The Real-Time Enterprise in Twenty Minutes

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The Real-Time Enterprise

Competing on Time Using the Revolutionary Business SEx Machine

Peter Fingar

Joseph Bellini

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Dedicated to Alan Greenspan
for recognizing and articulating the competitive advantages
of the real-time enterprise.

"Doubtless, the substantial improvement in access of business decision makers to real-time information has played a key role"… in helping keep the economy in a milder recession, and allowing a quicker comeback after the events of September 11, 2001.
–Testimony of Chairman Alan Greenspan
Federal Reserve Board's semiannual monetary policy report to the Congress Before the Committee on Banking, Housing, and Urban Affairs, U.S. Senate, March 7, 2002.

Commenting on Greenspan's assessment of the real-time enterprise, AMR research concluded, "While the evaluation of needs and technology may seem like a daunting task, moving your enterprise toward a more real-time environment will not only improve the health of your company, but the health of the entire free world as well."

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Preface

In this book, we go under the covers of the buzzwords and hype to examine the many facets that make up the notion of a real-time enterprise. We share insights gained from our experiences on the front lines with pioneering companies that have already recognized what it means to become a process-managed real-time enterprise, and are working intensely to become such. We also assess its implications for business strategy, for our goal is to answer the question of what the real-time enterprise portends for competitive advantage in business.

Along the way we describe some of the enabling technologies that are required to move from concept to reality. But this book is not about those technologies. It's not for programmers or technologists looking for technical guidance or programming recipes. It's about how the Internet is being forged with a new category of software that gives business people control of their business processes to compete for the future—a future that's certainly not business as usual.

When we *do* talk about enabling technology, it's not to distract the business reader, but to show the *substance* beneath the hype of both the real-time enterprise (RTE) and business process management (BPM) buzzwords being bandied about by consultants, IT vendors and the trade press.

This is primarily a book for business people, for at its core it's about how time-based competition can and must be mastered by the company that wants to win in the decade ahead.

Peter Fingar
Joe Bellini
August 2004

Foreword by Dr. Max More

Never mind New Economy vs. Old Economy industries. What matters is if your business enjoys intelligently revised and technologically enhanced business processes. Business process innovation is beginning to move in concert with accelerating technological evolution. Say goodbye to the New Economy; meet the Now Economy. We are witnessing the emergence of *real-time enterprises* (RTEs) that will comprise the bulk of the Now Economy. In the Now Economy, information flows rapidly through supply and demand chains, crossing corporate boundaries, ensuring maximum efficiency and responsiveness.

The ideal vision of the RTE is one of companies where information moves without hindrance, and business processes are continuously monitored and trigger rapid reactions, usually automated according to embedded business rules. RTEs also sense shifts in tastes and practices and respond by offering new products and services. Automated processes easily traverse corporate boundaries, time zones, media and systems. Batch processes and manual input are minimized by ensuring that real-time information among employees, customers, partners and suppliers is current and coherent. The Now Economy is the instantaneous, frictionless economy of economists' legend—the mythical beast that may finally be emerging from the mist. The Now Economy is a web of RTEs that form a virtual supply and demand chain continually seeking information, monitoring, and responding, guided by humans, mostly at the highest strategic level.

An exhilarating, invigorating prospect. But is this vision an accurate, prophetic glimpse of the company of 2010 or merely a flight of fancy? As a strategic business futurist I have seen numerous indications that the vision points in the right direction. But the seeming inevitability and urgency as seen from a technical perspec-

tive must be tempered by looking through the lens of the economist and the organizational psychologist. Both strategic business planners and IT executives need to separate hype from happening. The real-time enterprise is already here in embryonic form. Those who ignore the trends will be buried unceremoniously. But so will those who jump too far ahead. Getting the right balance between dogmatic skepticism and reckless optimism will enable executives to form a strategy to ride the leading but not bleeding edge of the Now Economy.

What is it and where is it coming from?

