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Beyond re-engineering: The three phases of business transformation

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New information-technology-based capabilities make it possible to achieve systematic and dramatic gains in business performance. Re-engineering offers one method to access these gains, but a broader process of business transformation explored in this paper can give enterprises a greater range of benefits. This three-phase transformation process starts with structured automation and re-engineering efforts, builds on new infrastructure and capabilities to enhance and extend the original business, and then redefines it to create new businesses.

Re-engineering offers a formal method for identifying and achieving radical performance gains,[1] with re-engineering exercises routinely producing two, ten, or even one-hundred-fold performance improvements, as is illustrated later. Yet while re-engineering is a key to unlocking such performance improvements in all industries, these impressive gains are only the beginning; enterprises can initiate a more powerful process of business transformation, yielding a broader range of benefits over time.

Field research at leading enterprises suggests that business transformation occurs in three interdependent phases, each offering its own challenges and benefits. Phase 1 emphasizes the pursuit of operating excellence, starting with automation and re-engineering activities. Phase 2 builds on capabilities and infrastructure developed in Phase 1 to expand, enrich, and focus the range of products and services offered to customers. In Phase 3, new business units can appear, as new product and service offerings become independent ventures. Also, capabilities developed in the first phases of transformation may become core competencies that redefine the original business.

With the support of the IBM Advanced Business Institute in Palisades, New York, a research study was initiated covering 50 firms with histories of advanced business transformation activity in a variety of industries. Companies were identified as pathbreaking enterprises in their field of activities through surveys of industry experts and literature. Not all of these companies have been successful in terms of profitability, return on investment, or stock market valuation. But all have begun to redefine business practices, performance standards, and business scope in their industries.

The experiences of these companies provide useful insights into the dynamics of the transformation process. This paper synthesizes those experiences and provides generic frameworks for conceptualizing and implementing transformation programs.[2] The paper hopes to show potential benefits of and barriers to transformation, and highlights tactics that can accelerate the process.

One of the first observations to be drawn from this sample regards the scope of the transformation

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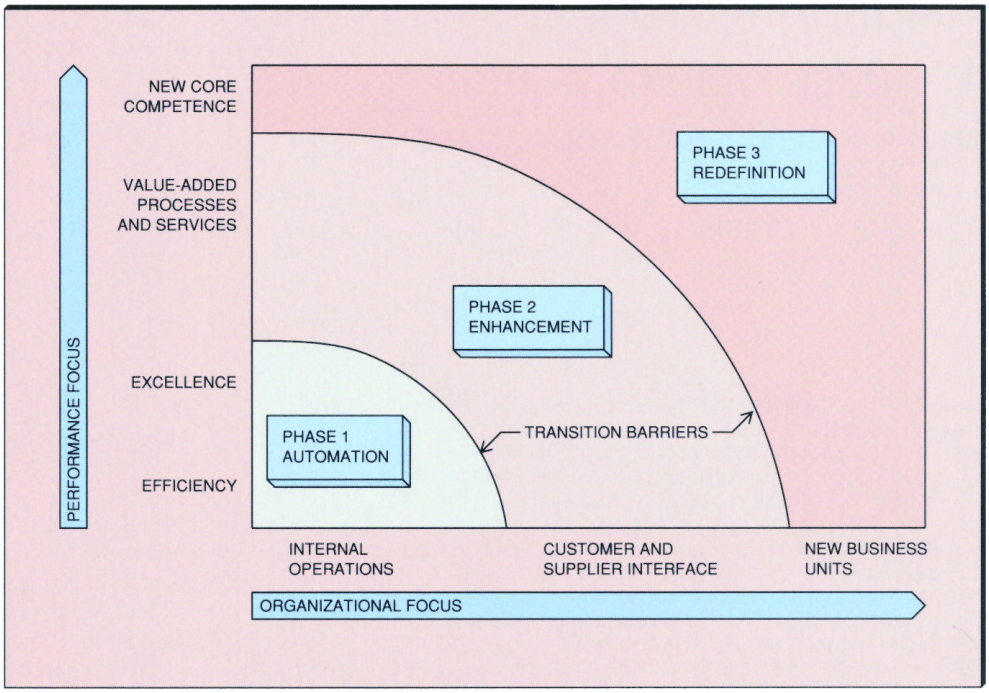
Figure 1 The three phases of business transformation



process. Business transformation encompasses more than improvements in operating performance. Three distinct phases of transformation can be identified (see Figure 1).

The three-phase model

The first phase of the process begins with the automation of existing activities to reduce cost and raise capacity, and expands to encompass a broader range of applications to optimize operations.

Phase 2 begins once the focus shifts explicitly from optimizing internal operations to enhancing transactions and relations with customers. Enhancements typically appear first in the form of value-added activities in areas such as order entry and tracking, delivery, and customer service functions. While these applications simply enhance existing activities, new services may appear in the form of augmented flows of information to the customer, new customer service functions, and new features and options. Such developments are central in the second phase of the transformation process.

