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Explaining the Health Information Technology Paradox

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Abstract

Excerpt] The substantial gap between the promise inherent in upgrading information systems in health care and the documented reality has baffled health care scholars. Why is a technology so clearly capable of creating efficiencies, increasing safety, and promoting greater information sharing and coordination across professionals failing to live up to expectations?

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Explaining the Health Information Technology Paradox

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The Health Information Technology Paradox

The health care industry in the United States is in a clear state of crisis. Health care organizations are increasingly operating under intense institutional and economic pressures. Among these pressures, hospitals and other health care organizations face increased competition, difficulties delivering high-quality and safe patient care, and a variety of workforce challenges, including dramatic shortages of skilled professionals.

Confronted with this reality, many health care organizations are implementing innovations in new work arrangements and technologies designed to alleviate at least some of these pressures. One of the most promising and highly promoted organizational innovations is the adoption and implementation of health information technology (health IT), which is designed to digitize, store, and facilitate retrieval and transmission of administrative and clinical data on patients.

Scholars, policymakers, and practitioners have all shown tremendous excitement over health IT's power to revolutionize the delivery of care by reducing medical errors, improving the quality and coordination of patient care, and promoting efficiencies. Policymakers expect the diffusion of health IT to deliver significant improvements across a range of central outcomes.

This expectation was supported by a rare political consensus manifested by the allocation of billions of dollars to encourage health IT adoption—even before the eventual passage of health care reform. Most notably, this optimism about the capacity of health IT to transform the health care system manifested itself in the Health Information Technology for Economic and Clinical Health Act, passed in 2009.

Despite the consensus about the potential of health IT to deliver real benefits to the health care system, existing empirical evidence reveals a much more ambiguous story. Much of the research attempting to establish a positive and significant link between health IT and a variety of clinical or efficiency outcomes has documented mixed evidence at best. Thus, although substantial public and private dollars have been allocated to leverage health IT as a means of addressing persisting health care problems, the technology has not been conclusively shown to deliver on this front.

Furthermore, in addition to the absence of conclusive evidence regarding the performance effects of health IT, research has shown that the diffusion of these systems across the U.S. health care system is still rather slow. Only a minority of health care organizations in the United States have implemented a comprehensive and fully operational electronic medical records system.

The substantial gap between the promise inherent in upgrading information systems in health care and the documented reality has baffled health care scholars. Why is a technology so clearly capable of creating efficiencies, increasing safety, and promoting greater information sharing and coordination across professionals failing to live up to expectations?

As employment relations scholars, we believe that the answer to this question may be found, in large part, in a closer examination of the link between this technological innovation and the organizational and workplace context in which it is embedded. The lessons learned in other industries about the importance of the organizational context in which technology is implemented apply to this important setting as well.

Health IT, by itself, is merely a tool composed of hardware and software components. For this tool to successfully address dramatic health care pressures, it must be implemented in a manner that considers central organizational and workforce factors and characteristics.

Despite the tendency to focus on *technological* hurdles associated with health IT adoption and implementation, we think that the culprit is primarily *organizational.* We believe that the lack of attention given to central organizational and workforce factors and characteristics explains the persisting health IT paradox.

In fact, our own research has documented extensive variation in the organizational use of health IT.[1-4] This variation, often across organizations implementing the same technology, provides strong support for the argument that health IT benefits are a function of internal organizational difference. In what follows, we lay out two central organizational explanations for the health IT paradox and offer some practical recommendations.

The View Through an Employment Relations Lens

As a tool, health IT is, by itself, not an organizational strategy. Rather, organizations apply different strategic orientations in leveraging health IT to address different organizational exigencies. Given that health IT has the capacity to deliver different types of benefits, it is not surprising that health care organizations adopt this new technology with different expectations and anticipated benefits.

An organization's strategic orientation is likely to drive a host of investment and implementation decisions that will affect associated outcomes, including health IT use. Put simply, organizations are more likely to enhance those outcomes that are central to their strategic orientation than ones that are not. In fact, a study of fifteen nursing homes in New York State found evidence of variation in the health IT strategic orientations employed across these organizations.[3,5] In other words, not all organizations viewed health IT through the same strategic lens.

In particular, the researchers documented the employment of three distinct health IT strategies. Some organizations viewed the technology as a means to attain better control of the workforce. In those organizations, health IT was seen as an avenue through which to monitor employees in their execution of everyday patient care tasks. The organizations saw health IT as a tool that complemented other tools, such as surveillance cameras, for tightening workforce control. As such, the expectations associated with health IT in those organizations were primarily centered on its ability to increase employee accountability and managerial control, with much less attention to the capacity to improve quality of care or the efficiency with which it is delivered.

A second group of organizations employed what the researchers referred to as an "efficiency strategy," which viewed health IT primarily as a means of reducing costs and increasing efficiencies in delivering care. For example, for those organizations, health IT provided the tools to better track and record the care being delivered, which allowed for a more accurate reimbursement scheme.

The researchers documented a third strategic orientation, which focused on the manner in which health IT could be leveraged to empower and upskill the workforce. These organizations viewed health IT as a tool through which to empower and involve their frontline staff by providing them with real-time, accurate, and comprehensive information about patients. Health IT, in these

organizations, provided the ability to better connect and coordinate patient care.