What exactly is the real-time enterprise? A working understanding of the RTE would include these characteristics:

- Process automation bridging distinct enterprise boundaries, media, and information systems;
- Real-time provision and exchange of information with customers, employees, partners, and suppliers;
- Processes that ensure this information is current and consistent throughout the network;
- Event-driven processes forming a sense-and-respond approach that minimizes manual input, batch processing, delays, and inventory; and
- High adaptability.

The real-time enterprise is crystallizing out of a process-rich brew in which swim Web-enabled customer relationship management, supply-chain event management, enterprise relationship management, partner relationship management, content management, customer analytics, business intelligence, optimization, forecasting and simulation. Into the mix we can throw technologies, including application servers, enterprise application integration, Web services, microservers, event routers, enterprise portals, and digital dashboards—and at the heart is a new category of software,

the business process management system.

This fertile brew has been struck by the lightening of intense competition, bringing to life the first members of the real-time species. Many of these are existing behemoths with the most adaptive corporate DNA—Dell Computer (supply chain), Wal-Mart, GE (digital dashboards), Cisco (internal monitoring and reporting, one-day closing of finances), FedEx and UPS (tracking and self-service logistics management), Royal Dutch/Shell (using sensors to monitor its oil refineries and properties) and the lesser-known Zara (demand tracking and inventory minimization). The uptake of real-time by these exemplary businesses gives further weight to the view of renowned venture capitalist, Vinod Khosla, who sees real-time as "the business story of the next decade."

What is driving the real-time enterprise?

Five forces are driving us towards the RTE: The first consists of the group of processes already mentioned, from customer and partner relationship management to analytics and content management. The second driver is the renewed emphasis over the last decade on operational excellence through programs such as Six Sigma, re-engineering, value-based management, and the balanced scorecard. The third driver can be seen in the widespread recognition that competition is increasingly not between individual companies but between supply chains. Analysts have referred to aspects of this supply chain competition in discussions of the extraprise, the value chain, the extended real-time enterprise, collaborative production, forecasting, and replenishment (CPFR) and collaborative commerce.

Collaborative commerce creates enormous opportunities for and benefits from real-time information and processes. Corporations within a value chain benefit by:

▪ Sharing real-time demand- and supply-chain information;

- Manufacturing and distribution planning;
- Joint product development, including synchronized design and skills management;
- Materials sourcing;
- Strategic sourcing of manufacturing, including warehouse and logistics management;
- Customer service, including synchronized customer contact points, analytics, and synchronized and collaborative sales and marketing including channel management;
- Distributed order management, including real-time order status; available-to-deliver information, and automated order handling and routing;
- Logistics management, including available-to-promise information; and
- Warehouse and transportation optimization.

We find the fourth driving force in the rapid development and convergence of emerging technologies from those mentioned above, to those almost-ready for prime time such as ubiquitous computing, and neural network pattern recognition, and some already deployed technologies with a much larger future ahead including RFID (radio-frequency ID) tags, and natural language processing. RFID tags and ubiquitous computing really represent the most visible front of a tsunamic wave of proliferating sensors and actuators tied into real-time applications that experts see leading to smart dust, self-organizing micro-devices, and, ultimately, *smartifacts*—smart materials and intelligent artifacts. The real-time economy will be a world where food squeals if spoiled or tampered with, packages tell what and where they are, warehouses "talk" to each other, trucks converse with logistics and weather systems to optimize routes, important information finds you wherever you are on any device, shelves restock themselves and signal changes in customer tastes, and the integrated customer re-

lationship system of a financial services firm generates a thank-you call to a customer who has just made a big trade.

The fifth driver for real-time comes from the competitive advantages it enables:

- Reduced lead times, improved efficiency and responsiveness;
- Real-time financial reporting (now demanded by Wall Street);
- Lower stock levels;
- Reduced cost per transaction;
- Superior competitive intelligence and demand information;
- Increased responsiveness to customers;
- Reduction in expensive human input;
- Real-time reengineering of processes;
- Better decision-making;
- Improved leveraging of technological improvements;
- Visibility of the extended supply chain;
- Optimization of procurement; and
- Risk management by optimizing purchase decisions under conditions of uncertainty.

