Process Thinking:
Today's Path to Improved Performance

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In the past, when a business was underperforming, its management selected from a set of traditional paths for improvement. They looked at specific functions or identified problem departments or concentrated on broken business units. For example, a company would take a function such as marketing and examine in great detail its staffing, structure, costs, and productivity. They would analyze that function across a broad spectrum of factors, including structure, geography management span, control mechanisms, and product lines. Usually, the outcome was a plan to reduce staffing and costs.

In the last decade, such staff/cost reductions really came into vogue. Downsizing in general was hailed as the solution to the bloated organizations of the 1980s. However, while downsizing clearly resulted in reductions, more often than not those reductions were fleeting. Studies have shown that downsizing efforts often fail to meet their targets.[1]

The missing element in the downsizing programs of the '80s was sustainability. Enduring change requires fundamental alteration of some of the basic components and factors of the business. Focusing on staff levels and costs is not sufficient; sustainable change requires analysis and change of the work that is done. If work is rationalized to meet a well-thought-out set of driving principles, then sustainable productivity follows.

We call such an analysis effort „process thinking." It involves in-depth consideration and evaluation of the key, cross-organizational processes through which the work of a complex organization gets done. Such processes include, for example, product creation, customer service, and supply chain management.

„Process" Defined

A process is a series of activities performed to achieve planned results. In businesses, every process has a starting point and an ending point and affects the company's stakeholders either directly or indirectly. As an example, consider the process of customer-order fulfillment. For this process, the starting and ending points might be „customer identifies need" and „customer's need is satisfied."

The purpose of a process should be to satisfy the company's stakeholders. Every business has at least three stakeholders: customers, employees, and owners. Depending on the situation, the business may have other stakeholders, such as regulators, suppliers, and middlemen (e.g., agents or distributors), as well as the community in which it operates.

To understand a process, we begin by identifying the characteristics or „deliverables" the process must have to satisfy the relevant stakeholders. We call such characteristics „satisfaction attributes." Consider again our example, the customer-order fulfillment process. From the customer's standpoint, satisfaction attributes might be ease of ordering, speed of delivery, and accuracy of shipment. For employees, satisfaction attributes might be clarity of order requirements and ease of picking. For the owners, these attributes might be cost of order processing and customer retention. The trick is to organize and manage each process so that it meets everyone's satisfaction attributes. But first you have to identify the processes themselves.

Large and Critical Processes

We know from experience that businesses typically have six to twelve large and critical processes. These processes are large because they cross several functions, and they are critical because they directly affect the satisfaction attributes of customers, employees, and owners. Exhibit 1 presents some generic examples. The list for any particular business depends on its environment, strategies, and culture.

Each large, cross-organizational process is composed of several smaller subprocesses, which, in turn, are composed of even smaller subprocesses. Thus, it is possible to view a process narrowly or broadly by selecting closer or more distant starting and ending points. Looking at processes very narrowly, however, causes much the same difficulty as viewing them functionally or organizationally: While individual improvements can be quite effective in terms of the process itself, the larger, cross-organizational process may remain slow, wasteful, and error-prone – and fail to meet stakeholders' needs. An example of a large and critical process currently in need of process thinking is product development as it is conducted by U.S. automotive companies, which spend considerably more effort over a longer period to create a lower-quality automobile than most Japanese companies.

Part of the problem with large, cross-organizational processes today stems from their history. These processes have evolved over decades in piecemeal fashion. Typically, they involve many people doing specialized tasks. This division of labor made sense in the days when information could not be easily shared or processed. One set of employees did nothing but accept customer orders, another reviewed credit ratings, a third assigned inventory, and so on.

