

Methods of Defining Business Information Needs

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Abstract — Business information, which is commonly understood as essential information related to a company's operations, activities and business environment, is an essential resource for managers. Managers make decisions relying on the information they receive from different sources inside and outside their organization. The use of information and communication technology has made information acquisition and dissemination easier, but at the same time it has increased the risk of information overload.

Although appropriate information is considered to be one of the premises for achieving a competitive advantage there is a large amount of information which brings no advantage to an organization. The incorrect or inappropriate information may even misinform managers, thereby hindering rather than helping decision making. The defining of business information needs aims to diminish the gathering of needless information as well as to promote the use of appropriate information.

When assessing the information needs of managers, the method should be chosen carefully by comparing those available. The method of choice should be the most suitable for the particular task. In the literature, several methods for defining information needs are presented. A group of these methods are discussed in this paper. The methods under discussion include among others interviews, questionnaires, Key Intelligence Topics (KITs) and Critical Success Factors (CSFs). The methods are discussed and evaluated from the point of view of defining business information needs.

Keywords — Information needs, methods, business intelligence.

I. INTRODUCTION

A. Background

The hype about information bringing competitive advantage has led to the false assumption that the more information a company has the better it succeeds in competition. When in fact, a great amount of information may encumber the personnel having to wade through it, as well as waste other resources. The advances in and use of information and communication technology (ICT) have made the information acquisition and dissemination easier, but at the same time it has increased the risk of information overload. In the end a great mass of information can handicap the company's essential functions such as decision making.

To get information to act in favour of a company, the

distinction between information as such and essential information should be made clear. The information actually needed in decision-making should be defined and the actions should be focused in acquiring this information.

Information needs and the methods of defining them have been discussed at least since the 1920's (see e.g. Wilcox, 1922 and Wyer, 1930 in [1]), but for a long time the research mainly focused on librarians and other traditional information workers. The development of executive information systems (EIS), that begun in the 1960's, also expanded the research on defining of business information needs.

Business intelligence aims to provide accurate and timely business information for both operative and strategic decision-making. In other words, business intelligence aims to satisfy the managers' information needs, and by doing so business intelligence enhances the organization's decision-making and creates competitive advantage. The defining of information needs is an essential part of the business intelligence process. It is, however, a complex task and the method should be chosen carefully to suit the particular situation and objectives.

B. Objectives and method

There are various methods of defining information needs. They differ from each other, for example, concerning the benefits, downsides, costs and other resources demanded. In order to get the best results from the study, the methods should be carefully evaluated. It should be noted that not all methods are suitable for every situation or organization. The purpose of identifying the business information needs, i.e., what will be done with the results, should also be kept in mind when choosing the method.

The objective of this paper is to discuss some main methods of defining information needs that are presented in the literature and evaluate their pros and cons. The research is approached through an overview of the literature.

II. BUSINESS INTELLIGENCE

A. Defining the concept

The term business intelligence is quite new and its definitions vary. In addition, the term itself varies; in addition to business intelligence the function is called competitive intelligence, market intelligence, competitor intelligence etc. depending on the author and region. For example, competitive intelligence is the prevailing term in

Northern America, whereas in Germany market intelligence is a common term for the function and in the Netherlands and Finland the same activity is called business intelligence. In this study the term business intelligence is seen as an umbrella concept and the aforementioned terms as its sub terms.

In addition to the disparate use of terms to describe business intelligence, the content of the term also varies. For example, Collins [2] recognizes business intelligence as a process in which information about competitors, customers, and markets is gathered by legal means and analyzed to support decision-making. Sawka [3], too, defines business intelligence to be focused on gathering specifically external information and predicting changes in the market situation, whereas Barndt [4] also points out the role of internal information. Prior [5] sees business intelligence as a combination of any data, information, and knowledge concerning an organization's operational environment and which leads to decisions that create competitive advantage for that organization.

To stress the multifaceted nature of the concept, some authors (see e.g. [6], [7]) present business intelligence as solely a technological tool or application that serves as an aid in information management. The function of these technological business intelligence solutions is usually to process and store the data and information gathered and to provide it to managers.