Strategizing for the real-time advantage

So real-time is real, it has begun, and its development seems inevitable. But what should you be doing about it and how does it affect your strategy? Some commentators, intoxicated with the real-time idea, have promised sustainable competitive advantages, using disruptive real-time technologies to *cement* market dominance. This is nonsense. Certainly successful early adopters and best practice users will pull ahead. But real time will eventually become just a cost of doing business, a necessary but not sufficient condition for competitive advantage. Just like Six Sigma or re-engineering, real-time enterprises will only sustain a competitive advantage by doing real time really well and, as Fingar and Bellini

explain, setting the pace of innovation.

Achieving mastery will be particularly crucial to "value network architects" (Cisco, Dell) who require process excellence even more than customer solutions companies (Amazon, Charles Schwab) or product innovators (3M). One key to real-time mastery lies in clear definition of business processes. Real-timing sloppy or poorly understood processes will work no better than implementing enterprise systems of the past without prior planning. Superbly engineered real-time processes will produce little benefit unless leaders understand cultural dynamics and align incentives to the adoption and use of real time. Frustrating as it may be to the technocrat, the competitive edge will go to those who master organizational psychology and other *soft* skills both within the enterprise and as applied to data flows to and from others in the extended enterprise.

The real-time enterprise promises so much that many businesses will overdo it. Incremental real-timing will almost always trump big-bang implementations. Executives should consider which aspects of their business would benefit most from real time. Smart strategy means understanding what business you are in, exactly how your processes work, where the incentives lie, and which real-timed processes would contribute most to success. It really is time for real time, but start smart, take small steps, and keep your balance.

I invite you to join Peter Fingar and Joseph Bellini on their insightful journey through the world of the real-time enterprise. They will take you under the hype curve to provide the information and insight you need as you prepare your company for competing successfully in the 21st century.

—Dr. Max More
Director of Content Solutions, ManyWorlds
August, 2004

One

The Real-Time Enterprise in Twenty Minutes

KEY POINTS: *During the first fifty years of using computers in business, automation has been focused on record keeping. But, in case you hadn't noticed, that's changing, changing utterly. As we enter the second fifty years of business automation, computers are being deployed in a way that changes how companies do what they do, how they do their work, how they operate and conduct business. Rather than just speed up what companies already do, real-time computer-assisted business processes will bring about deep structural changes and make Operational Transformation the next frontier for gaining and sustaining competitive advantage.*

"Things have changed in a thousand small ways as a result of the Internet—email, online banking, information access, connections among business partners, online procurement… the list goes on. As the cumulative effect of the thousand points of light of today's business Internet reach the stage of total and immediate access, it becomes clear that a new kind of company, the company of the future, will emerge. In fact, it already has. It's the real-time enterprise."

–Peter Fingar, MIT Sloan School Lecture.

There is no doubt something new is going on in business, though it may not be clear exactly what. In the quest for the Next Big Thing in business, you are probably convinced by now that the next big thing isn't about technology. The technology spending craze of the second half of the 1990s is proof enough.

You also know that the search for new productivity and adaptability must center on squeezing out costs while at the same time finding new ways to get closer to your never-satisfied customers whose needs have also greatly changed under the current economic realities. You know you need to look beyond the walls of your company to seek new operational innovations and to sense and respond to new market opportunities. You know you must become more proactive and less reactive to change.

Yet, although many business people have said, "I told you so, the Internet was only a fad whose bubble burst in the dot-com meltdown," you know the Internet has only begun to transform business. You rightly suspect that the anywhere, anytime, anything connectivity of the Internet can enable unprecedented opportunities for innovation and competitive advantage.

But any plans for business reinvigoration will call for information system capabilities that currently do not exist. You may be responsible for creating these capabilities within your organization. The tools at your disposal include current systems, infrastructure, staff and practices. Each of these represents a significant investment and currently provides value. But they are just not up to the task at hand. You know you need more, but more of what? You know all the latest management innovations such as lean manufacturing and Six Sigma. But those methods only help you perfect what you already do in your business, and you know you need to do something new, something you are not already doing, to gain new business advantage.