In the third phase, enhanced services may become independent as stand-alone businesses. In some instances, such offshoots have grown to surpass the original core business in market value. Not all enterprises will spawn new Phase-3 businesses. Strong transition barriers can restrict the emergence of independent business units. Many enterprises today have latent "information-based businesses" locked up in internal systems. Even in such cases, however, new capabilities created by such systems can radically redefine the original core business from within.

The three phases are not purely sequential. Phase-1 activities continue during Phase 2 and 3. Some companies have jumped directly from Phase 1 to Phase 3, and others have explicitly refused to allow Phase-2 services to become stand-alone businesses. Yet, these three phases are linked in powerful ways. Enlightened pursuit of Phase-1 initiatives will inevitably lead to Phase-2 and -3 opportunities.

Phase 1—Operating excellence

The first phase of the transformation cycle focuses on achieving operating excellence. The five principal dimensions of operating excellence and selected metrics for each appear in Table 1.

Although many re-engineering efforts focus principally on productivity and velocity (speed) improvements, re-engineering can drive impressive gains in all five areas. Table 2 provides selected examples of such gains. Automation and redesign of business processes can sharply reduce overhead staffing requirements and increase efficiency. As can be seen in Table 2, Plains Cotton Cooperative Assn.'s electronic market for cotton transactions (Telcot**) introduced new methods that allow its employees to process transactions for 450 000 bales per worker annually, against an industry average of 9000 bales.[3] Impressive gains can also be realized in the area of variable transaction costs. A number of enterprises have reported that order entry costs, for example, have declined by 95 percent or more as a result of introducing on-line order entry systems. C. R. England & Sons, Inc., a technologically advanced trucking company, reduced the cost of

Table 1 Operating performance parameters and metrics

Operating Performance Parameter	Selected Metrics
Productivity	Output per unit of labor or capital Variable transaction costs
Velocity	Cycle times Asset turnover
Quality	Defect rates and yields Life expectancy and life-cycle costs
Business precision	Articulated costing and pricing activity Mass customization and microsegmentation activity
Customer service	Retention rates, repeat purchase, brand loyalty, customer satisfaction

Table 2 Achieving operating excellence: Selected examples

Example	Activity	Base	Re-engineered	Reference Definitions
Productivity indices Staffing efficiency: PLAINS COTTON COOPERATIVE ASSN. (TELCOT)	Transaction processing	9	450	Base = industry average, thousands of units processed per worker per year, 1991
Staffing levels: PHILLIPS PETROLEUM COMPANY	Corporate staff	36	12	Corporate staff per 100 employees, 1986-1989
Transaction costs: C. R. ENGLAND & SONS, INC.	Invoicing	$5.10	$.15	Cost of sending invoice, 1989-1991
Asset turnover: TOYOTA MOTOR CORP.	Work in process	16	215	Asset turnover, industry average annual turnover, 1990
Velocity PROGRESSIVE INSURANCE	Claims settlement	31 days	4 hours	Base = industry vs Progressive's Immediate Response service, 1991
Quality FLORIDA POWER & LIGHT CO.	Power delivery	7 hours	32 min.	Base = competitor, power outage per customer per year, 1992
Business precision FARM JOURNAL, INC.	Product variety	1	1,200 +	Number of unique editions per issue, 1985-1990
Customer service L. L. BEAN, INC.	Order fulfillment	61%	93%	Base = industry average, percent of orders filled in 24 hours

sending an invoice from over $5 to $.15 by using an electronic billing system.[4] Asset turnover can also be improved dramatically through incorporation of just-in-time systems and new logistics techniques. Toyota Motor Corp. turns its work-in-process inventories more than 200 times per year.[5] Each of these companies was examined in depth, as part of the sample of 50 leading companies, to understand how it came to achieve these performance gains.

While these examples focus on just one performance factor, most re-engineering projects drive simultaneous gains in productivity, velocity, and other performance measures. When Progressive Insurance introduced its Immediate Response** service for claims settlement (described later), it not only cut cycle time by over 90 percent, it lowered costs and increased customer loyalty.[6] Improving customer response cycle times is closely correlated with cost reduction and customer service enhancement.[7,8]

Quality improvement initiatives, often pursued independent of re-engineering projects, can drive gains in other performance areas as well. Total quality management and statistical quality control techniques aim for and deliver improvements in yields, costs, and service standards.[9] Quality efforts also contribute to improvements in customer satisfaction.

Such performance gains in cost, velocity, and customer satisfaction are the "meat and potatoes" of re-engineering, and there is much more to be gained as well. The incorporation of new technologies and business practices can drive even more powerful gains in business precision and customer service. *Precision* refers to the ability to offer individual customers highly customized product and service offerings with unique pricing and delivery configurations. The central skills required for achieving business precision are *microsegmentation*, *mass customization*, and *precision pricing*. Microsegmentation is the ability to segment markets with high levels of depth and detail. Mass customization refers to the ability to deliver individually customized products for mass markets.[10,11] Precision pricing allows vendors to identify costs and customize prices for individual customers and product configurations. The shift in skills from standard products, prices, and monolithic marketing to highly articulated products, prices, and segmentation is a central driver of business transformation. Development of these capabilities leads the company into the second phase of the cycle.

