On organization. Looking back on reengineering and ahead to learning

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In 1990, the concept of business reengineering was successfully launched as a new management and organization concept. Under various headings – among others, business reengineering (Hammer and Champy, 1993), process innovation (Davenport, 1993), and business process improvement (Harrington, 1991) –, many organizations around the world began implementing radical or less radical changes. Researchers have since concluded that these changes had varying levels of success (Robinson, 1994; Bouman et al., 1995; Champy, 1995; Coulson-Thomas, 1996; Huizing et al., 1997). On the one hand, these experiences with reengineering have led to a search for a more thorough theoretical substantiation of reengineering and to suitable methodologies to get a better grip on process oriented organizational change (Kettinger and Grover, 1995; Guha et al., 1997). On the other hand, they have attracted scathing criticism (Mumford and Hendricks, 1996; Strassman, 1994). Increasingly, this criticism is paving the way towards finding possible successors to business reengineering. The “old” is being criticized to make way for the “new.”

Are we witnessing reengineering’s demise or will a more solid concept emerge out of this critical stage? In this chapter, the concept of reengineering is critically assessed. We shall begin by giving a brief summary of this concept. Then, twelve points of criticism stemming from diverse academic disciplines and eleven answers of reengineering proponents are summarized under four denominators: the (limited) strategic significance of reengineering, the (lack of) concern for the human factor and change management issues, the (troublesome) relationship with information and communication technology, and (the inadequate) theoretical substantiation and methodological support of reengineering.

On the one hand, it is concluded that many criticasters seem to have no reason to criticize reengineering other than commercial ones. This criticism is
often solely based on the first and therefore relatively immature publications on reengineering, and conveniently neglects the more recent theoretical improvements made to this concept. On the other hand, the atheoretical start of reengineering, the design engineering approach to people, organization, and change management, and the naively optimistic expectations regarding the productive possibilities of new information and communication technology have created a context in which it is difficult for reengineering to survive as a valued and accepted management and organization concept. It is surprising, however, to discover that reengineering's main message – here captured as "customer and process oriented organization" – is seldom criticized. It is therefore expected that this organizing principle will remain of value to organizations that need to improve their performance. Nevertheless, it is also anticipated that business reengineering will be included in the long list of short-lived innovations in organization theory. It has become a too conceptually and emotionally charged concept to continue the role it once played.

Reengineering's Message

The rapid emergence of business reengineering can be explained by its promise of order of magnitude performance improvements, operational excellence, and a sustainable competitive advantage. It was argued (Hammer and Champy, 1993; Davenport, 1993) that production or service provision could be simultaneously more innovative and be done faster, better and cheaper. The result would be the achievement of strategic objectives such as enhanced customer satisfaction, greater market share, and increased productivity. Market leadership may even be an option, if operational excellence and breakpoints in the performance in markets were to be taken as the strategic imperatives for reengineering. These promises tied in with the needs at the time, resulting from increased pressure on the profit margins, increased competition, more demanding customers, increasingly shorter product life cycles at higher research and development costs, internationalization, deregulation and technological innovations. Given the nature, intensity and dynamics of these developments, organizations were advised to formulate a high level of ambition under the motto "who dares wins." Business reengineering was as such presented as a strategic concept of change, with which organizations could properly prepare for new challenges.
The message went on to say that organizations, in order to achieve dramatic performance improvements and breakpoints that define the market, would have to undergo fundamental and radical changes. Essential in this respect was the adoption of a clear vision to define the organization in a limited number of core processes, each aimed at achieving one or more strategic objectives. A core process is “... a set of interrelated activities, decisions, information, and material flows, which together determine the competitive success of the company” (Kaplan and Murdock, 1991). Examples of core processes are integrated logistics, and order generation and fulfillment (Vantrappen, 1992). The characteristics of core processes are that they are central to business functioning, relate directly to external customers and to the organization’s core competences, and cross functional, geographic, business unit, and organization boundaries (Hammer and Champy, 1993; Jansen et al., 1995). Reengineering taken to its highest level, therefore, cuts across all the different organizations that make up the value chain. Each core process can be unraveled into various business processes, which for example are engrafted onto the different customer groups or market segments. These business processes also cross organizational boundaries. A business process in turn consists of work processes, which take place within departments or functional areas such as purchasing and production.

