The Role of Information Literacy Skills in Environmental Scanning as a Strategic Information System

----- A Study of SMEs in Singapore

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Outline

- Introduction
- Literature Review
- Problem Statement, Research Questions and Objectives
- Proposed Research Models
- Proposed Research Methodology
- Significance of the Research
- Conclusion
Outline

- Introduction
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  - Definition of Key Terms
  - Scope of the Research
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Background Information

Rapid Changes and Emerging Trends

Advancement of ICT

Environmental Scanning

Need

Business Organizations

Non-profit Organizations

Large Firms

SMEs

Challenges & Opportunities
What is Environmental Scanning?

A strategic information system adopted by organizations to deal with external environmental information, the products of which would assist decision-makers for tactical and strategic decision making (Aguilar, 1967; Choo, 1993).
Information Literacy Skills

The abilities of individuals in defining, locating, selecting, organizing, presenting, and evaluating information (Goad, 2002; Todd, Lamb, & McNicholas, 1992), which are the key competencies required to conduct different ES activities.

Information System

- An organized procedure for collecting, processing, storing, and retrieving information to satisfy a variety of needs, as stated in Harrod's Librarians' glossary (1995).
- It could be either paper-based or computer-based.
Scope of the Research ------ Singapore SMEs

- ES is a concept originally raised for large business corporations.

- SMEs are more sensitive towards environmental uncertainties.

- SMEs form a significant chunk of the local economy.
For Singapore, SMEs are generally defined as

- having at least 30% local equity,
- fixed productive assets (defined as net book value of factory building, machinery and equipment) not exceeding $15 million, and

Of the about 160,000 enterprises in 2007, 99% were SMEs. These SMEs employed nearly 6 out of every 10 workers and generated almost half of total enterprises’ value-added (DOS Singapore, 2007).
Outline

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  - Environmental Scanning as a Strategic Information System
  - Information Literacy and Environmental Scanning
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Information Literacy in the Workplace

- The importance of IL skills for business organizations is highlighted in the literature (Drucker, 1992; Mutch, 1997; Karim and Hussein, 2008).

- Employees in the workplace found to be lack of IL skills (Bruce, 1999; O'Sullivan, 2002; Cheuk, 2002).

- Few IL studies have integrated IL skills with a specific business management activity, and even fewer of them have tried to evaluate the impact of IL on real business applications.
Environmental Scanning as a Strategic Information System

- **Strategic Information System**
  Systems designed to acquire, process, store, organize, disseminate information regarding external opportunities and threats, and make such information available for strategic use (Feather & Sturges, 2003).

- **Environmental Scanning for Coping with Uncertainty** (Daft et al, 1988)
# Measurement of Perceived Strategic Uncertainty and Environmental Scanning

<table>
<thead>
<tr>
<th>Measurement</th>
<th>PSU</th>
<th>ES</th>
<th>Rate by levels</th>
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<tbody>
<tr>
<td><strong>PSU</strong></td>
<td>PI × (C+R)</td>
<td>Frequency of scanning &amp; Degree of interest</td>
<td>Rate by levels (Olsen et al., 1994; Hough &amp; White, 2004)</td>
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<tr>
<td>(Auster &amp; Choo, 1993; Daft et al., 1988; Ebrahimi, 2000; Stewart, May, &amp; Kalia, 2008)</td>
<td>AVAIL &amp; PREDICT (Boynton, Gales and Blackburn, 1993)</td>
<td>Use of info sources (Brush, 1992; Daft et al., 1988; May et al., 2000; Stewart et al., 2008)</td>
<td><strong>ES</strong></td>
</tr>
<tr>
<td><strong>ES</strong></td>
<td>Frequency of scanning &amp; Degree of interest (Hambrick, 1982; Boyd &amp; Fulk, 1996; Strandholm &amp; Kumar, 2003; McGee &amp; Sawyerr, 2003)</td>
<td>Use of info sources (Brush, 1992; Daft et al., 1988; May et al., 2000; Stewart et al., 2008)</td>
<td><strong>Scope of scanning</strong> (Beal, 2000; Strandholm &amp; Kumar, 2003)</td>
</tr>
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Information Literacy Skills at each Step of Environmental Scanning

- **Identification of Organization’s Scanning Needs**
  - Identify their own information need clearly;
  - Possessing essential communication skills to express their needs;
  - Capable in information processing and synthesizing, and conclude the organization’s scanning need.

