On organization. Looking back on reengineering and ahead to learning

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The management and organization literature is imbued with the notion of "fit," "match," or "balance." Organizations are urged to align their strategy to their environment, to bring internal factors like structure, systems, style, and culture in line with their strategy, and to maintain a balance during the process of organizational change (Broekstra, 1989; French and Bell, 1990; Greenwood and Hinings, 1988; Henderson and Venkatraman, 1993; Khandwalla, 1977; Miles and Snow, 1994; Mintzberg, 1979; Pascale and Athos, 1981). The business reengineering literature is no exception to this trend (Davenport, 1993; Edwards and Peppard, 1994; Hammer and Champy, 1993; Johansson et al., 1993; Zairi and Sinclair, 1995). While these theories vary widely in subject matter, they share the common proposition that an organizational outcome is the consequence of a fit between two or more factors or dimensions (Van de Ven and Drazin, 1985). Conversely, misfits or mismatches between such dimensions are held to reduce organizational performance.

The notion of fit is not just a theoretical stance lacking any practical relevance. On the contrary, in our study, to which we will refer later, 90 percent of the respondents affirm that "management by matching" (Broekstra, 1989) is the critical success factor in reengineering. Moreover, many cases presented in the reengineering literature implicitly or explicitly provide anecdotal evidence supporting the idea of fit (Caron et al., 1994; Earl et al., 1995; Stoddard and Jarvenpaa, 1995).

With so much theoretical attention and practical relevance, the notion of fit would seem to be common sense rather than a matter for vehement debate; however, there are three reasons that contradict this. First, achieving fit is a fragile process (Miles and Snow, 1994; Mintzberg, 1979). Mismatches easily occur. Therefore, fit should be a matter of central concern to both academics and practitioners. Second, most empirical studies on reengineering lack a multi-dimensional view (Bushoff et al., 1995; CSC Index, 1994; Drew, 1994). They are
directed toward the identification of single critical success factors, such as the commitment of top management or intensive communications, whose mutual interactions are not investigated at all. Neglecting the notion of fit, they leave the process of achieving fit to the intuition of the manager. Third, in the search for explanations for organizational performance, there is a continuous debate over which dimensions need to be balanced (Chan and Huff, 1992; Hannan and Freeman, 1977; MacDonald, 1991). For instance, in the reengineering literature, the relationship between organizational performance and the breadth and depth of change processes has been studied (Hall et al. 1993). Many of these theories can be criticized, however, for focusing on organizational design and ignoring change management issues. Only recently is change management beginning to receive the attention it deserves (Grover et al., 1995).

With this chapter we hope to contribute to the debate on fit and its relationship to organizational performance. Our goal is to synthesize findings from previous literature on organizational design, change management, performance, and business reengineering into a coherent framework that will help managers achieve fit in complex change processes. We also conducted an empirical study to validate the framework. The framework was operationalized into a questionnaire that was sent to change managers who had experience leading business reengineering projects or programs. The following questions have guided us:

1. Do organizations that achieve fit in a business reengineering change process outperform organizations that change in an unbalanced way?

2. Is there evidence that reengineering success depends on the number of misfits that emerge during the change process?

This chapter is organized as follows. First, a framework for analysis is proposed based on the concept of fit. Three generic archetypes for three levels of ambition are defined. Archetypes or ideal-type patterns of change are consistent packages of design and change management measures. The hypothesis is that organizations that change according to an ideal-type pattern outperform organizations that follow a different, inconsistent pattern. Next, the methodological aspects of the study are addressed. Then, the main findings on the relationship between fit and organizational performance are presented. It is concluded that consistent reengineering endeavors generally result in greater benefits than do inconsistent change efforts, and that an increasing number of misfits results in decreasing
reengineering success. The study also shows that only a minority of organizations has succeeded in creating a "magical mix" between the level of ambition and the design and change management measures actually taken. Moreover, only a few organizations studied pursued breakthrough reengineering as it was originally promoted in the literature. Finally, the managerial implications and future research challenges are described.

**Fit and Organizational Performance**

Is fit in reengineering an essential factor to explain organizational performance? To study this relationship, we first have to choose which dimensions of organizational change to include in the concept of fit. Our framework distinguishes five dimensions: level of ambition, breadth, depth, planning, and coordination of the change process (see figure 3.1 for the complete framework). As will be explained subsequently, level of ambition is the contingency factor in our study, while the other four dimensions are the independent factors. Breadth and depth relate to organizational design; planning and coordination concern change management issues. Each of these dimensions can contribute to reengineering success. However, treating an organization or a change process as being decomposable into discrete dimensions that can be examined separately does no justice to the complex interactions between these dimensions. How these dimensions interact can also be a vital factor in explaining organizational performance (Miles and Snow, 1994; Van de Ven and Drazin, 1985).

To gain an explicit understanding of the interactions between the distinguished dimensions, a measure of synthesis is needed (Greenwood and Hinings, 1988; Lauglin, 1991; Mintzberg, 1979). Archetypes or ideal-type patterns of change can serve this purpose (Van de Ven and Drazin, 1985). By archetypes or ideal-type patterns we mean consistent packages of design and change management measures that correspond with the level of ambition set. To account for the fact that organizations differ in their level of ambition, our framework consists of three archetypes. It seems logical to assume that an appropriate set of design and change management measures varies with the level of ambition (Batelaan, 1995; Stoddard and Jarvenpaa, 1995). Metaphorically speaking, climbing Mount Everest simply demands a more powerful arsenal of measures than climbing a sand dune. We therefore distinguish between organizations with relatively low, medium, and high ambitions. As can be seen
from figure 3.1, the matching archetypes are labelled "the local project," "the cross-functional project," and "the company-wide program." These labels reflect that an ever larger part of the entire business system is affected by the reengineering effort.

The first archetype stands for an incremental, bottom-up, narrow change of an existing process within an operational function that requires relatively simple change management measures. From the perspective of the total business system, a local project leads to minor adjustments such as locally improved customer contacts. These minor adjustments, however, should be sufficient to realize the relatively low ambitions of the organization. The second archetype reflects a middle-out, average change focused on the interdependence of activities across distinct functional lines that demands extended planning and coordination measures. It leads to a radical change in a substantial yet distinct part of the organization. The last archetype describes a top-down, large-scale reengineering effort. To achieve the relatively high level of ambition, the focus is on transforming the whole business system, which places great demands on organizational design and change management.

The three archetypes reflect how the notion of fit has been conceptualized. If organizations succeed in combining the distinguished dimensions into an ideal-type pattern of change, they achieve fit. If they deviate from such a pattern, our framework suggests that they will suffer from one to four misfits. In that case, the breadth, depth, planning and/or coordination dimensions are not properly synchronized with the organization's aspirations. Such misfits or deviations are hypothesized to lead to reduced performance.

