

# Environmental Turbulence and the Success of a Firm's Intelligence Strategy: Development of Research Instruments

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*Seventy two questionnaires returned by members of the Society of Competitive Intelligence Professionals, provided evidence for a negative relationship between the strategic intelligence function's (SIF) success and a gap between the firm's environmental turbulence level and its strategic intelligence strategy (SIS). Multiple regression test results .752 at 0.1, and Pearson r-coefficient at <0.0025 supported the hypothesis. The environment was measured by five levels of turbulence: stable, reactive, anticipatory, exploring, and creative. Each had four attributes: the novelty, speed of change, complexity, and predictability of change. The measurement of the SIS focused on its: scope, novelty, time frame, threats and opportunities, and purpose. The success of the SIF was measured by top manager's: rating of its overall performance, ratio of the use of information provided by the SIF vs other sources, use of information provided by other sources, perception of the competitive advantage resulting from the information provided, perception of the importance of the information, and the average of the five above. The implications are a need for alignment of a SIS to the global business environment and effective measurement of SIF's success.*

## Introduction

As businesses seek sustainable growth in global business they need to have accurate and timely intelligence about opportunities and threats in the international business environment as intelligence is the key input variable in all strategic decision making. Therefore businesses have used various types of strategic intelligence systems to gather and process this intelligence.

However the design and the empirical base of how to structure these strategic intelligence systems is not well understood and many researchers have emphasized the need for research on the strategic intelligence concept and its processes. Hambrick (1982) emphasized the need for theoretical and methodological advances in his study of scanning of strategic intelligence in business organizations. Lenz and Engledow (1986) assessed the applicability of the current scanning theories and the extent which they can be used by a planner/analyst to enhance scanning and strategic decisions making in organizations. They concluded that the principal reason why current theories are of a limited help to planners/analyst in their work is that "conceptual development pertaining to the general environment is insufficient for systematic analysis. There is no integrated conceptual framework for guiding and interpreting the full range of economic, social, technological, and political forces that are known to influence the strategic actions of organizations."

(p.340) Moreover they attributed deficiencies in corporate experiences with scanning to a lack of an organizational theoretical foundation. Consequently, the scanning effort has ignored such phenomena as inter-organizational power relationships and the inherent structure of strategic decision making processes.

Furthermore Lenz and Engledow (1986) inferred that systematic knowledge building in the field of scanning will have to be framed by a theory of organizations, and research programs that are sufficiently comprehensive to capture a wide range of interacting forces in organization's environment. They considered the task of strategic intelligence scanning to be a part of complex organization-wide strategic decision making processes. Consequently the scanning function cannot be made effective until such strategic decision making processes and their effects on the scanning function are understood. Moreover they considered few or any, "...specification of contingencies determining the organizational design and conceptions of environments sufficient for guiding scanning and analysis activities." (1986:72)

Daft et al., (1988) researched chief executive scanning activities in different environments and their relationship to company performance and concurred with the above mentioned lack of conceptual model explaining strategic intelligence processes in organizations. They concluded that executives can gain strategic advantage or disadvantage from how scanning is done in their companies, and to ascertain that advantage scanning must be advanced by research. Moreover they concluded that scanning resources are limited in organizations. Therefore scanning resources should be devoted to the dimensions of the environment where strategic uncertainty is greatest. The strategic and competitive dimensions of the overall environment are the ones which had the greatest uncertainty in their study.

Preble, et al., (1988) studied the scanning practices of U.S. Multinationals in the late 1980s and come to the same conclusions as Daft, et al., (1988) that the strategic and competitive dimensions were the most important dimensions of the overall environment. Since its conceptualization the scanning field has gone through major transformation from being a virgin field of inquiry towards an academic field of enquiry. However the scanning field is still in development, and there are many questions still unanswered about its: structure and processes (Ansoff, 1957;1958; 1965;1980;1984; Porter, 1980), techniques of scanning (Diffenback, 1983) and legitimacy in the eyes of top executives (Jain,1984).