- **Information Acquisition**
  - Select the most appropriate sources (quality & cost);
  - Formulate a suitable search strategy.

- **Information Organization and Storage**
  - Ensure the effectiveness and efficiency of the system (creation of taxonomies, resource description and comprehensiveness)
Information Literacy Skills at each Step of Environmental Scanning

➢ Information Processing and Synthesizing
  • Information Processing Skills (Filtering, Synthesizing…)
  • Familiar with Analytical Tools and Techniques

➢ Information Distribution
  • Right information to the right person at the right time in a right format

➢ Information Evaluation and Use
  • Evaluate the quality of information (Sufficient, Adequate, Timely…)
  • Process and Synthesize based on real-time situation
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Problem Statement

- In prior ES literature, besides information acquisition, insufficient attention has been paid to the other steps of ES.

- IL skills and organization’s information system, as enablers to conduct effective ES activities, have not been highlighted in previous studies.

It is, therefore, desirable to study environmental scanning as a systematic process with the role of information literacy skills and information technology applications investigated.
Research Questions

- **RQ1**: With different degree of perceived strategic uncertainty, what are the current practices and impact of the whole value-chain of environmental scanning process of SMEs in Singapore?

- **RQ2**: What is the role, contribution, and to what extent have information literacy skills and information technology applications being effectively embraced in environmental scanning process as a strategic information system?
Research Objectives

- **RO1**: To find out the relationships among perceived strategic uncertainty and environmental scanning process;

- **RO2**: To discover how the use of information literacy skills and information technology applications can enhance the effectiveness of environmental scanning;

- **RO3**: To propose and verify a framework showing the relationships among perceived strategic uncertainty, environmental scanning process and organizational performance with the role of information literacy skills and information technologies and applications investigated.
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PSU, Step-based ES and Organizational Performance
Actual Effectiveness of ES

- Actual Level of IL Skills
- Actual Effectiveness of Tech & Media
- Actual Access to Info Sources
- Perceived Effectiveness of ES
  - Perceived Level of IL Skills
  - Perceived Effectiveness of each ES Step
- PSU, Info Collection and Organizational Performance
  - Implemented Frequency of each ES Step
  - Actual ES Product
- Perceived Strategic Uncertainty
  - Sector Complexity
  - Sector Variability
  - Perceived Sector Importance
  - Perceived Sector Uncertainty
  - Perceived Strategic Uncertainty
  - Rate of Interest for each ES Step
  - Implemented ES Process
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  - Proposed Research Methodology
    - Proposed Research Methods
    - Proposed Sample Selection and Characteristics
    - Proposed Survey Instrument and Interview Method
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Proposed Research Methods

- Quantitative Method through Questionnaire Survey/Test
  - Collect data to obtain a broad picture of how Singapore SMEs scan their environment;
  - Enable respondents to report their perceptions while remaining anonymous and honest on the feedback;
  - Statistically investigate the relationships proposed.

- Qualitative Method through Face-to-Face Interview
  - Gather more profound data with staff engaged in ES activities with different functional roles from various hierarchical levels;
  - Explore more about the ES activities conducted by the same company under different time period through recall of various strategic situations;
Proposed Sample Selection and Characteristics

- Only 2 Industries are proposed to be included
  - Travel agent companies
  - Food manufactures

- Survey: “Criterion Sampling” of Singapore SMEs
  - Company manpower: 50 to 200 employees.
  - Concentrating on a single business domain without operating across different industries.

- Interview
  - CEOs and staff engaged in ES of 2 leading companies from each of the 2 industries
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Significance of the Research

➢ From a Theoretical Perspective
  ✓ This research aims to address the knowledge gaps and build up a new model of ES as a systematic process with consideration of the effect of IL skills and information technology applications.

➢ From a Practical Perspective
  ✓ Provide insights into the current situations of SMEs in Singapore regarding their use of IL skills and information technology for ES;
  ✓ Reveal their ES mechanisms, detect the problems they may encountered, and generate implications on how to improve the current situation.

➢ From a Methodological Perspective
  ✓ Explore the feasibility of adopting both quantitative and qualitative methods to generate a quality set of findings and to cross validate them.
Conclusion

- The common limitations of prior studies have been addressed in the proposed model through the equal attention paid to each ES step and the newly added variables.

- The proposed research design expects to enrich this set of information by obtaining inputs across the hierarchy of the organization, thereby providing a richer and more accurate picture of ES by the various stakeholders involved in this process.