The final part of the reengineering message stated that fundamental organizational change must be accompanied by radical changes to all organizational aspects associated with the core processes (Hammer and Champy, 1993). The core processes determine how business is done and value for the customer is created. Therefore, all other organizational aspects need to be aligned with these processes. That is, the organization members’ knowledge and capabilities, their roles, the organizational structure, the management systems, the information infrastructure, and people’s attitudes, beliefs, and cultural norms about what is important are shaped by the design and redesign of the core processes. Among other things, customers(groups) have to be identified and their needs assessed (Harrington, 1991); the usual functional or product oriented and centralized structure must be changed to a customer or market oriented structure, where tasks, authorities and responsibilities are delegated to multidisciplinary, semi-autonomous and result oriented teams (Shonk, 1992; Janz et al., 1997); and a new performance measurement system needs to be developed, containing financial and nonfinancial performance indicators to govern the organization and its processes better (Kaplan and Norton, 1992).
In particular, new information and communication technology was seen as the main source of inspiration and the driving force behind reengineering (Davenport, 1993). It was opined, that breakpoints in relevant value metrics could be achieved if innovative technologies were combined with process innovation, new organizational forms, and team-based working. Consequently, organizations were stimulated to break as much as possible with the past to take maximum advantage of the productive possibilities offered by new information and communication technology. That is, by rebuilding the organization from scratch, breakthrough reengineering could become a reality.

In this way, the adoption of the reengineering concept would result in integral, radical and revolutionary organizational change (Hammer and Champy, 1993). This is based on reengineering’s organizing principle, which can be summarized as “customer and process oriented organization.” By putting the organization’s core processes first in organizational change processes, we would see radical changes in the division of labor and coordination, with a shift in focus from the structures by which organizations are usually described and analyzed – functions, business units, regions, etcetera – to the way the organization functions and value for the customer is created. In reengineering, therefore, the organizational structure, the behavior of its members, and to a certain extent even its strategy, follow process, not the other way round. For organizations with a functional or product oriented and centralized structure, this requires a fundamental shift in the way the whole business or organization thinks and works (Earl, 1994). Reengineering is therefore frequently referred to as revolutionary or transformational change (Hammer and Champy, 1993; Davenport, 1993). It was claimed, that reengineering can help achieve operational excellence and breakpoints that provide new business opportunities, thus helping organizations to compensate for the considerable effort invested in transforming themselves into flexible, customer and process oriented entities.

One organization which for the most part followed this line of thought successfully, is Shell Nederland Verkoopmaatschappij (Steeman and Movig, 1997). Using a model of core processes, 70 percent of the processes within this organization were redesigned in the space of three and a half years. These processes are now backed up by an enterprise resource planning system, which replaced 60 separate customer databases and 43 information systems. The project had a budget of 12 million Euro and took up 25,000 staff days. The improvements were considered dramatic, echoing the beliefs of reengineering literature. In terms of cost savings alone, the project was estimated to have recovered the costs in
three years. This calculation does not include improved service provision, which was clearly experienced.

The Potential Advantages of Business Reengineering

Business reengineering has a number of potential advantages compared with more traditional approaches to organizational change (Broholm, 1995). If organizations can genuinely be encapsulated in a limited number of core processes with strategic objectives, a clear heading is provided for all change initiatives that are being considered and implemented. Furthermore, such initiatives would then be aimed at chains of interrelated activities, which would prevent suboptimization of the functional components of the organization. Moreover, processes are always aimed at customers, which produces an external orientation that systematically considers the added value to the customer. Customer focus is therefore an overriding factor in an organization’s striving for operational excellence and competitive advantage. This customer focus can be promoted further by integrating the necessary functional tasks, authorities and responsibilities into multidisciplinary and empowered teams, by reducing the number of management layers, and by introducing coaching leadership. Lastly, it is possible to enhance the organization’s result orientation by assessing and rewarding the performance of managers and employees from financial and non-financial perspectives using cross-functional indicators such as customer satisfaction, lead time and time to market. The resulting effect on organizational behavior can be strengthened by internal or external benchmarking, where the performance of individual organization members or teams are compared with one another or with those of the competition.

Points of Criticism and Defense

It soon became apparent that not all reengineering initiatives were going to be successful. The potential advantages of business reengineering appeared more difficult to achieve than anticipated in the literature. Various researchers uncovered numerous weaknesses in the reengineering concept, or pointed to shortcomings in putting the concept into practice. Obviously, their criticisms elicited a strong response from reengineering proponents. In table 4.1, twelve points of criticism and eleven points of defense are highlighted, which will be
discussed under the four denominators into which they can be grouped. These denominators are:

1. The lack of vision or strategic intent with which reengineering is deployed.
2. The insufficient attention paid to the human and change management aspects of reengineering.
3. The troublesome relationship between reengineering and information and communication technology.
4. The inadequate theoretical substantiation and methodological support of reengineering.