Hypothesis: the three ideal-type patterns of change are models of success that will outperform any other pattern.

The archetypes enable us to make a distinction between organizations that change according to an ideal-type pattern and organizations that follow a different pattern, that is, organizations that face at least one misfit. To test the hypothesis, the resulting groups of (what we have called) consistent and inconsistent organizations have to be compared with each other on the basis of a measure for reengineering success. Reengineering success, the dependent factor in our framework, is defined later. The organizations studied can also be grouped
### Chapter 3: Balance in Business Reengineering

**Contingent Factor**
- Level of ambition

**Independent Factors**
- **Breadth**
  - number of operational functions redesigned
- **Depth**
  - number and kind of organizational aspects changed radically
- **Planning**
  - number and alignment of projects
  - specification of change plans
  - methodological support
  - formalization of change organization
  - role of top management
- **Coordination**
  - formalization of project meetings
  - standardization of project meetings
  - nature of communication with people involved

**Dependent Factor**
- Performance With Above Pattern
- Performance With A Different Pattern

#### Figure 3.1 Hypothesis in level of ambition contingent model

<table>
<thead>
<tr>
<th>Level of ambition</th>
<th>Local Project</th>
<th>Cross-functional Project</th>
<th>Organization-wide Program</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>If Low</strong></td>
<td>Narrow</td>
<td>Average</td>
<td>Broad</td>
</tr>
<tr>
<td></td>
<td>local focus, i.e. 1 function redesigned</td>
<td>cross-functional focus, i.e. 2-4 functions redesigned</td>
<td>end-to-end focus, i.e. 5-6 functions redesigned</td>
</tr>
<tr>
<td></td>
<td>Shallow</td>
<td>Average</td>
<td>Deep</td>
</tr>
<tr>
<td></td>
<td>mono-dimensional focus, i.e. 1 aspect (customer approach) changed radically</td>
<td>extended focus, i.e. 3 aspects (customer approach, process knowledge, performance measurement, organizational)</td>
<td>multi-dimensional focus, i.e. all 5 aspects (customer approach, process knowledge, performance structure and IT) changed radically</td>
</tr>
<tr>
<td></td>
<td>Simple</td>
<td>Extended</td>
<td>Integrated</td>
</tr>
<tr>
<td></td>
<td>single project, short-term detailed plan, limited use of methods (&lt;5), simple project structure, supporting role top management</td>
<td>multiple projects, mid-term detailed plan, extended use of methods (&gt;10), simple matrix structure, supporting role top management</td>
<td>projects aligned into program, long-term indicative program plan, economical use of methods (5-10), comprehensive matrix structure, leading role top management</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Extended</td>
<td>Integrated</td>
</tr>
<tr>
<td></td>
<td></td>
<td>periodical reviews with project leader and project members, detailed status reports, strong two-way communication</td>
<td>periodical reviews with program leader and project leaders, high-level status reports, strong one-way communication</td>
</tr>
<tr>
<td><strong>If High</strong></td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>
according to the number of misfits they faced. These groups can be correlated with the success measure to show the effect of a growing number of deviations on reengineering success.

In the next three sections the archetypes are further illustrated and underpinned. Each archetype consists of four “minipatterns” that relate to the breadth, depth, planning, and coordination dimensions. These dimensions are defined, and the minipatterns are specified. The definition of a measure for reengineering success concludes our framework.

**Level of Ambition: The Contingency Factor**

The process of achieving fit begins, conceptually at least, by aligning the organization to its environment (Miles and Snow, 1994). If a strategic gap is perceived, organizations normally reflect on current performance and the improvements needed. By stating their ambitions, organizations try to bridge the gap with the environment. At the same time, a gap is revealed between the organization’s ambitions and its resources (Hamel and Prahalad, 1993). This second gap has to be closed by taking appropriate design and change management measures (Edwards and Peppard, 1994; Hall et al., 1993; Hammer, 1990). Therefore, achieving fit not only means that the strategic gap has to be bridged, but also implies that the package of reengineering measures is properly attuned to the level of ambition. The level of ambition is therefore the pivot or contingency factor in our framework. This chapter discusses only the relationships between ambitions and the set of measures with which organizations hope to achieve the improvements needed. Whether organizations actually succeed in closing the gap with the environment as a result of reengineering remains outside the scope of this chapter.

In this study, the level of ambition is determined by the number and size of the intended performance improvements and whether or not a sustainable competitive advantage or breakpoint is pursued (see figure 3.2). This definition is based on three general considerations found in the reengineering literature. First, with regard to the kind of performance improvements to be pursued, managers are stimulated to listen to the customers to hear the value they put on products and services (Davenport, 1993; Johansson et al., 1993; Vantrappen, 1992). Since value to the customer cannot be assessed in purely financial terms (Johansson et al., 1993), the level of ambition will typically express a multitude of financial and
non-financial value metrics, such as reduction of cost and improvement of customer satisfaction. Second, in order to motivate and mobilize the organization and to enhance the tangibility of an organization's strategy, it is emphasized that managers quantify their aspirations (Bertsch and Williams, 1994; Davenport and Beers, 1995; Hammer and Champy, 1993). Finally, to gain market dominance, organizations are urged to strive for a breakpoint, that is, to pursue excellence in one or more of the relevant value metrics (Johansson et al., 1993; Treacy and Wiersema, 1994).

In other words, the reengineering literature stimulates organizations to pursue a high level of ambition, leading to a radical change that places high demands on the design and change management measures to be taken. However, not every organization wants to change radically, is able to do so, or has the courage to do so. In practice, organizations trade off among the need to change, the ability to change, and the risks involved in changing the organization (Batelaan and Wildschut, 1994), and this process leads to different levels of ambition. As we have said, we account for these differences by dividing the organizations studied into three groups: those striving for relatively low, medium and high ambitions.

**Breadth, Depth, Planning, Coordination: The Independent Factors**

Regardless of which level of ambition organizations choose, aspirations have to be translated into an appropriate package of reengineering measures. In this section, we argue that these measures can be arranged into four dimensions of organizational change: breadth, depth, planning, and coordination of the change process. Breadth and depth apply to organizational design; planning and coordination relate to change management issues. These four dimensions and level of ambition, together with their constituent elements, are included in figure 3.2.
Delivering value to the customer seems to be the strategic imperative of the 1990s. Consequently, reengineering has to result in performance improvements that are clearly recognizable to customers. This requirement puts business processes at the centre of theoretical and practical attention, for it is at the operational level that products and services are being delivered to the customer (Johansson et al., 1993). Before embarking on reengineering, the activities that are critical for value creation first have to be identified. Then which critical activities will be included in the change process has to be decided.

