is significantly greater. In the SEWS of Company X, this paradox led, in combination with a fundamental misconception of "weak signals" and trends in the first place, to a heavy use of forecasting techniques. While trends were often not considered because they are unclear or not verifiable by specific figures and forecasts, trends were more often ignored when no specific figures were found to validate them. Forecasting methods have been subject to various criticisms (van der Heijden, 1997), especially when it comes to actually dealing with the future. The basic assumption of forecasting is that the past is the "prologue" of the future and it assumes further that the environment of an organization will not change significantly. Especially when an organization tries to cope with the unexpected in its environment, forecasting is not particularly useful. The data used in forecasting is related to the past, whereas looking at "weak signals" is an activity which is directed predominately towards the future. The basic misconception in Company X is assuming that the future can be quantified. Mintzberg (1994) argues that in a world characterised by high complexity, the human desire for "hard data" increases, while it is rather the "soft data" that can genuinely generate wisdom. This pitfall describes a self-created limitation of the SEWS in avoiding "soft data" like "weak signals" and trends and relying on the alleged "hard data" from forecasting. Yet, without the detection of "weak signals", a SEWS is no longer able to fulfil its purpose.

***Pitfall no. 6: organizational early warning disability***

What is the role or function of SEWS in an organization, besides that of providing early warning? This question is best answered by looking again at the nature of trends. For example, Liebl's (2003) analysis suggests that many trends are derived from fiction and not primarily from the activities of trend researchers or trend "scouts". The complexity becomes even more obvious when one accepts that a trend also generally has a countertrend, and sometimes more than one. Therefore, it seems appropriate to consider not only how a trend will develop, but where this trend comes from (Liebl, 2003). This should be done bearing in mind that it is more important to understand the nature of a trend and its context than to predict its future course. Generating trends is not easy; indeed, it is complex. A SEWS and its manager must be embedded in an organizational culture which is willing and able to understand that the outcome of a SEWS will never be absolutely certain or validated. The organization needs to understand that in the trend-generating business, one is

predominantly exposed to failure. This is in the very nature of such an activity, simply because the future cannot be predicted. However, what then is the purpose of a SEWS? Its purpose is to stimulate, provoke, and challenge the mental models in an organization. This, quite obviously, is a difficult task for a SEWS manager. In the case study, there were indications that the SEWS manager avoided generating trends that would have been unfavourable for Company X, and tried to steer clear of any conflict with superior management. This approach – trying to avoid information that does not conform to existing perceptions – is not only of limited, if any, use to individuals, but also to organizations. This phenomenon is defined as “cognitive dissonance” (Festinger, 1957). What then are the ideal attributes of a SEWS manager? He must be capable and willing to provoke, stimulate, and challenge management in an organization. However, the organization must also be willing to accept that a SEWS function does not produce quantifiable results.

## Conclusion

The generalization of implications from the case study is limited by the fact that a single case study was conducted. Also, the focus was on SEWS in German corporations. However, it seems appropriate to derive the findings from a case study, since there is so little research on SEWS or systems with similar aims or processes. There are few contributions, such as “strategic issue management” (Ansoff, 1980) or the process of foresight (Horton, 1999), which indicate the hurdles in the implementation phase.

It has already been mentioned in the identification of pitfalls that they interact and influence each other. The use of narrow scenarios influence SEWS in general, impacting on scanning and monitoring, ultimately giving the SEWS a course of direction which is extremely difficult to change. Thus, at the start of the process, the lack of analysis of the various demands from a SEWS lead to disinterest and a lack of both participation and interaction in the system. This, in turn, results in the “loneliness” of the SEWS manager, leading to a system which reflects only the given, familiar, scenarios which have never been reviewed and the viewpoint of the SEWS manager alone. Subsequently, the misconception of the nature of “weak signals” and trends leads to a system which does not generate anything new or useful, which further decreases interest in the SEWS.

The analysis of the pitfalls in implementing a SEWS consequently leads to several recommendations. One is that all potential future users of or contributors to a SEWS need to be involved in the early implementation stages. The first task is to determine what problem should be solved by the SEWS, and if a SEWS is really the right tool for the job. In the case of Company X, it seemed in the first place, that a SEWS was the solution to the problem of reacting too slowly to environmental change. After the completion of the case study, however, it seems that the failure of the SEWS revealed the actual problem in Company X. The organization itself seems to be struggling with changes in its environment. The implementation of a SEWS has made this problem explicit. Therefore, the actual question facing Company X should have been: “how can we change our organization in order to respond in time, or even ahead of time to changes in our environment?”

Certainly, implementing a SEWS can be the first step to this organizational change. Yet, this requires not only a broad participation in the process of SEWS implementation, it also necessitates a change in mindset. Dealing with “weak signals” demands a shift in thinking within an organization, away from the quantitative to the qualitative. Furthermore, the implementation of a SEWS demands the creation of a common understanding of the principal points of this system, jointly understanding the nature of “weak signals”, trends, and the fundamentals of thinking about the future. Furthermore, it is important to determine both who is supposed to benefit and contribute to a SEWS. What is required of the content or the time horizon of trends, and what media sources are already subject to scanning in an organization?

It is important to stress that if an organization is able to detect trends and understand them, this organization is more likely to move from merely reacting to trends to even shaping them, that is influencing a trend while it is evolving. However, if this is to be achieved, it is essential to understand that trends evolve through the interaction of contexts. This implies that a

purely technological perspective, as in Company X, substantially limits the value of a SEWS. This focus entails the risk of not keeping track with changes in other fields, and especially of losing the customer focus. In such a case, a SEWS can be better described as a technology watch, failing to meet the goals of a SEWS, but dangerously reassuring an organization that "the mess" is being dealt with (Dutton and Ottensmeyer, 1987).

The success of SEWS is determined predominately by participation and interaction within the system, incorporating as much organizational knowledge and insight as possible. Therefore, the importance of broad participation cannot be emphasized too much and also how much such a system is limited if run only by one person. In terms of participation, it would certainly be prudent for a well-attended scenario exercise to become the starting point of a SEWS. The outcome of this exercise must be as open and transparent as possible. The consequences of excessively narrow-minded scenarios have been demonstrated in the case study. It also seems useful to devote some time to evaluating potential scanning sources, especially those that are orientated more towards future trends than towards the past. The case study has demonstrated further that the role of a SEWS manager is challenging, complex and difficult. It seems necessary to devote sufficient attention to the selection of this individual, especially when the major challenge is to provoke, stimulate, and challenge the mental models within an organization. However, it is also important to integrate a SEWS into the strategic planning function in a company. When it comes to interpreting trends, it is essential to embody this process in organizational strategy. Only in the context of a strategy, can the relevance of a trend be interpreted meaningfully.

The case study has demonstrated the importance of the first steps in the implementation phase for the ultimate success of a SEWS and for overcoming the obstacles that lie ahead. Nevertheless, for organizations dealing with a turbulent and unpredictable environment, a SEWS can be of considerable help. Yet, besides the difficulties in implementation, it is relevant to look at the early warning capabilities of an organization. The isolated implementation of a tool will not detect changes in an organization environment sufficiently early. What is needed is a change in the mindsets of managers and in the organizational culture. The case study indicates that an implementation of a SEWS with strong participation and a change in mindset towards dealing with the future, could contribute to such necessary change, bringing an organization back into balance with its environment and ensuring that the balance is maintained over time.

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