<table>
<thead>
<tr>
<th>Points of criticism</th>
<th>Points of defense</th>
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<td>1. Reengineering is deployed with modest ambitions</td>
<td>1. Disappointing results are partly explained by the limited ambitions with which reengineering is being deployed</td>
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<td>2. The depth and breadth of the change process are limited</td>
<td>2. Reengineering is carried out on a trial basis first, before being expanded</td>
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<td>3. Strategic management is not the same as operational excellence</td>
<td>3. Organizations are becoming more process oriented (irrespective of how the change is being labeled)</td>
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<td>4. Organizations are being perceived as reactive systems</td>
<td>4. Strategy and business reengineering complement one another</td>
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<td>5. There is hardly any attention for organizational learning</td>
<td>5. There are process oriented business strategies</td>
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<td>6. Reengineering suffers from a design engineering approach to people, organization, and change</td>
<td>6. The human and change management aspects are essential if reengineering is to succeed</td>
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<td>7. There is a one-sided, short-term emphasis on costs and efficiency</td>
<td>7. Reengineering can also enhance the organization’s ability to change</td>
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<td>8. The change process is seldom integrally structured and governed</td>
<td>8. Business reengineering and the learning organization are growing towards one another</td>
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<td>9. New information and communication technology are not the drivers for reengineering as imagined</td>
<td>9. Information and communication technology is offering increasingly better support to the process oriented organization</td>
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<td>10. Information and communication technology is seldom related to new working patterns and learning methods</td>
<td>10. The process view on organization is helpful in closing the gap between business and information and communication technology</td>
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<td>11. There is no attention for the legacy problems connected with information and communication technology</td>
<td>11. Research into information and communication patterns is offering new perspectives</td>
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<td>12. The theoretical substantiation and methodological support for reengineering is insufficient</td>
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Table 4.1 Points of criticism and defense
Strategy: the Criticism

The first point of criticism concerns the relatively low ambitions with which reengineering is being deployed. In practice, business reengineering is either deployed sporadically or not at all to implement long-term strategic changes (Robinson, 1994; Coulson-Thomas, 1996; Porter, 1996; Guha et al., 1997; Chatfield and Bjørn-Andersen, 1997). Research carried out by CSC Index into 437 reengineering initiatives (Robinson, 1994) and the COBRA research project into one hundred European reengineering and corporate transformation examples (Coulson-Thomas, 1996) reveal that reengineering objectives are either completely bereft of any imagination and exceedingly modest in their set-up (usually the case) or extremely bold and exceedingly ambitious (seldom the case). This impression is confirmed by research carried out among 90 Dutch organizations (Bouman et al., 1995; Huizing et al., 1997). In practice, the preached revolutionary innovation turns out to boil down to nothing more than evolutionary improvement.

The second point of criticism is that the breadth or scope of change is usually limited to a single business process within a certain business unit or even to a work process within existing functional units or departments. The COBRA research reveals that no strategic core processes are being formulated that can be used as an interpretative framework for change, that reengineering initiatives hardly ever - if at all - stretch beyond the boundaries of the organization, and that the changes usually occur within national borders (Coulson-Thomas, 1996). Moreover, large-scale, strategic changes are more likely to be referred to as “transformation” rather than as “business reengineering.” It appears therefore that reengineering is primarily being deployed at a local and operational level, where it ends up competing with other change initiatives. This significantly reduces the likelihood of the external consumer or the competition in the market noticing any changes at all. The abovementioned Dutch research project (Bouman et al., 1995; Huizing et al., 1997) concluded that the depth of change is also often limited. The term “depth” refers to the degree to which radical changes are made to all organizational aspects simultaneously. Furthermore, if any radical change was being implemented, it often solely concerned the organizational structure and information technology aspects of change, while corresponding measures concerning the customer approach, process knowledge, and performance measurement fell by the wayside.
Another point of criticism is that business reengineering will at best bring about operational excellence, which is not the same as strategy making (Porter, 1996). Strategic management should be focused on distinguishing the organization from its competitors in order to achieve a sustainable competitive advantage. According to Porter, that is simply not possible with commodified and therefore relatively easy to imitate concepts such as business reengineering. If every organization ends up using the same concepts, all that remains are temporary and operational advantages.

A related issue is that reengineering literature reduces organizations to “spectators,” able only to react to the dynamic and complex environment that repeatedly takes them by surprise. Organizations can however also be seen as proactive entities, which are able to distinguish themselves from the competition and strive for competitive advantage on the basis of their heterogeneous capabilities and distinctive competences (Wernerfelt, 1984; Barney, 1991; Peteraf, 1993; Hamel and Prahalad, 1993). Business reengineering is however only sporadically linked to this emerging, resource-based strategy literature. Although links between reengineering and this type of literature have been suggested in the past (Davenport and Short, 1990; Earl, 1994), this has not resulted in an appropriate model of strategic change for reengineering.

Strategy: the Defense

He who aims low, should not expect miracles (Robinson, 1994; Bouman et al., 1995; Coulson-Thomas, 1996; Huizing et al., 1997; Guha et al., 1997). The fact remains, that the higher the level of ambition set, the wider the process scope should be, the more organizational aspects will have to be changed radically, and the greater the demands placed on the organization’s ability to change will be. In view of the mentioned points of criticism, it should come as no surprise that reengineering often only produces rather meager results.

