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Identifying and describing sub-processes in the strategic intelligence process by qualitative content analysis in an inductive way

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ABSTRACT The purpose of this study was to identify and describe the sub-processes of the strategic intelligence process in organizational level analysis. Data were collected by searching the major academic and practitioner books, theses and journals in the Ebsco, Google Scholar and IranDoc databases in Persian and English. Nine thousand pages of text data were examined using content analysis. Fourteen main sub-processes were identified to describe the strategic intelligence process: (1) Identification of strategic environments and prioritizing them, (2) determination of organizational information needs and prioritizing them, (3) determination of monitoring period for each section of strategic environment and organization key information needs (KIN), (4) determination of information sources and assessment of information capturing, (5) external information scanning, (6) internal information extracting, (7) setting criteria for gathered information assessment, (8) information filtering, categorizing and abstracting, (9) information analysis, (10) interpretation and sense making (intelligence generation), (11) determination of intelligence users and intelligence distribution media, (12) intelligence distribution, (13) feedback from recipients, revision and adjustment, intelligence storage, and (14) intelligence use. The results provided useful insight for strategic intelligence process implementation in organizations and its effectiveness evaluation. The innovative aspect of this study is its response to a lack studies about strategic intelligence process modelling.

KEYWORDS Competitive intelligence, strategic intelligence, process, content analysis, inductive way

1. INTRODUCTION

The notion of strategy is multi-dimensional and multifaceted and includes many meaning (Leonard and Mintzberg 1996). In this way, strategic intelligence (SI) has many definitions too. Cohen (2009, 31) states she can account "for at least 25 different expressions in English publications" for the notion of SI, by studying books and articles published since 1967. This difference of views has led to some

instability of terminology and lack of consensus in the SI body of knowledge. McDowell (2009) reported some difficulty for analysts and practitioners who want do research in SI. Many authors have written in this regard, acknowledging the disagreement about SI process and procedures in many organizations (Kruger 2010, Marchand and Hykes 2007, Brouard 2007, Xu and Kaye 2007, Liebowitz, 2006). Here, we want to analysis relevant texts about SI processes to: 1) find a

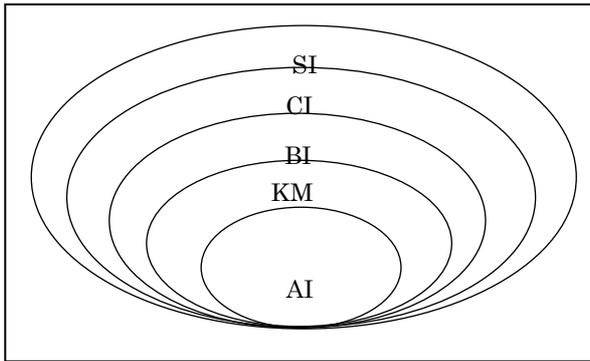


Figure 1 Framework of Intelligentsia (Liebowitz 2006,14).

basic consensus among authors about essential activities that are causing strategic intelligence. 2) identify executive requirements that impose strategic intelligence on organizations and 3) identify the sub-processes of strategic intelligence.

2. THEORETICAL FRAMEWORK

Intelligence is a comprehensive word, and many types of intelligence known in organizations are under the umbrella of this term. According to Liebowitz (2006): artificial intelligence (AI), business intelligence (BI), and competitive intelligence (CI), are different forms of intelligence at the organizational level of analysis. Liebowitz (2006, 14) has suggested a framework of intelligence to integrate many kinds of intelligence in organizations. Figure 1 indicates Liebowitz's (2006, 14) comprehensive model and shows the inclusion of different types of organizational levels of intelligence.

According to Liebowitz (2006, 13):

"The inner layer refers to AI. This is the field of developing intelligent systems to support or, in some cases, replace the decision maker".

Although the benefits of AI techniques can be gained, in Liebowitz's (2006) opinion, this does not necessarily mean that other intelligence layers must use AI techniques. He admits that because of the model's comprehensiveness, he introduced artificial intelligence into the model.

