

## **INFORMATION QUALITY, ITS DIMENSION AND THE BASIC CRITERIA FOR ASSESSING INFORMATION QUALITY**

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### **Abstract**

*Poor quality of information in modern organizations depends on many aspects. As such the size and nature of the information, human factors, organizational culture, experience and skills as a manager and other team members, technology, but also the quality of inputs including, but not least, include data quality. Applying methodology of quality control help organizations create effective management of its information. The method of quality information control depends on all those aspects. The importance of the organization should be given to dispose of an optimum amount of information in the required quality and especially to share this information. Quality information is the key to the success of the project management, but also in many other areas. Understanding the mechanics of control information management and class is essential, but it is experience that distinguishes successful information quality managers.*

### **Key words**

*information, information quality, dimensions of information quality, criteria for assessing information quality*

### **Introduction**

Information and information quality is an important part of the maturity of management information systems. The motivation for the organization should be given the information and quality of information. This work is full of challenges as an organization should detect impending problems using a variety of measurement, analysis and improvement of data quality and information quality.

### **Information quality**

Meade and Sarkis point out that in the real environment is no longer sufficient experience, skills, knowledge and information to achieve and increase competitiveness. It is essential to be able to transform the knowledge, skills and information into products (1).

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The ability to "adapt" this is what organizations rely on to achieve customer satisfaction. The ability to 'adapt' is the result of two assumptions, the information process:

- experience and
- technologies.

The ability to "adapt/convert" should be maintained through continuous process of improvement and learning (2).

Prof. Wang made a step forward beyond the work of professors Meade and Sarkis and found an analogy between the issues of the quality of industrial products and quality issues of information processing and further stated that information processing can be working on sensitive data to produce information products. Prof. Wang points out the organization to handle information such as managing your products, if you want to increase productivity (3).

Turban defined information as "data that are managed in a way that gives meaning to the recipient" (4).

Definition Turban Copeland and Simpson extended to include "all communication or representation of knowledge such as facts or data in any environment and form" (5).

### ***Differences between manufacturing and information products***

There are differences between industrial products and information processing. These differences can be classified into five groups:

- **intangibility** - Product manufacturing system produces visible and tangible products, not whether the information is immaterial nature. Product quality can be measured with physical measuring instruments according to design specifications. Measuring information quality is subjective and based primarily on opinion and user expectations.
- **inputs** - Making process requires raw experience/knowledge and technology, while the information process requires data, expertise, technology and time.
- **end user** - "End-user of the product is not defined in advance, but it is clearly defined later" (6). The user of the information system is part of an information system, while the products are far from the user.
- **consumption** - The raw materials used in the information system is data that can be used for more than one consumer without their exhaustion. Materials used for the production of product can be used only to individual natural products. Information may be provided and consumed at the same time, while the products must be made prior to consumption.
- **handling** - Unlike product data can be transformed to information and undefined number of customers simultaneously via physical media (e.g., disk) or intangible ways (e.g., via e-mail). Both the information and the products can be stored before delivery to the customer, making the quality of information similar to the quality of products but different from the quality of service, because service quality can not be stored and checked before sending (7).

In terms of the quality of these differences do not affect the analogy proposed by prof. Wang between products and information (8).

### ***Dimensions of information quality***

As well as managing the quality of products as well as for quality control of information has more dimensions. Dimensions of quality information on issues those are important for

consumer information. Prof. Strong quality dimensions of information divided into 4 categories:

- intrinsic,
- contextual,
- accessibility,
- representation.

The selection of these dimensions is based primarily on an intuitive understanding, experience from industry and depend on the actual use of information (9).

The table 1 shows how the various dimensions of quality information understood the experts dealing with this issue (10).

**DIMENSIONS OF INFORMATION QUALITY AND THEIR MEASURES (10) Table 1**

Dimension	Implication /Definition	Dimension's Measures from Selected Literature				
		Delone & McLean (1992)	Goodhue (1995)	Wang & Strong (1996)	Strong et al. (1997)	Jarke & Vassiliou (1997)
<i>intrinsic</i>	Information has quality in its own right.	Accuracy, precision, reliability, freedom, form bias.	Accuracy, reliability	Accuracy, believability, reputation, objectivity.	Accuracy, objectivity, believability, reputation.	Believability, accuracy, credibility, consistency, completeness.
<i>contextual</i>	Data quality must be considered within the context of the task.	Importance, relevance, usefulness, content, completeness, currency, sufficiency.	Currency, level of detail.	Value-added, relevance, completeness, timeliness, appropriate, amount.	Relevancy, value added, timeliness, completeness and amount of data.	Relevance, usage, timeliness, source, currency, data warehouse currency, non-volatility.
<i>accessibility</i>	Information is interpretable, easy to understand and manipulate.	Useability, quantitiveness, convenience of access.	Accessibility, assistance, ease of use, location.	Accessibility, ease of operations, security.	Accuracy and access security.	Accessibility, system availability, transaction availability, privileges.
<i>representation</i>	Information is represented concisely and consistently.	Understandability, readability, clarity, format, appearance, conciseness, uniqueness, comparability.	Compatibility, meaning, presentation, lack of confusion.	Understandability, interpretability, concise representation, consistent representation, arrangement, readable, reasonable.	Interpretability, easy of understanding, concise representation, consistent representation.	Interpretability, syntax, version control, semantics, aliases, origin.

