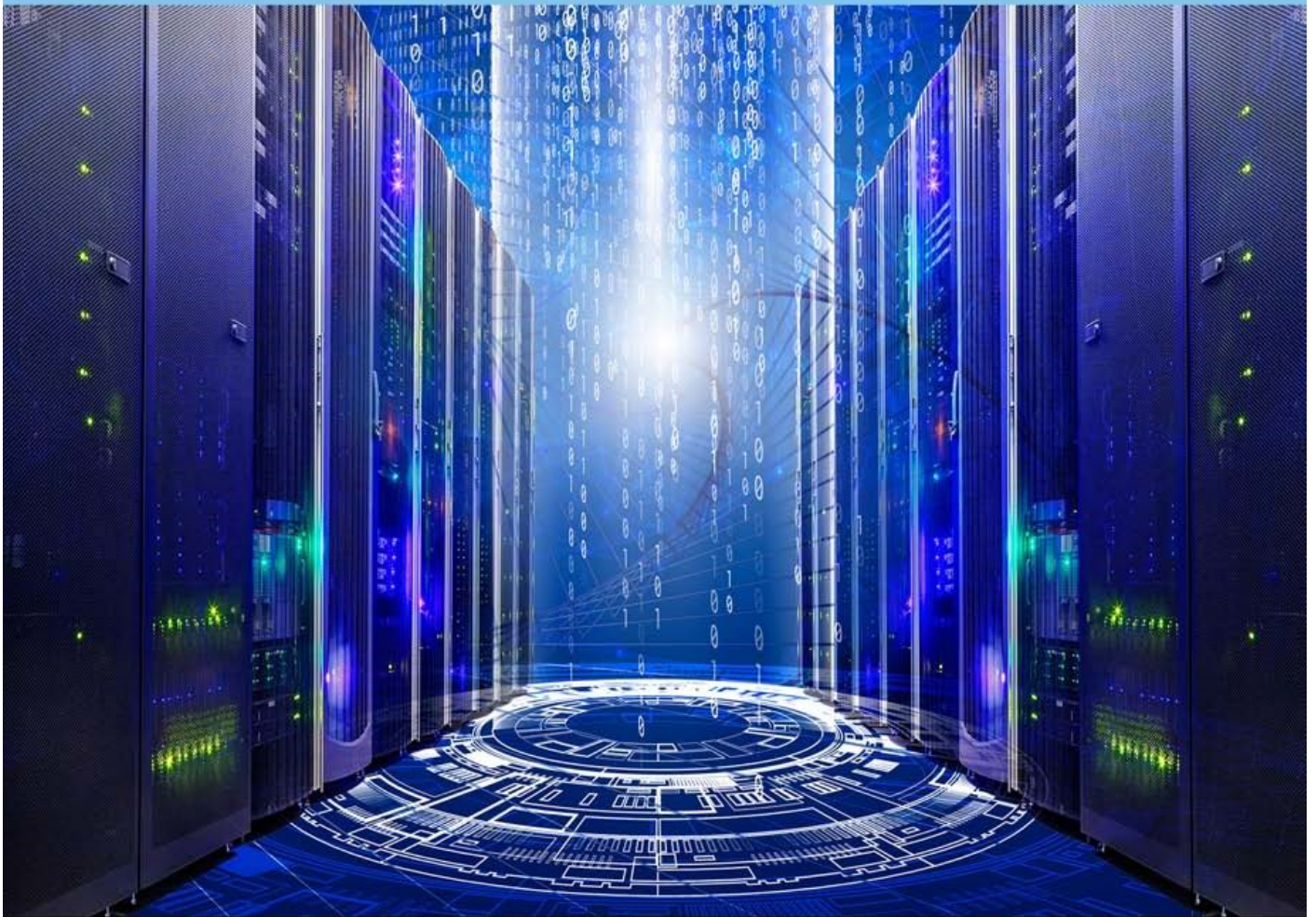


Information Technology and Organizational Learning

Managing Behavioral Change
in the Digital Age

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of IT is again going through a transformation and once more we are skeptical about the value IT can provide a business and about the way to measure the contributions of IT.

IT in the Organizational Context

Technology not only plays a significant role in workplace operations, but also continues to increase its relevance among other traditional components of any business, such as operations, accounting, and marketing (Earl, 1996b; Langer, 2001a; Schein, 1992). Given this increasing relevance, IT gains significance in relation to

1. The impact it bears on organizational structure
2. The role it can assume in business strategy
3. The ways in which it can be evaluated
4. The extent to which chief executives feel the need to manage operational knowledge and thus to manage IT effectively

IT and Organizational Structure

Sampler's (1996) research explores the relationship between IT and organizational structure. His study indicated that there is no clear-cut relationship that has been established between the two. However, he concluded that there are five principal positions that IT can take in this relationship:

1. IT can lead to centralization of organizational control.
2. Conversely, IT can lead to decentralization of organizational control.
3. IT can bear no impact on organizational control, its significance being based on other factors.
4. Organizations and IT can interact in an unpredictable manner.
5. IT can enable new organizational arrangements, such as networked or virtual organizations.