In spite of different terms and approaches, there seems to be a fairly general understanding of the fact that the ultimate objective of business intelligence is to help the organization's decision-making, although the scope of information and means of delivering it may differ. The ethics and legality of information gathering is also stressed (see e.g. [2], [8]), likewise the quality and accuracy of the information (see e.g. [9])

In this study business intelligence is considered to be a process by which an organization systematically gathers, manages, and analyzes information essential for its functions. Business intelligence aims to provide accurate and timely information for both operative and strategic decision-making. In other words, business intelligence aims to satisfy the managers' information needs and by doing so business intelligence enhances the organization's decision making and creates competitive advantage.

B. Business intelligence process

The literature introduces several different business intelligence process models (see e.g. [10]–[12]) and the models seem to be quite similar. According to Pirttimäki and Hannula [10] the most significant distinctions between business intelligence process models occur in the number of phases, structure of cycles and sources of information, among others. Most of the business intelligence process models discuss at least phases that include information needs analysis, information acquisition, information storage, information distribution and information use. It is also typical to the process models to function as a continuous cycle, so that the last phase of the process leads to the very first phase, and thus the cycle continues.

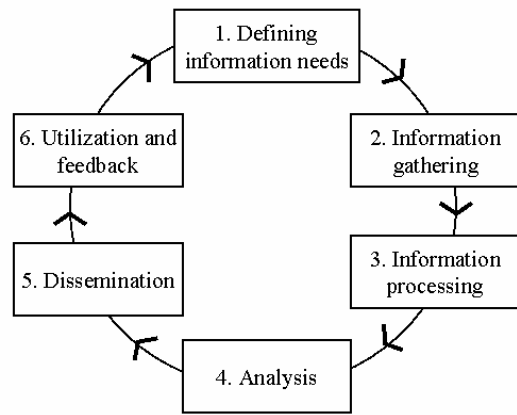


Figure 1. A generic business intelligence process model.

Defining information needs is the starting point of an effective intelligence cycle. The identification of information needs is the first phase in both Miller's intelligence cycle and Choo's process model of information management [13]–[15]. Defining information needs as a starting point is also the connecting factor in different process models of business intelligence presented in the literature [10].

In many organizations, a business intelligence unit or a practitioner or some other business intelligence function acts as a buffer between overload of information and managers by preventing the entry of unneeded information into the decision-making process. In order for a business intelligence function to select what is relevant from such an overload of information it should know which information is needed and which is not. In other words, the proper defining of the managers' information needs is essential in order to effectively manage information in an organization.

III. INFORMATION NEEDS

A. What is information?

In spoken language the word information can have many different meanings. It may as well refer to data, knowledge or intelligence, whereas the academic approach distinguishes between these concepts according to their contents. However, it has to be considered that in academic world, too, the terms and their contents are not coherent and the interpretations depend on the author. Figure 2 illustrates the different degrees of information and the factors which bring out the conversion to the next level of the hierarchy.

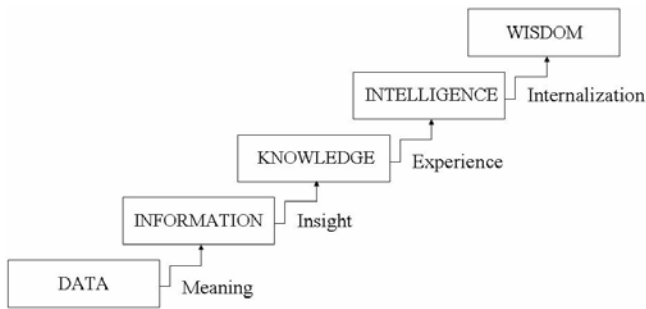


Figure 2. Information hierarchy and the factors which bring about conversion to the next level.

Data is static text, numbers, code or other marks or signals that do not necessarily include any other meaning and do not necessarily lead to anything, whereas *Information* has a meaning, purpose and value for its receiver and it is usually new to him (see e.g. [16], [17]). When information is enriched with insight and values it becomes *knowledge*, and adding personal experience to knowledge converses it into *intelligence* (see e.g. [18], [19]). The next level in information hierarchy is *wisdom*, which can be approached from a philosophical viewpoint: Thierauf [18] states that wisdom begins when a person understands that the present truth does not necessarily remain forever.

In this paper, to avoid confusion, the term information is used as an umbrella concept including all the aforementioned subterms data, information, knowledge, intelligence and wisdom.

Business information is information regarding the company's own operations, markets, customers, competitors, and other actors and variables in the company's business environment. Like the umbrella concept of information business information also runs the gamut from data to wisdom. Business information can be seen as a manager's fundamental resource [9], because managers make decisions based on the business information they receive.