We describe breadth as the number of critical activities or operational functions tackled in the reengineering effort (see figure 3.2). Inspired by Porter's
value chain (Porter, 1985), six critical activities are distinguished: procurement, inbound logistics, production, marketing and sales, outbound logistics, and service. A core process is one sequence of functional activities (Davenport, 1993; Johansson et al., 1993; Kaplan and Murdock, 1991). Such core processes are central to business functioning and have a direct relationship with the external customer. Changing a process or parts of it inherently affects the management and support functions that are related to the operational functions involved.

Consequently, breadth can be defined as narrowly as a single operational function or as broadly as entire core processes (Hall et al., 1993). Archetypically, we expect that less ambitious reengineering efforts will be restricted to one operational function, moderately ambitious projects will involve two to four operational functions, and highly ambitious company-wide programs will include most, if not all, critical activities. In this way, a basic assumption underlying reengineering is made concrete: the higher the ambitions, the more critical activities should be taken into account (Davenport and Stoddard, 1994; Hall et al., 1993; Hammer and Champy, 1993; Johansson et al., 1993; Kaplan and Murdock, 1991). Achieving breakthrough performance improvements requires the reintegration of traditionally fragmented processes.

Depth

Reengineering triggers changes of many kinds, not just of core processes themselves (Hammer, 1990). To achieve substantial performance improvements, anything associated with the core process should be refashioned in an integrated way (Hall et al., 1993; Johansson et al., 1993). In this regard, all kinds of innovative ideas or design options stemming from a range of academic disciplines might prove useful: mass customization, self-managing teams, the division of the organization into front and back offices, supporting processes with new technologies, the balanced scorecard, activity-based costing, and so on (Earl, 1994; Kaplan and Norton, 1992; Pine, 1993; Schlesinger and Heskett, 1991; Shonk, 1992). However, a danger of such single options is that they will live a life on their own in separate corners of the organization. It is the challenging task of the redesign team to combine such options fruitfully into a logical and consistent new organizational design. The redesign team also has to decide on the radicalness with which the design options have to be applied.

By depth we mean the number and kind of organizational aspects or levers that change profoundly as a result of reengineering (see figure 3.2). To
analyze this dimension, we have combined fifty design options described in the aforementioned literature into five organizational aspects: the customer approach, process knowledge, organizational structure, information technology, and performance measurement (for examples of the design options used, see the appendix).

Changing the organizational aspects has to contribute to the behavioral change needed to achieve the ambitions set for the change process. It is generally assumed that the higher the ambitions, the more organizational aspects should be changed radically (Batelaan, 1995; Hall et al., 1993; Hammer and Champy, 1993; Johansson et al., 1993). It is also suggested that customer and process-oriented change levers have more impact on organizational performance than do investments in other levers (Beer et al., 1992; Cooper and Markus, 1995; Grover et al., 1995; Nievelt, 1992; Schlesinger and Heskett, 1991). In fact, the reengineering literature warns against traditional restructuring or information systems improvement (Davenport, 1993; Hammer and Champy, 1993). We therefore hold that every kind of reengineering, including less ambitious change efforts, should focus first on the customer. For medium ambitions, radical changes should also be sought in building up process knowledge and new performance measures to reinforce the reassessed relationship with the customer and the process perspective. Creating supporting performance measures can strongly affect organizational behavior in a desired direction (Kaplan and Norton, 1992). On top of this, highly ambitious reengineering initiatives should embed these changes in radically new organizational structures and information systems by applying design options such as delayering, decentralization, shared databases, and systems integration.

Planning

Reengineering efforts have to be prepared and structured to promote implementation of the new organizational design (Batelaan, 1995; Grover et al., 1995; Hammer and Stanton, 1995; Vrakking, 1992). In this regard, many planning decisions have to be made. It has to be decided whether change activities can be grouped into one or more autonomous projects or whether they need to be aligned into a formal change program (Kaplan and Murdock, 1991; Pinto and Slevin, 1988; Wijnen, 1994). Other planning issues involve the phasing of change activities into short-, middle-, or long-term change plans (Batelaan, 1995; Heygate, 1992), and the number and kind of methods and techniques that will be
applied to specify these plans (CSC Index, 1994; Hall et al., 1993; Hammer and Champy, 1993). Change can also be achieved within the existing hierarchy or through the establishment of temporary governance structures, which can vary from simple project structures to comprehensive matrix structures (Kotter, 1995; De Laat, 1993). Finally, it has to be decided at what hierarchical level the change leader role should be fulfilled and, consequently, what the most appropriate role is for top management (Heygate, 1992; Vrakking, 1992).

With respect to the planning dimension, we refer to five change management measures: the number and alignment of projects, the specification of change plans, the methodological support of change managers, the formalization of the change organization, and the role of top management (see figure 3.2). In view of the change organization, managers have to decide upon these planning measures in order to guarantee a firm and effective grip on the change process. It is assumed that the higher the ambitions, the higher the demands on the preparation and structuring of the change effort (De Leeuw, 1994). Naturally, the larger the number of change activities and people involved, the greater the emphasis should be on aligning the change activities and formalizing the change organization to keep the change effort manageable. These considerations underpin the following “minipatterns.”

In the achievement of low ambitions, we hold that effective planning takes place by defining a single project and a detailed, short-term project plan, for which a limited number of supporting methods and techniques are used. The small project domain suggests that existing governance structures or simple project structures are effective means of unifying those involved in the change effort. Lower management leadership is assumed to be most fruitful in this kind of reengineering (Beer et al., 1992; Dixon et al., 1994), for leadership should be fulfilled at a management level that just oversees the project domain (Wijnen, 1994; Wijnen et al., 1993). In fact, active, ongoing involvement of top management suggests a waste of management capacity.

In moderately ambitious change efforts, it is expected that multiple projects are defined that are underpinned by detailed, solid project plans for which methods and techniques are extensively used. An extended yet simple matrix structure, uniting people from different disciplines and management levels, indicates adequate structuring of the reengineering effort. In fact, comprehensive matrix structures comprising numerous steering committees and task forces should be avoided, for they can easily add to the complexity of the change process (Dixon et al., 1994; Duck, 1993; De Laat, 1993). Moreover, in view of the
enlarged project domain, middle management’s proactive leadership is assumed to be most effective in this kind of reengineering (Beer et al., 1992; Kotter, 1995; Wijnen et al., 1993).