Analyzing the abovementioned empirical research projects, it appears that most organizations are aiming low, and that only a handful need revolutionary and radical change (Caron et al., 1994). There seem to be many reasons why organizations are unable or unwilling to go the extra mile: the risks are considered too great, their ability to change is considered too limited, or they simply do not require radical change. However, this does not rule out the possibility of them gradually evolving into customer and process oriented organizations. It is quite
common to find reengineering being tried out in a smaller, relatively sheltered part of the organization first, and, if successful, repeated and expanded. Many organizations are therefore building up their experience with reengineering and learning from it. This could be a wise policy for organizations whose thinking and acting is far removed from the core principles of reengineering, and who are often confined to creating basic conditions on a small scale first before they can embark on a more ambitious change program. Adopting a customer and process oriented organization may sound like a simple thing to do, but in practice it is often hard, if not impossible. This has led to a discussion in the reengineering literature concerning the relative advantages and disadvantages of revolutionary versus evolutionary change and the contrasting tactics for accomplishing both kinds of changes (Strassman, 1994; Stoddard and Jarvenpaa, 1995). Proponents of reengineering leap on this discussion by distinguishing less ambitious types of reengineering in addition to the revolutionary breakthrough variant (Batelaan, 1993; Robinson, 1994).

A second line of defense is that critics tend to emphasize the label put on business reengineering and ignore what kind of changes are actually implemented. This works two ways. First, it concerns organizations that are in the middle of a large-scale transformation process, but which are consciously or unconsciously choosing not to use the name of business reengineering. On closer inspection, however, it transpires that the similarities with reengineering are more apparent than the differences, and that the concepts of “processes,” “customer orientation,” “result orientation,” and “working in multidisciplinary, empowered teams” constitute a substantial proportion of the change for these organizations. The retail industry, for instance, is more likely to use terms such as “category management,” “effective consumer response,” and “value chain logistics” than business reengineering. Customer and process thinking can also be clearly recognized in electronic commerce and electronic business, facilitated by information and communication technology, without a direct or indirect reference to reengineering being made. Second, all kinds of changes are being implemented under the heading of business reengineering, which in reality turn out to be nothing more than classic automation projects or quality improvement programs. The concept of business reengineering has therefore been contaminated, which prevents a balanced assessment of the concept of reengineering.

In reply to the criticism that business reengineering has hardly anything to do with strategy making, the first line of defense is that reengineering can in fact bridge the conventional rift between strategy and operations (Edwards and
Peppard, 1994; Westendorp et al., 1997). For instance, the often laborious and abstract discussions on core competences and organizational capabilities could be crystallized if the organization began by describing itself in a number of core processes (Earl, 1994; Hammer, 1996). In this case, strategy and business reengineering would complement one another. Batelaan (1997) refers to this as “cyclical transformation,” where strategy, fundamental organizational change and the achieving of organizational objectives are governed as an active learning process with relatively short, iterative cycles of change. The cyclical transformation process ties in with the observation, that for many organizations change has become a continuous process in which the strategic question “What do we want?” has to constantly be related to the questions “What are we able to achieve?” and “What do we have to achieve?” As such, the capabilities of the organization manifest themselves primarily in the organization’s core processes and information infrastructure, which reflect its core competences (Huizing et al., 1994).

A further point of defense is that determining new business strategies can show a strong correlation with the process orientation of organizations. Table 4.2 highlights six ways in which organizations can set out process based business strategies (Hammer, 1996). To quote an example: a few years ago, American Airlines was the market leader in the field of aircraft maintenance, and decided to offer its process knowledge and expertise to other airline companies (see “conversion” in table 4.2). Additional sources of income came in the shape of training courses (to become a pilot or flight attendant) and flight bookings. Such organizations are increasingly deriving their identity and market position from their core and business processes. In this view, the organization’s processes are the drivers of its core competences and, in this sense, of its strategy.

Table 4.2 Process oriented business strategies (Hammer, 1996)

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<tbody>
<tr>
<td>1</td>
<td>Intensification: improving processes to be of better service to existing customers.</td>
</tr>
<tr>
<td>2</td>
<td>Expansion: using excellent processes to penetrate new markets.</td>
</tr>
<tr>
<td>3</td>
<td>Extension: extending processes to offer additional services to existing customers.</td>
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<tr>
<td>4</td>
<td>Conversion: turning a profitable process into a product to serve other organizations.</td>
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<tr>
<td>5</td>
<td>Innovation: apply successful processes to create and deliver other goods and services.</td>
</tr>
<tr>
<td>6</td>
<td>Diversification: creating new processes to deliver new goods and services.</td>
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The Human Dimension and Change Management: the Criticism

In addition to the criticism levied on a strategic level, business reengineering is also being heavily criticized for the way in which theory and practice pay attention to the human dimension and the design and governance of change processes. For instance, it is argued that few reengineering initiatives are aimed at the development of a learning organization (Coulson-Thomas, 1996; Mumford and Hendricks, 1996; Janz et al., 1997; Guha et al., 1997)). In both reengineering literature and in practice, organizational learning is for the most part ignored. As a result, reengineering would hardly influence the attitudes, working patterns, learning capacity, and the change capability of the organization, whereas in fact this could be a central source of distinctive competences and a competitive advantage (Argyris and Schön, 1978; Cohen and Levinthal, 1990; Conner, 1991; Grant, 1996).