B. Information needs and wants – what are we looking for?

Managers benefit only from information that they regard as useful and meaningful, because they tend to ignore information they consider to be irrelevant. It makes no sense to spend resources to acquire information that is not to be used in decision-making. The organization can reduce the gathering of excess information by identifying the managers' information needs i.e. what information they really need, when they need it, and in which format to make optimal decisions and thereby gain the organization a competitive advantage.

A need is generally defined to be something that people "must" have. Maslow's hierarchy of needs (see e.g. [20]) is a well-known academic theory, which divides needs into such categories as, for example, deficiency needs and being needs. These include among others self-actualization and need to be loved. From the perspective of information need, view Maslow's categorization is seen as problematic due to

its generality [21].

Information need arises when a gap between the existing information and the information called for is recognized. Case [22] defines information need to be recognition of the existing knowledge being not enough in order to reach the target. Nicholas [23] states that it is the information a person should have in order to perform his tasks or solve a problem in a satisfactory way.

Carter (in [24]) has categorized information needs according to the types of questions the person in need asks:

- *Orientation*: the questions aim to find out what is happening.
- *Reorientation*: the questions aim to check if the course is right.
- *Construction*: the questions aim to get an understanding of things or to solve a problem.

Wilson [25] completes the list with:

- *Extension*: the questions aim to complete the existing knowledge.

According to Höglund and Persson [26] information needs can be divided into objective and subjective needs: An objective information need is what is usually thought to be needed to solve a given problem whereas a subjective information need is something an individual himself thinks he needs to solve the problem in question.

According to Line [27] information needs consist of five categories:

- *Need*: the information one has to have to carry out the task regardless of the actual need been sensed.
- *Want*: the information that is wanted although there may have been no attempt to purchase it.
- *Demand*: such information that inquiries are made in order to acquire it.
- *Use*: when a middleman, such as an information system or a business intelligence worker, is used to purchase the information.
- *Requirement*: need, want, demand, use, or all together lay a claim to the information.

Nicholas [23] defines information want to be "what an individual would like to have" and information demand as "a request for an item of information believed to be wanted". It should indeed be noted that information needs can be questioned, that is to say that, if a person says he needs a specific piece of information, it can be argued whether he actually needs it in order to act on it or if he merely wants it (see e.g. [22]).

It is important to acknowledge the difference between wants and needs due to the costs of information gathering, processing, analysing and dissemination. There is no sense in lavishing resources on acquiring nice-to-know information that does not actually benefit the manager and the company in any way. In addition, it is pointless to spend

a lot of time in processing and analysing information in detail or into a specific form, when its efficiency, that is the benefits to be had from it compared to its costs, are poor. Figure 3 illustrates the differences between wants and needs.

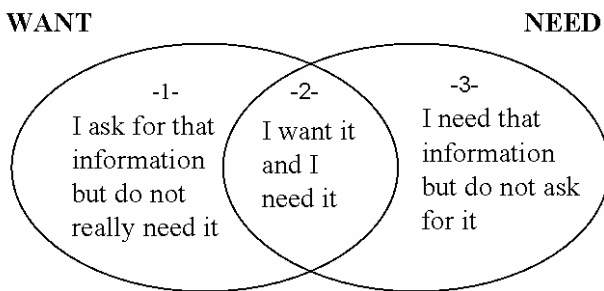


Figure 3. The difference between information want and information need. [28]

Marti [28] distinguishes needs in three categories (represented in Figure 3): 1) *Information that is wanted but that is not really needed*. This information is usually mainly a waste of money or other resources. For example, this information is wanted because of its status quality or it is processed to an unnecessarily high level due to a poor understanding of prioritization. 2) *Information that lacks and that is recognized to be needed*. This is the essential work of a business intelligence unit; to obtain the information that is known to be needed. The effort and money spent on this is seen to be acceptable and useful allocation of resources, because it is considered to benefit the company best. 3) *Information that is needed but not known to be needed, wanted nor asked for*. These blind spots can cause big surprises and cause a lot of confusion when the information is revealed. A common blind spot is to monitor only the few biggest competitors and ignore the smaller ones, even though they might be the very ones threatening the company's success in some way. [28]

It is often difficult to determine whether a need or want is in question. Even if one succeeds in narrowing down the needs, they have to be prioritized as well. As stated earlier, the costs of fulfilling an information need should be balanced against the benefits gained from that information. Not all information needs can or even should be satisfied: despite the fact that the information is considered to be essential to decision making the acquiring of it may be impossible or far too expensive. For example, a personnel manager would surely need to know which employees will be on sick leave the coming week in order to recruit the necessary stand-ins or allocate the assignments, but there is no way of knowing who will fall sick and when.