Progressive Insurance, one of the 50 companies in this research sample (also see Table 2), possesses highly developed pricing skills. The company utilizes over 14 000 different pricing structures and articulates prices for individual customers at a level of detail considerably more sophisticated than its peers.[12,6] Such pricing capability is most valuable when it is matched with mass customization and microsegmentation capabilities. Only when products and services can be tailored to individual customers can the full power of precision pricing be realized. Microsegmentation is also critical in allowing companies to identify, select, and customize offerings for finely-defined customer sets. In a growing number of markets, it is becoming possible to segment at the level of the individual customer.[13] Progressive Insurance targets carefully selected individuals within the high-risk pool of applicants rejected by other insurance companies, and provides policies tailored to customers' specific needs. This approach allowed the company to earn an average return on equity of 24 percent during the 1980s, while the auto insurance industry as a whole lost money in each and every year of the decade.

Progressive Insurance has also focused on improving customer service. It shifted to a 24-hour, 7-day operation for claims processing in 1990, reducing the claims settlement cycle to about one-third of the industry average. The company is now using new information technologies to achieve quantum improvements in this area.

Progressive Insurance is currently developing a mobile claims service, called Immediate Response, that promises significant enhancements in customer service levels. The company did this by developing a new paradigm that shifts the claims settlement process to the site of the automobile accident. Mobile claims adjusters, notified by a phone call, drive to the site of an accident. The adjuster's concern on arrival is to first comfort the accident victim, then to photograph the damage done to the vehicle. The information is transmitted by a cellular fax machine to a central claims estimation service. This service rapidly calculates the repair cost for the damage to that vehicle. A check is issued in the mobile van and given to the client at the site. The adjuster then

offers to arrange to tow the vehicle to a body shop that will guarantee to repair the damage for the amount of the check, and guarantee the quality of the work. The adjuster also offers to drive the customer to his or her destination, and to arrange for a vehicle to be lent to that customer.

This process is very different from a traditional claims administration and settlement function. Dramatic improvements in customer satisfaction, upgrading, and referral can be driven through the re-engineering of customer service activities.

Progressive Insurance's Immediate Response service is an example of the type of enhanced services that appear in Phase 2 of the transformation process. While the initial intent may have been to influence cycle time and cost reduction, the impact is enhancement of existing customer relationships and extension of the base business into new markets.

The pursuit of business precision and customer service leads inevitably to extension and enhancement of a company's product, service, and market portfolios. New services, features, options, and other business enhancements fuel Phase 2 of the business transformation process, and lead to the growth of Phase-3 business units and redefinition of the core business. Focusing on precision and customer service accelerates the transformation process.

Phase 2—Business enhancement

A customer-focused enterprise will be pulled inevitably into Phase 2 of the transformation process. Phase 2 of the transformation process focuses on adding features, functions, value-added processes, and new services to the core business. The mobile claims processing example previously described goes beyond operating improvement and shows the potential for introducing value-added services to the traditional business.[14] One of the most powerful examples of business enhancement can be seen in the Minitel Information Services project initiated by France Telecom in the early 1980s.

When France Telecom began an aggressive program of telephone service expansion in France in the mid-1970s, it failed to anticipate a basic operating problem. Rapid expansion in the number of telephone subscribers, with more than 10 000 new customers added per day in 1979, caused obsolescence of telephone directories and put pressure on the operator services function. In the late 1970s France Telecom began printing directories twice a year in order to incorporate new listings. Costs of paper, printing, and distribution were rising exponentially. Even with semiannual printings, 40 percent or more of listings in each semiannual directory were different from those in the previous version. Customer response times for directory assistance averaged between 15 and 20 minutes, as operators struggled to respond to customer requests.

New technologies were available to provide significant increases in operator efficiency. Systems that automated key elements of directory assistance were then being introduced in a number of telephone companies. These systems allowed the operator to enter the name requested by the customer on a terminal screen; a computerized system located that name in the central directory database and initiated an automated audio response. These new systems allowed operators to fulfill directory requests in 15 seconds or less.

France Telecom chose not to rely on such systems to solve its immediate problem. Instead, it invested some two billion dollars in building the world's largest packet-switching network and in the design, procurement, and distribution of some six million terminals. These terminals were distributed free of charge to customers who used them to directly access the directory database, eliminating the need for operators and paper directories.