Relating to this, business reengineering is increasingly being criticized for the often implicit, mechanistic assumptions concerning the changeability of organizations. For example, Koster (1997), in her in-depth case study and Boonstra (1997), in a quantitative-empirical research, identified numerous change management obstacles, which cause redesign initiatives to fail. These obstacles concern limitations in organizational learning, opportunistic behavior and power politics, management culture and style, the governing of change processes, and the decision-making process. To quote a few examples: the inability to clearly and unequivocally formulate an organization’s vision and objectives, the emergence of a political struggle among “blood groups,” and the absence of opportunities to test, assess and improve actions. Within this broad framework of change management aspects, Davenport and Beers (1995) identify the inability to focus on human issues – such as implementing a team based organization and empowered work groups – as the most negative correlate of reengineering success. Apparently, organizations merely pay lip service to team empowerment. Moreover, research carried out by Huizing et al. (1997) reveals that the limited correlation between the ambition level aspired to, the depth and breadth of the change process, and the change approach adopted can have negative implications on the organization’s change performance. This research also partly blames the failure of reengineering initiatives on the fact that they neglect aspects of change management. It is posed, for instance, that the need for senior management involvement and the need for aligning projects into an organization-wide change
program increase with the level of ambition set for the change process. Such measures are however considered unnecessary for lower ambition levels, as the ever-scarce change resources available should be deployed as efficiently as possible. Mismatches between the level of ambition set and the change approach chosen partly explain the failure of reengineering endeavors.

There is no doubt that the human dimension and the change management aspects of organizational change were underestimated in the early days of business reengineering. In Hammer’s words: “I wasn't smart enough about that. I was reflecting my engineering background and was insufficiently appreciative of the human dimension. I've learned that's critical” (Wall Street Journal, 1996). The design engineering approach to people, organization, and change is characterized by a strong belief in the manipulability and feasibility of change processes. In particular in the early days, business reengineering was portrayed as a top-down, rational, and comprehensive change approach, where an independently operating design team would start from scratch, making a blueprint for the new organization, to be implemented by an implementation team. This mechanistic view on organizational change was often plagued by all manner of implementation problems: unrest, resistance, poor communication, and lack of involvement. Furthermore, adds Batelaan (1997), in many cases, massively orchestrated changes simply take too long to implement. Moreover, if the environment is sufficiently dynamic, a detailed plan will usually be overtaken by reality, with the risk that the change process remains stuck in the design phase.

These problems are heightened by the fact that business reengineering has often been deployed as a cover to brutally reorganize activities and staff. The Zeitgeist of the early 1990s, gripped by a worldwide recession, has considerably influenced the way in which reengineering has been interpreted and applied in practice. Reengineering was part of a fundamental economic restructuring in capitalist societies, the decline of product based competition in mature, saturated markets, and its replacement, to some extent at least, by competition based on the way organizations operate (Robinson, 1994). As a result, the emphasis was often biased towards cost reduction, improved efficiency, and downsizing (Westendorp et al., 1997). An increasingly heard criticism is that such pruning activities are leading to “corporate anorexia,” to a hollowing-out of the knowledge and experience base necessary for innovation and growth (Mumford and Hendricks, 1996). Put otherwise, the short-term financial perspective should be complemented or replaced by a long-term strategic perspective aimed at increasing the organization’s learning and change capabilities. Arguments such as
these are paving the way for concepts such as knowledge management, which stands a very good chance of replacing reengineering as the next development in organization theory.

The Human Dimension and Change Management: the Defense

In acknowledgment of the fact that the first reengineering publications had focused too little on the human dimension and change management, a number of "repairs" were carried out to the theoretical foundations of reengineering. As a result of these amendments and refinements, the sharp edges and the rather pompous, rhetorical tones that epitomized reengineering's early days, have disappeared and made way for more balanced and richer reengineering models (among others, Kettinger and Grover, 1995; Guha et al., 1997). As a result, the views on reengineering have become more realistic and feasible, with four lines of reasoning being followed, usually in combination with one another.

The first line of reasoning is that change processes would be better served if there was greater participation from more stakeholder groups, both in the design and implementation phase (Boonstra, 1997; Lambooij et al., 1997). Organizations need to consider, which internal and external actors have what to say about which topics in what phase of the change process. The envisaged advantages of increasing the degree of participation are a greater sharing of the vision on the organization's objectives and strategy, signaling differences of opinion among the participants sooner, and increased support for the changes.