In global business, the contingency theory's concept of a fit among the relevant business environment, strategy, and structure is well established in the strategic management literature. Chandler (1962) put forward the evidence that a change in strategy was initiated by changing marketing environment of a business and that the new strategy must be accompanied by appropriate change in the internal configuration of the organisation. Although, there are some conceptual differences among theorists on the sequence of the fit among the environment, strategy, and structure (Chandler, 1962:15; Rumelt, 1974; Miles & Snow, 1978:3; Miles & Snow, 1986; Drucker, 1974:445) visa versa the opinion

that the fit should be among the business environment, the structure, and strategy (Ansoff, 1984:14; Burns & Stalker, 1961; Thomson, 1967; Lawrence and Lorsch, 1967:185; Lorsch and Lawrence, 1972:38; Collins, 2001:41) and some authors have called for stretching strategy beyond existing structure in anticipation- or creation of future environmental development (Hamel & Prahalad, 1994:146; Kim & Mauborgne, 2005:7). The basic conceptualisation of a relationship among the three variables was accepted as early as 1940's (Drucker, 1946: 37; Penrose, 1957:14-19). Lawrence and Lorsch reviewed the relevant literature and presented a classic study synthesising these relationships into a contingency theory of organisations emphasising the '...goodness of fit with the various environmental variables and the predispositions of members.' (Lawrence and Lorsch, 1967:209) The success of the organisation is determined by this fit.

This study is based on the above contingency theory's concept of a "fit" among the business environment, structure, and strategy- here strategic intelligence strategy and, uses gap analysis to determine this "fit" or the lack there of. A "fit" or no gap is assumed to be positively related to success of the strategic intelligence function as measured by the top managements' perception of six success variables.

The research questions asked about the relationships between the firm's business environment and strategic intelligence strategy. As pertaining to the success of the strategic intelligence function in global organization.

The article develops as follows: first, the discussion and the definition of the operating variables of the business environment, then the strategic intelligence strategy, and the dependent variable: the success of the strategic intelligence function. Second, the methodology is described. Third, the findings are presented. Finally, the conclusions are made and implications for executives are discussed.

## Theoretical Basis: Environment and Strategy

### Environment

A considerable part of the corporate literature is focused on the concept of strategic environmental- scanning, scanning systems, and the legitimacy of the scanning effort in business organizations. The concept of scanning evolved in the 1960s, when the notable contribution was made by Aguilar's (1967) book *Scanning the Business Environment*. One of his contributions was the conceptualization of the environment as an entity divisible into components for research. He characterized the field by the various modes applied to scanning. These modes were undirected viewing, conditioned viewing, informal search, and formal search. Aguilar's approach to the study of the scanning field led other researchers to do divide the environment in a similar way, and the subsequent research resulted in the development of several different modes and models of scanning.

Lenz and Engledow (1986) reviewed the literature on scanning and categorized the different models into five major categories of models. The era model, the ecological/resource dependence model, the cognitive model, the organizational field model, and industry structure model. Using the era model, organizations divide their environments

into major trends, like Nasbitt's 1982 *Megatrends*, and gain knowledge about their environments by monitoring these broad scale societal changes. And the organizations rely on informal scanning structures, thoughtful insights of experts and consultants that shed light on the future environment of the organization (Lodge, 1975; Yankelovich, 1982; Nasbitt, 1982; Toffler, 1981)

In the ecological/resource dependence model organizations divide the environment into a system of resources, social structures, and natural environment. They gain knowledge about their environments by encouraging the members of the organization to do scanning, and by opportunistic surveillance of sub-units of the environment (Emery and Trist, 1965; Pfeffer and Salanick, 1978; Aldrich, 1979).

In the cognitive model organizations divide the environment according to the managers' views of their own interests, concerns, and tasks. The organizations gain knowledge about their environments by flexible open inquiry and decision process based on the top managements' collective understandings of the organizations' environments. Moreover the management relies heavily on their own experience when interpreting their environments (Weich, 1977; McCaskey, 1982).

In the organization field model organizations divide the environment into fields where focal organizations exercise their influences. The organizations gain knowledge about their environments by analyzing the power structures and goal processes of the interdependent organizations in the environment at hand (Thomson, 1967; Bourgeois, 1980; Warren, 1967; Freeman, 1984)

In the industry structure model organizations divide the environment into industries. The organizations gain knowledge about their environments by analyzing the industry's structure, and by a formal competitive scanning system (Porter, 1980; King and Cleland, 1977; MacMillan, 1982).