The next layer in the intelligence framework refers to knowledge management (KM). According to Bali *et al.* (2009, 7) KM is defined as:

"Comprised a set of tools, techniques, tactics and technologies aimed at

maximizing an organization's intangible assets through the extraction of relevant data, pertinent information and germane knowledge, to facilitate superior decision-making so that an organization attains and maintains sustainable competitive advantage".

Jennex (2009, 4) define KM as:

"the practice of selectively applying knowledge from previous experiences of decision-making to current and future decision-making activities with the express purpose of improving the organization's effectiveness".

KM refers to how the organization's knowledge can be used for innovation, essential knowledge retention, loyalty creation, and employees' productivity improvement. For gaining, organizing and sharing knowledge, AI techniques can be used.

Business intelligence (BI) has been placed in the next layer of Figure 1. The Knowledge Management and Business Intelligence (KMBI 2005) Workshop defined BI as an:

"active model-based, and prospective approach to discover and explain hidden, decision relevant aspects in large amounts of business data to better inform business decision processes". Turban *et al.* (2007, 24) define BI as *"an umbrella term that combines architecture, tools, databases, analytical tools, applications, and methodologies"* that *"give business managers and analysts the ability to conduct appropriate analysis"* on historical and current business data.

How to effectively manage the organization's internal information, to improve organizational performance and to align implementation and strategy, are the key issues of BI.

Liebowitz (2006, 14), has introduced competitive intelligence (CI) in the fourth layer of Figure 1. BI focuses on the internal and often quantitative data of the organization; however, CI focuses on data outside the organization, often qualitative in nature. These data refer to the competitive aspect of the external environment of an organization (Liebowitz 2006, Britt 2006, McGonagle and Vella 2002). The Society of

Competitive Intelligence Professionals (SCIP 2007) has defined CI as:

“A systematic and ethical program for gathering, analyzing, and managing external information that can affect a company’s plans, decisions, and operations”.

CI is information, which is gathered from the market, then analyzed to provide recommendations and solutions to decision-makers; all of these are done in a legal and ethical way (Miller 2000). CI means creating a systematic plan capturing organizational external information and knowledge, as well as analyzing and managing this information and knowledge, to improve the organizational decision-making capacity (Jones 2009, Calof and Wright, 2008, Liebowitz 2006).

The last layer in Liebowitz’s (2006, 14) framework of intelligence is strategic intelligence (SI), which includes all types of intelligences in organization. SI helps the organization make the best strategic decisions. The top managers of an organization have to anticipate the future of the organization to gain competitive advantage. To do this, they must have intelligence about the trend and direction of the changes that occur in the following areas: resources, customer expectations, emerging technologies that affect business and customers’ behavior, political and social

change, incentive and restrictive laws (Marchand and Hykes 2007).

According to Cohen (2009) there is no common, consensual definition of SI. Each author, according to her/his research background, has defined SI. For this reason, in Table 1, different definitions and perspectives of SI are presented.

Considering the definitions given in Table 1, there is no general consensus among scholars involved in the SI phenomenon; and the body of knowledge about this phenomenon is fragmented. So, using the methodological suggestion of Elo and Kyngäs (2008), a qualitative content analysis method was used to address the aims of this paper.

3. METHODOLOGY

In terms of qualitative versus quantitative methodologies, we use a qualitative methodology to identify and describe SI sub-processes. From the ontological point of view, the qualitative methodology is placed in a Holistic-Inductive Paradigm (Sarantakos 2004). A qualitative methodology is used when there is some concern about understanding a phenomenon, and the goal is not to measure the relationship between variables. Content analysis as a research method is a systematic and objective means of describing and quantifying phenomena (Krippendorff 1980, Downe-Wamboldt 1992, Sandelowski 1995). It is also known as a method of analyzing documents (Elo and Kyngäs 2008).

