ABSTRACT

Information systems support the way organizations drive their businesses and people conduct their lives. To execute this important task efficiently the quality of these systems must equal their importance. This article presents a topology of Information Systems classification according to their purpose. Each type is further divided into sub-categories representing features that enable users to drive their business and reach their goals. This paper summarizes the quality attributes that may be considered as most important and relevant to each type of information system of the classification.

Keywords: Information Systems, IT Systems Typology, Quality Sub-Characteristics, Software Characteristics, Software Quality

INTRODUCTION

Information systems are omnipresent in contemporary business and social life. They are being depended on more and more as their capabilities or even “intelligence” increase. But, are we sure that they are of quality?

Almost every system has compromises about quality characteristics that can or should be implemented, depending on its future use, users and the available budget. Not all quality attributes “on the menu” are required or mandatory for a given information system and because of this reality strategic decisions should be made before any development starts.

This paper analyses the relationship between quality engineering and information systems taking into account the fact that every type of information system has its own quality profile (a set of relevant and necessary quality characteristics and attributes).

The knowledge of these fundamental characteristics can be helpful on both sides of negotiation barricade: the customer side and the supplier side. When it comes to defining the services (or features) of a future IT system the negotiating parties most often focus on functional aspects leaving the quality aspects “for further discussion.” One of the common reasons for such a situation is the lack of quality engineering-related expertise on customer’s side. In other words, the customer, having all rights to be IT-uneducated, is usually able to express his needs in terms of what the new IT system should do, but explaining which “abilities” from (for example) ISO9126 quality model (ISO, 2001) should be implemented in
Unfortunately, as it is suggested by the results of the international survey on applicability of ISO 9126 (ISO, 2001) this sometimes may be the case among the developers as well.

The proposed typology puts in hands of both developers and users a relatively simple tool allowing for easy identification of the minimal set of quality attributes required for their category of Information System. It also helps create a common knowledge platform useful when testing the system and even developing the contracts.

**OBJECTIVES OF THE RESEARCH**

The objective of the presented research was to analyze the relationship between the functional specifications of information systems and the sub-characteristics of the ISO 9126 quality model (ISO, 2001), and identify the most relevant of them for each category of information systems.

**RESEARCH APPROACH**

**Information Systems Categorization**

The fundamental step of the research was to develop the categorization applicable to the most frequently developed/used information systems (Table 1). This categorization has been proposed based on the analysis of literature and publicly available data sources (over 120 positions). One of the most interesting approaches were found in works published by the Minnesota Information System Research Center of University of Minnesota (MISRRC), University of North Carolina, Charlotte and the International Software Benchmarking Standards Group (ISBSG) database. As the result four information system categories were identified and each of them was further divided into two sub-categories:

- Transaction Processing Systems
  - Transactional Applications Systems
  - Financial Applications Systems
- Computer-Based Communication Systems
  - Telecommunication
  - Network Management
- Management Information Systems
  - Management Information Systems
  - Information Management Systems
- Expert Systems
  - Decision Support Systems
  - Industrial Support Systems
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