

**ENVIRONMENTAL SCANNING:
A TOOL FOR CREATING THE VISIONARY ORGANIZATION**

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Introduction

External information has become the most recent addition to Information Systems [IS] key issues. As IS designers extend their tools to incorporate more and more of the so-called "soft" information, information about the organization's external environment is considered to be on the top of the "must have" type of system capabilities wish list. In addition, IS specialists' efforts to convince users of the "strategic" importance of IS as a strategic weapon resulted in the recognition that since threats and opportunities reside in the external environment, knowledge of it and about it, must be incorporated into the normal output of an IS.

Industry responded to this request by attempting to provide for linkages between an IS, specifically of the type called Executive Information Systems (EIS) or Executive Support Systems (ESS), and some "external source of information." The external source of information that has received the lion's share of attention is the Dow Jones Wall Street Journal Directory of Services.

Rationale and Purpose of ES

Environmental Scanning [ES] aims at maximizing employee involvement in the exceedingly difficult task of providing top management of today's global corporations with a fairly accurate and timely image of the various external business environments around the globe. Since the primary purpose of "going global" is risk diversification, i.e., spreading the risk among many different national environments, management must have adequate knowledge of the constraints, threats and opportunities embedded in the organization's environments. A global company employs a great number of talented locals and expatriates who make an excellent source of information about the local environments. Yet most global companies depend on hearsay and anecdotes of company old-hands that are periodically sent overseas to get some "field info" first hand. A number of global companies employ the services of agencies that specialize in providing the so-called "country risk" indices for the region or country. Finally some companies confine themselves simply to the government's public reports.

ES conceives of the external business environment as a set of emerging issues. Emerging Issues [EI] are trends which if they were to continue would have a marked impact on the organization's ability to accomplish its purpose. Identification of these trends is accomplished via a scheme called "issue management."

The Conceptual Framework

Management's ability to produce quality decisions depends on two main sets of factors: the **controllable** (options or alternatives) and the **uncontrollable** (states of nature or the environment). The controllable factors (X) represents the **possible, i.e.**, company's capabilities. The uncontrollable factors (Y) represents the **probable, i.e.**, what is most likely to happen in the external environment. Figure 1 presents some characteristics of these two factors. Here we are focusing exclusively on the right-hand side of the figure on the uncontrollable factor Y, i.e., the environment.

Managerial Excellence

Management as defined as the accurate estimation of the future consequences of present conditions. Figure 1 presents the factors that affect management's ability to make good decisions, i.e., decisions that lead to an insignificant difference between the intended results and actual results. As the figure shows quality of managerial decisions is a function of two factors. Factor X represents the totality of the controllable factor [left hand side of the chart].

This factor has certain characteristics:

- (1) It is controllable by management;
- (2) It is known or knowable;
- (3) It can be measured or counted, via gathering of observations, data and facts;
- (4) It pertains mostly to the present; and finally
- (5) It reflects the internal state of the organization.

All financial and operational data fall into this category. Traditional, non-environmental scanning management, uses knowledge of this factor when decisions are supposed to be made.

The second factor that affects the quality of managerial decisions is Factor Y [right hand side of Figure 1]. This factor has the following characteristics.

- (1) It is uncontrollable by management;
- (2) It is unknown or even unknowable;
- (3) It must be estimated or be taken into account by converting data into information, knowledge and wisdom;
- (4) It pertains to the future; and finally
- (5) It reflects the external world.

This factor is the source of a great portion of the uncertainty every manager must deal with daily. It changes independently. Its changes can make or break the organization. It all depends on management ability and willingness to (1) become aware of the independent nature of the environment, (2) accept its importance for the organization's survival and (3) make a habit of monitoring and evaluating it.

ES aims at providing an initial picture of the firm's external environment in order to assess the future consequences of current issues or trends that will most probably affect the future of the organization. In a nutshell ES assists the manager in becoming knowledgeable about the external environment by identifying and evaluating the "emerging issues" of the world that surrounds the organization. ES is a tool for estimating or peering into the future. As can be seen from Figure 2 there are several alternative ways of estimating the future. The last one, number 8, combines a few of them into a coherent framework. It must be pointed out however that ES is not a forecasting method. Rather ES is a tool for identifying external environmental forces that will have an effect on the organization's performance and even existence.