Again, you reflect on the universal connectivity of the Internet in thinking about the Next Big Thing. There are numerous advanced technologies and techniques that could help you harness the Internet, but which ones? How will they enable you to transform your business? How can they create new sources of competitive advantage? How do you implement them while lev-

eraging your current investments and business practices?

Of course you are still wary of the Internet, for as the millennium clock rolled over to the 21st century, that something new was thought to be the dot-com revolution, where everything business people knew was wrong, for the Internet had supposedly changed the very rules of business. Traditional business fundamentals were thrown out in favor of stratospheric initial public offerings of firms established by twenty-something year old entrepreneurs.

Indeed the Internet had worked magic on public markets and there seemed no end in sight. That is, until the dot-com crash of 2000, where over an 18-month period the sucking sound could be heard when almost three and a half trillion dollars evaporated as financial markets imploded. Many thereafter concluded that the Internet fad was over. Others, like GE's legendary CEO, Jack Welch, concluded that the impact of the Internet on business had just begun, for the Internet wasn't about a Web site or an IPO, it was all about a major business transformation—Operational Transformation. That transformation has just begun and has been heralded by two predominate buzzwords, the *real-time enterprise (RTE)* and *business process management (BPM)*. A businessperson would have to have his or her head in the sand not to have seen these terms in the business press these days. There's lots of hype. But under the hype curves of these new three-letter acronyms a whole new world of gaining and sustaining competitive advantage is unfolding.

The impact of the Internet's universal connectivity doesn't mean a change in *what* goods and services a company provides, nor does it mean the invention of new industries. Those stories belong to the invention of the steam engine, electricity, railroads and other icons that ushered in the Industrial Age. Instead, universal connectivity signals a change in *how* companies deliver

their goods and services—that is, how they do what they do, how they and their trading partners accomplish their work; that's what we call *Operational Transformation.* It's about *how work gets done*, and though that may sound a little boring, Operational Transformation is the next frontier of business advantage.

Today, ingrained work patterns linger from traditional business designs that originated with Adam Smith's concepts of specialization and division of labor in the 1776 book, *The Wealth of Nations.* But change companies must, or their competitors who reinvent the way they work will run circles around them. What GE, Wal-Mart, Virgin Group, Toyota, JetBlue, Dell Computer and other often-cited pioneers have done is *change the game in their industries by making deep structural changes, that, in turn, have been made possible by Internet-enabled business process innovation*—they re-invented the very ways they operate their businesses.

Forrester's CEO, George Colony explained the need for Operational Transformation against the backdrop of the universal connectivity of the Internet; "Whether it's the stirrup, the PC, or electricity, technology has always required change in the way humans work. You don't farm the same way with a hoe as you do with a plow. General Motors didn't organize its robotically driven Saturn production line the way Rolls-Royce structured its hand-built assembly process." You don't conduct business the same way with faxes, phone calls, meetings and emails as you do with real-time business processes delivered over the Internet.

Further, Internet-enabled business process innovations are not one-time events. It's the "pace of innovation" that counts in today's global, and often dog-eat-dog, business world. Michael Dell, who has made his fortune by selling commoditized IT products and services, believes a given business process innovation is not the endgame; it's the starting line. As Andrew Park

reported in *Business Week*, "Sure, Dell is the master at selling direct, bypassing middlemen to deliver PCs cheaper than any of its rivals. And few would quarrel that it's the model of efficiency, with a far-flung supply chain knitted together so tightly that it's like one electrical wire, humming 24/7. Yet all this has been true for more than a decade. And although the entire computer industry has tried to replicate Dell's tactics, none can hold a candle to the company's results. Today, Dell's stock is valued at a price-earnings multiple of 40, loftier than IBM, Microsoft, Wal-Mart Stores, or General Electric."