Ansoff (1979) proposed a new approach to the division of the environment and divided the environment into five levels of turbulence: stable, reactive, anticipatory, exploring, and creative based on four attributes: the novelty, speed of change, complexity, and predictability of change in the business environment. Table 1 shows the operational elements used to assess the business environment of the responding organizations.

In contingency model, organizations gain knowledge about their environment by strategic intelligence- strategy and capability which are appropriate for each level of environmental turbulence as further theorized by Ansoff (1979). The strategic intelligence strategy is discussed next.

### **Strategic Intelligence Strategy**

Strategic intelligence strategy is the firm's aggressiveness in scanning its global business environment for information on potential strategic behaviors and, the contingency theory's assumption is that the aggressiveness of the firm's intelligence strategy should fit the type of business environment the firm is operation in. To test this assumption the following research question and hypothesis were formulated:

Research question: What is the relationship between the success of the strategic intelligence function and a gap between the firm's environmental turbulence level and its strategic intelligence strategy?

Hypothesis1. *There will be a significant negative relationship between the success of the strategic intelligence function and a gap between the firm's environmental turbulence level and its strategic intelligence strategy.*

**Table 1. Global Business Environment Turbulence Level Measures**

1. Speed of Change in the Global Business Environment

Environmental turbulence level	1	2	3	4	5
My firm's ability to respond to change	Much Slower	Slower	Compatible	Faster	Much faster

2. The Complexity of Changes in the Global Business Environment

Environmental turbulence level	1	2	3	4	5
Complexity	Not Complex	Slightly Complex	Moderately Complex	Complex	Extremely Complex

3. The Newness of Changes in the Global Business Environment

Environmental turbulence level	1	2	3	4	5
Newness	Not At All New	Slightly New	Moderately New	New	Extremely New

4. The Predictability of Changes in the Environment

Environmental turbulence level	1	2	3	4	5
Predictability	Very Easy to Predict	Easy to Predict	Moderately Easy to Predict	Difficult to Predict	Very Difficult to Predict

Six success measures were used as dependent variables and respective sub-hypothesis were formulated based on the above hypothesis where the word “success” was substituted with the dependent variable. The six success measures acting as dependent variables are defined in the legend of Table 2.

The strategic intelligence strategy was analyzed in terms of the five levels of environmental turbulence and focused on the:

*Scope* of the focal environment which was in two parts: behavioral focus using these measurement values: 1. Firm’s historical behavior, 2. Competitor’s behavior, 3. market plan dynamics, 4. Economic environment, 5. technological and ecological environments. And business environment orientation based on these values: 1. Firms historical-, 2. Expansion of historical-, 3. Extrapolation of historical-, 4. Unfamiliar-, 5. Novel environments and beyond.

*Novelty* of the information dealt with in terms of familiarity of information measured by: 1 & 2. Historic data, 3. Extrapolation of historical data, 4. New predictable information (entry of new competitors, and industry saturation), 5. Novel partially predictable information (technological breakthroughs).

*Time frame* measured by: 1. Past five years, 2. Past year, 3. Next 5 to 7 years, 4. Next 7 to 10 years, 5. Beyond 10 years.

*Threats and opportunities* referring to the type of threats and opportunities that were the focus of the strategic intelligence function and it was measured by a focus on: 1. Improvements in productivity, 2. Increase in market share, 3. Product improvement and market expansion, 4. Product innovation, new marketing concepts, and new market entries, 5. Creation of novel markets, technologies and marketing concepts.

*The purpose* of the strategic intelligence activity of the business which determines what aspect of the organization’s function the strategic intelligence function is intended to enhance decision making and measured by: 1. Operations, 2. Market share improvement, 3. Market expansion and production development, 4. Strategy, 5. Research and development.