ISSUE MANAGEMENT VIA THE ENSCAN SYSTEM

ENSCAN is system which was developed by the author. The system is simple and powerful. The system ran as a stand-alone PC program as well as a template to QUATTRO PRO. The user of this system needs to have two attributes (1) openness and (2) organizational identification. Openness, as we saw in Chapter 1, refers to the person's desire to read, observe and, in general, gain knowledge about the external business environment. Organizational identification refers to the person's desire to relate environmental events and trends to the organization's current and future operations. Inputs to the system are generated by the organizational scanners. First the title of the issue is entered along with a brief explanation. Then the issues are evaluated for their potential impact on the organization.

The Conceptual Framework

In order to facilitate a person's gathering of external environmental data ENSCAN utilizes a framework called STEPE. The environment is perceived as **people that are using technology that affects nature and other people, and triggers political actions which eventually lead to legislation that impacts people's pocketbooks.** Figure 4-3 provides a picture of the Environment-Organization-Interaction-System that underlies the ES process. The environment is looked upon as "things" that society does and makes an effort to provide a "schema" of how these "things" can be organized for better monitoring and understanding. There is no intention here to provide a "theory" of societal evolution. Rather the intention is to give the manager a convenient framework to "see" what is happening "out there."

In ENSCAN, the environment is conceptualized as a circular process of emerging issues that can be arranged along a continuum known as STEPE. As Figure 4 shows STEPE is a convenient framework that allows the scanner to arrange the emerging issues into five main categories. These categories are: (1) Social Issues, (2) Technological Issues, (3) Ecological Issues, (4) Political Issues, and (5) Economic Issues.

ENSCAN assumes that emerging issues begin in the social sphere [S] and relate to the changes that occur in the human subsystem, for example, demographic changes. It is to the benefit of the management of an organization to "catch" a change in its external environment before it becomes an economic issue. In other words, the sooner management recognizes an issue, the easier it is to develop a plan to deal with it. When an issue reaches the political issue [P] stage in the issue development process it is already too late to the extent that "it is common knowledge" and therefore it cannot provide any strategic competitive advantage. Management manages these issues via an Issue Management Process.

The Issue Management Process : The Steps

The Issue Management Process consists of the following four steps:

Step One: Issue Identification

In this step organizational members are asked to monitor the external environment by reading newspapers and trade magazines, watching the mass electronic media, listening to the radio, and attending workshops and conferences.

Step Two: Issue Evaluation

Issues that have been identified in the first step are now evaluated. Evaluation is a three step process known as Magnitude-Importance-Meaning (MIM) evaluation scheme. First the **Magnitude** of the issue is assessed. Magnitude (M) is the amount of attention the issue is receiving by the media. A scale from 1 for low to 5 for high magnitude is provided for the subjective assessment of the issue by the organizational participant. An issue that receives a high M is considered as something to be taken into consideration.

Second the **Importance** of the issue is assessed. Importance (I) is the perceived impact of the issue on the organization's monetary, technological and human resources. This is an individual assessment. Each organizational participant is asked to rate the issue on a scale of 1 for low to 5 for high impact of the issue on his or her area of responsibility. An issue that receives a high I is considered very important and must be taken into consideration.

Third the **Meaning** of the issue is judged by organizational participants. Here the judge must ask "What does the issue represent for the organization?" Issues can represent one of the following three categories:

(a) an issue can be a **Constraint**. A Constraint (C) is something that limits the organization's goal or strategy. Laws or customs are most obvious constraints.

(b) an issue can represent a **Threat** (T). Threats are issues that managers have not considered when doing the annual strategic plan and appear to be a surprise. In addition, threats usually call for actions for which the organization is not ready or does not have the resources to deal with.

(c) an issue can represent an **Opportunity** (O). Opportunity is an issue that offers a benefit or advantage that will enhance the organization's ability to survive and prosper.

Step Three: Issue Incorporation

Thus far organizational participants have identified and evaluated the emerging issues of the external environment. Issues are incorporated into the normal organizational decision-making process via the process of **scenario writing**. Scenarios are hypothetical descriptions of future sequences of events and their consequences.

Step Four: Issue Translation

Usually, managers will be asked to write these scenarios in the hope that they will provide some clues for the strategic planning executives so that the latter will be able to translate these hypothetical consequences into the same language they use in the strategic plan, i.e., quantities of products, resources, money and number of people.

MANAGEMENT USES OF ENSCAN

Management may use the MIM scheme to classify the issues into the following two categories:

Category A: Organizational Scanning Ability (OSA)

This is the organization's ability to keep in touch with the developments in its external environment and estimate the potential impact of the emerging issues on the organization's vision, mission, objectives, and strategies, as they are formally described in its strategic plan. There are three related measures of OSA.

