Chapter 2
Information System Conversion in SMEs

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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 is often seen as an afterthought: once the “interesting” work of analysis, design and so on is done, it will somehow happen. This chapter 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 of using it.

INTRODUCTION

Conversion from one information system (IS) to another is common in all organizations. Small-medium enterprises (SMEs) are no exception. On the information technology (IT) side, conversion can involve hardware, operating system, database management system and the database it supports, and/or applications. 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.

Effective management of this conversion is vital to IS success. The choice of 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. It thus involves both technological and organizational/social dimensions, the theme of this book.

This chapter provides a current view of information system conversion, with a focus on small/medium organizations, to provide guidance to professionals faced with a new conversion situation.
BACKGROUND: IT CONVERSION METHODS

The literature (e.g., Palvia, 1991; Mallach, 2006) discusses the coverage in ten MIS and eight systems analysis textbooks) generally recognizes four IT conversion methods:

**Direct cut-over:** An entire organization stops using the old system at one time and begins using the new one immediately thereafter (perhaps after a natural break in activity, such as over a weekend). This is the riskiest method. The other methods exist to reduce conversion risks. (Direct cut-over is sometimes called *plunge* conversion, for the sake of alliteration and/or to mimic the “four Ps”—Product, Price, Promotion, Placement—that constitute the marketing mix.)

**Pilot conversion:** Part of an organization uses the new system while the rest continues to use the old. This localizes problems to the pilot group so problem-solving resources can focus on it. However, it can create interface difficulties when organizational units share data.

**Phased (modular) conversion:** The new system is put into use one module at a time, while the rest of the old system remains in place. This localizes problems to the newly introduced module and its interfaces, so problem-solving resources can focus on it. However, it can create interface difficulties when modules pass data from one to another.

**Parallel conversion:** The new system is introduced while the old one is still in use. Both systems process business activity, and the results are compared. Once there is confidence that the new system operates properly, the old one is shut down.

As Palvia et al. (1991) point out, the variations on direct cut-over can be combined. This creates four more methods: pilot-phased, pilot-parallel, parallel-phased and pilot-phased-parallel, for a total of eight.

These strategies address the technology side of conversion. However, it also has a human side. The two are usually treated separately, for the understandable but unfortunate reason that managers’ and researchers’ interests tend to focus on either technology or people. Reduced risk tends to go hand in hand with increased complexity of the human transition. Effective management of the conversion process requires considering both together.

A Note on Terminology

Some writers use the word *conversion* to refer only to the technological (IT) aspects, calling either the human side or the entire process *implementation*. In this article “conversion” will refer to the entire process. We will use more specific terminology (such as “IT conversion”) as appropriate for its subsets, unless the meaning is clear from the context.

Concerns with Parallel IT Conversion

Parallel IT conversion has been a staple of the literature, including textbooks, for decades. Few writers (Rainer & Turban, 2009, among textbooks, is an exception) recognize that it is no longer appropriate. This is for two reasons (Mallach, 2006):

1. When both old and new systems are online, today’s usual case, it is impractical to expect users (especially customers) to enter transactions twice.
2. Timing differences can lead to different outputs. Consider a bank whose old system processed checks overnight, but whose new one will handle them as they arrive. A $100 check arrives at 9 am on an account with a balance of $150, whose holder tries to withdraw $100 at noon. The old system would dispense the cash, then bounce the check at night. The new one will pay the check immediately, then refuse the withdrawal.
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