The Latest “Revolution”

In the early 1990s, the business world was introduced to the business process reengineering (BPR) phenomenon. Early advocates touted BPR as the next revolution in obtaining breakthrough performance via process improvement and process change (Davenport, 1993; Hammer and Champy, 1993; Harrington, 1991). The popular consensus is that BPR failed to live up to expectations in many organizations (Bergery et al., 1999; Davenport, 1993; Hammer and Champy, 1993; Kotter, 1995). Reported reasons for failure include BPR initiatives not driven by customers (Paper, 1998a; Paper and Dickinson, 1997), adoption of a flawed BPR strategy (Paper, 1998a), resistance to change (Harkness et al., 1996), inappropriate use of consultants (Davenport, 1993), a workforce tied to old technologies (Bergery et al., 1999), failure to invest in training (Paper, 1998a, 1998b, 1999), a legacy system out of control (Bergery et al., 1999), IT architecture misaligned with BPR objectives (Broadbent et al., 1999), an inflexible management team (Bergery et al., 1999; Harkness et al., 1996; Paper, 2001), a lack of top management involvement (Kettinger et al., 1997), and a lack of long-term commitment (Bergery et al., 1999). Patience is another key aspect. BPR initiatives can lose momentum as managers face limited resources, slow pay-off, diminished employee enthusiasm, and increased resistance to change (Harkness et al., 1996). As one can see from this list, it’s obvious that many organizations failed to realize the scope and resource requirements of BPR, much less the amount of management (especially top management) involvement and patience.

Crossing Disciplines

The reasons for BPR failure (or success) may hinge on three constructs—extent of top management involvement, extent of a match between IT and BPR, and extent that initiatives are driven (pulled) by customers. Identifying these key constructs gives us insight into the roots of the BPR phenomenon. As such, there is no doubt that BPR was constructed directly from ideas originally presented in the quality and lean manufacturing literatures. The quality paradigm focuses on achieving “total quality” throughout the organization. As such, quality organizations should work hard to reduce defects by engaging in quality checks along the production path, empowering workers to identify flaws in workmanship, and engaging production managers to devise “error-free” schemes. Although the quality revolution valued the customer, the emphasis was definitely on the production floor. The lean paradigm attempted to
reconcile some of the flaws associated with the quality movement. The focus of lean is on delighting the customer by manufacturing products to specification when and where needed. Lean is also engaged in improving the overall performance of the enterprise in a systematic fashion. The overall goal is to provide what the customer wants at a price that generates a sense of “value.” Lean is able to achieve its goals by manufacturing in very small production lots (even down to one at a time) in accordance with customer orders (Drucker, 1990; Shingo, 1998; Womack et al., 1990). Product quality is kept at a maximum by embracing a focus on eliminating waste in all areas of the enterprise, wherever it occurs (Deming, 1986; Juran, 1995; Shingo, 1998; Shingo and Robinson, 1990). Thus, lean is able to achieve very high degrees of flexibility and customizability in the production of very high quality products.

**Past and Present Revolutions**

Both quality and lean could be considered revolutionary since they significantly changed the way organizations conduct(ed) business (Carney, 2001; Drucker, 1990; Womack et al., 1990). As a result, business performance drastically increased (due mainly to a dramatic improvement in product quality and process) for those actively engaged in these approaches. But did BPR provide breakthrough performance? The BPR literature is inconclusive. Although BPR borrowed ideas from lean and quality, it was not rooted in manufacturing techniques, but rather in office (business) processes that support the core product or service of an organization. As such, BPR is not based on “proven” methods or techniques to improve process performance. Maybe this is one reason for its failure. Another major problem with BPR is that it didn’t focus on integration between core production and the support business processes. Since BPR didn’t prove achievement of breakthrough performance generally, how can it be considered a revolution?

Lean proponents argue that the quality and BPR movements ultimately failed because they lacked an enterprise-wide systematic (systems-based) approach to improving methods (Deming, 1986; Juran, 1995; Shingo and Robinson, 1990). In other words, quality was focused on reducing errors and inventory levels while ignoring performance issues related to the overall performance of the enterprise. Lean proponents add that BPR was flawed (from the start) because it offered no tangible methods for achieving success.