(1) Environmental Awareness [Top three issues in accordance with Magnitude]

This is a measure of the degree of **openness** of organizational members to the external environment.

(2) Organizational Identification [Top three issues in accordance with Importance] This is a measure of the degree of **relating or associating** the developments in the external environment to the organization's ends and means of achieving them, i.e., objectives or goals and strategies.

(3) Organizational Adaptability [Top three issues in accordance with the average of Magnitude and Importance]. This is a measure of the degree of the potential ability to adapt to the changes in its external environment.

Category Two: Organizational Environmental Outlook (OEO)

Organizational environmental outlook is the manager's attitude towards the future. This attitude is labeled **pessimistic** if organizational members have evaluated an issue as a Threat (T) or a Constraint (C) and **optimistic** if the majority of the issues were evaluated as an Opportunity (O).

Management may use these two categories of issues to provide advice to the CEO and the division or department heads on what actions must be taken in order to secure an adequate level of organizational adaptability to its external environment. Since the environment is the **uncontrollable variable**, the quality of managerial decisions, i.e., the effectiveness and efficiency of the organization, will depend on matching the organizational Strengths and Weaknesses (S&W) to the external environment's Constraints, Threats and Opportunities (C&T, O).

UNIQUENESS OF ENSCAN

There are a few important differences between ENSCAN and environmental scanning as it used by strategic management specialists.

First ENSCAN starts with "a right thing in mind," to borrow a phrase from Steven Coney's vocabulary. The right thing is of course the Environment. Consequently management assesses first the environment and then the organization's strengths and weaknesses. Thus ENSCAN turns the so-called SWOT analysis upside down.

Second, ENSCAN does not confine itself to the strategic planner's domain called Industry Analysis. In ENSCAN industry analysis is one of many issues that organizational participants monitor. [Appendix A provides a brief description of the a system that assesses the organization's immediate environment utilizing Porter's framework.]

Third, ENSCAN adds the concept of constraint as a relevant characterization of an issue. Constraints are important for they indicate areas or factors, in the form of issues, which must be satisfied. As Herbert Simon once said, "if you let me set the constraint I don't care what objectives you will pursue..."

As a result of these three additions to the traditional approach to strategic management ENSCAN puts the right first--the environment. This way the **SWOT** matrix is converted into the **CTOWS** matrix.

ENSCAN provides knowledge of the CTO of the environment in the order indicated in the sequence of the three concepts. First the *Constraints* are identified. It must be recalled that constraints are issues or trends that limit the organizations ability to set and achieve goals. Constraints must be satisfied. Usually the concept constraint evoked in mind ideas such as laws and regulations. Indeed a large portion of the constraints are laws and regulations. However, there are other constraints which are not easily recognized. For example, the amount of money available for new investment becomes a constraint. The Hurdle Rate of Return on Investment [ROI] set by the headquarters , e.g., ROI 15%, becomes a constraint for the subsidiary. The quality of the human resource becomes a constraint. For example globalization is often limited by the organization's lack of qualified personnel. Constraints identified are blessings and great time savers. Knowing the constraint one knows what not to undertake.

The second category of issues that must be identified are *Threats*. Threats are external happenings that threaten the organization's existence. A Threat is a relative concept. In other words, something that happens in the external environment is a threat only if the organization does NOT have the means to deal with by turning it either into a constraint or into an opportunity. A threat might be something completely unexpected, such as a natural disaster or it might be a constraint that the organization either did not recognize as such or decided to ignore it.

New legislation mandating greater environmental quality becomes a threat to one company, a constraint to another and even an opportunity to still another. It all depends on the degree of preparedness. This preparedness is a function of the amount of time managers spend scanning their external environment and the amount of issue management the organization is involved in.

Finally, an external environmental event, issue or trend may represent an *Opportunity*: an occasion for doing better than originally anticipated. Again, as with the other two concepts an opportunity is not something that is "there" in a manifest form. Something becomes something because it is recognized as such. Thus, seeing something as an opportunity is an individual matter.

Two managers looking at something most likely will interpret it differently.

Again as with the case of constraints, opportunities which are recognized as such in a reasonable time, turn into threats, for the organization that did recognize it and took advantage of it has developed a formidable competitive advantage: it has leapfrogged the industry. Late comers must pay the price of not monitoring the environment.

