

# Avoiding the Train Wreck in Healthcare: Integrating Information in the Clinic and the Back Office

*Jeffrey C. Bauer, PhD*

Economic theory focused almost exclusively on three factors of production—land, labor, and capital—when I completed graduate training in economics 30 years ago. Very few economists viewed information as a fundamental resource.

In traditional economic models, buyers and sellers only needed information on price to make rational decisions for purchasing goods and services. Otherwise, information did not explain the wealth of nations. Information was not something companies bought or sold to become efficient and profitable.

Widespread interest in the information economy was not apparent until the mid-1990s. Stock markets quickly began treating information as a fundamental factor, and by the end of the decade, new companies with few workers and no factories became more valuable than leading brand-name companies in the Dow Jones Industrial Average or the Fortune 500.

The market bubble burst in 2001 when investors realized they had overreacted. The fundamental reason for the sudden downturn was an

irrational belief that simply being in the information business could propel a company to great, sustainable heights.

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Subsequent analysis shows that “dot bomb” was caused by a failure of attention to business fundamentals, not an overvaluation of information as a resource. The information highway is littered with the wrecks of many startups that didn’t have a clue or a plan, but it is busier than ever. Information now is recognized as a factor of production, just as important as land, labor, and capital.

Information in the health industry is no exception. Mid-1990s startups that were going to revolutionize healthcare by selling information are

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mostly gone, but many established producers of medical goods and services now are firmly repositioned as purveyors of information.

Indeed, information technology and information services are becoming hot commodities in healthcare today. Electronic medical records, computerized provider order entry, picture archiving and communications systems, and telemedicine devices are now the tools expected to reduce costs, improve quality, and enhance access.

### Stop, Look, Listen

The technology market debacle of 2001 often was described as a train wreck, so we can look for guidance from the familiar sign designed to prevent crashes at railroad crossings; that's because *one train may hide another*. If we focus all our attention on the new units of the information express (EMR, CPOE, PACS and others) that is charging along right in front of us, we run the risk of being broadsided by the slower, less flashy train on the far track. That hidden train is made up of the old factors of production—physical resources, like hospital buildings and supplies, and the patients and professionals who use them.

Information-based tools to improve patient safety, prevent errors, promote best practices, and reduce costs are sorely needed in healthcare, but they are not enough to take healthcare where it needs to go. A significant portion of the enormous waste in healthcare can be traced directly to the lack of adequate information about staffing, materials management, process control, and other basic aspects of coordinating land, labor, and capital to operate a health system.

Failure to cure inefficiencies on the business side of healthcare could

undermine the improvements that information technology is starting to achieve in clinical operations.

Therefore, managers and clinicians must not overlook the metaphorical equivalent of the train on the other track—information systems and software applications that put resources where and when they are needed to support safe and appropriate patient care. They are the important topics featured in this issue of JHIM.

*“...business support tools and clinical systems must not be treated as different trains where one can prevent us from seeing the other.”*

### Successes in Other Industries

The power of behind-the-scenes support systems is demonstrated by their successful contributions to other industries. For example, supply chain management applications save billions of dollars in manufacturing every year by helping companies reduce inventories, lower costs, and find best values when price is not the only consideration. Expanding links to transportation and warehouse management also contribute to efficiency. Next-generation supply chain management tools are being designed to encompass the entire supply chain, from suppliers' suppliers to customers' customers.

Enterprise resource planning (ERP) also has become a common application in many businesses. Although ERP has little to do with planning from the perspective of strategy, it specifically targets the integration of back-office functions, like order fulfill-

ment and billing. Finance and human resource modules are other common components, but the key to ERP's overall success is a single software system and shared database that enables all departments to work with the same information. Major efficiencies have been achieved when stand-alone, non-communicating computers in each department were replaced by an integrated system.

Customer relations management (CRM) software also has been successfully adopted in some industries, and it is focused on strategy. The newest of the business support tools, CRM is evolving to help companies focus on product lifecycles, customers' future needs, and quality enhancements, such as Six Sigma and continuous/total quality management.

Like SCM and ERP, the value of CRM ultimately will lie in its ability to integrate business functions internally and externally. Prospects for continued progress are good because major business schools and professional associations are researching, developing, and teaching these tools. The growing success of outsourcing also is attributable in part to its ability to make these tools available to companies that otherwise could not afford them.

### Using the Same Track

The business-support tools featured in this issue offer considerable promise for healthcare. They have received less attention recently than EMR, CPOE, PACS, and other clinical systems, but they are just as important now that economics recognizes information as a factor of production.

These tools can help healthcare avoid the “train wreck” that many predict will occur because costs are rising and quality is declining. However, business support tools and

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clinical systems must not be treated as different trains where one can prevent us from seeing the other. Experiences in other industries clearly show that the key to success in an information economy is integration—getting all databases and information technologies on the same track *and* headed in the same direction.

**About the Author**

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