Exhibit 1

Critical Business Processes – Examples

Product Creation • Market research • Competitive analysis • Concept formulation • Detailed design • Process development	**Customer Service** • Inquiry processing • Sales • Order-taking • Order fulfillment • Shipping • Invoicing
Supply Chain Management • Purchasing • Inbound logistics • Inventory • Management • Outbound logistics • Distribution	**Management of Finances** • Capital budgeting • Expense budgeting • Cash forecasting • Tax planning • Revenue budgeting

In most organizations, such processes evolved by crossing functional and organizational boundaries to accommodate constraints in information passing and management control. By now, no one individual is responsible for or manages the process – or even fully understands it. The result: the process requires too many people, too many steps, and too much time – which in turn lead to error, rework, and high cost.

This pattern of too many people, too many steps, and too much time applies to many of today's cross-organizational processes. For example, we have just studied a major insurance carrier's customer-service operations. A call or letter from a customer passed through as many as ten hands and required days or weeks for resolution. *Yet* the customer-service telephone clerks and the claims processors were reasonably efficient in how they did their work in their own narrow areas. The organization had simply not considered the overall impact of the subprocesses on its service as experienced by its customers – not to mention the frustration experienced by its employees or the earnings impact felt by its owners.

Another example appears in Exhibit 2, which depicts (in simplified form) the process used by one chemical company for deciding on and implementing price changes. In the chemical industry, critical success factors include responding quickly to fast-moving market conditions and implementing price changes rapidly and accurately. Among the stakeholders, customers want both competitive prices and accurate invoices. Employees want accurate invoicing to avoid the embarrassment of having to explain differences between quoted and invoiced costs. Owners want prices that maximize profit by balancing sales volume with margin.

The process outlined in Exhibit 2 does not support the needs of its stakeholders. Multiple levels of management and many functional groups are involved in the process, making it time-consuming, cumbersome, and error-prone. It represents another example of too many people, too many steps, and too much time.

Improving Business Processes – Process Thinking at Work

If fixing broken business processes were simple, they would not be in their present condition. Fixing broken processes involves four key elements: guiding principles, an effective tool kit, an appropriate fit of solutions to

problems, and the ability to surmount the barriers to success.

Guiding Principles. Process thinking has a set of guiding principles that have universal applicability. While the emphasis may vary in different cultures and situations, the underlying concepts remain intact. These principles are not mutually exclusive. They are all parts of an overarching theme: satisfying stakeholders in the most efficient and effective way possible. Six principles are key:

• Make basic repairs

• Prevent errors

• Delegate responsibility

• Install enabling technology

• Expand job scope

• Compress processes

Exhibit 2

The Price Change Process
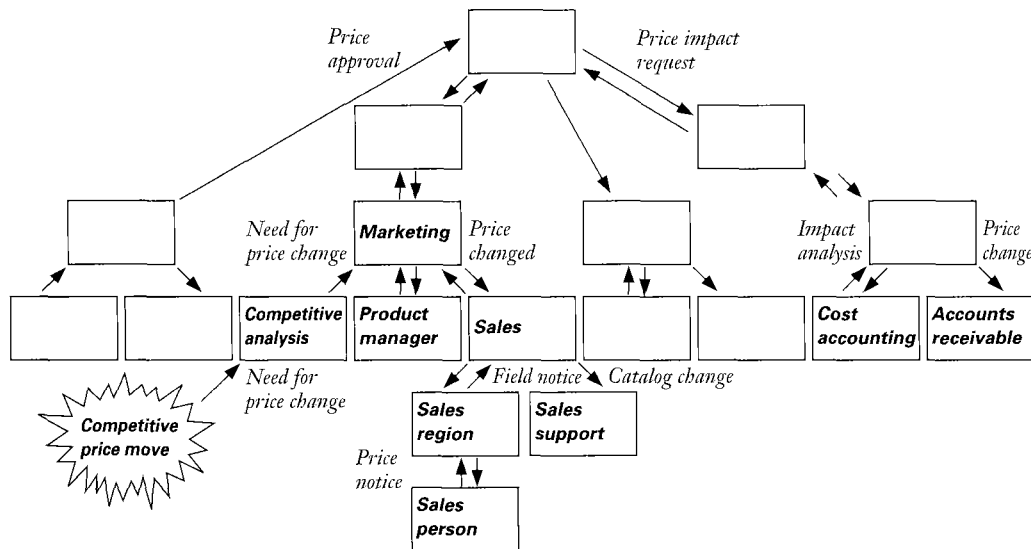
Make basic repairs. Process thinking begins with an intensive, in-depth analysis of the process as it is performed today. A series of tools and exercises are used to study and examine it from a variety of viewpoints. The goal: find and fix the obvious flaws – the problem steps in the process, the steps that involve delays, bottlenecks, rubber stamps, duplication, rework, and non-value-added activities. We recently assisted a $500 million electronics distributor, working with its internal process redesign teams in an intensive, six-week effort that identified $7 million of savings – including more than $1 million of first-year savings.