C. Difficulties and challenges related to defining information needs

The complexity of defining information needs is also commonly acknowledged in the literature. It is often very hard for managers to articulate their information needs and a frequent reason for this is that managers do not know

what information is available or they do not understand how it is obtained or used [29]. One of the problems in defining information needs is that the information needs of a manager may also be subconscious [30].

Harmon and Ballesteros [1] state that if only the conscious and explicit information needs are addressed the actual need is ignored or only partially satisfied. This leads to only partially solving the problem or making the decision for which the information need is related. According to Pirttilä [30], these subconscious needs cannot be assessed even with the best methods because they usually surface only in a decision-making situation. The fact that decisions are made inside a person's head and therefore the information needs are also generated in human brain makes their defining challenging. Consequently Wilson [25] states that no-one but the person himself can know his information needs unless the person articulates them. This indicates that no-one can identify a manager's information needs on his behalf.

Even so, it is not self evident that managers are even able to identify their own information needs, as stated earlier by Butcher [29] and backed up by Herring [31]. Herring [31] has detected three classic problems concerning managers' personalities effecting the defining of their information needs:

- The reticent manager, who is not good at asking information or expressing his needs in any way.
- The manager who wants to know everything, because he is not able to describe his needs and believes he will know what he needs once he sees it.
- The manager who asks the business intelligence unit what he needs to know. [31]

In many situations it is more important to find the right questions to ask than to find the right answers to the questions posed. The difficulties that managers may have in expressing their information needs demand proficiency from the person carrying out the process. In addition, the person has to be familiar with the method in use.

IV. ABOUT THE METHODS

A. Choosing a method

When conducting an empirical study, such as defining managers' information needs, choosing a suitable method is essential. The methods should be carefully evaluated to ensure the best results from the study. The benefits, downsides, costs and other resources demanded vary depending on the method.

It should be noted that not all methods are suitable for every situation or organization. The reason for defining the business information needs, i.e., what will be done with the results, should also be kept in mind when choosing the method. Several authors conclude that using different methods together may be more successful than using just one method (see e.g. [29], [32]–[34]).

B. The methods under discussion

The compilation of methods presented in this paper is not comprehensive, but the methods discussed are the ones generally and mainly used in defining information needs. It is also important to emphasize that the methods presented are not mutually exclusive. Actually, many of them can be used simultaneously, complementing each other. For example, as discussed later, questionnaires are often used as tools in interviews. On the other hand, most of the methods utilize interviews in one way or another.

The next part of the paper discusses five methods which are often used in defining managers' business information needs. After every section the pros and cons of the method are summarized in a table.

V. CONTEMPLATION OF METHODS OF DEFINING BUSINESS INFORMATION NEEDS

A. Questionnaires

The main benefits of a questionnaire are its easiness and economy. Answers can be analyzed swiftly and "tick blank-sheets" can be analyzed quantitatively. A questionnaire is filled in independently by a respondent thereby consuming less of the researcher's time. The respondent also has more time to consider the questions, thus the answers can be well thought out. According to Valli [35], the absence of the researcher also prevents his persona from influencing the answers. Nicholas [23] points out that because of its impersonality a questionnaire is also a good way to get answers from shy and timid persons, who probably would not be as frank in an interviewing situation. In addition, a large number of people can be reached quickly by a questionnaire.

Kunz et al. [32] stress that although a questionnaire is a popular method in assessing information needs it is not the best suited for this purpose. New or subconscious information needs cannot be assessed by a multiple-choice questionnaire. Open-ended questions provide wider, more spontaneous and more unforeseeable answers and allow respondents to express their information needs more freely, but, as Valli [35] points out, answers to open-ended questions are often vague and imprecise or the questions are left unanswered. In addition, a respondent may misunderstand the questions. Nicholas [23] also acknowledges the difficulty of producing a good questionnaire. He lists the main challenges to be formulating understandable questions, avoiding biased and leading questions and not to make the questions too lightweight and simple [23].