Within two years after the introduction of this novel service, the Minitel terminals accounted for over half of all directory requests and for more than 700 million requests in 1991. While this initiative provided a great efficiency gain in the directory services function, net savings from reduced operator and directory costs totaled only $80 to $90 million per year—not enough to justify a base investment of two billion dollars. However, France Telecom's leaders had envisioned more than Phase-1 improvements flowing from the deployment of the Minitel system. They were also consciously pursuing Phase-2 and Phase-3 opportunities. By 1992, in addition to the directory service, more than 16 000 other public information services were available over the Minitel system, generating over two billion dollars in new

revenues. France Telecom saw a dramatic expansion in the number of services offered to its customers. Additional revenues from these services and related ventures have been sufficient to justify further investments of more than five billion dollars in second-generation packet switching, terminal technology, and support systems.

The Minitel system accounts for a growing percentage of traffic and revenue for France Telecom and its affiliates. It has driven an extraordinary increase in the range of services offered to customers, and promises to transform not only its parent company, but France's society and economy as well.[15,16]

Phase 3—Business redefinition and new business development

The emergence of new business units characterizes Phase 3 of the business transformation process. At France Telecom, new business units are pursuing a series of Phase-3 opportunities. A global telephone directory service, based on capabilities developed in the Minitel system, is currently being developed. Other new units include Transpac, a provider of data-transmission services, and Intelmatique, a provider of videotex technologies and systems in more than a dozen nations.

While new business units may become the principal vehicles for growth, the existing core business can also be redefined from within. New capabilities cannot only alter how the original business is conducted, but can alter the nature of the business itself. France Telecom's business focus a decade ago was voice transmission; today it has a much broader scope of activities and services. AMR Corp. and its subsidiary American Airlines, Inc., have realized benefits in all three phases of the transformation process. While their reservation system, named SABRE**, was initially introduced to address an efficiency concern very similar to France Telecom's, it has migrated from that point to something far different. The SABRE system did improve operator efficiency in airlines and travel agencies by giving travel agents (and now travelers) direct access to airline reservation and ticketing systems. In addition, in the same way that Minitel gave subscribers direct access to the directory, the SABRE system operation eliminates intermediaries to improve efficiency and customer service. It also supports a series of value-added services and features for travelers and travel agents, such as advance seat selection, preprinted boarding passes, frequent flyer benefits, and travel agent accounting and financial management. This initiative has spawned a stand-alone information business independent of the core airline business. The new AMR Information Services, a subsidiary of AMR Corporation, currently has revenues in the range of $300 million from nonairline activities.[17]

While new business units may become vehicles for growth, the existing core business can also be redefined from within.

Mrs. Fields Inc. also experienced the emergence of an information business from a program designed to improve the operations of an existing business. Mrs. Fields' Retail Operations Intelligence (ROI**) system was central to the company's success in the cookie business. It has since become the foundation for a new stand-alone information business. Fields' Software Group now accounts for a significant percentage of Mrs. Fields' total revenues and profits.[18]

Not all companies choose to spawn new businesses. New information processing capabilities can be viewed as central to the success of a traditional business and treated as a proprietary asset to be kept closely guarded in the inner sanctum of the enterprise. Yet even in such cases, those new core competencies will drive redefinition and transformation of the traditional business from within. In this way, successful re-engineering efforts ultimately lead to business transformation.

From re-engineering to transformation

The three phases of the transformation process are intimately linked. Efforts to achieve operating excellence can lead to the development of new capabilities and enhanced services. New services can become independent and become free-stand-

ing businesses. New capabilities can redefine the traditional business from within. There is a natural bridge between these phases, but without careful management, re-engineering initiatives can limit a company's ability to achieve its Phase-2 and Phase-3 potential.

Companies pursue improvements in operations with a variety of methods and philosophies. Those that become focused on near-term operating performance and financial results may be led to pursue a variety of unrelated re-engineering projects. Each project may offer seemingly impressive results, but a fragmented approach to operations improvement may limit the company's ability to realize its full growth potential. A set of unrelated and uncoordinated re-engineering projects is not likely to create the infrastructure necessary to propel a company into Phase 2 and Phase 3.

For example, France Telecom might have chosen to address its directory services crisis with a limited solution that automated operator database access and audio response—the type of directory service offered by most telephone companies today. Instead of relying on discrete solutions in this and other areas, France Telecom focused on the development of a single integrated infrastructure. The Minitel system served as a platform for addressing immediate operating problems and for the development of a multitude of new services and business opportunities.

France Telecom's approach can be called a macro re-engineering philosophy. While concerned with immediate operating improvements, macro re-engineering aims at enterprise-wide transformation. Effective macro re-engineering provides a bridge between optimizing current operations and creating the future enterprise.