The second line of reasoning is that the "mental implementation" of each change process requires as much attention as the physical implementation of new systems and organizational structures (Conner, 1992; Kotter, 1995; Lambooij et al., 1997). The underlying thought is that radical changes will only make a lasting impression, if the new ways of organizing and working are not only accepted, but also internalized by the workforce. Mastering the new procedures can for instance be stimulated by involving as many employees as possible during the diagnosis phase of the change process, by immediate superiors setting a good example to their workforce, by visualizing the future situation, and by learning through small-scale experiments before the changes are implemented throughout the organization.
The third line of reasoning concerns the difference between revolutionary and evolutionary change, coupled with the sharp distinction that is often being made between the design and implementation phase in change processes. In many cases, continuous and gradual change in short-term, iterative cycles is preferable (Stoddard and Jarvenpaa, 1995). Taking incremental steps can also add up to radical change. In addition, the days of thinking before acting may have gone. As Batelaan (1997) points out, ambitious redesigns, requiring several months of thought, easily entail an implementation period of several years. Such planning terms are no longer realistic in the dynamic environment in which so many organizations operate. Implementing a clear long-term vision, crystallized in an annual and concrete planning or even shorter periods could be one solution (Batelaan, 1997; Koster, 1997). That way, a fundamental change process is divided up into clear cycles, including more moments of deliberation and feedback opportunities, thereby increasing the ability to act in time and adjust if necessary. In addition, “thinking and acting” flow into one another in a more iterative way. Looking at it from this point of view, reengineering can also contribute towards the organization’s change capability.

The last suggestion under review involves replacing the usual top-down, formally planned, and control-driven change approach based on a pre-specified blueprint with a learning or organizational development approach, where the organization slowly but surely learns to examine its way of working and structure the changes itself (Boonstra, 1997). The experience, that reengineering often fails to go beyond the stage of improving existing business or work processes indicates the difficulty of arriving at a genuinely innovative organization and work routines. Real innovation requires continuous attention for the effects on people’s attitudes, their norms and values, the power relations, and the way in which organizations and people learn (Argyris and Schön, 1978). In other words: it is not the blueprint as such that is the ultimate goal (which changes all the time), but the journey (read: increasing the learning and change capabilities of the organization). Such considerations have led to more balanced and realistic change models, where reengineering and change management are for instance explicitly associated with the organizational context in which the changes have to take place (Guha et al., 1997). Here, the effect of reengineering is not only dependent on process and change management practices applied, but also on the degree to which top managers act as leaders in defining and communicating a vision of change, the cultural readiness for change, the willingness to share knowledge, balanced network relationships, and the capacity to learn. As a result, business
reengineering and organizational learning are growing increasingly towards one another.

**Information Technology: the Criticism**

Right from the very beginning of reengineering, a strong connection was established between business reengineering and information and communication technology. As it was contended, the automation of existing and often outdated processes would be of no use. Instead, organizations were advised to redesign their processes in the light of the opportunities provided by new technology: do not automate, obliterate (Hammer, 1990). Modern information and communication technologies such as shared databases, expert systems, and telecommunications networks would be disruptive in that they can fundamentally change the basic rules on which the business is based. Such disruptive technologies could for instance radically improve the transactional, geographical, automational, analytical, and informational capabilities of the organization (Davenport and Short, 1990). In order to bring about these disruptive and enabling effects, however, innovative information and communication technology would have to be seen as the critical driver for process innovation, new organizational forms and work routines. In other words, organizations would have to radically change and be redesigned from scratch to gain maximum advantage from the productive possibilities of the new technologies and to achieve breakthrough strategies.

Reality, however, paints a different, less optimistic picture of the impact of new information and communication technology on organizational design and change. Research hardly ever – if at all – identifies modern technology as the driver behind business reengineering (Robinson, 1994). Rather, that role is reserved for rising customer demands, increasing competition, dissatisfaction with internal operations, declining profitability, and actual or expected regulatory changes. The business is clearly the leading principle, not the available technologies. Furthermore, in practice, there is seldom a direct correlation between information and communication technology and new working patterns or learning methods (Coulson-Thomas, 1996). The aforementioned underestimation of the human dimension and the lack of attention for cultural antibodies to reengineering in the chosen change approach are partly to blame for this.
In addition, the presupposed driving force of information and communication technology is put into perspective by the seemingly troublesome relationship between reengineering and technology. For most organizations, redesigning their processes without considering the available information systems and architecture is simply not feasible or realistic. This means that the new information and communication technology must be fitted into the existing information provision, where organizations are often faced with legacy problems. Although research reveals that often a combination of new technologies is deployed in reengineering, it also points out that organizations are frequently embedded in their information systems, resulting in severe implementation problems, and, particularly if concerning the information infrastructure, a substantial slowing-down of the change process (Bouman et al., 1995). Furthermore, these implementation problems put reengineering's recommended change strategy, where drastic performance improvements are linked to courage, determination, and high ambitions, in a different perspective. Fundamental organizational change is not only a case of will and determination, but also of ability. This can explain the relationship between the degree to which organizations have their information infrastructure in order and reengineering success (Huizing et al., 1994; Batelaan, 1997).

