



**Chapter V**

**Understanding Success and  
Failure of Health Care  
Information Systems**

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**INTRODUCTION**

Some health care information systems (HCIS) do succeed, but the majority are likely to fail in some way. To explain why this happens, and how failure rates may be reduced, the chapter describes the “ITPOSMO” model of conception-reality gaps. This argues that the greater the change gap between current realities and the design conceptions (i.e., requirements and assumptions) of a new healthcare information system, the greater the risk of failure.

Three archetypal large design-reality gaps affect the HCIS domain and are associated with an increased risk of failure:

- **Rationality—reality gaps:** that arise from the formal, rational way in which many HCIS are conceived, which mismatches the behavioral realities of some healthcare organizations.
- **Private—public sector gaps:** that arise from application in public sector contexts of HCIS developed for the private sector.
- **Country gaps:** that arise from application in one country of HCIS developed in a different country.

Some generic conclusions can be drawn about successful approaches to HCIS development. Examples include the need for more reality-oriented techniques and applications, and greater use of par-

ticipative approaches to HCIS. More specifically, techniques can be identified for each of the seven ITPOSMO dimensions that will help close the gap between conception and reality. This can include the freezing of one or more dimensions of change. Such techniques will help improve the contribution that information systems can make in healthcare organizations.

Overall, then, this chapter will provide readers with an understanding and model of why healthcare information systems succeed or fail, and with general guidance on how to avoid HCIS failure.

## **BACKGROUND: HEALTH CARE INFORMATION SYSTEM SUCCESS AND FAILURE**

New information systems have a powerful potential to improve the functioning of healthcare organizations (Neumann et al., 1996; Raghupathi, 1997). However, that potential can only be realized if healthcare information systems can be successfully developed and implemented.

There are a large number of reported HCIS success stories from around the world, but these seem likely to be painting a falsely positive picture. There is generic evidence that a significant majority of information systems initiatives are failures in both the private sector (Korac-Boisvert and Kouzmin, 1995; James, 1997) and the public sector (Heeks and Davies, 1999).

There is also plenty of specific evidence that many – even most – healthcare information systems are failures. Anderson's (1997:90) work on HCIS cites "studies that indicate half of all computer-based information systems fail." Keen (1994a:1) notes that, "For every documented success, there seems to be a clutch of failures." Likewise, Paré and Elam (1998:331) state: "Research shows that many healthcare institutions have consumed huge amounts of money and frustrated countless people in wasted efforts to implement information systems."

The same message of failure is also found in studies of particular healthcare applications. Many electronic patient record initiatives have failed (Dodd and Fortune, 1995) so that systems in the U.S. "still consist largely of paper records" (Anderson, 1997:89). So, too, for hospital information systems (HIS): "It appears that the set of all successful HIS implementations is only slightly larger than the null

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