This typology of strategic orientations has important implications for how we understand benefits associated with health IT. Health IT strategy can be seen as a factor that shapes an organization's expectations and vision for the new technology.[6] If organizations apply very different strategic lenses to this technology, it should not be surprising that evidence regarding its effects on performance is inconsistent.

Work Organization: Structuring Health IT Deployment

A second important source of health IT variation is the manner in which work is organized and structured. Health care organizations vary in the way they manage their workforces and the practices they put into place to do so.[3,4] Countless studies outside the health care industry have demonstrated the link between the organization of work and a host of employer- and employee- related outcomes.

In the health care context, scholars have shown that work practices and arrangements have a significant effect on a variety of performance outcomes. It is therefore also likely that this organizational factor influences the way in which health IT is used and the benefits it delivers. Our own research provides strong support for the link between work organization and health IT adoption and implementation.

One source of variation we have examined is the intensity with which would-be users are involved in the development, deployment, and optimization of health IT—that is, to what extent are workers' interests and concerns regarding health IT channeled upward in the organization to those in a position to act on them? Moreover, to what extent are the goals and challenges faced by those at higher levels of the organization being systematically communicated to the front lines and understood by everyday users? Litwin tackled this problem by examining variation in employee involvement surrounding the deployment of health IT, revealing that identical technology delivers a more sizable performance punch in clinics in which workers scored higher on an index measure of employee involvement.[2]

Likewise, a study linking organizational experience with new technology and learning found that health care organizations vary in the pace at which they learn to use health IT.[7] Central to our argument, the researchers in that study found that the way in which work is structured within these organizations explains their health IT learning. Specifically, the translation of experience into health IT learning was more pronounced in organizations with greater use of high-performance work systems. In other words, work organization was shown to influence organizational learning, which is likely to influence health IT-related outcomes. Certain work practices— namely, those that focus on increased employee discretion, teamwork, and problem solving—enhance an organization's capacity to learn how to use health IT.

Another study examined health IT strategic orientations and also found that different work practices and arrangements were associated with different strategic positions.[5] Specifically, the researchers found that organizations employing an empowerment health IT strategy were more likely to have progressive employment relations with a higher level of high-performance work system use. By contrast, organizations adopting a control health IT strategy were more likely to have adversarial employment relations with little, if any, use of practices associated with highperformance work systems. Thus, in addition to explaining health IT learning, work designalso seems to be associated with the very strategies that guide organizations in how they intend to leverage health IT.

Summary and Implications

Health IT is a central component in reforming the health care industry in the United States. For it to fulfill this role, better understanding of when and how it contributes to organizational performance is required. Toward this end, employment relations

scholarship offers unique and important insights regarding the context in which health IT is most likely to transform the delivery of health care. As discussed, this organizational perspective highlights the role that strategy and work design play in facilitating health IT's use in responding to mounting pressures and challenges.

Applying an employment relations lens to health IT adoption and implementation can therefore contribute to theory as well as to practice. For example, we recently proposed a practical framework for making health IT investment, adoption, and usage decisions. This framework takes into account likely challenges at the strategic, functional, and workplace levels.[6] In doing so, we provide a practical guide for recognizing and overcoming organizational barriers across different levels of employment relations activity. Employment relations scholarship should continue to build on its paradigmatic perspective to offer insights and practical guidance that will assist organizations as they seek to employ health IT to its fullest potential.

NOTES

1. Ariel Avgar, Lorin Hitt, and Prasanna Tambe, "The Effects of Organizational Factors on Health Care IT Adoption Costs: Evidence from New York Nursing Homes," Proceedings from the 43rd Hawaii International Conference on System Sciences Annual Conference, January 2010.

2. Adam Seth Litwin, "Technological Change at Work: The Impact of Employee Involvement on the Effectiveness of Health Information Technology," *Industrial and Labor Relations Review,* 64, no. 5 (2011), 863-88.

3. David Lipsky and Ariel Avgar, "Caregivers and Computers: Key Lessons from the Adoption and Implementation of EMR in New York State Nursing Homes," *Advances in Industrial and Labor Relations,* 20 (2012), 75-104.

4. David Lipsky and Ariel Avgar, *Caregivers and Computers: The Effects of Electronic Medical Records on Employment and Labor Relations in Nursing Homes.* Report submitted to the New York State Quality Care Oversight Committee and 1199SEIU Training and Employment Funds, November 2009.

5. David B. Lipsky, Ariel Avgar, and James Lamare, "Organizational Strategies for the Adoption of Electronic Medical Records: Toward an Understanding of Outcome Variation in Nursing Homes," Proceedings from the 61st Labor and Employment Relations Annual Meetings, 2009.

6. Ariel Avgar, Adam Seth Litwin, and Peter Pronovost, "Drivers and Barriers in Health IT Adoption: A Proposed Framework," *Applied Clinical Informatics,* 3, no. 4 (2012), 488-500.

7. Ariel Avgar, Prasanna Tambe, and Lorin Hitt. "Decoupled Learning: Organizational Learning During Outsourced Health Care Information Technology Implementations." Working Paper, 2012.