ABSTRACT

In the introduction to this chapter, we discuss some of the common problems in maintenance. In order to solve these problems, we find it necessary to think in a new way, including the relationship of businesses to the system maintenance. The world outside organisations changes continuously, and the business processes and functions must change with it. However, if we only maintain information technology (IT) and do not co-manage the business changes accordingly, IT will not change at the same pace as the business changes. It would result a gap between the business needs and services provided by the IT product. In that case, IT systems would not be able to provide sufficient business value. The main part of this chapter contains a management model for solving these problems, based on theoretical research and practical experience. The central theme of the model is the connection between the business needs and systems maintenance. This is achieved by maintaining maintenance objects rather than the systems, establishing micro-organisations for each maintenance object where business processes as well as the system are represented. Our proposed model is widely used in more than 50 organisations in Sweden. In conclusion, some future trends and central concepts of the model are discussed.

INTRODUCTION

Systems maintenance is about handling change, continuous change in businesses as well as IT systems (Bergvall, 1995). The world around us changes all the time, and thus businesses and IT systems must adjust to the changing conditions. But there is a
delusion that a business’ need for IT systems could be “downplayed” by emphasising the procurement of IT systems either purchased or developed in-house that would handle all future needs. Some enterprise managers are often surprised to find later that systems maintenance needs more than what is required for the development of the system. And there are still some who believe that a new technology is the solution to the poorly functioning maintenance process.

Systems maintenance is often acknowledged as a problem in the field of practice (e.g., Parikh, 1988; Kitchenham et al., 1999; Pigoski, 1997). It is described as being costly, low status activity, and unclear process definition (Pigoski, 1997; Kajko-Mattson, 2001; Nordström & Welander, 2002). Maintenance is frequently viewed from a developmental perspective, and thus positioned in relation to development in some kind of life cycle perspective (e.g., ISO/IEC, 2002). Furthermore, maintenance is often assigned lower priority than the development process, even though the time and costs for maintenance and development respectively are usually distributed according to the 80:20 rule (Parikh, 1988).

Based on our experiences from the industry and our research on the area (Berntsson & Welander, 1991; Bergvall, 1995; Nordström & Welander, 2002), we find that many of these problems and attitudes originate from the way in which maintenance is organised and managed. How to make maintenance manageable, and why it is so important to see the whole picture of maintenance—not just IT—is described in this chapter. This means that the focus area of this chapter lies in the intersection between business and technology, that is, how to achieve maintenance that effectively contributes to fulfilling the business objectives.

**BACKGROUND AND PROBLEM AREA**

We have found three important areas in which the improvement of systems maintenance could be better addressed: what should really be maintained, what can be gained from viewing maintenance as business exchange, and how to organise maintenance optimally.

In systems maintenance literature, systems maintenance is often described as a general activity in the organisation; it is seldom described in connection to any specific system or object. In the background discussions and the model descriptions in this chapter, we describe systems maintenance in relation to a specific situation, or maintenance object, in order to make the descriptions and definitions more detailed and applicable in practice.

**What is to be Maintained?**

There is a question that is rarely asked in maintenance, a question that we find to be vital in making maintenance efficient and manageable: what is to be maintained? Studies of literature in the maintenance field show that the common view of what is to be maintained is the IT systems (e.g., Pigoski, 1997; Kemerer & Slaughter, 1987; Longstreet, 2001; Kajko-Mattsson, 2001). Further, in the international standard IEEE, maintenance is defined as “modification of a software system or component after delivery to correct faults, to improve performance or other attributes, or to adapt the software system or component to a changed environment” (IEEE, 1990). In other words, the focus is on the
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