Table 1 Different definitions of SI at the organizational level of analysis.

author	definition
Tham and Kim (2002, 2)	<i>Strategic Intelligence can be identified as what a company needs to know of its business environment to enable it to gain insight into its present processes, anticipate and manage change for the future, design appropriate strategies that will create business value for customers, and improve profitability in current and new markets</i>
Global Intelligence Alliance (2004, 5)	<i>A systematic and continuous process of producing needed intelligence of strategic value in an actionable form to facilitate long-term decision making.</i>
Liebowitz (2006, 22)	<i>SI is the aggregation of the other types of intelligentsia to provide value-added information and knowledge toward making organizational strategic decisions.</i>
Marchand and Hykes (2007,1)	<i>Strategic intelligence is about having the right information in the hands of the right people at the right time so that those people are able to make informed business decisions about the future of the business.</i>
Brouard (2007, 122)	<i>Strategic intelligence could be defined as the output of the informational process by which an organization stays attuned to its environment in order to make decisions and then act in pursuit of its objectives.</i>
McDowell (2009, 24)	<i>The specific objective for strategic intelligence is to provide accurate, long-range intelligence to enable effective high-level planning and management of law enforcement resources to meet the overall perceived threat.</i>
Cohen (2009, 49)	<i>SI is a formalized process of research, collection, information processing and distribution of knowledge useful to strategic management.</i>

Content analysis is (Elo and Kyngäs 2008, 109):

"A method that be used in an inductive or deductive way. Which of these is used is determined by the purpose of the study. If there is not enough former knowledge about the phenomenon or if this knowledge is fragmented, the inductive approach is recommended".

In an inductive way, concepts and classifications are extracted from the data. The qualitative content analysis in the inductive method has three main steps: preparation, organizing and reporting (Elo and Kyngäs 2008). These steps are shown in Figure 2.

3.1 Trustworthiness

There is a lot of struggle between authors about the appropriate terms for evaluating the validity of qualitative research. Many terms such as rigor, validity, reliability and trustworthiness were developed for this purpose (Koch and Harrington 1998). The most widely used criteria for evaluating qualitative content analysis are those developed by Lincoln and Guba (1985). They used the term "*trustworthiness*". The aim of trustworthiness in a qualitative inquiry is to support the argument that the research's findings are "worth paying attention to" (Elo et al. 2014, 2). Lincoln and Guba (1985) have suggested five options for assessing the trustworthiness of qualitative research. These are credibility, dependability, conformability, transferability, and authenticity. Elo et al. (2014, 3) proposed a checklist for researchers attempting to improve the trustworthiness of a content analysis study. In this paper, we use their proposed checklist and the points to be reported according to their checklist (Elo et al. 2014), according to the following headings.

3.2 Data collection method

Material for this study included all published texts and literature in Persian and English about strategic intelligence. We used a two-stage strategy for selecting material. First, we searched the major academic and practitioner journals and books in the Ebsco, Google Scholar and IranDoc databases using the keywords "strategic intelligence" in Persian and English for the period from 1967 to the present (March 2017). This time frame was