Highly ambitious change efforts need tight alignment of projects into a formal change program (Benjamin and Levinson, 1993; Davenport and Short, 1990; Duck, 1993; Heygate, 1992) underpinned by a compelling vision, that is, by an indicative, long-term program plan with one or more quantified goals rather than highly detailed specifications (Beer et al., 1992; Davenport and Stoddard, 1994; Grover et al., 1995; Hammer and Champy, 1993). Otherwise, the change effort can easily dissolve into a list of confusing and incompatible projects that can take the organization in the wrong direction or nowhere at all (Kotter, 1995). Considering the complexity of highly ambitious change efforts, the economic use of methods and techniques to examine market and competitive realities is required to prevent “analysis paralysis” (Hammer and Champy, 1993; Heygate, 1992). In addition, comprehensive matrix structures need to be established to ensure broad participation throughout the organization (Heygate, 1992; Kotter, 1995; Vrakking, 1992). Finally, top management’s active leadership is required, for this kind of reengineering should be directed by a “tough-minded” program leader with a high degree of formal authority (Benjamin and Levinson, 1993; Cooper and Markus, 1995; Hall et al., 1993; Hammer and Champy, 1993; Kotter, 1995).

**Coordination**

Facilitating communication among change managers and with “change targets” – that is, those people directly affected by the changes – is crucial in the realization of change. Since reengineering often fails because project and program leaders lose focus on the scope and goals of the change effort, keeping track of change effort progress is a key issue for management (Bertsch and Williams, 1994; Grover et al., 1995). It therefore has to be decided whether or not formal periodical reviews of the change process have to take place and who needs to participate in these meetings: team members, project leaders, and/or program leaders (Vrakking, 1992)? Decisions also have to be made with respect to the standardization of these meetings – whether detailed or high-level status reports can be used to ensure efficient information exchange and documentation. Besides, communication with those directly affected by the changes is required to overcome resistance to change (Hammer and Champy, 1993; Hammer and Stanton, 1995). In general, all existing formal and informal communication
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channels should be used to broadcast plans for change (Argyris, 1994; Duck, 1993; Hall et al., 1993; Kotter, 1995). More specifically, it has to be decided how those directly affected by the changes should be informed about the change process: by two-way communication that offers "change targets" explicit opportunities to influence the course of the change process, or by one-way communication, for instance through large-scale presentations, videos, and bulletins (Heygate, 1992; Vrakking, 1992)?

By coordination we mean three change management measures used to gather and convey information needed to attune the change activities during the reengineering effort: the formalization of project meetings, the standardization of project meetings, and the nature of communication with those directly affected by the changes (see figure 3.2). With respect to the level of ambition set, managers have to decide upon these coordination measures in order to help sustain a greater focus on and commitment to the goals set for the change process. We expect that the higher the ambitions are, the more pressing the demands on coordination will be (Benjamin and Levinson, 1993; De Leeuw, 1994; Vrakking, 1992). Evidently, tailored measures must be taken to prevent communications from becoming either insufficient or too exhaustive.

We hold that, in the pursuit of low ambitions, formal project meetings between the project leader and project members, based on detailed progress reports, are sufficient to keep track of the change effort's progress. Communication with those directly affected by the changes is assumed to entail two-way communication, for higher commitment to the change process can be obtained in this way (Grover et al., 1995). When medium ambitions are the goal, formal periodical reviews among the various project leaders, informing each other by written status reports, are assumed to be an effective way of attuning change activities. Coordination with the rest of the organization suggests a mixture of two-way and one-way communication, for the larger the number of people involved in the change process, the less feasible it becomes to consider all individual interests. In highly ambitious reengineering, the change activities need to be coordinated at the highest level in the change organization's hierarchy. Formal periodical change reviews among the program coordinator and project leaders therefore have to be built into the change management process to monitor the attainment of milestones at critical junctures (Benjamin and Levinson, 1993; Grover et al., 1995; Pinto and Slevin, 1988). In addition, these program meetings should be standardized using high-level milestone reports, for a strong emphasis on project documentation can easily draw too much attention to highly detailed
matters, especially in major reengineering endeavors (Heygate, 1992). Such reports help to keep efforts focused on the main issues and prevent "micromanagement." Furthermore, extensive and reinforcing top-down communication with those directly affected by the changes is needed in order to resolve the conflicts of interests that inevitably arise (Cooper and Markus, 1995; Dunphy and Stace, 1993; Heygate, 1992). Consequently, rather coercive, one-way communications are required in addition to two-way communications, to prevent communications from becoming too exhaustive and compromising.

**Reengineering Success: The Dependent Factor**

We have described three archetypal patterns of change. Each archetype consists of four minipatterns relating to the breadth, depth, planning, and coordination dimensions. Deviations from these minipatterns on any or all dimensions are hypothesized to lead to reduced performance. To recapitulate, our hypothesis states that the three archetypes are models of success that will outperform any other pattern. To test this hypothesis, a measure for reengineering success is needed.

Reengineering success is defined as the number and size of the *achieved* performance improvements. We will discuss this measure in more detail in the next section. For now it suffices to say that the respondents were explicitly asked to show the effect of reengineering on the overall performance of the organization or business unit. The success measure not only shows how successful each organization has been in its reengineering endeavor, but it also provides us with a standardized measure to compare organizations with each other. This can be done in two ways. First, consistent organizations can be compared with inconsistent organizations, that is, organizations that faced at least one misfit. Second, we can correlate the number of misfits that emerged in the change efforts to reengineering success. The hypothesis cannot be rejected if organizations deviating from the ideal-type pattern of change, as well as the number of misfits, are significantly and negatively correlated with reengineering success.

**Research Methodology**

Many previous studies on business reengineering are casuistic (Caron et al., 1994; Earl et al., 1995; Stoddard and Jarvenpaa, 1995), and there are few empirical
studies with generalizable results (Grover et al., 1995). To promote
generalizability, to achieve greater contextual richness, and in search of a stronger
theoretical foundation for business reengineering, the framework we have just
described was operationalized into a questionnaire. This data-collection method
allows for replicability and permits some degree of statistical power (Judd et al.,
1991). Figure 3.3 outlines the steps taken in our research design.

