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
  - Background Information
  - Definition of Key Terms
  - Scope of the Research
- Literature Review
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Background Information

Rapid Changes and Emerging Trends

Advancement of ICT

Environmental Scanning

Need

Challenges & Opportunities

Business Organizations

Non-profit Organizations

Large Firms

SMEs
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.
Singapore SMEs

➢ 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
  ✓ employment size not exceeding 200 workers for non-manufacturing companies (SME Portal Singapore, 2009).

➢ 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

- Introduction
- Literature Review
  - Information Literacy in the Workplace
  - 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>PSU</th>
<th>Measurement</th>
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<tr>
<td>PI × (C+R) (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>
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<td>ES</td>
<td>Frequency of scanning &amp; Degree of interest (Hambrick, 1982; Boyd &amp; Fulk, 1996; Strandholm &amp; Kumar, 2003; McGee &amp; Sawyerr, 2003)</td>
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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 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

Perceived Effectiveness of ES

Perceived Level of IL Skills
Perceived Effectiveness of Tech & Media

Perceived Effectiveness of each ES Step

Implemented Frequency of each ES Step

Rate of Interest for each ES Step

Implemented ES Process

Actual ES Product

Perceived Strategic Uncertainty

Sector Complexity
Sector Variability
Perceived Sector Uncertainty
Perceived Sector Importance
Perceived Strategic Uncertainty

Actual Level of IL Skills
Actual Effectiveness of each ES Step
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- Proposed Research Methodology
  - Proposed Research Methods
  - Proposed Sample Selection and Characteristics
  - Proposed Survey Instrument and Interview Method
- Significance of the Research
- Conclusion
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 periods through recall of various strategic situations;
  ✓ Investigate the indirect contribution of ES to organisational performance.
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.
Q & A
Thank you!