"As it turns out, it's how Michael Dell manages the company that has elevated it far above its sell-direct business model. What's Dell's secret? At its heart is his belief that the status quo is never good enough, even if it means painful changes for the man with his name on the door. When success is achieved, it's greeted with five seconds of praise followed by five hours of postmortem on what could have been done better. Says Michael Dell: 'Celebrate for a nanosecond. Then move on.' After the outfit opened its first Asian factory, in Malaysia, the CEO sent the manager heading the job one of his old running shoes to congratulate him. The message: This is only the first step in a marathon."[1]

Welcome to 21st century business, where the winners are agile, mobile and play hardball. They operate their game-changing business processes in real time, following each business innovation with a marathon of process improvement and optimization. They harness the humble, but mighty, *business process* to form global value-delivery systems that provide comprehensive computer-assisted support, from their customers' customers to their suppliers' suppliers, squeezing out both *costs* and *time* throughout a business web of players interconnected by the Internet. They operate 24/7, not only providing customers, em-

ployees and suppliers with real time, actionable information; they provide *self-service* operations so that all involved can actually *conduct business*, anywhere, anytime—they can do more than just see actionable information, they can *act* on it. The company, its suppliers and its customers are all employed by the same value-delivery system—they are fused together as one—each playing its part in creating, delivering and consuming economic goods and services. Indeed, Operational Transformation is the next source of competitive advantage, and companies that pursue this new mode of business will become the process-managed, real-time enterprises that prosper in the decade ahead.

Operational Transformation: The Next Source of Competitive Advantage

Years ago, Dr. Michael Porter, Harvard Business School's authority on competition and strategy, concluded that, "Activities, then, are the basics of competitive advantage. Overall advantage or disadvantage results from all a company's activities. The essence of strategy is choosing to perform activities differently than rivals do." But it's not so easy to change the activities a company currently performs, even if these are now dysfunctional work patterns, for ingrained work habits are hard to break. Even with the universal connectivity of the Internet, many companies still operate in the same basic ways they have always operated, coordinating work manually, conducting meetings, shuffling paper and making repeated phone calls to correct even the simplest of errors in day-to-day business transactions.

Meanwhile, others, some of which are highlighted in this book, actually conduct business with real-time business processes that reach across the globe. Using the principles of business process management, they have made deep structural

changes in their organizations that make them different. They are *time-based competitors* and are swift to make major course corrections, while delighting their customers day in and day out with *responsiveness*, rolling out innovations with regularity. It's all in how they do what they do, and they clearly have reinvented how they do what they do.

Operational Transformation requires looking outside the walls of a given company and managing the complete value-delivery system, from its customers' customers, to its suppliers' suppliers. While the Internet provides the digital nervous system for the 21st century company, a new category of business process management software provides what's needed to harness that universal connectivity for business advantage. Companies that master real-time business process management can:

- Automate the Primary Activities of the Firm.
- Radically Reduce the Cost of Business Interactions.
- Provide Self-Service That Delights, While Cutting Costs.
- Radically Reduce the Cost of Software While Speeding Up its Development Time.
- Execute on Innovation with Great Speed and Agility.
- Sense and Respond to Demand.
- Make Deep Structural Adjustments.

Automate the Primary Activities of the Firm. Michael Porter's work on competitive advantage separates a firm's primary activities that deliver value to customers, from its support activities that represent the overhead of being in business (paying the rent, paying employees, human resource management and so on). Primary activities are about innovation, sales and marketing, and customer support—all the rest, the support activities, are essentially back-office costs.

During the first fifty years of business automation, rarely were the firm's primary activities the object of automation, for software had not matured to the point where it could address the complex and oft-changing primary activities of the company. The new category of business process management systems changes that. For example, through its Digitization Initiative, GE is intent on reallocating its resources, reducing the back-office to 10% of resource expenditures, with all the rest devoted to its primary activities. In short, for companies that master real-time process management, business automation will, for the first time, bear directly on the *money-making aspects* of the business instead of the *bean counting*. Because it is the uniqueness of a firm's primary activities that distinguish it from competitors, computer-assistance will give companies the tools they need to differentiate by performing their activities in unique ways—the essence of Porter's notion of strategy.