The sixteen-page questionnaire was pretested among several
methodologists as well as in a pilot project. The revised questionnaire consisted of
a mixture of closed and open questions covering the distinguished dimensions of
our framework and background details of the organization and respondent. The
questionnaire was constructed using five-point scales and discrete categories.
Since the study draws on relevant theories, perspectives, and literature, the
content validity of the questionnaire is claimed on theoretical grounds. An outline
of the questionnaire is included in the appendix.
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Research Base
The unit of analysis in the survey was the change process or reengineering effort, defined as a period in the development of an organization or a business unit in which several related goal-oriented change activities are undertaken to realize a more or less radical change in the form or functioning of an organization. Data were collected from Dutch organizations and business units. These organizations stem from the networks of the Department of Information Management at the University of Amsterdam and the Dutch Association of Business Engineers (ABE). The ABE is a leading forum for reengineering professionals in the Netherlands. Organizations were contacted beforehand to find out whether or not they were interested in participating in the project. Two criteria were used to select respondents: they had to have practical experience with at least one reengineering effort and they had to be in a position to largely oversee the change process. The majority of the respondents fulfilled a role as project or program leader during the reengineering effort.

Questionnaires were sent to 160 organizations and business units. A total of 90 responses were returned, resulting in a response rate of 56 percent. Of these 90 organizations, 33 (36.7 percent) had completed their reengineering effort and were able to respond to the entire questionnaire. This study reports on these 33 reengineering initiatives.

<table>
<thead>
<tr>
<th>Branch</th>
<th>Percentage</th>
<th>Size (number of employees)</th>
<th>Percentage</th>
<th>Current position</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>12.1 %</td>
<td>&lt; 200</td>
<td>36.4 %</td>
<td>CEO</td>
<td>21.2 %</td>
</tr>
<tr>
<td>Trade</td>
<td>9.1 %</td>
<td>200-1000</td>
<td>36.4 %</td>
<td>Line manager</td>
<td>6.1 %</td>
</tr>
<tr>
<td>Banking Finance</td>
<td>24.2 %</td>
<td>&gt; 1000</td>
<td>27.3 %</td>
<td>External consultant</td>
<td>30.3 %</td>
</tr>
<tr>
<td>Other services</td>
<td>27.3 %</td>
<td></td>
<td></td>
<td>IT manager</td>
<td>21.2 %</td>
</tr>
<tr>
<td>Government</td>
<td>21.2 %</td>
<td></td>
<td></td>
<td>Other staff</td>
<td>21.2 %</td>
</tr>
<tr>
<td>Non-profit</td>
<td>3.0 %</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>3.0 %</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Table 3.1 Profile of organizations and respondents
Table 3.1 shows the sectors in which the organizations operate, the size of the organizations measured by number of employees, and the current position of respondents. The organizations represent all governmental and business sectors, such as manufacturing, trade, and services. A majority of the organizations operate in the service industry (51.5 percent). Measured by number of employees, the data set includes small, medium-size, and large organizations.

**Operationalization of the Dimensions**

The contingency factor (level of ambition), the four independent factors (breadth, depth, planning, and coordination), and the dependent factor (reengineering success) in our framework have been operationalized into constructs. In this way, the complexity of analyzing the innumerable interactions between the constituent elements of these factors (see figure 3.2) has been reduced to four areas where misfits can arise.

The *level of ambition* was determined by asking respondents to indicate the number and size of the intended performance improvements and whether or not a sustainable competitive advantage was pursued. They could choose from a generic set of ten indicators or benefit categories: reduction of cost, cycle time, lead time, time to market, improvement of customer satisfaction, delivery reliability, price/performance ratio, productivity, market share, and information services. Each of these indicators could be marked or quantified by a percentage. To assess the level of ambition, the number of marked indicators was multiplied by a standardized size score of the quantified indicators and divided by the maximum number of indicators. The resulting score was multiplied by a constant factor if a breakpoint was targeted. Next, based on the ambition scores, the thirty-three organizations were divided into three equal groups: low, medium and high. *Reengineering success* was assessed by using the same generic set of benefit categories that was applied in determining the level of ambition. However, now the number and size of the achieved performance improvements were taken into account. As a result, the success scores could vary between the values 0 and 1.

With respect to the four independent factors, the following procedure was applied. In order to determine whether or not a misfit occurred on the *breadth* dimension, the indicated number of critical activities redesigned was compared with the number defined in the ideal-type pattern. With regard to the *depth* dimension, respondents were asked to indicate on a Likert scale to what degree fifty design options were changed (1 = strongly decreased and 5 = strongly...
increased). To decide how radically each of the five organizational aspects was changed, the number of design options was multiplied by points given on the Likert scale. A depth score of more than 60 percent of the maximum score was held to distinguish between radically and non-radically changed aspects. This means that many design options had to be applied intensively before the changes related to any one organizational aspect were labelled "radical." The questions concerning the planning and coordination dimensions were closed questions with discrete answer alternatives. The answers could be directly compared with the appropriate minipatterns. As for methodological support, depending on the number of methods and techniques applied, organizations were allocated to one of the three distinguished categories: limited (<5), extended (>10), and economical use (5<x<10). Thus, for each dimension, a deviation of the specified minipattern produced a misfit³.

Findings on Fit and Performance

We started by posing two questions: "Do organizations that achieve fit in a reengineering process outperform organizations that change in an unbalanced way?" and "Is there evidence that reengineering success depends on the number of misfits that emerge during the change process?" To answer these questions, first, we correlate consistent and inconsistent organizations to reengineering success, then we provide details on how ambitious and successful the thirty-three reengineering efforts studied have been. We then examine breadth, depth, planning, and coordination in greater detail. Finally, we demonstrate the effect of a growing number of misfits on reengineering success.

Ideal Types versus Different Patterns

In order to appreciate the balance or fit of the reengineering initiatives studied, we compared the actual change patterns followed with the ideal-type patterns that suited the chosen level of ambition. We hold that organizations are in balance if, and only if, no mismatches emerged in the process of change. Figure 3.4 shows that only 15 percent of the investigated organizations actually succeeded in achieving fit to its fullest extent. Of thirty-three cases, one organization with low ambitions, two with medium ambitions, and two with high ambitions followed the ideal-type pattern. Others suffered from all kinds of mismatches resulting in
substantially lower reengineering outcomes. In general, higher performance gains accrued when the level of ambition was accompanied by corresponding measures along the other four dimensions. The correlation between fit and reengineering success is strong and highly significant (Spearman correlation coefficient of 0.4352 with $p<0.01$). This finding, although it is based on a limited set of thirty-three observations, answers our first research question. Organizations that achieve fit in a reengineering undertaking generally outperform organizations that change in an unbalanced way.

