Information Modeling for Enterprise Intelligence Operations

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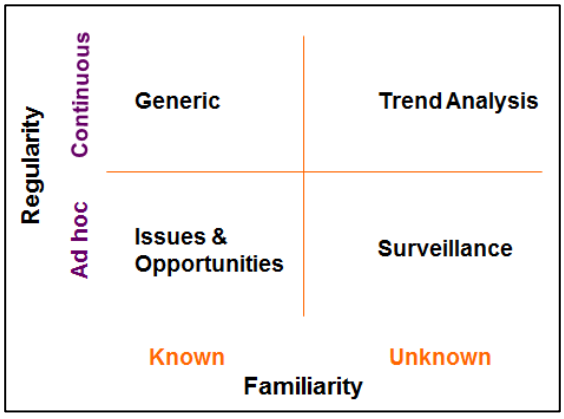
***Abstract**: Enterprise Intelligence Operations (or whatever synonym that might apply) is probably one of the most information intensive activities undertaken in corporations these days. The amount of open sources is growing continuously and long gone are the days when intelligence was mainly about finding information. Today it is about selecting, filtering, structuring and analyzing. This paper outlines a rather simple, yet proven powerful, model for primary sorting/structuring/classification of information based on intended usage.*

The information usage matrix

The definition of the *business usage pattern* and the structure of information is an early and very critical part of the process of building a functioning infrastructure for intelligence operations. The model presented in this paper for supporting such efforts was developed by the author and his colleagues in the mid 90s. The timing is of importance as the underlying assumptions took into account the forthcoming capabilities of modern information handling; the inter/intranet technologies and common formats such as XML, i.e. that there are no implicit limits in the amounts of information that can be managed. Many approaches, more outdated but still applied, seem to have as an in-built restriction that the amounts of information anyone needs to relate to is limited by physical distribution or by the limits of the human brain (in its capability of sorting information and putting it into perspective). These are obviously no longer limits that any model should accept as boundary values.



The model presented herein is based on two dimensions of information categorization – the *regularity* of the information flow and the *familiarity* of the content. Mapping these two against each other gives us a matrix - the *information usage matrix*. The matrix is a general framework for the information management itself as well as the management of the human resources deployed in the intelligence operations.

The two dimensions

Regularity
Regularity of information is a measure of how regularly the "same type" of information is either encountered/gathered or used for business operations or strategy purposes. For example, competitors' and customers' quarterly statements are very regular and, hopefully, used either for competitive intelligence, benchmarking or sales planning. A research series on a new type of technology may also be available on a regular basis. In this model such information is called *continuous* information.

In contrast, information needed for the acquisition of a particular company or information to support a particular product launch cannot by definition be regularly updated or produced, maybe not even regularly available; this kind of information is for one-off purposes and is referred to as *ad hoc* information.

Familiarity
Familiarity is the degree to which information can be seen as relating to the current business operations and business environment, as perceived by the company. For instance, all your current competitors, customers, technologies and markets should be considered as familiar. New actors can also be "familiar" if they fit the current business pattern.

In this model familiarity is thus divided into two categories as well: *known* and *unknown*.

For a receiver of information, the question to be put when labeling information as either known or unknown is thus not "did I know this before?", but rather "do I know how to relate to this information?"

These two basic dimensions – regularity and familiarity – when represented in the usage matrix, thus produce four distinct categories and usage patterns, each with its own information management methodology and relation to the business value created (see figure above).

The four categories

Generic information - *Known* information that is dealt with on a *continuous* basis.

Generic information is what some people would call your company's knowledge warehouse. It is the information that you should be able to access within seconds or minutes from the moment a need arises. Generic information should also be available to users at the same time it is produced (in-house or on the market).

Examples are customers', competitors' and suppliers' quarterly reports, market statistics, and real-time or near-real-time news on all relevant players, markets and products in the industry. Furthermore, you should expect all internal reports on these matters to be available *through the same channel*. In essence, as long as your planned usage of the information does not have an explorative character but rather a standard business purpose, the information should be considered as generic for your company.

Information on issues & opportunities - *Known* information that is dealt with on an *ad hoc* basis.