Table 3 highlights some of the differences in focus between micro and macro re-engineering. Micro re-engineering efforts typically involve discrete, stand-alone solutions, technologies, and systems executed by local management. Such projects usually require relatively small investments and short implementation and pay-back periods. But this approach increases the enterprise's portfolio of technologies, software, systems, and data formats. Without alignment of these projects, a series of problems may appear. Fragmented re-engineering can lead to proliferation of incompatible databases, operating systems, and functional activities. Cross-functional activity may be restricted, and transactions involving multiple systems may incur significant cost, time, and risk penalties. Information sharing can become difficult, and multiple, conflicting metrics usually appear in management reports. Systems development resources are consumed attempting to rectify problems and build bridges between heterogeneous systems. Customer service levels may deteriorate, and the company may become mired in a fragmented operating infrastructure. Without alignment of re-engineering projects, and without an integrated infrastructure, the typical company cannot access the power curve of business transformation.

Table 3 Micro vs macro re-engineering

Parameter	Micro	Macro
Objective	Optimization	Transformation
Timeframe	Short	Long
Leadership	Local	Senior
Infrastructure	Diverse	Integrated
Performance focus	Financial	Multiple benefit paths
Focus	Single process	Enterprise
Scale	Small	Massive
Projects	Multiple	Single focus
Scope	Phase 1	Phases 1, 2, 3

The shift to macro re-engineering can be facilitated by efforts to align multiple, discrete operating improvement projects with broader programs, plans, and visions. Each specific project can be assessed and modified to ensure compatibility with other functional efforts, infrastructure standards, and long-term business plans.

Vision and transformation. Does this imply that a company must have a Phase-3 vision before it begins to implement operating improvement projects? The answer, based on the research sample to date, seems to be that it is not always necessary to have a vision in order to realize the benefits of business transformation. American Airlines clearly did not have a vision of an inde-

pendent information business until well after the SABRE system was established. Nor did the executives of Mrs. Fields' cookie company envision involvement in the software business when developing the Retail Operations Intelligence (ROI) system. In each of these cases, however, the Phase-1 initiatives were of such scope and scale, covering a wide range of business processes, that they were able to provide a sufficient platform for development of a new information business. Had either of these companies initiated dozens of discrete, unrelated applications and technologies, instead of core infrastructure programs, it is doubtful that they could have achieved the results in any of the three phases that they have realized to date. Both of these companies transformed their business profile through enlightened pursuit of operating excellence in their core businesses.

But vision is a powerful factor in business transformation. The leaders of France Telecom had a clear and explicit initial vision of a future state when they initiated the Minitel system. Without that vision, it is highly unlikely that a directory services initiative could ever have evolved into what is today by far the most advanced videotext system in the world.

A powerful business vision, when coupled with enlightened efforts to achieve operating excellence, accelerates the transformation process. The operating principle here is that of *grounded vision*. The Minitel exercise, while aimed at a future vision of a radically transformed telecommunications enterprise, was also focused in the near term, or grounded in immediate operating concerns. By linking immediate improvements in operations to long-term transformation, France Telecom was successful in realizing benefits in all three phases.

While vision is a positive force in transformation, it can also be a negative factor if it is not disciplined by operating considerations. One of the principal differences between American Airlines and one of its competitors was the fact that the latter held a clear vision of a future state that did not include adequate concern for near-term operating issues. American was not focused on this kind of future vision; instead its efforts were firmly grounded in current operations. Yet it was American that realized the most significant Phase-3 benefits.

Few companies have the resources, patience, or continuity to support an ungrounded vision that promises ambiguous benefits at some far future date. But excessive focus on near-term operations to the exclusion of Phase-2 and Phase-3 opportunities also represents a scenario for failure. Those companies that can successfully pursue near-term operations improvement projects within the context of broader transformation efforts are most likely to succeed in both areas.

Strategic alignment. Aligning current operating projects with long-term visions and strategies poses a central challenge for executive leaders. In many companies, operating projects seem to be pursued in a highly fragmented fashion, almost independent of the strategy and vision of senior executives. Achieving alignment between near-term operations improvement efforts and long-term direction thus becomes central to successful transformation.

Henderson and Venkatraman provide a powerful framework for achieving alignment between business, organization, and information technology strategies.[19] Alignment efforts also help ensure infrastructure integrity, limiting fragmentation in information technologies and systems.

Several of the companies in this research sample exhibited a significant lack of alignment. One enterprise listed 114 discrete operations improvement projects in its annual business plan. The senior executive team was asked to rank the top 50 projects in terms of priority. Next, the same question was asked of operating management. The project listed at the top of the senior management list was ranked 47th by operating managers; the second-highest senior management priority was ranked 44th. There was little alignment between senior executives' priorities and operating managers' current work efforts. This enterprise also contained over 4000 mainframe databases, with many redundant, conflicting metrics and reports.

Alignment exercises can help clarify priorities and improve linkages between long-term vision and short-term operations. This approach combines top-down and bottom-up forces into a "middle-forward" thrust. A second type of alignment exercise focuses on integrating discrete projects and databases. The objective is to define a small number of programs that can incorporate many specific projects into a broader, cross-functional

effort. Integration of projects will support unified infrastructure development and sharing of resources and will also contribute to broader organizational awareness of common purposes and long-term direction.

While it is possible to transform an enterprise without a crisis, it may not be possible without senior executive leadership.