![Figure 3.4 Patterns of change and success](image)

**Figure 3.4 Patterns of change and success**

**Note:** Boxplots provide a simple graphical means of visualizing the distribution of scores in each of the distinguished groups. The upper and lower boundaries of the boxes are the upper and lower quartiles. The box length is the interquartile distance, and the box contains the middle 50 percent of values in a group. The horizontal line inside the box identifies the group median. The larger the box, the greater the spread of the observations. Any points between 1.5 and 3 interquartile ranges from the end of the box (outliers) are marked with circles. The lines emanating from each box (the whiskers) extend to the smallest and largest observations in a group that are not outliers. Points more than 3 interquartile distances away from the box (extreme values) are marked with asterisks (Norusis, 1994).
Ambitions and Success

Most reengineering initiatives aim at and achieve simultaneous gains in a number of performance measures. There are, however, considerable differences between the three ambition categories. Table 3.2 summarizes some of these differences. Through these numbers and percentages, more insight can be gained into which performance gains were intended and achieved, and to what degree. With respect to the average number of intended improvements, organizations with low, medium and high ambitions reported 2.7, 5.7 and 7.5 improvements, respectively. On average, they realized 2.1, 5.0 and 6.7 performance gains. Most organizations pursued and achieved a mixture of financial and non-financial improvements. The most popular intended improvements were reduction of cycle time, improvement of customer satisfaction, and reduction of costs: respectively 75 percent, 70 percent, and 69 percent of the change efforts included these intentions (whether quantified or not quantified). The relatively high number of improvements reported on customer satisfaction reflects that the majority of organizations initiated reengineering with an outward focus. To be more specific, the higher the ambitions, the more customer satisfaction improvement was intended and achieved. Breakpoints were pursued by sixteen organizations (two in the low ambition group, and seven in the medium and high ambition groups). As for the achieved performance gains, the same three indicators are mentioned in the top three: reduction of cycle time, reduction of costs, and improvement of customer satisfaction were reported respectively by 66 percent, 66 percent, and 54 percent of the respondents (whether quantified or not quantified). The figures indicate that improving customer satisfaction is a more difficult task for organizations than cutting costs or reducing cycle times, since there is a relatively large gap between ambitions and achievement (70 percent versus 54 percent).

Furthermore, about 50 percent of the achieved performance improvements were quantified. The same applies to the intended performance gains. It would seem that the message stressed in the reengineering literature (Bertsch and Williams, 1994; Davenport, 1993; Hammer, 1990; Heygate, 1992), that organizations should quantify aspirations and benefits, has not reached many organizations. Since explicit expectations and goals can support the realization of benefits, it can be stated that these organizations have not made the most of their opportunities. Finally, in agreement with past studies (CSC Index, 1994; Hall et al., 1993), reengineering success increases with the level of ambition. In general, the highest performance gains were achieved by the most ambitious organizations (see table 3.2). However, only a minority of the organizations studied matched the
spectacular cases mentioned in the literature (Davenport, 1993; Johansson et al., 1993). This calls into question the relationship between reengineering and dramatic performance improvements.

<table>
<thead>
<tr>
<th>Operational improvements</th>
<th>Low ambitions</th>
<th>Medium ambitions</th>
<th>High ambitions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intended</td>
<td>Realized</td>
<td>Intended</td>
</tr>
<tr>
<td>Average number of improvements</td>
<td>2.7</td>
<td>2.1</td>
<td>5.7</td>
</tr>
<tr>
<td>Average height of improvements:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) reduction of cost</td>
<td>21.67 %</td>
<td>18.75 %</td>
<td>13.00 %</td>
</tr>
<tr>
<td>b) cycle time</td>
<td>48.75 %</td>
<td>63.33 %</td>
<td>10.00 %</td>
</tr>
<tr>
<td>c) lead time</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>d) delivery reliability</td>
<td>-</td>
<td>-</td>
<td>10.33 %</td>
</tr>
<tr>
<td>e) price/performance ratio</td>
<td>25.00 %</td>
<td>-</td>
<td>15.00 %</td>
</tr>
<tr>
<td>f) productivity</td>
<td>15.00 %</td>
<td>30.00 %</td>
<td>10.00 %</td>
</tr>
<tr>
<td>g) time to market</td>
<td>-</td>
<td>-</td>
<td>20.00 %</td>
</tr>
<tr>
<td>h) market share</td>
<td>-</td>
<td>-</td>
<td>6.00 %</td>
</tr>
<tr>
<td>i) customer satisfaction</td>
<td>-</td>
<td>-</td>
<td>21.67 %</td>
</tr>
<tr>
<td>j) information services</td>
<td>-</td>
<td>-</td>
<td>33.33 %</td>
</tr>
</tbody>
</table>

Table 3.2 Ambitions and reengineering success

**Breadth, Depth, Planning, Coordination, and Success**

To add insight into the foregoing general conclusion derived from figure 3.4, we must analyze the four dimensions underlying the concept of fit to find out if and how breadth, depth, planning, and coordination are correlated to reengineering success. First, *breadth* appears to be neither strongly nor significantly related to reengineering success (Spearman correlation coefficient of 0.2526 with \( p>0.05 \)). Thus, we were not able to prove that reengineering success depends on the number of operational functions tackled in the change effort. This finding contradicts past studies (Hall et al., 1993). Further research is needed to examine...
the impact of process definition and delineation on reengineering success (Grover et al., 1995). Second, a strong and significant relationship between depth and reengineering success is found (Spearman correlation coefficient of 0.5789 with p<0.01). Clearly, this finding reveals and reaffirms the fundamental nature of highly ambitious reengineering initiatives that typically entail multidimensional and radical changes. It also supports the assumption that less ambitious reengineering should preferably be focused on the customer approach (if relatively low ambitions are pursued), as well as on process knowledge and performance measurement (if medium ambitions are the aim).

If we reflect on these findings relating to breadth and depth, we find that many reengineering initiatives are internally focused. Many change efforts are not directed toward critical activities at the customer interface, but are targeted at operational functions such as procurement and inbound logistics. Moreover, with regard to the five change levers distinguished in our study, many organizations are inclined toward structural and technological changes, while they neglect other organizational aspects. These observations place the outward focus shown in the ambitions set in a different light: the aspiration to achieve a higher level of customer satisfaction is often not translated into matching design measures.

Third, our study reaffirms that the way the change effort is prepared and structured directly influences reengineering outcomes. The planning dimension is strongly and significantly related to reengineering success (Spearman correlation coefficient of 0.4986 with p<0.01). Therefore, greater benefits accrue if sufficient and appropriate planning measures are taken to guide the change effort. For example, with respect to leadership, the findings support previous research in that active senior management involvement is crucial in major reengineering initiatives (CSC Index, 1994; Grover et al., 1995; Hall et al., 1993). However, this study also demonstrates that top management’s ongoing involvement is misplaced in less ambitious reengineering efforts as it increases senior management’s tendency to micro-manage the change process instead of focusing on strategic objectives. Likewise, carefully aligning projects into a program and formally assigning people to project teams and steering committees is critical to success if large-scale change processes have to be managed. On the other hand, such measures are rather overdone or even harmful in less ambitious change efforts.