Prevent errors. Many processes have checks built in close to their end points to find errors that may have been made. Research has shown that if preventing an error has a cost of „I," then finding that error later has a cost of „10," while having the customer find the error has a cost of „100"! Error prevention is a key to process efficiency and effectiveness. We found this to be particularly true at a publishing firm whose advertising error rates were high and very costly in terms of customer satisfaction.

Delegate responsibility. In many cases, fixing problems and preventing errors means delegating responsibility for decision-making to the person doing the work. However, delegating work is not easy. It requires that the worker be empowered with tools and training so that the decisions he or she makes will be made in the best interests of the stakeholders. Virtually every example of process improvement involves a level of increased delegation for decision-

making. For example, when we discovered that a client bank typically required six levels of authorization to approve a loan, we recommended delegation as a way to reduce time lag and improve customer service without increasing risk.

Install enabling technology. Technology can be a major enabler of process improvements (by controlling the flow of work), error prevention (by catching errors before they have an impact), and effective delegation (by building knowledge and rules into systems). Even more important, technology can permit fundamental changes in the way work is done, supporting basic redefinitions of that work and the jobs and roles of the people who perform it. The bank referred to above, for example, is building a system to use E-mail to notify senior managers of delegated decisions instead of routing the actual paperwork to each manager.

Expand job scope. A broader scope for individual jobs means fewer handoffs from task to task, reducing both opportunity for error and the need for follow-up checks that do not add real value. The results: reduced processing time, higher quality, and improved service. A model finding wide acceptance is „one-stop service," in which a single service representative processes a customer request from start to completion, even across

functional boundaries such as credit-checking. This concept was used to solve the customer-service problem in the insurance-carrier example discussed earlier. It has also been used effectively to improve the traditional customer-order cycle.

Compress processes. Compression normally implies a conceptual shift in how a process is performed, so that the many steps in a complex process are compressed into far fewer steps. Inevitably, such shifts involve changes in technology enablers and job scope. Another type of shift compresses time rather than steps. By redesigning a complex process to permit parallelism – i.e., the performance of several previously sequential tasks at the same time – you can significantly reduce the overall time required to complete the process. One office equipment manufacturing firm introduced compression of its product development processes, where shared access to design data now permits multiple engineering functions to be completed concurrently.

The Process Thinking Tool Kit. The process-thinking tool kit consists of two components: the tools or exercises used and the manner in which those exercises are applied.

The exercises themselves are not revolutionary. We use many of the same tools used in Total Quality Management (TQM) and continuous improvement programs. After all, the essence of process thinking is process improvement, which involves understanding how a process works, what is wrong with it, and how to make it work better. Thus tools such as flowcharting, activity analysis, benchmarking, measurement, and creative thinking are all applicable.

More important than the exercises themselves is way they are performed. To the extent possible, process thinking should be undertaken by the people „at the coal face" – the people who do the work and/or their immediate supervisors. The work should be done by a cross-organizational team of such people who represent all the elements of a complex process. Senior management should give this team a clear picture of the organization's strategic goals, as well as a set of principles to follow and expectations to fulfill. Management should then empower this team to go forth and improve the process – with every expectation that if the team follows the ground rules, its recommendations will be accepted and implemented.