Radically Reduce the Cost of Business Interactions. It's the cumulative costs across the entire value chain that customers see, and those costs are driven as much by information costs as they are in the actual delivery of goods or services. By pushing down information costs of the entire value-delivery system, companies such as Dell have established dominance in their industries. Time is the critical variable in squeezing out costs, for *squeezing out time* can reduce costs such as inventory, overproduction and transaction handling costs. Reducing or eliminating information lag time across the value chain has a positive impact on the bottom lines of all value-chain participants, including customers. Long ago, management luminary, Peter Drucker, observed that it's the new entrant in an industry that reduces overall costs—both direct and indirect—by managing the entire economic chain that comes to dominate. Companies that master Internet-enabled business process management can gain a new capability

for managing costs across the entire value-delivery system.

Provide Self-Service That Delights, While Cutting Costs. Advanced techniques of delivering self-service via the Internet can cut costs of customer care significantly because the customer no longer requires a service representative to handle most service-related issues, and a new generation of self-service can increase customer loyalty because response times to problems can be significantly reduced—no more multiple and frustrating visits to touch-tone hell at the call center to solve even the most straightforward request. A new generation of computer-assisted self-service goes well beyond the simple tasks like checking an account balance or transferring funds from one account to another. Today's self-service capabilities provide a collaboration environment so that customers can have a *dialog* with a company to solve issues that were not anticipated and built into so-called Help menus and frequently asked questions and other already-common self-service techniques.

A new generation of self-service software is increasingly capable of becoming a company's Concierge. Smart companies, such as Progressive Insurance, are making their customers as smart as they are by providing quotes from their competitors. Its Concierge knows its customers will check anyway, so it provides a complete service and does the leg work for them, creating trust in the company. Progressive knows that *trust is the foundation for building lasting relationships* with customers and increasing their lifetime value to the company.

The relationship between a company and its customers doesn't end when a good or service is sold; that relationship has just begun, and must continue throughout the consumption of the good or service. Customer care activities are the most significant touch points with customers, for the cost of acquiring new customers is ten times that of selling to an existing, happy,

customer. On the other hand, a dissatisfied customer will tell nine others about his or her experience with a company. Indeed, self-service can provide the *double-leverage* of cutting costs while increasing satisfaction. This represents a truly new source of competitive advantage, for it's a sure formula for strengthening customer relationships. As writer Kevin Kelly noted, "The central economic imperative of the Industrial Age was to increase productivity. The central economic imperative of the network economy is to amplify relationships."[2]

Karen Rogers, VP of FedEx.com, gives a sampling of FedEx's ever-growing self-service functionality, "You can locate a FedEx station, get signature proof of delivery, request a courier for pickup, download global trade tools, get forms for shipping international packages, estimate duties and taxes, request invoice adjustments, and connect to the customer service organization."[3]

"Other self-service Web apps include FedExShip Manager, which lets customers centrally manage domestic and international shipping; Global Trade Manager, which helps users estimate duties and taxes on international shipments; and a tool called Alive that lets customers manage and track ground and freight shipments from Asia to the United States. Technology-based innovations—whether new wrist-mounted bar-code scanners for on-the-go workers or the ability to know the contents of incoming packages provided by FedEx's InSight application—are viewed within FedEx as ways to differentiate the company's products and services."

"Only one factor is rated more critical than innovation to the IT team's mission. 'We will differentiate on innovation,' Dottie Berry, a FedEx V.P. says. 'We will dominate on speed.'"[4]

Radically Reduce the Cost of Software While Speeding Up Development Time. The notion of delivering "software as a service" is all

the rage in the technology world. Software components are rendered as *services* delivered over the Web. In short, *Web services provide the foundation for a programmable Internet.* Such Web services commoditize common automation tasks, driving down the costs, and making it child's play to combine two or more components for a higher-level purpose (e.g., combining catalog software, with a shopping cart and credit processing to sell goods on the Web).