BPR had two claims to fame—start from scratch and focus on the business side of the process (Davenport, 1993; Hammer and Champy, 1993). There are two major problems with these claims. First, few companies can risk “starting from scratch” because it is very expensive and can very easily alienate existing customers. How does a company continue to serve its customer base when it is reengineering from scratch? Second, a focus on the business process is fine. However, without systematically tying improvements in the business process with what the organization manufactures, develops, or creates provides no systematic means to improve the overall performance of the enterprise. With BPR, it is possible to show cost savings and business improvement, but it is not possible to demonstrate overall improvement in the enterprise because BPR pundits failed to offer methods for enterprise improvement.

**The IT Revolution**

IT has been touted as one of the key enablers of BPR (Davenport, 1993), but there are no proven methods (offered in the literature) that methodologically develop IT as an enabler. In contrast, IT can be one of
the biggest obstacles (to performance breakthroughs) if not properly aligned with business objectives (Broadbent et al., 1999). Again, the literature offers no proven methods to facilitate this alignment. The heritage of a legacy system can also be a major obstacle and contribute greatly to BPR failure (Bergey et al., 1999). Many legacy systems are not under control because they lack proper documentation, historical measurements, and change control processes (Bergey et al., 1999; Paper, 1998b). Due to the scope and complexities inherent to a typical legacy system infrastructure, it should be treated with the same priority as the cultural and organizational structures when undergoing process change (Broadbent et al., 1999; Clark et al., 1997; Cross et al., 1997). It appears that more problems with integrating IT into the change process are present in the literature than solutions.

IT offers tremendous potential for competitive advantage. However, the literature makes no concrete links to proven methods in lean and quality. Lean offers a set of “tested” principles for enterprise process improvement. Moreover, lean principles are adapted and improved from its quality predecessor. Of course lean has no real IT focus. This is where MIS can begin a real movement by making a cogent link between lean principles and the capability of IT.

We as MIS professionals and academics are in the “sweet spot” in terms of developing IT (and IT theory) to facilitate breakthrough performance. Unfortunately business people are skeptical about IT because vendors have generally exploited them. Business already has experience with quality, lean, and BPR. Of course some experiences are good and some are bad, but organizations have learned from their mistakes. “Customers have finally put on their walking shoes. They’ve make it emphatically clear to this industry [IT] that they will no longer cede control to the makers of the technology” (IBM Annual Report, 2001, p. 1). Their experiences with IT are very different. IT is expensive to buy, develop, and maintain. Even after IT is in place, it rarely works like users want it to. IT training is also very expensive and the learning curve is very high. The promise of enterprise systems has never even been close to being achieved. IT workers rarely (if ever) understand how the business works, but are charged with building systems that facilitate the business. As such, how can systems do what the business calls for?

Breakthrough Performance with IT

Integrating lean principles into IT management, control, and development of enterprise processes offers potential for breakthrough performance. Using lean principles, we have a cogent starting place for “real” research in enterprise systems. Current IT rhetoric pontificates that IT should not drive the enterprise, but rather IT should play the role of facilitator. Why then do enterprise system vendors such as SAP, PeopleSoft, Oracle Financials, and Microsoft.NET spout that “their” software is all that is needed to manage business rules? Profits are the motivation. Current enterprise systems essentially “hard code” best practices (business rules) into their software. As such, they leave no room for creativity, flexibility, customization, or individuality. An astute person might wonder how competitive advantage can be reached if everyone does business in the same way (or at least in the way that is dictated by all of the aforementioned enterprise systems). Another major problem with current enterprise systems is that they are extremely difficult to use, learn, install, implement, and deploy. Not to mention the prohibitive costs associated with these systems to purchase and maintain (Paper et al., forthcoming).
According to Louis V. Gerstner, Jr. (just departing as IBM CEO), “... a massive shift is underway in our industry ... The revolution I’m describing is that customers are finally driving the direction of the information technology industry ... Approximately half of the investments that customers make in IT are now driven by line-of-business managers, not chief information officers” (IBM Annual Report, 2001, p. 1). If Gerstner is correct in his assertions, customers aren’t stupid. They know what they want and they will be less willing to accept vendor “hype” at face value. The industry model of the past decade was “... designed around a variety of proprietary architectures (which, to be candid, technology providers were using to control customers)” (ibid, p. 1). All of the major (enterprise systems) vendors develop software that is proprietary to their respective platforms. That is, the software will only work properly on ONE platform. Gerstner goes on to say, “That means customers are demanding integration, and refusing to accept piece parts that aren’t designed and delivered to work together. It means that they are demanding solutions ... and it means they insist that the technology adapt itself to the needs of their business and help them gain some tangible competitive advantage” (ibid, p. 2). IBM believes that the IT industry is undergoing two revolutions—IT integration and customer IT astuteness. Customers now understand that portable and open IT solutions are possible. That is, software should run on all platforms and meet customer needs. Customers are also demanding IT integration. That is, new software should be able to work with legacy systems and integrate with existing databases, directories, and networks. Customers will refuse to be “locked into” any one vendor (which has been the marketing strategy for many major vendors in the past to hold onto market share and generate additional revenues).