Another downside of a questionnaire is usually its low response rate. According to Kunz et al. [32] the factors affecting the response rate are the length and the structure of the questionnaire, the clarity of the questions, and how important a respondent considers the issue to be. Stamped addressed envelopes, good timing and rewards for those who answer can also improve response rates [23]. The response rate may possibly also be raised by sending an informing letter to respondents beforehand and making

motivating phone calls after the questionnaire has been sent out.

Kunz et al. [32] do not consider a questionnaire to be sufficient for assessing information needs. A low response rate lowers the credibility, but often, results are also skewed by answers because only the truly concerned respond. Valli [35] adds that a researcher cannot be sure that the right person has answered the questions or if someone else has filled in the form for him. Kunz et al. [32] suggest that the best way to make good use of a questionnaire in assessing information needs is to use it in conjunction with some other method, and Nicholas [23] corroborates this by noting that often interviews are required to pilot a questionnaire.

The focal pros and cons of questionnaire as a method of defining business information needs are summed in Table 1.

TABLE 1
PROS AND CONS OF QUESTIONNAIRE.

QUESTIONNAIRE	
ADVANTAGES	<ul style="list-style-type: none"> + Economy. + Answers can be analyzed quantitatively. + Does not take a lot of the researcher's time. + Gives time to think out the answers. + Large number of people can be reached. + Getting answers from timid persons.
DISADVANTAGES	<ul style="list-style-type: none"> - New or subconscious information needs cannot be assessed. - Risk of un-answered questions. - Risk of misunderstanding the questions. - Risk of low response rate. - Risk of wrong person filling in the questionnaire. - Difficulty of producing a good questionnaire.

A questionnaire is best suited for defining the business information needs of a large group of people related to an information system development. A questionnaire is also a valid method when the aim is to find out averages, majorities or some kind of a compromise or a consensus. For example, if the objective is to define the information that is needed most commonly among the managers as opposed to managers' individual information needs.

B. Interview

Interview is one of the most used methods of information gathering, and Nicholas [23] states that interviewing has the fewest problems of all research methods. Hirsjärvi and Hurme [36] define interview as a scripted way of information gathering that has a certain goal and direction. Patton [37] states that by an interview things which cannot be observed from the outside can be discovered. There are different kinds of interviewing techniques and their names and definitions vary. For example, Hirsjärvi and Hurme [36] list structured and semi-structured interviews, thematic interview and form interview and Nicholas [23] adds group interviews and telephone interviews to the list.

In the structured interview, the questions and response alternatives are strictly defined in advance, whereas in the semi-structured interview the questions are the same for

everyone but the interviewer may vary their order and the interviewee may answer in his own words. In the thematic interview questions are divided into different themes and the questions are open-ended. This facilitates the discussion between the participants and furthers their understanding of the issue. A form interview is simply a questionnaire from which an interviewer reads the questions aloud and then marks the interviewee's answers on the form. [36]

Group interviews are carried out with multiple interviewees and telephone interviews are made, as the name implies, by telephone. The role of the interviewer also changes in different types of interviews from active examiner to passive observer. The choice of the type of interview is determined by the subject and the aim of the study [36].

Unlike when using a questionnaire in an interview, a researcher can usually change the order of questions and ask additional questions. Kunz et al. [32] find that this reduces the risk of misunderstandings. Hirsjärvi and Hurme [36] state that an interview is a good method when researching a little known or uncharted area or when it is known in beforehand that answers are likely to be elaborate and dissimilar. When assessing personal information needs, the purpose is not to elicit identical or homogeneous answers but to identify individual and genuine information needs no matter how much they differ from each other. Personal information needs are rarely identical and therefore interview would seem to be the most suitable method for identifying managers' information needs. The interaction between a researcher and interviewees may elicit subconscious information needs and the discussion may enhance the interviewee's awareness of his information needs.

The direct question "What do you want to know?" is not always the best way to find out the information needs of a manager. Sometimes it may be wise to approach this question indirectly. For example, the interviewer could ask what in the manager's opinion his company's competitors should never find out about the company. Further, one could ask what the company's competitors should not find out about the company's customers or partners. This approach requires more creativity than do direct questions, but it can provide new and more valuable results and even open new insights on important business problems.

The downside of interview as a method is its costs. According to Hirsjärvi and Hurme [36] the expenses include the recording systems, materials, and possibly the travel and accommodation costs of a researcher. Kunz et al. [32] add that besides the costs, interviewing takes time and a researcher should be well versed in the subject.