**Information Technology: the Defense**

Increased experience with business reengineering leads to greater insight into information and communication technology enabling organizational innovation. Increasingly, organizations are discovering the true meaning of customer and process oriented organization and, correspondingly, the way in which technology should and could support this organizing principle. Without claiming to be exhaustive, we can identify four aspects where greater insight has been gained.

First, it is not only those applying information and communication technology who are learning from the experiences with reengineering, but also the world of automation. The market is witnessing an increasing number of applications that are better geared to customer oriented processes and working in multidisciplinary teams (Ciborra, 1996; Swets et al., 1997). Examples of these are tracking and tracing systems, enterprise resource planning and workflow management for supporting intra- and interorganizational processes, customer relationship management supporting the organization’s customer approach, and
groupware for teamwork. Although research does not identify new technology as the direct enabler of organizational change, in the long term the mutual, bidirectional relationship between the two is often quite effective. Information and communication technology frequently has a long incubation period.

Second, new methods and techniques for solving some of the aforementioned problems are being developed within computer science. Object-oriented business and information modeling, for instance, is paving the way for creating flexible architectures, for dismantling legacy systems, and for fitting new systems into the existing information provision (Snoeck and Dedene, 1997). In addition, incremental and evolutionary system development methods, rapid application development, and prototyping are offering greater flexibility in determining user information needs, specifying the functionality of information systems, and the realizing of (parts of) these systems in short, quick cycles (Prakken, 1997). Current automation developments and shifting change management insights appear to reinforce each another in this respect, as both emphasize the importance of change in short, iterative cycles. In addition, the implementation of standard software systems, such as for instance enterprise resource planning systems, can have a positive effect on the speed at which organizations are able to change and on securing the new processes, organization and work routines, because the new system prevents organizations from relapsing into their old habits and beliefs (Steeman and Movig, 1997). A word of warning though: such new software systems could very well become the legacy systems of tomorrow.

A third aspect concerns the oft perceived gap between business and technology. Both worlds are characterized by their own dynamics and complexity and by their own language and culture that need to be geared to each other in organizational change processes. Reengineering could narrow this gap, if the process view on organization managed to grant business managers and computer experts alike a better insight into the possibilities and impossibilities of information and communication technology in relation to the suggested business changes (Klein Klouwenberg and Huizing, 1993; Earl, 1994). Moreover, recent attempts have been made to bridge the gap between the characteristics of an organization and the supporting technology by translating the desired strategic, design, and operational aspects into changing information and communication patterns first before taking the plunge towards suitable technologies (Abcouwer et al., 1997). That way, it is also possible to provide greater insight into the relationship between changing working patterns and learning methods, and the
possibilities of information and communication technology. A typical example of this is De Vries (1997) and his generic information model for the front office of service organizations. He sees the front office as that part of the organization, where the customer and service provider can come to an agreement on the service(s) to be provided, which is an information-intensive and sense making process. This information model bridges the gap between on the one hand the marketing strategy and the product strategy of the service provider and on the other hand the information needs raised for specifying the services in the front office. Another example is provided by those authors who have identified a greater connectivity among people as a result of technology becoming available that can partly or wholly take away the restrictions of time, place, medium or the restricting characteristics of the communicating parties themselves, such as their accessibility (Tenkasi and Boland, 1996; Bouman and Willems, 1997). Such technologies also allow the capture and dissemination of information to improve organizational processes, and can facilitate the sharing of information and learning through a process of coordinated interaction among individuals. This could positively affect the organization's proclivity to change (Guha et al., 1997). As well as hindering the learning and change capabilities of an organization, technology can therefore also stimulate and facilitate.

The fourth and final aspect is that information and communication technology not only influence individual organizations, but also the markets in which they operate. These markets can be seen as information processing mechanisms. Ciborra (1997) uses this insight to reveal how information and communication technology on the one hand supports the differentiation of services on electronic markets (self-service of standardized services as is the case, for instance, with the Internet), and customized services on the other. Both developments are not only impacting intraorganizational processes, but also interorganizational processes, which is often referred to as business network redesign. More generally: new information and communication technology can help tear down the barriers, which until recently were the cause of business dilemmas such as differentiation versus integration, low cost versus customization, or mass marketing versus niche marketing (Pine, 1993; Treacy and Wiersema, 1994; Bouman and Willems, 1997). This may restore the strategic relationship between business and technology. However, this time information and communication technology is no longer emphasized as the single resource that in and of itself is capable of creating a competitive advantage, as was generally assumed in the 1980s (Clemons and Row, 1991; Mahmood and Soon,
1991). Instead, the emphasis seems to be put on the capabilities to use the organization’s heterogeneous resources and technologies in productive and distinctive combinations, and on learning to continually improve these capabilities (Barney, 1991; Grant, 1996). By using such resource-based arguments, the importance of technology, which in the early days of reengineering was presented rather one-sidedly and simplistically, is now shown in a more realistic and balanced light.