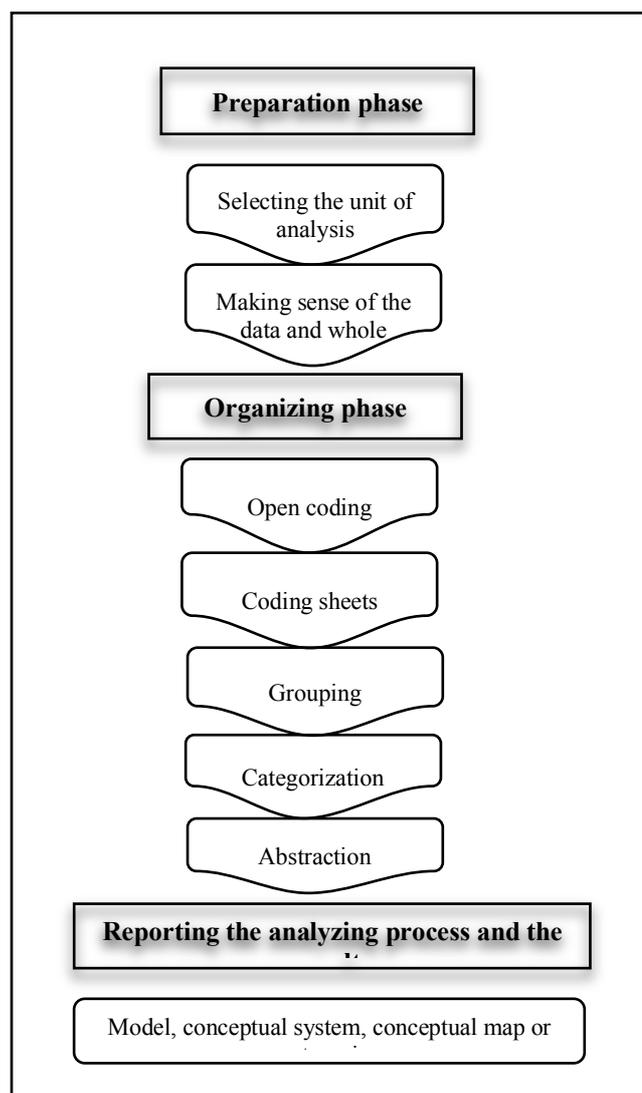


Figure 2 Figure 2 - Preparation, organizing and resulting phases in the content analysis process by the inductive approach. (Elo and Kyngäs 2008, 110).

selected because it corresponds to the period during which SI appeared in the management field (Cohen 2009). Second, we checked the reference lists of the articles and books obtained through the initial search to uncover additional studies. In total, a little more than nine thousand text data sheets were collected for review.

3.3 Sampling strategy

In qualitative research, the sampling strategy is selected based on the methodology and subject and there is no requirement for generalizability of the results (Higginbottom 2004). The most commonly used method in content analysis studies is purposive sampling (Kyngäs et al. 2011). In this research, purposive sampling was also used. Two criteria were used to select appropriate samples: (1) texts should be in the business or organization context; and (2) examine SI at

the organizational level of analysis. It has been suggested that the saturation of data may indicate the optimal sample size (Guthrie et al. 2004, Sandelowski 1995a). By definition, saturated data ensure replication in categories, which in turn verifies and ensures comprehension and completeness (Morse et al. 2002). The saturation law in this study was "three new texts do not add new code to the study" and "all extracted code can be included in previous categories".

3.4 Selecting the unit of analysis

In this research, we selected the sentence as unit of analysis. Because the meanings we want to extract are infinitive phrases; so the sentence size seems to be appropriate.

3.5 Categorization and abstraction

After each text was coded, codes were shifted to the codebook. Then the codes were re-examined and grouped. Groups that had overlapping meanings built the abstract categories of the research. This process continued until saturation of categories was reached. Co-researchers checked the categories to ensure no overlap between categories and concepts, and then overlapping categories and concepts were integrated. In the next step, several experts in SI were asked to examine the conceptual similarity between categories and concepts. In this way, fourteen abstract categories were identified as SI sub-processes.

3.6 Interpretation

For avoidance of excessive interpretation, only clear and unambiguous sentences were selected for open coding, and hidden concepts in the texts were ignored. According to Elo et al. (2014) co-researchers checked out all analyzing process steps.

3.7 Representativeness

Face validities were used to improve the trustworthiness of the research findings. Some experts were asked to evaluate research findings, and their assessment was that the results are realistic.

4. FINDINGS

Fourteen main categories (sub-processes) were established to describe the SI process: identification of strategic environments and prioritizing them, determination of organizational information needs and prioritizing them, determination of a

monitoring period for each section of strategic environment and organization key information needs (KIN), determine information sources and assess information capturing ways, external information scanning, internal information extracting, setting criteria for gathered information assessment, information filtering, categorizing and abstracting, information analysis, interpretation and sense making (intelligence generation), determination of intelligence users and intelligence distribution media, intelligence distribution, feedback from recipients, revision and adjustment, intelligence storage, and intelligence use.