Just about any form of software can be delivered as a Web service, and, while the software components themselves become commoditized, their combinations become the opposite of a commodity. The situation is like the commodity, the alphabet. Although everyone has access to the alphabet, only those with creativity and skill are able to fashion unique and high-value works of literature. Although everyone has access to Web services, only those with creativity and skill will be able to fashion unique and high-value business processes. That's where business process management software comes in, for it provides the capabilities needed to orchestrate and choreograph Web services into *unique* end-to-end processes that deliver distinctive value to customers.

While Web services commoditize software—and industry *best practices*—business process management software is the secret sauce that can blend software components to let companies perform their activities in infinitely different ways than their rivals—again, the essence of Porter's notion of competitive advantage is to be different. Likewise, industry best practices can be bundled, unbundled and rebundled in unique ways to create innovation practices—*innovation practices* supersede commoditized *best practices* as the way to escape the commoditization trap. That often means harvesting the best practices from different industries for business advantage.

BPMG (bpmg.org) council member, Mark McGregor, describes how best practices can be drawn from several industries to create what he calls *next practices*, "What if you looked to brand-based companies such as Coca Cola for your ideas on marketing, what if you looked at someone like Amazon for your inspiration in building on-line shops for your products and possibly someone like McKinsey as your inspiration for providing service? I am sure you will agree that a company that delivered products to the same quality as a pharmaceutical company and services to the standard of McKinsey, while being as smart at brand awareness as Coca Cola and as easy to buy from as Amazon—would cause more than a few ripples in its marketplace."[5]

Execute on Innovation with Great Speed and Agility. Business innovation is no longer a discrete event; it's now the "pace of innovation" that counts. It's never been easy to transform innovative ideas into action, and ultimately, all innovations can be copied. On the other hand, by the time competitors catch up to the innovators or fast followers, the innovators have pushed the envelope once again, running circles around their competitors. Time and time again, innovations from companies like Toyota, Amazon and Dell are there for all to see, but deep structural changes and other trade-offs make it difficult to imitate or replicate the innovator. Rather than try to catch up with Toyota, in 2004 Ford licensed Toyota's hybrid engine. Rather than try to catch up with Amazon, Borders Books outsourced its entire online operation to Amazon.

Business innovation is no longer an episodic, one-time event; it's the launching pad for a stream of follow-on innovations, and savvy innovators use real-time business process management to *execute on innovation* and to gain the *agility* they need to increase the *velocity of innovation*. They set the pace of innovation to stay ahead of the competition. *The ability to execute on innovation*

is at least as important as the innovation itself, and in today's technology-dependent business environment the bond between innovation and execution can only be sealed with real-time business process management.

Sense and Respond to Demand. Wal-Mart is notorious for many of its hardball business tactics, but one of the more surprising aspects of this 800-pound industry gorilla is its willingness to share demand information in real time with its suppliers and their suppliers. This willingness isn't to be mistaken for an act of altruism; it's an act of business acumen.

By beaming demand signals in real time to all its suppliers, Wal-Mart enables the entire value chain to respond to actual demand, rather than to forecast. Forecasts, by definition, are wrong. It's this information chain on steroids that allows products to flow from manufacturer to consumer without being unduly imprisoned in Wal-Mart warehouses. The *make-to-demand* business model of the real-time enterprise is a source of competitive advantage that supersedes the forecast-buy-sell model, the supply-push model of the past, with a radically streamlined demand-pull model of business.

Make Deep Structural Adjustments. The shift from supply-push to demand-pull as a business strategy applies to almost all industries, but *it requires structural changes in organizations and their cultures.* In other words, Operational Transformation is much more than automation or digitizing business processes. Becoming a process-managed real-time enterprise requires that companies adopt new business models which, in turn, require organizational realignment and changes in *mental models* of the people that make up the organization. In the past, people and cultural issues were kept at bay because companies did not have the technological infrastructures for making either rapid or deep structural change. But now, with the advent of the Internet and business

process management software, they do. As a result, people and cultural issues have surfaced as *the* critical factors of change.