To complement generic information, *issues and opportunities* is a usage area where you are still working within your standard field of operations, but on a much deeper level. The best example would be an acquisition of a competitor or a partner. This will differ by industry, but it would usually be overambitious to consider personal, individual analyses of the management teams of all players in the industry as generic usage. Adding personal research on a particular management team would therefore be considered an *issue.*

A chance opportunity or a change in legislation in a country would trigger an analysis of the business consequences for the company, given its current presence and product range. To consider such consequential information to be generic would require a giant effort on continuous "what if" analyzes that would rarely have any value. However, if you knew that certain changes would be of great value to the company, it would be generic usage to look for such "triggers" in the information flow, or possibly as "trend analyses", depending on what kind of change is anticipated.

Trend Analysis -*Unknown* information that is dealt with on a *continuous* basis.

Trends can be explained in many ways. While many people would probably consider a trend as a known variable, we are talking about *trend analysis*. The purpose of this type of information usage is to establish whether a flow (or path) of information forms a reliable trend that should become a generic coverage topic or whether this information reflects events and changes that are currently irrelevant to the operations. An example of this is following the development of potential peripheral technologies or complementary products.

Trend analysis is also a very powerful tool for monitoring the development of variables that, at a certain point or value, should trigger a business decision, for example, predicting the increasing capacity in smartphones in order to determine when certain applications could be marketed on a broad scale.

Surveillance - *Unknown* information that is dealt with on an *ad hoc* basis.

Surveillance can best be compared to a corporate radar screen. Imagine yourself being the "air traffic controller" of your business. Looking at the radar screen you suddenly see an unexpected "blip". All you know after the first "blip" is that something new has entered your territory. In flight terms it could be anything from a bird to a fighter that just came out of radar shadow. You need to wait for a few more "blips" in order to make a qualified guess regarding the identity of this new something.

In the business world, no one has yet invented such a screen! Thus, the question becomes, "What does the 'business radar screen' do?" The answer is that it monitors and presents discontinuities in the otherwise continuous information flow. An example might be the frequency and content of press statements by one of your competitor's or customer's CEO. A change in frequency or change in "standard" content would be the first "blip". All you know is that something is happening, but not yet what. (Don't take the new content as a given – the importance is the change in the message!).

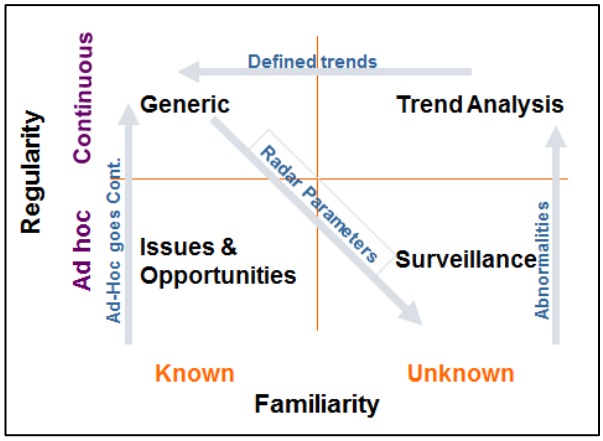
Finding the "blips" before competitors and maybe being able to initiate customer dialogues based on such insights can be of immense value. The ability to recognize such blips is, however, highly dependent on the interdependencies of the four categories in the matrix.

Interdependencies and moves in the model

The four usage categories are strongly linked and interdependent.

- Surveillance cannot be undertaken without a well-defined generic usage of information, since a continuous information flow is a prerequisite for detecting discontinuities.
- Trends to be analyzed are usually created out of surveillance
- The development of generic usage is very often determined by the results from trend analysis and work done on issues and opportunities.

Graphically, the interdependencies can be illustrated like the figure to the right.



Concluding comments

The key conclusion of this short text is that any initiative that includes an information management strategy for intelligence operations must take all these four categories into serious account in order to create the desired foreknowledge of market developments.

Each of these four usage categories of course has its own portfolio of management and analysis methodologies. However, the most important decision is not which method to choose, but to make sure that all users adopt the same method. For surveillance and trend analysis, various types of scenario-based techniques are usually recommended, whereas taxonomy management in combination with the standard range on analytical models used by intelligence professionals tend to be deployed in the generic as well as the ad hoc field.

Finally, when developing this matrix for a given organization, it is imperative to note that the generic structure is the most important and critical usage pattern to establish in order to ensure long-term success. This is due to the fact that all other information management models and usage patterns in the matrix will be derived from the generic structure.