Problem/Solution Fit. In process thinking, it is critical to fit the nature of the solution to the dimensions and contours of the problem. Not all processes in a business are in need of the same type and level of improvement. Some already deliver satisfaction to customers, employees, and owners in a fairly efficient manner. These processes should be improved incrementally on a continuing basis as part of a continuous improvement or TQM program. Empowered TQM teams can typically identify modest improvements in their own processes and implement them in a matter of weeks.

Other processes will need dramatic redesign to improve their effectiveness and efficiency. Redesign entails a thorough, end-to-end analysis of the current process with the goal of major restructuring and streamlining. It may require changes to management policies, realignment of work activities and organizational relationships, and changes to information systems, which means that the redesign effort must have the full understanding and commitment of senior management. Implementation of a process redesign typically takes one to three years.

In many businesses, there are one or two processes that must be fundamentally transformed. Improving the current process, no matter how radically, will not suffice. Sometimes, no process exists; in other situations, the current process is so deficient that it does not represent a good starting point. A total rethink may even question whether the business needs to carry out the process; perhaps it should be outsourced. Rethinking a business process at this level often requires direct senior management involvement.

The same basic tools are used for continuous improvement, redesign, and rethinking processes, but their application and results vary greatly. Effective process thinking requires a clear understanding of the nature of the process and the degree of change required to achieve the desired levels of improvement.

Process Thinking Applied: The Case of the Slow-Changing Die

While cross-organizational processes are prime candidates for improvement, every organization has other, more narrow processes that are excellent candidates for redesign. We recently completed an assignment for a client in the automotive sheet-metal stamping business where one particular process was the source of considerable delay and cost.

The process is called „die changeover." It involves the transition on a press line from running one part to another. The changeover requires removing all the conveyors, automation arms, and dies associated with one stamping and replacing them with the tooling required for the next stamping (see Exhibit 3). Die changeover is a critical process for companies in this business. Since the time required for the changeover has a significant impact on overall equipment up-time (and hence profitability), this time is a key owner satisfaction attribute.

But owners are not the only stakeholders whose satisfaction is at risk in this process. The die changeover crew (employees) have their self-esteem at stake; what they do and how they do it has a large influence on the total changeover time.

The customer also has a stake in this process, as the effectiveness of changeovers can have an impact on the receipt of stampings. In these days of just-in-time manufacturing, speed and dependability are ever-more-important considerations.

A successful die changeover can be compared to a pit stop in the Indianapolis 500. Although the dies often weigh more than 40 tons each, when the process is well designed and correctly resourced, it can go like clockwork. All „external activities" (those to prepare for the changeover) are completed in advance, leaving only the „internal activities" (those physically involved with moving the dies in and out) to be done during changeover. The benchmarked performance level is two hours.

Exhibit 3

The Die Changeover Process
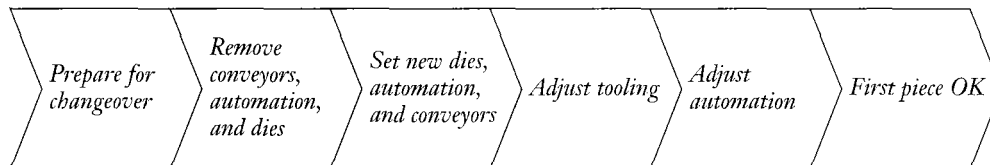
In this company however, changeover required an average of eight hours. In addition, the process required twice as many employees as the benchmark site. Clearly, this critical process was in need of improvement. An analysis of the root causes of long changeover times revealed problems in the process, resources, and organization.

We found that the die changeover process was poorly planned. Many external activities – such as gathering hand tools – were actually being done during the changeover rather than before it. Thus, in the middle of the changeover, the whole effort came to a halt as a worker went off to find a particular-sized wrench – the need for which was known ahead of time.