Crisis and leadership. Alignment initiatives are helpful in any setting, but the most powerful trigger for business transformation appears to be business crisis. Many of the companies that exhibit the most dramatic success in business transformation initiated their efforts in a period of business crisis. While the SABRE system existed in the 1970s, it became the focal point of AMR Corporation's strategy only after the airline industry was deregulated in 1979 and American Airlines reported its first operating loss. C. R. England, the technology leader in the trucking business, initiated its innovative programs following the traumatic deregulation of the trucking industry in 1980.[4] C. R. England was a small family-owned trucking company at the time of deregulation. New leadership transformed the company's business and organization through aggressive, focused use of information technology. The firm has grown over 800 percent in revenues and profits in the past decade. Telcot, the most advanced electronic commodity market in the world, was introduced following the removal of federal price supports for cotton, which cut the Plains Cotton Cooperative's business by 80 percent.[3] Telcot today handles over 40 percent of all cotton transactions in the states of Oklahoma and Texas, and it establishes the reference price for cotton traders worldwide. Revenues have increased more than tenfold in the past decade. A severe business crisis is frequently the catalyst for innovation and transformation. Of course, new leadership may also emerge during these periods of crisis.

Business transformation, because it requires coordinated and integrated macro re-engineering, is difficult to achieve without strong leadership from the chief executive officer (CEO). Change-minded CEOs may even fabricate or intensify crises in order to facilitate transformation. Yet such crises, real or fabricated, can traumatize an organization. One CEO in this study cited a need to expose the crisis gradually, so his organization could digest the severity of its situation. An alternative to explicit crisis can be found in the use of scenario planning. Scenario planning provides a formal method for invoking crises without the actual business trauma. Planning for crisis scenarios can feed transformation efforts.[20]

While a specific and severe business crisis played a key role in the transformation of a majority of companies in this sample, several companies initiated their transformation without a crisis. Rosenbluth Travel Agency Inc., one of the most successful enterprises of the past decade, is a 100-year-old company with a solid business base. Hal Rosenbluth, the young CEO of the establishment, launched its corporate travel services initiative in response to perceived opportunity, not a crisis. Rosenbluth Travel's annual sales in this area have risen from less than $40 million to more than $1.4 billion in the last decade. Hal Rosenbluth provided new, visionary leadership, but there was no explicit business crisis in this instance.[21] Several other companies in the research sample are start-up companies created to exploit new capabilities and opportunities.

While it is possible to transform an enterprise without a crisis, the question arises as to whether it is possible without senior executive leadership. It appears that transformation can be initiated, if not implemented, without active CEO involvement. Levi Strauss & Co., currently engaged in a significant enterprise-wide infrastructure development and business transformation process, is an example of a company where lower-level managers played a central role in initiating and shaping the transformation process. The LeviLink** service, the centerpiece of Levi's new business paradigm, originated in two relatively junior initiatives. The central component of the LeviLink system began as a small project handled by a junior executive to incorporate bar coding into garment tags. The retail inventory management module in LeviLink is based on a model system written by a salesman's teenage son on a home

Table 4 Illustrative benefit paths in the three phases of business transformation

Phase	1	1	1	1 and 2
Benefit paths	**Productivity**	**Quality**	**Velocity**	**Customer service**
Goals:	Cost reduction Capacity increases Organizational downsizing	Yields Cost reduction Customer satisfaction	Cycle time Asset turnover Response time	Retention Enhancement Customer satisfaction
Programs:	Automation Process simplification	Total quality management Statistical quality control	Just-in-time Time-based competition Electronic data interchange	Focus groups Market research
Measures:	Units per person Peak output level Cost per unit Cost per activity Revenue per employee Headcount	Defect rates Yields Standards and tolerances Variance Life-cycle costs	Inventory and sales Throughput Cycle times –Activities and processes –Transactions Time to market Response ratios	Retention Revenue per customer Repeat purchase Brand loyalty Customer acquisition cost Referral rate

computer. Levi's current comprehensive infrastructure overhaul project is based on a project initiated in Canada in the early 1980s. These initiatives have since grown into a program that is transforming Levi's business and organization, a program now sponsored actively by senior executives.[22]

HealthCare Interchange**, an electronic infrastructure for health care claims processing, was introduced by the chief information officer (CIO) of Blue Cross & Blue Shield of MO as a discrete project that would pay for itself within three years from user fees. Doctors and hospitals use personal computers to file claims electronically with health insurers through this service. The HealthCare Interchange manages protocol and format conversion, minimizes administrative costs, and speeds settlement. The infrastructure installed to manage this claims processing function will become a critical channel of distribution for a series of other health care information services, such as precertification, diagnostic support, utilization review, and health provider assessment. This discrete project, justified on a stand-alone basis as an improved claims management process, is potentially central to transformation of the health insurance business.