The salient pros and cons of interview as a method of defining business information needs are summarized in Table 2.

TABLE 2
PROS AND CONS OF INTERVIEW.

INTERVIEW	
ADVANTAGES	+ Discovering things that cannot be observed from the outside. + Discussion raises understanding and

	awareness. + Possibility of adapting questions to suit the situation. + Possibility of asking additional questions. + May elicit subconscious needs.
DISADVANTAGES	- Expensive. - Time-consuming. - The researcher's persona and poor social skills may affect the answers.

Interview is a method that can be used in various ways and contexts, and because it is so versatile, it can be adopted in many different kinds of situations. When the aim is to define individual and detailed information needs or there is no preconceived idea of what the needs could be, interview is the best way to "get inside peoples' heads".

C. Observation

Using the observation method the information needs are clarified by observing the individual and reviewing the documents he uses ([38], [39]). In this method the information needs are therefore deduced from the person's information use. Observation is often used in situations in which there is not a lot of knowledge about the target of the examination [33]. In such situations, questions cannot be formulated beforehand. When defining information needs, the situation is usually very similar: guesses can be made about what kind of information needs a person has, but the answers may be as well just the opposite. It can also be very difficult to articulate information needs, especially subconscious needs. Kunz et al. [32] see observation as a suitable method when one wants to know all the information needs, not only those that the person is able to express.

It is important to note that observation is used to identify the prevailing state of the phenomenon but it cannot clarify its past state [36]. Therefore, it is also impossible to assess a person's information needs at some other point in time, such as some point in the future. Future information needs cannot therefore be predicted by observation.

Observation can be divided into participatory observation and concealed observation: in participatory observation a researcher makes observations as a part of the system under observation, whereas concealed observation is carried out unbeknown to the object (see e.g. [32]–[34]). Slater [34] points out that in participatory observation the presence of the researcher always has some degree of influence, and therefore the results may not be authentic.

Observation is indeed a troublesome method in assessing information needs. Decision-making and the processing of information take place inside a person's head; therefore it is very difficult or even impossible to observe them from outside. To learn about the information use of a manager, his actions would have to be monitored at every turn. However, as mentioned earlier, this could affect the manager's behavior and so also, the results. According to Kunz et al. [32], observation is not suitable for examining a large group of people. Grönfors [33] states that observation as a method is laborious and time-consuming, and Kunz et al. [32] conclude that it is far more expensive than, for

example, a questionnaire, but to compensate the costs observation produces more accurate answers. Hirsjärvi and Hurme [36] stress that a researcher has to be thoroughly trained to carry out observation. Both Grönfors [33] and Kunz et al. [32] consider that observation functions best when it is used in conjunction with other methods.

The salient pros and cons of observation as a method of defining business information needs are summarized in Table 3.

TABLE 3
PROS AND CONS OF OBSERVATION.

OBSERVATION	
ADVANTAGES	<ul style="list-style-type: none"> + Accurate answers. + Does not require a lot of preliminary information about the subject. + Defines the persons information needs through his information use.
DISADVANTAGES	<ul style="list-style-type: none"> - Expensive. - Not appropriate for studying a large group of people. - Laborious. - Time-consuming. - Validity of the results. - Requires thorough proficiency and competence from the researcher. - Describes only the prevailing information needs, not the forthcoming ones.

Observation is probably the most adequate method when the aim is to define business information needs through information use, i.e. what information the manager actually uses in his actions. Observation is therefore a good method when assessing managers' prevailing information needs.

D. Critical Success Factors (CSFs)

The concept and method of Critical Success Factors (CSFs) was presented by Daniel in 1961 and popularized by Rockart in 1979 [40]. Bullen and Rockart [41] define the CSFs as "the few key areas of activity in which favourable results are absolutely necessary for a particular manager to reach his goals". The method provides a structured technique which in the form of an interview aims to help managers to define their CSFs and as a result their essential information needs. It aims to investigate which key management activities require attention of the management by looking at the managerial goals and priorities. [41]

Bullen and Rockart [41] stress that the CSFs are always related to a specific industry and a particular company or a certain individual and they are tied to the current situation. In other words, there are no general CSFs; every manager and company have their own individual CSFs depending on their unique features and the prevailing situation. Therefore one manager's CSFs cannot be generalized to all managers of the same company, not can the company's CSFs be given to be a particular manager's CSFs as such. A company's CSFs are investigated considering managers that represent company's different functional areas and integrating their different personal CSFs. [42]