According to Sampler (1996), the pursuit of explanatory models for the relationship between IT and organizational structure continues to be a challenge, especially since IT plays dual roles. On the one

hand, it enhances and constrains the capabilities of workers within the organization, and because of this, it also possesses the ability to create a unique cultural component. While both roles are active, their impact on the organization cannot be predicted; instead, they evolve as unique social norms within the organization. Because IT has changed so dramatically over the past decades, it continues to be difficult to compare prior research on the relationship between IT and organizational structure.

Earl (1996a) studied the effects of applying business process reengineering (BPR) to organizations. BPR is a process that organizations undertake to determine how best to use technology, to improve business performance. Earl concludes that BPR is “an unfortunate title: it does not reflect the complex nature of either the distinctive underpinning concept of BPR [i.e., to reevaluate methods and rules of business operations] or the essential practical challenges to make it happen [i.e., the reality of how one goes about doing that]” (p. 54).

In my 2001 study of the Ravell Corporation (“Fixing Bad Habits,” Langer, 2001b), I found that BPR efforts require buy-in from business line managers, and that such efforts inevitably require the adaptation by individuals of different cultural norms and practices.

Schein (1992) recognizes that IT culture represents a subculture in collision with many others within an organization. He concludes that if organizations are to be successful in using new technologies in a global context, they must cope with ceaseless flows of information to ensure organizational health and effectiveness. His research indicates that chief executive officers (CEOs) have been reluctant to implement a new system of technology unless their organizations felt comfortable with it and were ready to use it. While many CEOs were aware of cost and efficiency implications in using IT, few were aware of the potential impact on organizational structure that could result from “adopting an IT view of their organizations” (p. 293). Such results suggest that CEOs need to be more active and more cognizant than they have been of potential shifts in organizational structure when adopting IT opportunities.

The Role of IT in Business Strategy

While many chief executives recognize the importance of IT in the day-to-day operations of their business, their experience with

attempting to utilize IT as a strategic business tool, has been frustrating. Typical executive complaints about IT, according to Bensaou and Earl (1998), fall into five problem areas:

1. A lack of correspondence between IT investments and business strategy
2. Inadequate payoff from IT investments
3. The perception of too much “technology for technology’s sake”
4. Poor relations between IT specialists and users
5. The creation of system designs that fail to incorporate users’ preferences and work habits

McFarlan created a strategic grid (as presented in Applegate et al., 2003) designed to assess the impact of IT on operations and strategy. The grid shows that IT has maximum value when it affects both operations and core business objectives. Based on McFarlan’s hypothesis, Applegate et al. established five key questions about IT that may be used by executives to guide strategic decision making:

1. Can IT be used to reengineer core value activities, and change the basis of competition?
2. Can IT change the nature of the relationship, and the balance of power, between buyers and sellers?
3. Can IT build or reduce barriers to entry?
4. Can IT increase or decrease switching costs?
5. Can IT add value to existing products and services, or create new ones?

The research and analysis conducted by McFarlan and Applegate, respectively, suggest that when operational strategy and its results are maximized, IT is given its highest valuation as a tool that can transform the organization. It then receives the maximum focus from senior management and board members. However, Applegate et al. (2003) also focus on the risks of using technology. These risks increase when executives have a poor understanding of competitive dynamics, when they fail to understand the long-term implications of a strategic system that they have launched, or when they fail to account for the time, effort, and cost required to ensure user adoption, assimilation, and effective utilization. Applegate’s conclusion

underscores the need for IT management to educate senior management, so that the latter will understand the appropriate indicators for what can maximize or minimize their investments in technology.

Szulanski and Amin (2000) claim that while emerging technologies shrink the window in which any given strategy can be implemented, if the strategy is well thought out, it can remain viable. Mintzberg's (1987) research suggests that it would be useful to think of strategy as an art, not a science. This perspective is especially true in situations of uncertainty. The rapidly changing pace of emerging technologies, we know, puts a strain on established approaches to strategy—that is to say, it becomes increasingly difficult to find comfortable implementation of technological strategies in such times of fast-moving environments, requiring sophisticated organizational infrastructure and capabilities.

Ways of Evaluating IT

Firms have been challenged to find a way to best evaluate IT, particularly using traditional return on investment (ROI) approaches. Unfortunately, in this regard, many components of IT do not generate direct returns. Cost allocations based on overhead formulas (e.g., costs of IT as a percentage of revenues) are not applicable to most IT spending needs. Lucas (1999) established nonmonetary methods for evaluating IT. His concept of *conversion effectiveness* places value on the ability of IT to complete its projects on time and within its budgets. This alone is a sufficient factor for providing ROI, assuming that the project was approved for valid business reasons. He called this overall process for evaluation the “garbage can” model. It allows organizations to present IT needs through a funneling pipeline of conversion effectiveness that filters out poor technology plans and that can determine which projects will render direct and indirect benefits to the organization. Indirect returns, according to Lucas, are those that do not provide directly measurable monetary returns but do provide significant value that can be measured using his IT investment opportunities matrix. Utilizing statistical probabilities of returns, the opportunities matrix provides an effective tool for evaluating the impact of indirect returns.