The Future

A substantial number of consultants, journalists, training institutes, academics and computer experts are claiming implicitly or explicitly that business reengineering has “drawn its terminal breath.” Cynics state that this belief is driven primarily by commercial considerations. After all, there are plenty who make a living out of the “new” and therefore use the criticism levied on reengineering to their own advantage. They find support with authors who seem to be more interested in following a different religion (for instance, strategic management, organizational learning, sociotechnical theory) than pursuing a meaningful discussion aimed at a balanced and honest assessment of reengineering in comparison with alternative change concepts. Such authors tend to base themselves on the first, not entirely crystallized, reengineering publications of Davenport and Short (1990), and Hammer (1990), conveniently ignoring the changes undergone by the reengineering concept since those early days. In addition, the apparent failing of organizational change is often attributed to the reengineering concept and not to the way in which this concept has been interpreted and shaped. For example, if reengineering is used in a real-life situation with modest ambitions (instead of to radically change the entire organization), the concept of reengineering cannot be blamed if order of magnitude improvements fail to occur. At most, it could then be concluded that radical reengineering is only of value in specific situations, for example, when an organization finds itself in deep crisis. To a certain extent, the same applies to the criticism levied on reengineering’s change management approach. It is true that reengineering methodologies reflect the design engineering view on organization and change. These methodologies are systematic, comprehensive, and rational. However, similar methodologies are often used in practice and are offered by most consultancy firms whenever sweeping changes need to be made. It is inappropriate to blame the reengineering
concept for this common practice. No concept can withstand such unjustified, inaccurate and superficial criticism.

However, not all criticism on business reengineering is unjustified. Reengineering made its first appearance, and was initially primarily discussed in, the popular management literature. This literature has as its advantage that relevant developments are quickly seized upon and turned into (new) management concepts. The disadvantages are a lack of theoretical depth and dominance of pragmatics, that arguments are predominantly hung on a small number of often repeated success stories, and that in order to make them as widely applicable as possible, the concepts are presented so vaguely that they can be subjected to a whole range of interpretations. It is for this reason that reengineering has been called atheoretical (Guha et al., 1997). Davenport and Stoddard (1994: 121) warned of this: “Unfortunately, the popular management literature, by relying too much on hype and too little on research, common sense, and the lessons of the past, has created more myth than practical methodology.” From the very beginning, reengineering suffered from a lack of sound theoretical substantiation and methodological support, from its design engineering view on people, organization, and change management, and from the overly optimistic picture painted of the productive possibilities of information and communication technology. In addition, reengineering emerged at a time of worldwide recession and economic restructuring. Partly as a result of this, the concept has often been interpreted one-sidedly as an instrument for downsizing and cost cutting, creating an image of brutal reorganization. Since then, a number of attempts have been made to enrich, adjust and clarify the concept of reengineering. However, the attempts failed to dispel the negative connotations now associated with reengineering. The damage has been done. For that reason alone, we can predict that business reengineering and all its synonyms will fade into the background, to be added to the long list of short-lived organizational innovations.

At the same time, it is striking that the organizing principle of business reengineering – here captured as “customer and process oriented organization” – is seldom contested. Emphasizing customers, processes, results, and teamwork can still lead to breakthroughs in the thoughts and actions of organizations, especially in those organizations that had never looked at themselves that way. It is therefore expected that the process view on organization will remain of value, especially if combined with organizational learning and supported by new insights into automation and alternative change management approaches.
The twelfth and final point of criticism on reengineering is that the theoretical substantiation and methodological support of reengineering's organizing principle is still inadequate. Further research should therefore focus on finding solid evidence for the relative advantages of changing organizations from a functional or product oriented entity to a customer and process oriented unit, and delegating authorities and responsibilities to multidisciplinary and empowered teams. Decisions such as these have such far-reaching consequences, that they deserve being anchored in solid theories and proven methodologies.

In the meantime, a number of potential successors to business reengineering are being identified. Champy referred to this as "business transformation," a combination of reengineering, and strategic and cultural change, before going on to say: "I'd like to find a better label" (Wall Street Journal, 1996). Other noteworthy concepts are "the intelligent organization" and "organizational agility." If these ideas and concepts have a universal theme, it would have to be the following: increasing the learning and change capabilities of organizations. This could result in more sustainable competitive advantage, because the heterogeneous capabilities of an organization based on its members' knowledge, experiences, and skills are much more difficult to imitate than reengineering or specific technologies. Knowledge management ties in with this notion (Kettinger and Grover, 1995; Nonaka and Takeuchi, 1995). Davenport, however, has already issued a warning on the new hype that is likely to come: "The next big thing will get us into trouble" (Wall Street Journal, 1996). By that stage, we will have hopefully learned from our experiences with business reengineering.

Note

1. COBRA is an abbreviation of Constraints and Opportunities in Business Restructuring - an Analysis. The COBRA-project is financed by, and carried out by order of, the European Commission.

References


CHAPTER 4 BUSINESS REENGINEERING: A CRITICAL ASSESSMENT