The CSF method uses interviews in order to expose the

manager's CSFs. In the interview the manager is asked to list his CSFs. Questions such as "what would impede the performance the most?" or "where would you the least like something to go wrong?" aim to bring subconscious CSFs to light. [41]

Although the CSF method seems to be well understood and accepted by the senior managers [43], [41], Loughridge [43] states that it may not necessarily be used at all managerial levels. This seems only logical, because in order to determine CSFs the manager has to have a clear understanding not only of the company's and his unit's and personal goals but also of "the big picture". Usually the lower level operators are too focused on the particular task in hand and cannot therefore define concrete success factors.

As always when using an interviewing technique, in the CFS method, too the skills and preparation of the interviewer play a significant role and impact on the quality of the results. The interviewer should have a thorough understanding of the industry, company and the interviewee's job in order to get the best results.

The salient pros and cons of CSFs as a method of defining business information needs are summarized in Table 4.

TABLE 4
PROS AND CONS OF CSFs.

CSFs	
ADVANTAGES	<ul style="list-style-type: none"> + Can elicit subconscious information needs. + Focuses on the most critical information needs. + Raises the managers' awareness of their most important information needs.
DISADVANTAGES	<ul style="list-style-type: none"> - Cannot be used at all managerial levels. - The researcher's persona and poor social skills may affect the answers.

CSFs are best suited for defining the information needs of managers at the top level dealing with strategic decisions.

E. Key Intelligence Topics (KITs)

The Key Intelligence Topics (KITs) process was introduced by Herring in 1999 [31]. The KITs process is specified for defining and prioritizing in particular senior management's i.e. strategic managers' information needs rather than operative managers' information needs. The method aims to train managers to ask for information, and thus to promote the interaction between business intelligence unit and the managers.

KITs are assessed by interviewing managers and asking them open-ended, non-directive questions [44]. Herring [31] has divided KITs into three categories: 1) Strategic Decisions and Issues, 2) the Early-Warning KITs, and 3) the Key Player KITs. In the KITs interview the managers are asked to specify the strategic decisions they will take during the next six months, the unwanted surprises that might occur in the business environment, and to identify actors such as competitors, on whom the company should have better information. The managers should also try to

articulate their information needs concerning these topics. [31]

Herring and Francis [44] state that besides revealing individual information needs KITS describe the company's competitive situation and management's blind spots. On the other hand they acknowledge that the KITS interviews usually produce far too many KITS for a business intelligence unit to handle, and therefore prioritization of the KITS is essential. Francis and Herring [31] also noticed that regardless of the interviewer's ample experience in business intelligence, if he is not properly trained to use the KIT method the results may not be as useful as they should be.

The focal pros and cons of KITS as a method of defining business information needs are summarized in Table 5.

TABLE 5
PROS AND CONS OF KITS.

KITS	
ADVANTAGES	+ Trains managers to express their information needs. + Promotes interaction between the managers and business intelligence unit.
DISADVANTAGES	- Elicits usually far too many information needs. - The researcher's persona and poor social skills may affect the answers.

The KIT method is quite similar to CSF method, and is therefore adaptable in same kinds of situations. KITS are also suitable to be used to aid the business intelligence unit to get the managers in future to better define and communicate their own information needs.

VI. CONCLUSIONS AND DISCUSSION

Information overload is nowadays a virtual menace due to the amount of information and its easy availability through, for example, ICT. Effective business intelligence functions are one way of harnessing and putting to use the ample amount of information that, in the worst case, could harm the company's operations. In order to effectively scan and filter the essential information out of the mass, the business intelligence unit has to know what information they should be taking into processing. Therefore, the managers' business information needs should be defined.

The literature presents several methods for defining information needs, and this paper introduced some of the most common methods of: questionnaires, interviews, observation, CSFs and KITS. The first three are common research methods used universally in different context of information science, while CSFs and KITS are for defining business information needs by design. Some of the methods are in some way overlapping. For example, CSFs and KITS utilize interviews. In addition, some of the methods are used simultaneously. For example questionnaires can be utilized for preparing an interview. The methods are not equally applicable in all situations, and therefore the choice of method should always be carefully considered in order to get the best results possible.

For further research it would be an interesting subject to

test these methods in practice and thus compare their functionality in different situations. In addition, an intriguing theme of research would be to study how organizational culture influences the success of using a particular method.

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