Chapter 5

Information System Conversion Strategies: A Unified View

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ABSTRACT

Information system conversion has been with us since users of punched-card tabulating systems first moved to vacuum-tube computers. However, it has generally been seen as an afterthought: once the “interesting” development stages of analysis, design and so on are done, it will just happen. This article attempts to view the process holistically, from both the technical and human viewpoints, reflecting the fact that information systems have both technical and human components. It shows how ignoring one side or the other can lead to problems, which can be avoided if all aspects are considered together. It proposes a systematic approach to considering these issues and points out benefits to both researchers and practitioners from using it.

INTRODUCTION

Conversion from one information system (IS) to another is common in all organizations, regardless of type, size or location. On the information technology (IT) side, conversion can involve hardware, operating system (OS), database management system (DBMS) and the database it supports, and/or application portfolio. On the human side, procedures must be changed and people must be, if not changed, at least moved (in the sense of change theory (e.g., Schein 1990), not geographically) and retrained.

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Effective management of conversion is vital to the long-term success of any IS. Choosing a conversion strategy from one information technology environment to a new one is not easy. A conversion effort may affect any of the four IT components to varying degrees, as well as the human and procedural components of the IS as a whole.

The existing literature focuses on either the technical or human side of conversion, the latter often under the broader label “implementation.” This leads to a narrow view of the issues, treating IT and the human components of an IS in isolation from each other, and can lead to local optimization at the expense of global optimization.

The aim of this article is to provide an overall framework of information system conversion, including all aspects of the information system. It also updates the literature to provide a 2008 view of conversion, both to provide guidance to professionals faced with a new conversion situation and to serve as a basis for future research in this area.

A Note on Terminology

Some writers use conversion to refer only to the technological (IT) aspects, calling either the human side or the entire process “implementation.” Here “conversion” will refer to the entire process. We will use more specific terminology (such as “IT conversion”) for its subsets when necessary to avoid confusion.

SYSTEM COMPONENTS AND CONVERSION FRAMEWORK

An information system consists of five components: hardware, software, data, procedures and people (originally Kroenke 1981; more accessibly today in, e.g., Kroenke 2009). Figure 1, adapted from that source, shows the relationships.

All five IT components must be considered in any conversion. Conversion of any element may impact elements to either side. For example, database conversion will affect usage procedures (to its right); a new application may require hardware changes (to its left).

Figure 1. Five components of an information system

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
<th>Data</th>
<th>Procedures</th>
<th>People</th>
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