Fourth, the way the change effort is coordinated strongly and significantly affects reengineering success (Spearman correlation coefficient of 0.4620 with p<0.01). This finding demonstrates that the extent and nature of coordination activities are related to reengineering outcomes. For instance, in
highly ambitious change efforts there is a pressing need for periodical reviews between project and program leaders. Not addressing this need will be detrimental to the process of change. In less ambitious efforts, there is no need for such extensive coordination since relatively autonomous projects are defined.

Hence, decisions with regard to planning and coordination of the change process need to be balanced; otherwise they can easily undermine the reengineering effort. In fact, many organizations actually do undermine their own change endeavors by either underestimating or overestimating the change management measures required. Necessary decisions, such as reducing the number of projects to leverage on the existing change resources and assigning line managers with appropriate authority to direct the changes, often fail to take place or are postponed until the change process stagnates.

The Number of Misfits

Finally, we ranked the thirty-three organizations according to the number of misfits they faced in their reengineering initiatives. This number reflects the distance between the actual pattern followed and the ideal-type pattern that corresponds to the level of ambition set. If no mismatches emerged in the change process, the organization changed according to an ideal-type pattern. If four misfits are shown, the distance between the actual pattern and the archetype is maximal.

As indicated in figure 3.5, an increasing number of misfits results in a decreasing reengineering success. The magnitude of this correlation is the highest of all relationships discussed in this chapter (Spearman correlation coefficient of -0.6819 with \( p<0.01 \)). Clearly, the more the actual pattern deviates from the ideal-type pattern -- that is, the larger the distance between both patterns -- the more the synergistic benefits of designing and implementing balanced change will be lost. This finding answers our second research question. Reengineering outcomes generally depend on the distance between the actual pattern and the ideal-type pattern of change.
To conclude, given the strong and significant relationships revealed by our study (summarized in table 3.3), we cannot reject the hypothesis. Although the number of organizations matching the three archetypes is small, which limits the generalizability of our findings, in this study fit nevertheless seems to be an essential factor explaining reengineering success and, therefore, organizational performance.

<table>
<thead>
<tr>
<th>Relationship with reengineering success</th>
<th>Spearman correlation coefficient</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fit</td>
<td>0.4352</td>
<td>p &lt; 0.01</td>
</tr>
<tr>
<td>Breadth</td>
<td>0.2526</td>
<td>p &gt; 0.05</td>
</tr>
<tr>
<td>Depth</td>
<td>0.5789</td>
<td>p &lt; 0.01</td>
</tr>
<tr>
<td>Planning</td>
<td>0.4986</td>
<td>p &lt; 0.01</td>
</tr>
<tr>
<td>Coordination</td>
<td>0.4620</td>
<td>p &lt; 0.01</td>
</tr>
<tr>
<td>Number of misfits</td>
<td>-0.6819</td>
<td>p &lt; 0.01</td>
</tr>
</tbody>
</table>

Table 3.3 Findings
Managerial Implications and Conclusion

A number of practical implications can be derived from our study to support managers in balancing and rebalancing their change efforts. Explicitly managing fit implies that:

1. An appropriate level of ambition is determined. The necessity to change, that is, the need for performance improvements, increases with the extent of the strategic gap with the environment. Subsequently, this need has to be balanced with the organization's ability to change and the risks involved in changing the organization (Batelaan and Wildschut, 1994). Because it is the purpose of reengineering to achieve improvements that are clearly recognizable in the market or the environment in which the organization operates, the objectives set should have an outward focus (Hammer and Champy, 1993; Johansson et al., 1993). Delivering value to the customer should be the focus of attention for managers. Besides selecting financial and non-financial indicators, managers must quantify performance indicators in order to motivate and mobilize the organization (Bertsch and Williams, 1994; Davenport and Beers, 1995; Kaplan and Norton, 1992). The resulting set of clear, competitive metrics will focus the organization on the highlighted areas of expected gains and will guide the decisions with respect to the design and change management measures required to achieve the level of ambition.

2. The level of ambition set is ideally translated into a logical and harmonious package of design and change management measures. Manipulations of these measures have to bring about the right “mindset” for implementing the desired changes throughout the organization. With regard to the design measures, it can be stated that the higher the level of ambition, the larger the number of critical activities or operational functions that need to be tackled, and the more organizational aspects have to be changed radically, ultimately leading to the redesign of the entire business system (Davidson, 1993; Hall et al., 1993; Hammer and Champy, 1993). A high level of ambition should lead to the incorporation of all critical activities and to a radical redesign of all organizational aspects (Bouman et al., 1995; Hall et al., 1993). With relatively low or medium ambitions, organizations can limit their change effort to fewer operational functions. Moreover, fewer organizational aspects then have to be changed radically. If organizations opt for less ambitious change
processes, they should focus their attention on those operational functions that are closest to the customer and on radically changing the customer approach, process knowledge, and the performance measurement system. With respect to the change management measures, it is important formally to assign change managers with enough authority to direct the changes, to define a manageable set of clearly specified projects, and to facilitate effective communication among change managers and with those directly affected by the changes. The higher the level of ambition, the more pressing the need for senior management involvement and the alignment of projects into an integrated change program in order to keep the change effort focused and to leverage the ever-scarce change resources available (Benjamin and Levinson, 1993; Hammer and Stanton, 1995; Kotter, 1995).

To conclude, our study demonstrates that fit is indeed a vital factor in explaining organizational performance. The notion of fit was also acknowledged by 90 percent of our respondents, who stated that management by matching was the critical success factor in business reengineering. However, the majority of the organizations (85 percent) showed a non-ideal-type pattern of change, implying that fit is not easily achieved in reengineering practice. Fit should therefore be managed explicitly. “Management by matching” means that decisions with respect to level of ambition, breadth, depth, planning, and coordination of the change process are made in conjunction with one another so that the whole package assumes, and maintains, a logical integrity. The distinguished dimensions of organizational change have to be balanced and, if mismatches emerge, rebalanced. Since such mismatches readily occur, achieving fit is a fragile process that needs constant care. In this regard, the three archetypes presented in this paper may prove to be helpful concepts for change managers.

