Supporting the Evaluation of Intelligent Sources

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INTRODUCTION

To survive, organizations need to produce and process information about their environment, for instance, about customers, competitors, suppliers, governments, or all kinds of socioeconomic and technological trends. The process of obtaining this information is often called competitive intelligence (cf Fleisher & Blenkhorn, 2001; Kahaner, 1997; Vriens, 2004). An important stage in the competitive intelligence process is the collection stage. In this stage, one has to determine relevant sources, access them, and retrieve data from them (cf Bernhardt, 1994; Kahaner). For each data class, many possible sources are available, and determining the right ones is often difficult. Moreover, accessing sources and retrieving data may require a lot of effort and may be problematic (cf Cook & Cook, 2000; Fuld, 1995; Kahaner, 1997). In this chapter, we present a tool for supporting the effective and efficient use of sources: the source map. In essence, a source map links data classes to sources and contains information about these links. This information indicates the adequacy of sources in terms of ease of access, ease of retrieval, and usefulness of the retrieved data. A source map can support the selection of appropriate sources and it can support the assessment of the overall adequacy of available sources.

BACKGROUND

The process of competitive intelligence is often described as a cycle of four stages (the intelligence cycle; see Kahaner, 1997; Vriens, 2004). This cycle comprises (a) the direction stage (in which the organization determines about what aspects in the environment data should be collected), (b) the collection stage (where sources are determined and data are collected), (c) the analysis stage (in which the data are analyzed to assess whether they are useful for strategic purposes), and (d) the dissemination stage (where the data are forwarded to decision makers; Bernhardt, 1994; Gilad & Gilad, 1988; Herring, 1999; Kahaner, 1997; Sammon, 1986). The collection stage is considered to be the most time-consuming stage (e.g., Chen, Chau, & Zeng, 2002) and if it is not performed carefully, many difficulties arise (e.g., too much time spent on search, collection stage leads to irrelevant data, infor-

mation overload; see, for example, Cook & Cook, 2000; Chen et al.; Teo & Choo, 2001; Vriens & Philips, 1999). For successfully carrying out collection activities, knowledge about what sources contain what kind of data and knowledge about how to approach these sources (metaknowledge regarding the collection of data) would be very helpful. This chapter presents a tool to structure and deal with this metadata: the source map.

To collect data about the environment one has to

1. identify possible sources,
2. judge the value of the source (in terms of different criteria; e.g., does it contain relevant data? What are the costs of employing this source? Is it reliable?), and
3. use value judgments to select the appropriate sources.

Many authors discuss Step 1 by pointing to a variety of available sources (cf Fuld, 1995; Kahaner, 1997; Sammon, 1986). Typical sources include the Internet, online databases, sales representatives, internal or external experts, CEOs, journals, tradeshows, conferences, embassies, and so forth.

The literature treats the valuation step more implicitly. It discusses distinctions regarding sources, such as open versus closed sources, internal versus external sources, or primary versus secondary sources (Fleisher & Blenkhorn, 2001; Kahaner, 1997). These distinctions implicitly refer to criteria used in the valuation of sources. The distinction of open versus closed sources implicitly refers to, for instance, criteria such as ease in collection or relevance. The distinction of primary versus secondary sources implicitly refers to the criterion of the reliability of the data. In our view, it is possible to value sources more precisely when the valuation criteria are stated explicitly and not implicitly in the form of these distinctions.

The selection step is even more elusive in literature (and practice). This step integrates value judgments to select appropriate sources for collecting the required data. Few methods seem to be designed for source selection.

In this article, we propose a tool to structure and support the valuation and selection of sources: the source map. This tool builds on Fuld's (1995) intelligence maps and knowledge maps (e.g., Davenport & Prusak, 1998).

The purpose of the source map is to help pin down the appropriate sources quickly and detect weaknesses in the available sources.

THE SOURCE MAP AS A TOOL FOR ASSESSING SOURCES

What is a Source Map?

A source map links data (or classes of data) to sources in such a way that the (most) appropriate sources can be selected for the collection of the requested data. If viewed as a matrix, the column entries may refer to data classes (e.g., products under development by competitor X) and the row entries to possible sources. Each column then indicates what sources may be used to gather the requested data (e.g., a patent database, economic journals, or the Internet site of competitor X). To determine what sources are (most) appropriate, the source map needs to contain information about criteria for appropriateness and their valuation. The cells in the source map (connecting the data classes to sources) should contain this information. To get this information, it should be clear (a) what the relevant criteria are, (b) how they can be given a value, and (c) how to integrate them into an overall judgment of the appropriateness of the sources. The next two sections deal with these issues.

Note that we treat the source map as a tool for supporting and structuring collection activities *given* the data classes. We assume that the data (classes) are already defined in the direction phase (the first phase of the intelligence cycle).

Criteria and Scores for Judging Sources

The criteria for assessing the appropriateness of sources link up with the three activities required to deal with sources. These activities are the following.

1. Accessing the source. Accessing means determining the exact location and approaching the source to prepare retrieval.
2. Retrieving (in interaction with the source) the data from the source.
3. Using the retrieved data in further processing (i.e., for the production of intelligence).

Referring to these activities, the appropriateness of sources depends on four dimensions: (a) ease of access, (b) ease of retrieval, (c) usefulness of the content of the retrieved data and processing ease, and (d) cost effectiveness. Below, we discuss criteria in these dimensions.

Criteria for Access and Retrieval

To assess the appropriateness of sources regarding access and retrieval, barriers in employing a source can function as criteria (cf Fuld, 1995; Davenport & Prusak, 1998). Examples of these barriers are as follows.

- A language barrier.
- A cultural barrier (i.e., a difference in culture between collector and source).
- An institutional barrier. In some (bureaucratic) organizations, it may be very hard to locate and approach certain people and documents.
- A personal barrier. Personal characteristics can make it difficult to approach and interact with someone.
- A geographical barrier. Some sources need to be dealt with on location.
- A technological barrier. Accessing some sources and retrieving data from them may sometimes be possible only by means of specific information and communications technology, requiring specific knowledge or skills.
- A fee barrier. For accessing some sources and/or retrieving data, a fee may be charged.
- A time barrier. For some sources, the response time may be very slow.
- A clarity barrier. This barrier refers to the effort one has to give to make sense of the data from the source. Factors that increase this barrier are the use of specific jargon and the lack of (requested) structure in the data.
- A stability barrier. This barrier refers to the stability of access to the source (some sources may cease to exist, some are not available at the expected moment, others may decide to stop providing their services, etc.).

In our view, these criteria can also be used to express the costs associated with using a particular source. We therefore prefer to deal with the above criteria, instead of using cost estimates that may be derived from them, because (a) it is difficult to translate the criteria into costs and (b) if only cost estimates are used, one loses information about the appropriateness of sources.

Using a barrier as a criterion to assess appropriateness, it can be scored on a five-point Likert scale where 1 means *very problematic* and 5 means *nonexistent*.

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