

ERNST & YOUNG

INFORMATION MANAGEMENT SERIES

Information Technology for Integrated Health Systems

Positioning for the Future

Edited by
Kerry Kissinger and Sandra Borchardt

The Ernst & Young Information Management Series

Information Technology for Integrated Health Systems

Positioning for the Future

**Editors Kerry Kissinger and
Sandra Borchardt**
The Ernst & Young Boston Office



John Wiley & Sons, Inc.

New York • Chichester • Brisbane • Toronto • Singapore

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Published by John Wiley & Sons, Inc.

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Library of Congress Cataloging-in-Publication Data:

ISBN 0-471-11452-9

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1

This book is dedicated to our health care clients, from whom we learn every day; to our fellow Ernst & Young health care consultants who picked up the slack while we were attending to this book; to Sandra Borchardt, who was the prime mover in getting the book completed on schedule; and to Janice Kissinger for her infinite patience.

K. K.

To my family: Gary and Matthew; Mom and Dad; Roxie; Becky and Tim; Randy, Anne, Keely, Corine, and Brett; Helen, Rod, and Frances; and Edward and Melissa for their patience and unconditional love and support.

S. B.

Preface

I installed my first patient accounting system in 1964. The computerized billing system utilized removable disk files to store patient demographic information, and detailed charges were entered by keying them onto punched cards. There were no terminals attached to the system, and there was no ability to inquire into account status, except through the computer console, a bouncing-ball typewriter capable of the blistering speed of 15 characters per second.

Patient bills were automatically prorated by insurance plans and were printed out in batches on the line printer. In many respects the computer, an IBM 1440 (International Business Machines), was similar to a personal computer, though quite a bit larger and significantly less powerful. The main memory was 16 kilobits and each removable disk pack held 2.4 million characters. The system had two disk drives so data could be backed up.

The installation represented a conversion from a punched-card tabulating system. Individual charges still needed to be keypunched from requisition slips that had been manually

coded by the fulfilling department and fed to the computer through a card reader. Medicare was a gleam in Lyndon Johnson's eye. The billing program had been written by programmers (systems engineers) at IBM and was distributed free to hospitals that leased or purchased the 1440.

By 1965 there were 15 to 20 hospitals in the country utilizing the system, and the data processing managers from these institutions began meeting informally to share ideas about how to best utilize the system and software. They also commiserated about how many bugs they had to cope with and how slow IBM was to fix them. This informal group of hospitals became the nucleus for ECHO, which stood for Electronic Computing-Hospital Oriented, the first health care computer users' group.

As an early member of ECHO, I saw it grow and change over the years. There were two conferences held each year; over time the group grew to attract as many as 1,200 attendees—with multiple tracks, special-interest groups, and an international contingent—at venues like the Hotel del Coronado in San Diego.

ECHO's educational programs had always been very mainframe oriented, and by the late 1980s the organization waned in popularity. Its life cycle followed that of mainframe computing, and the organization, influenced by IBM, clung to a mainframe mentality far too long. The group is now extinct.

My participation in ECHO spanned 25 years. During that time the computer industry and health care organizations' use of computers changed significantly, but not radically. The IBM 1440 was called a second-generation computer by virtue of its transistorized circuitry, as opposed to the vacuum tube computers it replaced. The next generation of computers would be capable of multiprocessing, or doing several different tasks concurrently, including providing on-line access via cathode-ray tube display terminals.

Each decade has spawned a new generation of hardware and software platforms capable of doing more things at lower unit cost than its predecessor. The tools of the trade and the technology continue to advance in terms of price, performance,

and ease of use. The current watchword is client-server computing, whereby computing is distributed between a relational data base stored on the server and intelligent workstations on the desktop, the client. In terms of the skill sets required to succeed with this new technology, it borders on radical change.

I have been fortunate to observe these generational changes, but I have also been struck by how much each new generation of users struggles with learning how to deploy the technology. The patient accounting system I implemented in 1964 took eight months to complete. It had significant payback for the hospital. The number of machine operators was cut in half. Bills were produced sooner, and the ability of the system to do insurance proration resulted in fewer clerical personnel and improved cash flow. The new computer was far more reliable than the machines its replaced and significantly less costly to maintain.

A recent patient accounting system implementation took two years to complete and employed the skills and efforts of a 35-person project team. Everything about the project was more complex than prior generations. The regulatory environment, the number of interfaces to other systems, the new software and operating system, the network requirements, the testing and data conversion, the procedural changes and training requirements, and coping with a new set of vendors were all complex and costly elements to deal with.

The risks and costs were significant and the rewards were difficult to measure. The most compelling reason for making the change was that the current system had become too difficult, costly, and unstable to maintain and had to be replaced. It was not return on investment that drove the decision, it was simply viewed as a necessary cost of doing business. The hospital had dug itself into a deep hole and could not get out any other way. Unfortunately, this scenario is more the norm than the exception in health care today. Many health care organizations have relied heavily on vendors for support and become locked into rigid systems designed almost entirely to meet the needs of

acute-care hospitals. Executives see little value from and have much dissatisfaction with management information systems (MIS) department output. Without demonstrable value, funding shrinks. MIS staffs become weakened by tight budgetary constraints. And the hole slowly deepens.

This book is written for anyone who has a stake in the future success of information technology in health care. It was conceived to help organizations set a direction that is specific to their needs and to implement appropriate solutions successfully. It represents the collective thinking of some of the most knowledgeable people in the field today and is the culmination of over 200 years of collective experience. It describes a way of guiding the deployment of information technology assets and provides many useful tools for supporting information processes. It will give the reader a sufficient understanding of all the factors that influence a successful outcome so that he or she may proceed with confidence. Today, more than at any time in recent history, health care executives' effectiveness in dealing with this subject will determine their success or failure.

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We would like to thank our Ernst & Young colleagues who have read or reviewed parts of this book and those who supported the process by allowing the authors time away from client work to complete their chapters. We would also like to thank the

Boston Health Care Administrative staff, especially Jo'Anne O'Brien, Michele LaCerde, Ann Weld, Laura McMaster, Caroline DePina, and Nicole Goguen for their efforts with the manuscript and graphics production. And without the heroic efforts of Elizabeth Breiner and Elizabeth Macdonald, we would have never made the publisher's deadline.

Special thanks to Jan Roehl-Anderson and Sheck Cho for providing this opportunity and to the authors' families, for without their patient support and understanding, the book would have never been written.

Finally, thanks to Jon Zonderman for taking the contributions of many individuals and turning them into a book, for his constant support and encouragement, and for his subject-matter contributions. And thanks to Tracy King-Astwood, our editor at John Wiley & Sons, for her patience and perseverance.

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