Vision and leadership, at some level of management, are key to business transformation. Of course too much vision and leadership can lead to fragmentation and conflict. Ultimately, CEO leadership is essential. Even then, a crisis is often required to overcome barriers to change. All initiatives face a series of barriers that can slow or stop transformation. Leadership and vision are the principal forces that break down those barriers.

Transition barriers and tactics

All companies face a series of barriers in attempting to implement transformation programs. These barriers vary in intensity, but are present in virtually all enterprises. The initial barrier to successful transformation is conceptual. Without a focal point, transformation becomes fragmented and stunted. The enterprise can become paralyzed attempting to implement a large number of unrelated initiatives. The most powerful solution to this problem is a focused long-term vision that has the full support of the entire organization. But such visions are rare. In the absence of a broader long-term vision, most companies may be able to initiate transformation programs through enlightened pursuit of operating excellence. An integrated program aimed at radical improvements in productivity, velocity, precision, service, and quality can provide effective platforms for broader business transformation. But few companies are able even to integrate or align operations-oriented efforts alone.

1 and 2	2	2	3
Business precision	**Enhancement**	**Extension**	**New business development**
Marketing sophistication Flexible business systems	Business augmentation	Broader market scope New customer acquisition	Market value Start-up activity
Mass customization Microsegmentation Activity-based costing	Embedded information technology Turbocharging Enhanced products and services	Channel development Market expansion Alliances	Business development Entrepreneurship Spin-off units
Cost of variety Number of new products Number of product, service, and delivery configurations Customer self-design and self-pricing flexibility	Number of features, functions, and services Information flow to customer Product and service revenue ratio Customer performance (industrial) Secondary revenue streams	Customer diversity Number of new customers Channel diversity New revenue sources Broader product and market scope	Market value New lines of business Percent of revenue from new units and services

If such programs can be integrated and then aligned with a broader future vision, transformation will be accelerated. Exercises in envisioning a future business state can be helpful. The goal is to first project the enterprise into some future envisioned state. Then, look back at the present business status in order to identify the necessary steps to move toward the future.

Scaling the conceptual barrier is only the first step. Financial justification is also a barrier in most companies. The critical step in leaping the financial hurdle is to build a compelling business case that incorporates as many benefits as possible. It is possible today, for example, to quantify the benefits of improved customer retention and customer acquisition costs.[23] If a program improves customer retention and referral in a measurable way, those benefits can be incorporated into the business case. The potential value of Phase-2 and Phase-3 developments should also be reflected in the business case. In the best scenario, a compelling business case for a long-term program integrating business vision, operating improvements, and infrastructure development removes the need for frequent, intensive financial justification for individual investments.

Commitment to a long-term program can only be maintained, however, if a series of tangible benefit paths are activated in the present. Early identification of potential benefit paths is essential in building an effective business case. It is also critical in focusing management attention on areas of expected gains, to ensure that they are realized. Business performance measures designed to highlight areas of expected gains should be introduced with the initiation of re-engineering programs.

For example, the trucking company C. R. England introduced a set of one hundred performance measures to focus its information technology deployment programs. Those measures are reported weekly, and management has a clear sense of the many benefits derived from investments in information technology. Each of the enterprises in this research sample realized unexpected benefits as transformation occurred. Many of these benefits may be available to other firms. A generic set of benefits drawn from the experiences of these firms appears in Table 4, identifying some of the areas in which dramatic gains could be expected as the transformation process occurs. Explicit expectations and measures can support the realization of benefits such as those noted in Table 4.

Organizational resistance. Conceptualization and justification of major transformation programs

occur principally within senior management ranks. Upon implementation, such programs often encounter significant organizational resistance. Functional units whose scale or even existence are threatened by transformation programs may resist such initiatives. General inertia or resistance to change must also be overcome. In many cases, re-engineering requires cross-functional cooperation that is difficult to achieve.

A variety of tactics have been used to overcome organizational resistance to transformation programs. Benchmarking is often useful as a means to focus attention on performance shortfalls and support a case for significant change in operations. The identification of substantial performance gaps can catalyze action. Defining new performance measures and standards and linking them to compensation was helpful in a number of the companies in this sample.

Many executives use formal planning challenges to elicit response and initiative from individual operating units. These challenges should be linked to a broader vision or direction for the enterprise, and should cause each unit to identify areas in which it can contribute to the achievement of the broader objective. Responses to planning challenges can then serve as a basis for identifying and aligning initiatives to the broader transformation thrust.

Outsourcing, or shifting from an internal source of a product or service to an external source, is often linked to cost reduction initiatives, but it is also an important transition tactic. Shifting an internal organizational relationship to an outsourcing business relationship can facilitate fundamental changes in operations. This benefit applies to internal (to the company) outsourcing agreements as well as external relationships. By shifting an internal unit from hierarchical mode to a market transaction mode, it is possible to unfreeze resistance that is difficult to deal with in a traditional organizational setting.