Business process change and innovation is one side of a two-sided coin. Deep structural adjustments to organizations is the other. Companies that can tightly interlock strategy and organizational alignment to Internet-enabled business process innovation will be able to cross a cultural chasm that others cannot. To address this issue, GE has begun training its senior executives in innovation management, for innovation isn't just some nifty business concept; it demands changes in the very ways of doing business if it's to bring about new sources of competitive advantage. The big challenges are cultural and organizational changes, and these *monumental* challenges must be addressed as such.

Offer Product Services. Because consumers want solutions, not products (they really want a hole, not a drill), smart companies have transformed from just selling products to selling product services. General Motors no longer just sells cars; it sells *a safer, easier and more productive ride* with its OnStar technology and services. GE has grown from a product-based company into a services company that also makes great products. Seventy percent of GE's revenue comes from services and, increasingly, from product services. Two decades ago, when Jack Welch took the helm, only 15 percent of GE's revenues came from services. Welch noted in a 2001 shareholder's meeting that product service at GE today is as high-technology as anything the firm does.[6] Smart companies are embedding information and information services into their products, e.g., telephones are becoming Web browsers. But, as Dr. More noted in the Foreword, that's just the beginning of some already deployed technologies with a much larger future ahead; a future where companies will sell product services and smart products.

Note: You may want to read Appendix A: "The Myths and Realities of the Real-Time Enterprise" next to compare and contrast what you may have read in the business press or heard from various media; or save that chapter for a recap of the book in contrast to the media stories and accounts.

References.

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[2] Kelly, Kevin, *New Rules for the New Economy: 10 Radical Strategies for a Connected World*, Penguin Books, 1999.

[3] http://www.line56.com/print/default.asp?ArticleID=4110

[4] http://www.informationweek.com/story/showArticle.jhtml?articleID=17300234

[5] http://www.bpmg.org/articles.php

[6] Chairman Jack Welch's remarks at the firm's annual shareowners meeting in Atlanta, GA, April 25, 2001.

Two

Competing On Time

KEY POINTS: *In 1988, Boston Consulting Group's George Stalk clearly articulated how Japanese manufacturers used the secret sauce of 'time' as a source of competitive advantage. Fifteen years later a new technology, called Business Process Management Systems, emerged that, for the first time ever, made it possible to harness the universal connectivity of the Internet to engage in time-based competition with great agility, unencumbered by rigid IT systems. Companies that master this new competitive weapon will prosper in the decade ahead.*

Time is the scarcest resource and unless it is managed nothing else can be managed.—Peter F. Drucker, *The Effective Executive,* 1993.

In his 1988 *Harvard Business Review* article, "Time—The Next Source of Competitive Advantage," George Stalk made an interesting observation about the very nature of competitive advantage: *"Like competition itself, competitive advantage is a constantly moving target.* For any company in any industry, the key is not to get stuck with a single simple notion of its source of advantage. The best competitors, the most successful ones, know how to keep moving and always stay on the cutting edge. Today, time is on the cutting edge. The ways leading companies manage time—in production, in new product development and introduction, in sales and distribution—represent the most powerful new sources of competitive advantage. Cutting-edge companies today are capitalizing on time as a critical source of competitive advantage: shortening the planning loop in the product devel-

opment cycle and trimming process time in the factory—managing time the way most companies manage costs, quality or inventory. In fact, as a strategic weapon, time is the equivalent of money, productivity, quality, even innovation. While time is a basic performance variable, management seldom monitors its consumption explicitly—almost never with the same precision accorded to sales and costs. Yet time is a more critical competitive yardstick than traditional financial measures. Time is a fundamental business performance variable."[1] . . . .

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[1] Stalk, George, "Time—The Next Source of Competitive Advantage," *Harvard Business Review,* July-August, 1988.