Some Examples of Possible Management Uses of ENSCAN

It was mentioned above that ENSCAN uses a multiple side type of approach in assessing the external business. Unlike most environmental analysis approaches that confine themselves to simply identifying certain "external environmental factors" and perhaps rank them in a hierarchy of importance using some simple voting system, ENSCAN forces the concerned individuals to "do a lot of serious thinking" about the issue. The MIM set of measures of the issue's potential importance for the strategic thinking and plan process entices the individual to take a personal interest and to think twice about an issue before bringing it to the strategic planning committee. Let's take one by one the various measures used by the MIM system.

Category A: Organizational Scanning Ability (OSA)

A very useful way of making use of the ENSCAN system is to plot responses on a the three-dimensional framework of Magnitude, Importance, and Meaning [MIM]. As Figure 4-last shows the three measures of environmental scanning quality of an organization. The top portion of the figure shows the Organizational Scanning Ability (OSA) as a function of the two characteristics of individual scanners: Environmental Openness and Organizational Identification.

1. **The Magnitude Score.** It was said above that magnitude is the degree of attention paid by the society as it is expressed in the various media. This is a measure of openness of the individual. The higher the score 1-5 the more open the individual is, i.e., the more "well-informed" the person is. Obviously most managers want their co-workers to be well-informed. Respondents falling in the right two quadrants A and B will qualify as having a high degree of openness. These scanners are well informed about happenings on their external environment. By the same reasoning, organization participants whose responses fell in the lower two quadrants, C and D are not very open to their environments.

2. The Importance Score. Being well-informed is a necessary condition for a person to advance in the organization, but is by no means sufficient. Informed people must take the next step and ask themselves the question "what is in it for me, my job and my organization?" In other words, what aspects of the organization will be affected if this issue were to continue its normal issue development process? Again a high number here indicates that the person has done a lot of thinking and the person has "sorted out in his or her mind what is important and what it isn't." Respondents falling in quadrants A and D are organizational participants who relate events of the external environment to their own lives and to that of the organization. By the same reasoning, organizational participants whose responses fall in quadrants B and C do not seem to bother with relating the external environment to the organization.

3. The Magnitude + Importance Average Score. Obviously issues that have high average scores are of great interest for the organization. Management cannot really afford to brush away issues judged by its own people as being both current societal concerns and having a substantial impact on the organization.

Management is most interested in the combined scores. Looking at only one dimension of environmental scanning will provide an incomplete assessment of the individual's concern for the organization's future and prosperity. Thus individuals in quadrant D are obviously not concerned at all with the organization's future. They appear to work just for the "paycheck." They neither spend any time reading and observing life around themselves nor bother asking any questions about the organization's future. They "leave the driving to somebody else," so to speak. Individuals in quadrants B and D are individuals with very high "educability." Quadrant D individuals and organizations, for that matter, can be educated to become more open by asking them to attend workshops and conferences that deal with the "opening of the manager's mind." By the same reasoning, individuals in quadrant B can be "trained" to start relating their openness to the future of the organization.

The bottom line is that an organization would like to have a cadre of individuals who will fall in quadrant A. These are the stars. These are the people who not only read and observe the world around them but they also ask the important question "what does all this stuff mean to me and my organization?" One could possibly attach some labels to these four types of individuals. Quadrant D individuals are people who are "concerned but close-minded." The remedy: train them to open their minds to the world around them. Some business and government organizations send these individuals on sabbaticals in another country or "loan" them to Universities or high schools. Some Universities provide leaves of absence to their faculty to attend a "second" discipline. Quadrant C people are "people who look out for Number 1" just in case they become victims of some re-engineering or downsizing or TQM project. Some of them do jobs that aren't challenging enough. They are the "Conference Junkies." The remedy will be to make them "champion" of an organizational change project. Finally, occupants of quadrant C are hopeless. They just "work for the money and don't care much about anything else."

Using this diamond scheme an organization can begin building teams that are composed of all these four types of individuals. This way there will be built-in cross check mechanisms. High fliers will be brought down to earth by closed-minded individuals and vice versa. Obviously the goal is to have as many quadrant A people as possible.

4. The Magnitude - Importance Score. This score is the true test of issue relevance. There are two dimensions of this score. First there is the matter of the degree in terms of the absolute difference between the two scores. Second is the matter of the direction of the difference. Obviously issues that have large negative differences, i.e., the Importance score is high than the Magnitude score are of great concern. What these scores tell is that based on the organizational participants' opinion, an issue, even though the environment is not really preoccupied with or even though the individuals do not know much about it, they do think that it is of great importance to the organization.