### ***The basic criteria for evaluating the information quality***

The basic criteria for evaluating the quality of information Have key information is certainly important, but the distribution of this information is largely influenced by their use and processing. Significant differences could consist of how effective is this information presented. Seemingly more information can act as a fair, but find their origin is not always easy. It is therefore necessary to be able to identify their level of trust and confidence and know:

- author of the information (without the author's knowledge, it is impossible to determine qualifications for writing this information, or author possessed the necessary knowledge, experience and tools to be able to adequately determine if the submitted material has been evaluated in an objective manner),
- date information (to assess the timeliness of the information horizon),

- a source of information (for assessment information is also important to know from what source data based author, to some at first glance the same information can be elaborated on several types of data, but given the purpose for which the information given below is used, it is necessary know the sample on which it is based).

Verification of the quality of information is a complex process. Five basic criteria that need to be addressed in order to present information that can be identified as reliable include:

- authority,
- accuracy,
- currency,
- coverage,
- objectivity.

These criteria have their origin in the world of print media and are considered to be universal criteria that need to be addressed regardless of the media evaluated; each criterion must be addressed individually. Often, however, there is overlap between the various criteria, leading to discussions, such as "authorship" and "accuracy" - is thus for a more complete picture considered together (11).

### *Authority*

Authority - criterion present a clearly "known" author, respectively the organization or group of authors, who are the owner of that data and information created based on good knowledge of the field. There are several methods for assessing the authorship of traditional sources of information.

- One possibility is to determine the qualifications of the author, which will be investigated his previous training, experience, reliability and credibility regarding issues in the field.
- Another method might be to address the investigation and organization of work with information, so we can see the quality of output information based on several factors, such as:
  - accuracy of the content of the information,
  - types of users who make use of this information in the organization,
  - writing on the use and sharing of information,
  - determine responsibilities,
  - experience authors resulting information to the organization.

Author - an employee who wants to produce quality information must abide by the standards organization for the development of new information that place emphasis on quality. Of course, these standards must support new trends, creative thinking and at the same time must be in accordance with ethical standards. Adherence to these standards and efficient use of the organization will improve the quality of information used, which ultimately will help reduce costs, time and improve the quality of project management, respectively. Compliance with the scheduled dates and costs (11).

### *Accuracy*

Accuracy - the criterion is the extent to which the information is reliable and error-free. It is used a series of checks and balances, so that it can ensure the accuracy of information such as:

- use controls to monitor the accuracy of the facts,
- the use of the peer review process and comparing information on tracking accuracy using scientific assumptions and facts,

- the use of established standards and procedures to maintain consistency in the creation of new structures of information,
- listing sources of factual information, where appropriate / necessary.

Ratings information includes a large part of daily life, although often times do not realize it (e.g. for normal purchase, also consider many factors, subjective and objective, that affect our decision/price, brand, color, size, packaging, recommending friends, look, knowledge, .../, where the product meets our expectation is the assumption that in the future, the next purchase will look exactly the particular product with which we have had positive experiences). Even when you watch televisions evaluate information. It is true that accuracy plays an important role in the assessment, but the assessment information to focus on the author of that information, organization, accuracy, objectivity, currency, speed, etc. As I mentioned authorship and accuracy are often interrelated factors that affect us in evaluating the quality of information. It is necessary to admit that there is a presumption that a smart worker with good reputation of reliability will produce quality, accurate information, although the opposite may be true.

The advantage of information and communication technologies used in organizations to easily share information, know-how of employees in specific policy issues as well as the entire organization. To increase the effectiveness of work organizations should sort of shared information and the desired update intervals based on the needs of employees / users defined for a particular job. The objective of achieving the required accuracy of the information necessary to control and coordinate database of information within the organization (11).

### *Objectivity*

Objectivity - a criterion which reflects the fact the extent to which information without distortion by personal feelings, prejudices, or other information the author.