The “customer” revolution has direct implications on the MIS field. First, a paradigm shift is required that enfolds “tested” lean movement principles into enterprise systems theory development. The MIS field must be open to embracing a revolution in thought. Second, case (ethnographic and phenomenological) studies with organizations should be conducted to “test out” methods for achieving breakthrough (enterprise-wide) performance with support of IT. The underlying premise is that business models from “living” organizations should drive development of enterprise systems principles.

So What Is The Next Step?

The MIS discipline lacks a cumulative tradition, which is probably why we have no definitive schools of thought for healthy debate and little grounded theory. As such, we let major software vendors “off the hook” by not educating people about the true role of IT in business. The term “enterprise systems” as it is used today is a misnomer. These systems do not provide breakthrough performance. They do not improve overall enterprise processes. They just cost a lot and give business people false hope as to what can be accomplished with existing IT. To develop effective enterprise systems, we need to have at our disposal proven methods (or models) to help us integrate IT with operational and businesses processes. So what do we do?

First, we need to refocus the MIS field toward development of viable enterprise systems. Research tracks in the top conferences could be devoted to such efforts. In addition, top-tier journals could make calls-for-papers on enterprise-related topics. Second, MIS should form a consortium to open a dialogue with top executives of major corporations. This dialogue should focus on our vision of the future of IT and its role in facilitating breakthrough performance. Third,
we must “institutionalize” our vision into our academic endeavors. When we go to conferences, all of us should have at least some idea of the direction of the MIS field and our role in it. The reason I believe that enterprise systems could be an “MIS theme” is because such systems encompass every aspect of how business works (or at least this is what an enterprise system should do). Didn’t MIS materialize because there was a need to link technology and business?

In closing, I’ve attempted to articulate a way to position MIS for the future. Current enterprise systems do not work. Maybe the reason for this is that they are not based on careful empirical research. Neither are they based on proven methods from BPR, lean, or quality paradigms. If this is the case, what are enterprise systems based on? My guess is that they are based on a collage of accounting, finance, and operations software pieced together without a cogent or systematic business model. In my opinion, it is our job to “right this wrong.” In other words, we should be leading and giving advice to industry in terms of fruitful discoveries from our research. To date, this is not the case.

As a starting point, Gerstner offers four models that he believes will drive the future of the IT industry—innovate and integrate, services-led, infrastructure plus ubiquity, and an open playing field (IBM Annual Report, 2001, p. 3-4). To be successful in the future, organizations cannot just innovate; they must also integrate new IT and other innovations with legacy systems and current business models. IT will become a services-led phenomenon. Some customers will buy IT and others will lease. There is also a movement towards networked, industrial strength servers rather than PCs. Finally, open systems will be the norm in the future. Of course some vendors don’t seem to be moving in this direction, but the assumption is that customers are savvy enough to choose “open” for flexibility and customization. Building research on these models will give MIS the respectability from industry that it currently lacks and a role in developing the future of the IT industry.

References


**Endnote**

1 The terminology used in this editorial is purposely intended to reflect the language in the BPR, quality, and lean manufacturing literatures. To avoid confusion in the use of terminology across these disciplines, a definition of terms follows. A paradigm is a way of thinking or an approach to a way of thinking. Hence, a paradigm shift is a change in a current way of thinking. A phenomenon or movement is generally the same as a paradigm. A revolution is generally a paradigm shift.