Figure 4 provides a hypothetical distribution of the scores by issue. Figure x- A the population of organizational participants is equally divided among the four quadrants of the Magnitude - Importance coordinates. This is, of course, an extreme case and is portrayed here for illustration purposes only. Figure x- is equally rare. It shows that 90% of the participants are concentrated in Quadrant B, i.e., they judged this issue to have very high magnitude and also very high importance. Figure x-C is also very rare. All participants are clustered in Quadrant C. Figure x-D portrays the most likely situation. There are 20% outliers on each side of the extremes. The individuals on Quadrant A they don't know much about the issue [M=1] but nevertheless they think that it is very important [I=5]. Individuals on Quadrant C on the other hand have the opposite opinion. Finally the majority of the participants is concentrated on Quadrant B. Here we have both well-informed and high organization-identifiers. These are the people that an organization would like to identify as the organizational scanners. They are well-informed people and people who do indeed identify with the future of the organization by asking the question "what is in it for me, my job and my organization?"

Category Two: Organizational Environmental Outlook (OEO)

This measure is depicted in Figure lastlast. Sixty percent of the organizational participants think of this particular issue as an opportunity, while only 15% see it as a Threat and 25% believe that the issue is a constraint. By the way, the same arrangement can be used for the average CTO for all issues, in which case the figure will portray the general outlook of the population with respect to the external environment. Management can use this measure as a guide to designing its Training and Development topics. Taking the picture portrayed in Figurexx one can see that the participants are overly optimistic. If that reflects the management's view of the issue as well then no action is really needed. If on the other hand, management believes that either the constraint or the threats have been underestimated it may decide to organize a seminar on the issue and have an outsider facilitate a workshop which will explore both the positive and the negative aspects of the issue. This way participants will develop a more balanced view of the issue.

Recapitulation

In this paper we presented a conceptual framework for ES and a system for actually doing ES. ES was looked at as a continuous process of monitoring the external business environment of an organization that is EVERYBODY'S concern. Every organizational participant is a potential scanner. Organizational participants have a "stake" in the organization's future. This future is more a function of the external environment's independent changes than it is the result of the conscious and deliberate managerial planning. Since the external environment represents everything that affects the organization and it is beyond its control, management "can use all the help they can get" so to speak. Yet most organizations do not do any ES or if they do they depend on a consulting company in Washington or in California, such as Stanford Research Institute or John Naisbitt's Newsletter, or something similar for getting the "things" that might affect their long range planning efforts.

ENSCAN believes that in this day and age of the knowledge enterprise whose most valuable assets are its highly empowered employees, every individual should be both (1) open to the environment and indicate this openness by continually and uninterruptedly monitoring the events that take place within it and (2) depicts organizational identification to the extent that every organizational participant must ask continually and uninterruptedly "what do all these things that happened in the world around me and my organization mean for me, my area and my organization?"

ENSCAN is a system that uses a simple framework to arrange the various things that are happening around the world. This framework is called STEPE and is simply an attempt to assist the scanner in looking at happenings as emerging issues and in arranging them in a five-files data base. In addition, STEPE suggests that scanners begin paying attention to emerging issues at the social sphere first. This preference for the social issues as a starting point is based on the proposition that everything organizations do, they do it for PEOPLE. That is, we believe that organizations come into existence for the exclusive purpose of satisfying a human need and by doing so they satisfy their founders and organizers needs and aspirations. Thus monitoring quantitative and qualitative changes in the social sphere, such as births, deaths, life styles and so on, provides some good clues as to the technological requirements for the satisfaction of people's needs and aspirations.

ENSCAN also believes that a mere identification and perhaps prioritization of some issues, a common outcome of brainstorming, is not enough. Organizational participants must always ask what will be the most likely impact of these issues on the organization's short term operations and long term survival and "thrival" or development and prosperity. Finally, ENSCAN demands that organizational participants always make statement about the "meaning" of these emerging issues. Knowing more or less their organization's strengths and weaknesses, what do these emerging issues represent for us? Are they Constraints, Threats or do they represent Opportunities?

ENSCAN, with its rigorous framework and evaluation system, allows the organization to identify individuals who would be most likely to serve as environmental gatekeepers. By rewarding these individuals with subscriptions to magazines, on-line news and data services, and by sending them to their favored conferences has guaranteed itself an honest, concerned, and unbiased cadre of environmental scanners that it can depend on for keeping informed about the Constraints, Threats and Opportunities provided by its external environment. In addition to tremendous motivation that this empowerment provides for the few organizational participants the organization will always be "on top of things" and will never be blindsided by.