Neither the information presented cannot be considered completely unbiased, because everyone has a reason to "colorable" information. Therefore it is very important to try to assess the objectivity of the information provider. Knowing intention organization or individual may be visible in advance assessor bias, which could be the basis of information occur (for example in the field of health - simply would be able to evaluate the objectivity of the information specialist as a tobacco company). However, there are areas where it is very difficult to detect bias sources of information with which we are familiar. Objectivity is another important factor that purposely or unintentionally influences the quality of information, and thus the entire information content (11).

### *Currency*

Currency - a criterion which expresses to-date information.

To evaluate the validity/life information is important to know the time of information, but also the purpose of its further use, given that the input data can be used for further processing from the same source, but for different purposes, a different and timeliness of data (hourly, daily, weekly, ..., comprehensive database content shuffle x-th number of records, just the first and last records x y records, ...). I have noted that it is necessary to record and review information and course dates and revisions. To clarify and streamline information sharing is necessary to use uniform formats / templates for various kinds of information and sharing of information for easier handling and updating (11).

### *Coverage*

Currency – criterion that includes the breadth and depth of processing certain types of information, which depends both on the input and the expected output for the desired final result respectively. Further use. The scope of information determines the person responsible for the above. Depth respectively. The level of information processing also depends on who will be determined.

Mentioned five key evaluation criteria for assessing the quality of information will provide a starting point for assessment of the problems related to these features characteristic of all information (11).

### ***The question for verification of the evaluating information quality***

Mentioned five key evaluation criteria for assessing the quality of information will provide a starting point for assessment of the problems related to these features characteristic of all information (11).

In analyzing and evaluating the quality of information according to individual criteria can help us questions specific to each type of evaluation criteria.

### *Authority*

One of the key aspects of how to evaluate the information as a whole is finding the author. If we find authorship information, first it is necessary to comprehensively assess the authorship of (or information belongs to the organization of time ...) and then identify specific author (department, group of people, individuals). To analyze the quality of information we can to help following questions:

- Is it clear who (which organization, department, group of people or an individual) is responsible for the information? – without an answer to this question, it is not possible to verify the authorship,
- Is the information clearly indicated the name of the author and qualification information, which has ultimate responsibility for the content of the information?
- Is there a way that you can contact the author of the information?
- Is it clearly stated in the information, which from the organization/company/department/individual is responsible for the contents of the information?
- Is it possible to check the author's qualifications? (Professional experience in this field, education, membership in other organizations, ...)
- Are there the internal regulations of the organization's rules for determining authorship in the new "important" information/ideas/rationalization design/...? (11)?

### *Accuracy*

Accuracy of information is the degree to which the information is reliable and error-free. Answers to these questions should be taken into account in determining the accuracy of the information:

- Is the information provided without grammar, spelling, and typographical errors? - Information not yet mentioned errors do not guarantee their accuracy, but errors of this nature shows the lack of quality control, but mainly the fact that such errors may produce inaccuracies in the information.

- If there are graphic representations, pictures and tables, are they sufficient legible and clearly marked (11)?

### *Currency*

Currency stamp information is how long and how much information can be considered current. Questions:

- Is there by the information the date of first publishing the information?
- Are there clearly shown the dates of updates, information and also their date of expiry?
- Is each update/revision information stored? Is it possible to see them back?
- To avoid the confusion, has the organization a standardized format for the creation and revision of the information?
- Does the organization use standardized international date format (11)?

### *Coverage*

The following issues should be taken into account when considering for whom the resulting information is intended.

- Is it clear what evidence was taken into account in the processing of that information?
- If the information is being developed, the date of completion of processing information?
- If the information combines more types of elements are clearly distinguished these elements?
- Is it clearly defined target group for whom the information is intended?
- Is the information given to the user in such a way as to be easily and quickly processed known (11)?

### *Objectivity*

Objectivity reflects the extent to which data represent reality without distortion by personal feelings and prejudices. Questions:

- Is it possible the sources of information to verify in the original source, this source of information given in?
- If the author of information is individual, is it evident that the information provides an overview of the author?
- Is it clear that the information could be affected due to the organization sponsors or policy?
- Is it clearly defined who is responsible for the actions/responsibility of the information (11)?

## **Conclusion**

The area of information quality in project management is not specified exactly and it is clearly associated with the project quality. For organizations, it is important to possess optimum amount of information in the required quality and especially to share this information. In this article, I introduced the dimensions of quality of information and basic evaluation criteria for assessing the quality of information. Database management can help organizations prevent an error condition to deal with the present situation, respectively. If such a situation occurs it can facilitate its solution based on the previous experience of other projects that are recorded, not only in terms of time as well as cost and quality.

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