Human resources management initiatives can also greatly facilitate transformation. Training initiatives, critically important in support of new methods and practices, are often central to successful transformation. Massive training programs were common among the companies in this study. New measurement and compensation initiatives are frequently useful in facilitating change. Extensive communications efforts are also vital. Disciplined reinforcement of key initiatives is central to successful transformation.

An additional barrier of great importance is customer acceptance. A number of enterprises have overcome financial and organizational barriers only to find their programs rejected by intended customers. The Zap Mail** initiative undertaken by Federal Express Corp. is one such example. Federal Express invested over $300 million in developing a system to offer facsimile services for rapid delivery of information. This initiative overcame significant technical, financial, and internal barriers, but failed when potential customers failed to accept the offering. Customer acceptance barriers can be reduced or eliminated through a series of tactics in the early stages of program development. Strategic partnerships with selected customers can help to ensure effective design and development of product and service offerings. Careful segmentation and customer needs analysis will support successful program design. Electronic integration with selected customers can also facilitate communication and introduction of new services.

In some instances, legal and regulatory barriers may also prove significant. The regional operating companies have been restricted from a series of markets by the terms of the modified final judgment governing the structure of the United States telecommunications industry. As a result, these companies have faced severe restrictions in the development of a series of enhanced services. Legal issues surrounding questions of privacy may also pose barriers for any number of segments, notably in the health care field, but also in many other sectors as well. Anticipation of such issues and participation in public policy proceedings can help overcome these barriers.

Finally, technical barriers may also exist. Many transformation programs require technical improvements or breakthroughs in order to realize their full potential. In many cases it is possible to anticipate or even to force such breakthroughs, but technical shortcomings can stop aggressive transformation programs. Careful technology monitoring, planning, and forecasting is central to successful transformation programs.

Each of these and other barriers such as those listed in Table 5 may be faced in any business transformation program. Executives promoting transformation programs must be aware of each of these potential barriers. Any one of these factors can slow or freeze transformation programs. Companies that have successfully overcome these barriers have practiced a wide number of tactics to reduce or eliminate barriers. In some cases, many of these barriers are minimal and progress moves forward rapidly. However, most enterprises will find that some combination of barriers poses a serious constraint to their ability to transform the business and organization. It is difficult therefore to achieve transformation without sensitive, skilled, and committed senior leadership.

Table 5 Transition barriers and tactics

Barriers	Tactics
Conceptual	Executive development and visioning
Financial justification	Comprehensive business case
Corporate culture	Communication and challenge
Functional structures	Outsourcing, team building
Inertia	Benchmarking
Critical mass	Alignment
Human resources	Career paths and training
Technical feasibility	Phased platforms
Customer acceptance	Codevelopment
Legal and regulatory	Proactive participation

The philosophy of transformation

Senior leaders must be as concerned with the implementation of their transformation programs as they are with the design and development of those programs. However, the appropriate focus of these programs should be business transformation first and organizational change second. The principle is this: transformation focuses first on business processes and infrastructures, and second on organizational structures and systems. The aim is not to find organizational solutions to business problems. The aim is to redesign business activities and structures for performance gains, and to then drive organizational change to align with the new business model.

Business process re-engineering poses a fundamental shift in management activity and focus. Historically, many companies have responded to business problems with organizational initiatives. Business process re-engineering focuses attention on the heart of business operations. Organizational change follows in response to new business requirements and realities. Without skilled leadership and management of organizational change, however, the benefits of business transformation cannot be realized.

The transformation process also poses another fundamental shift in management thought. Most business development activities in the 1970s and 1980s were pursued at the periphery of the existing enterprise. Acquisitions, diversification activities, and new ventures were all essentially removed from the core activities of the enterprise. Transformation begins by focusing on core activities in the current business. It focuses on developing central infrastructures and systems to radically improve the performance of the core business, and builds on those capabilities to introduce enhanced services and value-added processes that in turn can grow into new stand-alone businesses. A philosophy that focuses on the latent business growth potential of the core business represents a fundamental shift in management focus.

Summary

Business re-engineering efforts encompassing a wide scope of activities can drive radical gains in business performance. When linked to integrated infrastructure development and long-term business vision, re-engineering can trigger a three-phase process of business transformation reaching far beyond the immediate objectives of operating excellence. The alignment of infrastructure development efforts, operations improvement programs, and long-term business planning is central to realization of the full potential of business transformation.

The transformation process faces many barriers. Anticipation of those barriers and use of appro-

priate tactics to reduce or eliminate sources of resistance is a central issue for business leaders intent on pursuing transformation programs. While such programs often grow out of crisis and are driven by dedicated leaders, research to date indicates that transformation can be triggered in response to opportunity and not crisis, and that it can be initiated by relatively junior executives. However, efforts to improve operations through a series of discrete local initiatives, utilizing independent technology infrastructures, may limit a company's ability to realize the full potential of transformation. Aligning such discrete initiatives with broader programs of larger potential is an issue of relevance to a growing number of organizations today.

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