4.1 Identification of Strategic Environment and Prioritizing Them

In the opinion of most of the contributors, the identification of important areas of the environment is one of the main activities in the SI process.

"Dividing the environment into sectors to monitor is the first solution proposed" (Cohen 2009, 144).

"In a limited resource context or in a desire for efficiency and optimization, prioritization of sections and axes of surveillance seems vital to ensure the effectiveness of surveillance practiced" (Cohen 2009, 148).

Therefore, in order to achieve the expected outcomes of a SI system, the strategic areas of the organization's environment should be identified and prioritized.

4.2 Determination of Organizational Information Needs and Prioritizing Them

Some contributors identify the beginning of the SI process by ascertaining the organization's needs and problems. According to McDowell (2009), SI is an organizational level of analysis issue and deals with issues and problems which are identified in the structure, goals or nature of organizations so one of the important steps in the SI process is to recognize the organization's problems.

"As the first stage of the intelligence cycle, the Strategic Intelligence System is concerned with the establishing of parameters for what information is

required, what priorities should be established, and what indicators should be monitored" (Kruger 2010,110).

4.3 Determination of Monitoring Period for Each Section of Strategic Environment and Organization Key Information Needs (KIN)

Nowadays, constant changes are one of the main characters of the organizational environment. For this reason, some authors, considering the perceived uncertainty of different parts of the environment, embedded the determination of monitoring period for each section of strategic environment and organization key information needs as essential activities in the SI process (Kruger 2010, Cohen 2009, Montgomery and Weinberg 1998).

4.4 Determination of Information Sources and Assess Information Capturing Ways

Information overflow convinced some authors that planning for identifying relevant, reliable, valid, and up to date resources makes the process of SI more effective and prevents overflow of information and its related costs. According to Cohen (2009, 157):

"To ensure the effectiveness of information collection and to avoid wasting corporate resources, which are by definition limited, it is necessary to select information sources and the most valuable information".

4.5 External Information Scanning and Internal Information Extracting

Almost in all of the texts which were analyzed, information gathering activity was identified as the most important phase of the SI process. According to Marchand and Hykes (2007, 5) the collecting phase, which *"Focuses on ways of gathering information that are relevant and potentially meaningful"* one of the steps that makes the SI process effective.

But the origin of the gathered information led to some disagreement among authors. On the one hand, some authors (for example, Kruger 2010, Cohen 2009, Marchand and Hykes 2007) believed that the internal environment of an organization's information gathering system and external environment of the organization's information gathering are the same; on the other hand, there are authors

(Xu and Kaye 2007, Montgomery and Weinberg 1998) who believed that these two areas have different information gathering approaches.

4.6 Setting Criteria for Gathered Information Assessment

Most authors agree on the evaluation of the information gathered. However, some have recommended setting criteria for the evaluation of information:

"In other words, volume, diversity and quality of information sources, and the existence of control to verify value seem vital for the effectiveness of surveillance" (Cohen 2009, 159).

While others only assess the validity and reliability of information:

"[Analysis of gathered information] simply cannot occur until and unless the collected information has been brought together in appropriate sets and then considered for its reliability, relevance, and believability value" (McDowell 2009, 195).

4.7 Information Filtering, Categorizing and Abstracting

In recent years, most authors have emphasized categorizing and abstracting refined information. They believe in the benefits that these activities bring. These activities save time and money for the organization and provide a more effective analysis of the data. Some even believe that this activity should be done according to user preferences and feedback (Ong et al. 2007).

4.8 Information Analysis

Compared to the research and collection phase, there is not much said in the literature about the other phases of the SI process, in particular the information processing phase, which is central to the activity of SI (Cohen 2009).

The difference between the authors in this phase is their attitude to the method of analysis. Cohen (2009) has focused more on the introduction of analytical techniques and their application for information processing, however McDowell (2009) has suggested instructions for preparing data, for methods of selecting an analysis tool, and auxiliary resources for information processing.

Nonetheless, the goal of the authors was to turn data into information. That is, the output of this stage should be a meaningful and believable piece of information. "Analysis creates information by linking data together and identifying patterns and trends" (Brouard 2007, 124).

