Chapter III

Streamlining Operations in Healthcare with ICT

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Health care is an information-intensive industry. Its cornerstones are a research tradition of hundreds of years, and detailed understanding of each customer, patient. As compared to other industries, say banking, the data about the customer needs to be very detailed, and must include trend data to allow analysis of the development of things. When caring for a patient, even very special knowledge and know-how is often needed, and this compels the industry into a networked mode of operation, with a lot of communication needs.

With this background, it is astonishing to see how slowly the industry has adopted to new information and communication technology (ICT). Currently, however, a major revolution is under way, and the health care industry has become a key application area for ICT, and an object for both national and international programs to promote usage of ICT. We want to understand these trends better. Our research questions are:

1. Which reasons led to the late adoption of modern ICT in the healthcare sector?
2. Why is the situation now changing fast?
3. Which seem to be the main application areas?
4. Which kind of progress can we now see?

To each of the research questions, we allocate one section in our chapter. This article is conceptual in nature, but argumentation is supported by concrete examples and field work done at the author’s Institute in more than 10 projects in the health care sector. The main conclusions are that:

• Starting from “scratch” has made a fast development in the field possible when it comes to modern ICT.
• **Developments have been very fast; on the other hand demand for information and ICT has grown too enormously.**

• **ICT has been a total change agent for the industry, and a needed one.**

• **Fast introduction of modern ICT has been made possible through the simultaneous introduction of many modern management techniques such as quality assurance.**

• **The Internet was and is the “killer platform” in this industry too.**

• **The whole sector has turned from a handicraft industry to a knowledge industry.**

**INTRODUCTION**

As compared to many other industries, health care has been a late adopter of information technology. Individual clinical devices have been used as isolated islands of technology already for a long time, but integrated solutions to support total patient care have been late to arrive. One of the early signs of the change was the classical American Hospital Supply (Short and Venkatraman, 1992), which, even when limited to supply and demand on medicine and other hospital supplies, first opened our eyes to the huge improvement potential within the healthcare sector. Some less-known individuals saw the development trends already very early: “Wholly new forms of encyclopedia will appear, ready-made with a mesh of associative trails running through them, ready to be dropped into the memex, and there amplified... the physical, buzzled by a patient’s reaction, strikes the trail established in studying an earlier similar case, and runs rapidly through analogous case histories, with side references to the classics for the pertinent anatomy and histology...” (Bush, 1949).

Our view is that the healthcare industry, together with retail and tourism, are going to be major turnaround industries in Information and Communication Technology (ICT) usage in the next ten years. That’s why we want to introduce the readers to the changing trends in the industry.

Our analysis focuses on the patient consultation and interaction level. How have the patient-related processes changed? This means that several important developments in the nearby disciplines have to be ignored. For example, in the more technical field, several telemedicine, image processing and computer modeling techniques exist. To take a more administrative point of view, we could long discuss process development initiatives in the healthcare sector. The management and resource allocation systems of the healthcare industry would also be of most interest. However, we see that the patient contact is the moment-of-truth in health services, and we should focus on that and the developments in that field because of modern ICT.

Major trends in the healthcare sector as such are too out of the scope of this chapter. The reader should be reminded of the major developments: the population
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