## Methodology

The study was designed as a descriptive correlation study of a hypotheses based on the contingency theory (Chandler, 1962:15; Rumelt, 1974; Miles & Snow, 1978:3; Miles & Snow, 1986; Drucker, 1974:445; Ansoff, 1979&1984:14; Burns & Stalker, 1961; Thomson, 1967; Lawrence and Lorsch, 1967:185; Lorsch and Lawrence, 1972:38; Collins, 2001:41) which theorized that there is to be a relationship between the global business environment of the business and its strategic intelligence strategy. Previous studies provide evidence for this relationship in banks (Lewis, 1989), and public works (Sullivan, 1987).

The data sources were from strategic intelligence managers in U.S. companies and the top executive they reported to.

A two part questionnaire was sent to the strategic intelligence managers and they were asked to answer a part of it then pass it to their most senior executive. The first part measured the strategic intelligence strategy and this part I developed from Ansoff (1979:61 and 1984:224). The second part measured the firm's business environmental turbulence level and contained the elements listed in table 1, and the success of the strategic intelligence function.

The first question was on the top manager's rating of the strategic intelligence function overall performance which I developed based on Dess and Robinson's (1984) suggestion that the overall rating of the information system's performance by its users was a reliable performance measurement. The second question on the proportion of information provided by the strategic intelligence function to the portion provided from other sources I developed based on Ghoshal and Westney's (1991) recommendation. The final success measurement section which had three subjective indexes of the strategic intelligence function's performance I developed based on methodology used by Deepak K. Datta (1991).

The data collection instrument was pilot tested in terms of validity, suitability, acceptability, and clarity on five doctoral students, two strategic intelligence managers, and three top managers. Cronback Alpha Coefficients (CAC) were calculated to test the reliability of the composite variable used in the instruments. The measure for strategic intelligence strategy used six items with a CAC of .75. Environmental turbulence level used 4 items which had a CAC of .82. The composite success items used five items each which had CAC of .63 and .33 respectively. The overall success factors had four items with CAC of .81.

A total of 283 questionnaires were sent to strategic intelligence managers who were members of the Society of Competitive Intelligence Professionals (SCIP) and 72 questionnaires were returned with a success ratio of 25%. Not all success variables were answered on all questionnaires resulting in smaller N on some success variables.

Statistical analysis consisted of Pearson r-coefficients and Multiple Regression analysis.

### Findings

The Multiple Regression Test for the hypothesis was .752 at a 0.1 significance level. All the sub-hypotheses each having different dependent variable as success measurement were supported by a valid Pearson r-coefficient at a <0.0025 significance level. The findings are summarized in Table 2.

### Conclusions

The contingency theory's main hypothesis of a "fit," or a relationship between, the global business environment and the firm's strategy was supported for a subsection of the organization: the strategic intelligence function. Therefore managers of the various subsections of the global business can be advised to align their functional strategies to their organizations global business environmental turbulence level to achieve maximum success.

The implication of this finding may indicate that the top management of the organization needs to develop valid success measures for each and all functions of the global organization and measure their performance on a regular basis and, if the performance is not satisfactory then, the likely explanation for this lack of success is likely to be a mis-“fit” of the respective function’s strategy to the organization’s global business environment. Further research is needed to test if the contingency theory’s concept of a “fit” is valid for functions other than the strategic intelligence function in global business organizations.

**Table 2. Results of Research Hypothesis**

Sub-Hypothesis	Independent Variable	Dependent Variable: Success	N	r	p	Results
1a	7	1	72	-0.46149	<0.00005	Supported
1b	7	2	47	-0.43157	0.0025	Supported
1c	7	3	47	0.43157	0.0025	Supported
1d	7	4	70	-0.58933	<0.00005	Supported
1e	7	5	67	-0.41788	0.0004	Supported
1f	7	6	45	-0.50094	<0.0005	Supported

Variable Legend:

Dependent Variables: Success:

1. The top manager’s rating of the strategic intelligence function’s overall performance.
2. The ratio of top manager’s use of information provided by the strategic intelligence function as compared with other sources.
3. The top manager’s use of information provided by sources OTHER than the strategic intelligence function.
4. The top manager’s perception of the competitive advantage resulting from the information provided by the strategic intelligence function.
5. The top manager’s perception of the importance of the information provided by the strategic intelligence function.
6. The average of all five success factors.

Independent Variable:

7. The gap between the level of- global business environmental turbulence and strategic business intelligence strategy.



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