4.9 Interpretation and Sense Making (Intelligence Generation)

Some authors who have written in the field of SI believe that information analysis is not enough to generate intelligence. In the opinion of this group of experts, the interpretation of the analyzed information creates intelligence and advice for action. But there is no consensus on how to interpret information and generate intelligence. In Daft and Weick's (1984) point of view:

"Interpretation pertains to process by which managers translate data into knowledge and understanding about the environment. This process will vary according to the means for equivocality reduction and the assembly rules that govern information processing behavior among managers" (291).

4.10 Determination of Intelligence Users and Intelligence Distribution Media

Almost all contributors have confirmed that the SI user's identification and determination of SI finding distribution media are activities in the SI process context.

"The first problem is to distribute the information to the right recipients, i.e. those interested by it and liable to use it." (Cohen 2009, 179). "The distribution of the products of surveillance activity be by written, oral, electronic channels, etc. numerous and varied. Some studies list the most widely used methods of information distribution" (Ibid 180-81).

4.11 Intelligence Distribution

In many references about the process of SI, considering the distribution of intelligence is a key part of the process (Kruger 2010; McDowell 2009; Brouard 2007; Ong et al. 2007; Xu and Kaye 2007; Montgomery and Weinberg 1998). According to Cohen (2009, 179):

"The role of distribution in [SI] surveillance effectiveness is therefore obvious: information which is collected, processed, stored but not distributed is not used, which reduces [SI] surveillance effectiveness to zero."

4.12 Feedback from Recipients, Revision and Adjustment, Intelligence Storage

The recipient's feedback on transmitted information is recommended by many authors. It is the best way to improve the quality of information. They recommend the implementation of a feedback contract encouraging users to issue feedback on each item of information transmitted (Cohen 2009; Brockhoff 1992; Prescott and Smith 1989).

4.13 Intelligence Use

Most authors agree on identifying a separate phase in the SI process as the intelligence use stage. McDowell (2009) has called this phase "recommendations". Daft and Weick (1984) named this stage "strategy formulation and decision making".

5. DISCUSSION AND CONCLUSION

Strategic intelligence in the organizational level of analysis is an abstract phenomenon that exists only in the minds of organization members where it appears as cognitive maps of a socially constructed reality. It enacts inter-subjectively in nature. Those who coined this term's intention was to respond to the information needs of decision makers at the strategic level of the organization (Seitovirta 2011, Liebowitz 2006, miller 1996).

To make an inter-subjective meaning, share an opinion and understand this phenomenon, SI components and steps describing it seem essential. A process that develops an organizational strategic intelligence consists of fourteen sub-processes. The way each of these sub-processes is implemented depends on the organization's age and size, and perceived complexity of the organization's environment by top managers (Daft and Weick 1984).

One of the weaknesses of the qualitative content analysis method is that it does not provide tools for modeling or prioritizing classes and concepts created (Elo and Kyngäs 2008). For this reason, the sub-processes identified in this research do not have the order or priority. The process modeling of these sub-processes needs further research.

SI in the organizational level of analysis is a term which is used to describe some intelligence activities. These activities are meaningful in the context of strategic planning and strategic management (Marin 2015). SI is about creating a shared common understanding of the internal and external environment in an organization member's minds. Whenever these shared understandings are created in the organization it can be assured that appropriate strategies are selected; which are appropriate to the circumstances and the nature of the organization (Pirttimäki 2007).

For an organization to have an SI attribute, it must do the following activities in some ways: (1) identification of strategic environments, (2) determination of organizational information needs, (3) determination of monitoring periods, (4) determination of information capturing ways, (5) external information scanning, (6) internal information extracting, (7) setting criteria for gathered information assessment, (8) information filtering, categorizing and abstracting, (9) information analysis, (10) interpretation and sense making (intelligence generation), (11) determination of intelligence users and intelligence distribution media, (12) intelligence distribution, (13) feedback from recipients, revision and adjustment, intelligence storage, (14) intelligence use.

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