Directions for Future Research

Our study represents a step toward improved understanding of the complex interactions between fit and organizational performance. It should be noted, however, that the archetypes in the framework employed are in need of both theoretical and empirical elaboration. By incorporating more reengineering initiatives into our data set of thirty-three organizations, results with more
generalizability can be generated. Besides, other researchers are encouraged to further develop theory and research on reengineering within the archetype approach, to explore general patterns of change rather than strive to identify individual success factors. To elaborate on this line of enquiry, a variety of quantitative and qualitative assessments of reengineering initiatives will prove useful. Clearly, much work remains to be done in order to improve the robustness of the dimensions of organizational change and reengineering success and their operationalization into measureable constructs. Finally, future research on reengineering may include other dimensions. It would be particularly interesting to examine whether the chosen level of ambitions actually fits the requirements imposed by the environment of the organization, since organizations should pursue not only internal consistency but also external congruence in order to reach a higher level of performance.

Notes

1. If they saw fit to do so, respondents were invited to add other indicators to this set of benefit categories. At their specification, quality improvement, culture change and “others” were added.

2. This procedure resulted in three groups consisting of ten, twelve, and eleven organizations, respectively. The reason for this “skewedness” was that, at the line of demarcation between the low and medium level of ambition, two organizations had exactly the same ambition score. Both organizations were arbitrarily allocated to the medium level of ambition group.

3. The definitions mentioned in figure 3.1 were slightly relaxed because the differences in the ambition scores of the organizations located near the lines that demarcate the ambition groups were small. In other words, the highest ambition scores in a lower ambition group do not differ greatly from the lowest ambition scores in the higher ambition group. For breadth, this means that organizations falling into the low and high ambition groups were allowed to redesign, respectively, two (instead of only one) and four (instead of at least five) critical activities. For depth, a match of four out of five organizational aspects still yielded a consistent minipattern. With regard to planning and coordination, one misfit in the constituent elements of the minipatterns was overlooked, that is, four out of five and two out of three elements (respectively) had to match the ideal-type pattern.

References


ON ORGANIZATION: LOOKING BACK ON REENGINEERING AND AHEAD TO LEARNING

CHAPTER 3 BALANCE IN BUSINESS REENGINEERING


Appendix Survey Questionnaire: Selected Questions

The original questionnaire consisted of sixteen pages in Dutch. The complete list of questions can be found in Bouman et al. (1995). An outline indicating the main clusters of questions is given below.

A. Level of Ambition

1.1 Indicate on the following set of indicators which performance improvements were intended. If possible, quantify these intended improvements with a percentage:

<table>
<thead>
<tr>
<th>Intended</th>
<th>Quantified (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>...</td>
</tr>
<tr>
<td>Cycle time</td>
<td>...</td>
</tr>
<tr>
<td>Lead time</td>
<td>...</td>
</tr>
<tr>
<td>Delivery reliability</td>
<td>...</td>
</tr>
<tr>
<td>Price/performance ratio</td>
<td>...</td>
</tr>
<tr>
<td>Productivity</td>
<td>...</td>
</tr>
<tr>
<td>Time to market</td>
<td>...</td>
</tr>
<tr>
<td>Market share</td>
<td>...</td>
</tr>
<tr>
<td>Customer satisfaction</td>
<td>...</td>
</tr>
<tr>
<td>Information services</td>
<td>...</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>...</td>
</tr>
</tbody>
</table>

1.2 Did your business unit strive for a “breakpoint,” that is, a competitive advantage?

B. Reengineering Success

2.1 Indicate on the following set of indicators which performance improvements were achieved. If possible, quantify these realized improvements with a percentage:

<table>
<thead>
<tr>
<th>Realized</th>
<th>Quantified (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>...</td>
</tr>
<tr>
<td>Cycle time</td>
<td>...</td>
</tr>
<tr>
<td>Lead time</td>
<td>...</td>
</tr>
<tr>
<td>Delivery reliability</td>
<td>...</td>
</tr>
<tr>
<td>Price/performance ratio</td>
<td>...</td>
</tr>
<tr>
<td>Productivity</td>
<td>...</td>
</tr>
<tr>
<td>Time to market</td>
<td>...</td>
</tr>
<tr>
<td>Market share</td>
<td>...</td>
</tr>
</tbody>
</table>
ON ORGANIZATION: LOOKING BACK ON REENGINEERING AND AHEAD TO LEARNING

Customer satisfaction
Information services
Other (please specify)

C. Breadth

3.1 Indicate which operational functions have been redesigned during the reengineering effort:
0 Inbound logistics
0 Procurement
0 Production
0 Outbound logistics
0 Marketing & Sales
0 Service

D. Depth

4.1 To what extent were the following design options applied?

Organizational structure
  Number of hierarchical layers
  Decentralization
  Etc.

Process knowledge
  Use of activity-based costing
  Knowledge of cycle time
  Etc.

Information technology
  Number of shared databases
  Workflow management
  Etc.

Customer approach
  Segmentation into customer groups
  Frequency of customer needs research
  Etc.

Performance measurement
  Use of nonfinancial indicators by management
  Use of financial indicators by work force
  Etc.

E. Planning

5.1 How was the reengineering initiative structured?
0 One project; 0 Multiple projects; 0 One integrated change program
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5.2 To what degree was the reengineering initiative specified?
We used a 0 detailed, short-term project plan; 0 several midrange project plans; 0 an indicative program plan; 0 Other (please specify)

5.3 What methods and tools were used during the reengineering effort?
0 SWOT analysis; 0 Customer research; 0 Competitive analysis; 0 Process modeling; 0 Risk analysis; 0 Prototyping; 0 Process analysis; 0 Simulation; 0 Feasibility study; 0 Repositories; 0 Benchmarking; 0 Project management tools; 0 Pilot studies; 0 Analysis of core competences; 0 Milestone planning; 0 Other (please specify)

5.4 Was the reengineering initiative carried out using a temporary governance structure?
0 No, the initiative was carried out within the existing governance structure
0 Yes, we used a formalized project organization structure

The formally assigned key roles were: 0 Project members; 0 Project leader(s); 0 Program leader; 0 Steering committee; 0 Other (please specify)

5.5 What was the role of senior management?
0 Not involved in the initiative; 0 Supported the initiative; 0 Active ongoing leadership

F. Coordination

6.1 Did periodical change reviews of the reengineering initiative take place? If so, indicate who participated in these periodical reviews.
0 No; 0 Project members and project leader; 0 Various project leaders; 0 Program leader and project leaders; 0 Other (please specify)

6.2 Were these meetings standardized by written progress reports?
0 No; 0 Yes, we used high-level progress reports; 0 Yes, we used detailed progress reports; 0 Yes, we used both; 0 Other (please specify)

6.3 How was the initiative communicated to those directly affected by the changes?
0 People directly involved participated; 0 Several information meetings were held to introduce and discuss the initiative; 0 Formal information bulletins and memos were used to announce the news about the initiative; 0 Other (please specify)