In addition, there was no standard procedure for a changeover. Confusion reigned, steps were missed, and effort was wasted. We also encountered the impact of too narrow a focus; a process related to die maintenance was also broken and was lengthening changeover times.

Resource availability was also contributing to the problem. For example:

• Rolling bolsters, which would have allowed the crew to slide the dies out easily, were not installed on the presses

• Inadequate crane capacity forced the crew to split dies in half before they could be moved.

• The automation was not repeatable, which meant that considerable adjustment was required every time to get the next part to run.

Finally, the organization structure was impeding changeover. The client had formed self-directed work teams, but the teams were not skilled in working in that mode. They had no „pit chief" to orchestrate the crew during the changeover. The result was an undirected work team with poor communication and no accountability for performance.

With this company we worked out the improvement opportunity analysis summarized in Exhibit 4. It addressed the issues in all three categories that were required for the improvement program to succeed: process, resources, and organization. This process is now well on its way to improvement.

Surmounting the Barriers. Significant improvement normally implies fundamental changes in some set of organizational responsibilities, job and role definitions, power bases, and vested interests. These implications must be fully understood and openly discussed to address the valid fears that managers and staff members will have. At times, senior management agrees to protect those designing the changes; at other times, management makes it clear that change is a requirement for survival. Whatever the resolution, the message must be clear: process thinking will lead to change.

Exhibit 4

Die Changeover: Anatomy of a Process Improvement

The process
Changing dies in a sheet metal manufacturing plant

Performance measures	*Client Industry benchmark* 8 hours 2 hours
Time to change from one die to another Crew size	15-20 8-10

Process analysis and improvement	*Solution* • Plan changeovers using a checklist of prerequisite activities
Problem • Poor planning prevented prerequisite activities from being done prior to actual changeover • Missed steps and confusion in changeovers, leading to wasted effort • Die maintenance process was broken	• Create a standard procedure for all changeovers to follow • Fix the maintenance problem

Resource analysis and improvement	*Solution* • Install rolling bolsters on presses, improve crane capacity
Problem • Facilities not adequate for quick change of dies	

Organization analysis and improvement	*Solution* • Restructure team composition and negotiate union work rule changes
Problem • Die changeover „teams" not working	

Management must also address the issue of inertia. In many organizations, people have developed a deep-seated and powerful „can't do" attitude. Individuals simply do not believe that they or their organizational units have the power to make significant change happen. Overcoming this inertia and establishing a clear, growing, positive momentum are key factors to the success of the process thinking effort. Quick short-term projects with demonstrable results can be the vehicles, but a considerable concentration of energy may be required to get them moving. Here too, management's message must be clear: things will happen and attitudes and culture must change to permit change to occur.

Ensuring Success

Improving processes, especially large, cross-organizational ones, often proves very difficult. It is important to understand and deal with the requirements for success.

From the standpoint of process thinking itself, management commitment and leadership are key. Top management must understand the nature of process thinking and buy in totally to the improvement effort. Management must confirm its commitment by defining clear principles and expectations and by ensuring that reasonable recommendations are implemented.

In analyzing processes, important elements of success are involving the right people, using an effective tool kit, and insisting on fact-based assessment. If the team is not representative or at the right organizational level, or if its work is hampered by poor tools and superficiality, the desired improvements will not be realized.

It is also important to set the right pace. Significant improvement can require months and years, as well as major investments and staff time. On the other hand, one-time, quick fixes will yield more modest gains – but in the very near term. Several companies have been successful at mixing long-term projects with short-term opportunities and pilot programs. The long-term projects promise the meat of the improvement, but will take considerable time and investment. The short-term opportunities – identified through the process thinking effort – are meant to show progress and benefits quickly. The pilots are a bridge between the short and long terms. They begin to implement the longer-term vision while providing credibility and some level of shorter-term benefit.

Most important, they move underperforming businesses in the direction of sustainable high performance.

[1] The Wall Street Journal, *June 6, 1991.*

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