

“No new theories on which a big business can be built have emerged. But the old ones are no longer dependable.”

So said Peter Drucker in a 1992 *Wall Street Journal* article, two decades after sociologist Daniel Bell announced *The Coming of Post-Industrial Society* (Basic Books, 1973).

Drucker was writing about an increasing inability to forecast what customers want, a trend that had been evident for many years. His call for a new theory arose from the fact that an axial premise of the industrial age theory no longer holds: market conditions that were predictable enough to support lengthy and profitable forecast-make-sell product cycles. But what is a business theory? What are the implications of changing one? What is the industrial age business theory? What would a post-industrial theory look like, and what new competencies will be required?

# the post-industrial manager

Organize systematically around  
the co-creation of customer value  
in the post-industrial age

**By Stephan Haeckel**

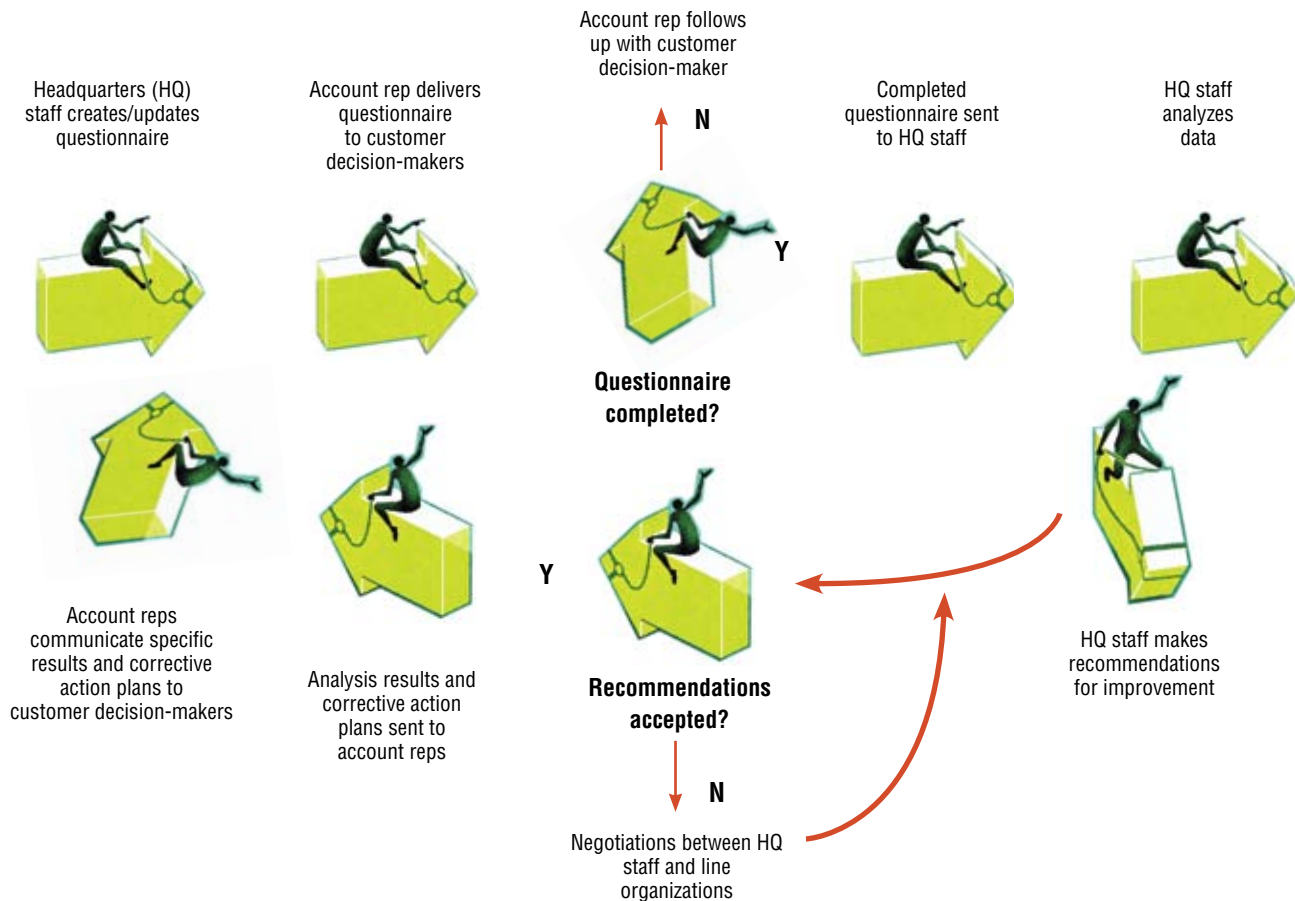
These questions are fundamental and will be addressed in this article. Answering them has become a matter of practical, as well as theoretical, urgency. Consider the perennial management issues of achieving and maintaining organizational alignment, becoming truly customer-oriented, fostering organic growth and empowering employees to innovate without sacrificing organizational-level coherency. These are perennial because they are very difficult—often intractable—problems to address within the logic of our “make-and-sell” industrial age paradigm, the premise of which is that the function of a business is to efficiently plan, make and sell products and services. But these problems either disappear or are dealt with systematically in the post-industrial “sense-and-respond” paradigm, in which the premise is that the function of a business in an increasingly unpredictable environment is to sense and respond effectively to abrupt changes in customer preferences. In what follows, “make and sell” and “sense and respond” will be

used as labels for the industrial age and post-industrial age managerial frameworks, respectively.

The merging of new theory with new practice was very much in the mind of Vince Vaccarelli, director of The Xerox Business Research Group, in 2000. Xerox was in crisis, facing multiple strategic and operational challenges that would take months and sometimes years to resolve. Senior management realized that survival depended on somehow retaining its large customers during this period and put Vaccarelli in charge of a Xerox-wide project to come up with a “breakthrough customer satisfaction” solution.

The remedy Vaccarelli and his colleague Barbara von Bergman envisioned would transform customer satisfaction from a process that produced reports for Xerox management into a system that produced benefits for Xerox customers. It would significantly improve the experience of the thousands of customer personnel who were associated with the use, acquisition and evaluation of Xerox offerings. And it would

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cut across deeply entrenched functional and geographic silos to deploy Xerox expertise on demand. Xerox's existing customer satisfaction process had a six-month cycle time. (See diagram on page 26.) Vaccarelli and von Bergman were convinced that trying to improve this process would never yield breakthrough results. A real breakthrough would require resolving individual user problems in hours or days and implied implementing and sustaining an unprecedented level of cross-silo collaboration. Realizing the significant organizational issues to be dealt with, they adopted a post-industrial sense-and-respond approach to design and implement a customer satisfaction assurance organization.

What Xerox did to transform customer satisfaction from an industrial age process to a post-industrial system prefigures some of the new managerial competencies called for by a new managerial theory. How they did it will be briefly summarized after we explore the broader issue of how post-industrial managers should think and act.

### Business Theory Impact

Business theories are different than business models. Business models can be thought of as high-level strategies for converting customer needs into shareholder value. A business theory is an institutional sense-making framework—an overarching context within which business models are conceived, and to which they must conform. It is a managerial framework that provides internal consistency to decisions about enterprise purpose, strategy, structure and governance. And it must be consistent with the external environment in which those decisions will be made.

A managerial framework shapes the internal logic that informs business practices, principles, measurements and the predispositions of policy-level managers. Over time, it becomes deeply embedded and increasingly tacit, resulting in underlying premises that are rarely examined, even if there is general recognition and acceptance of a new set of external realities. That's one important reason why it is so profoundly difficult to effect truly transformational change.

Procedures, rules, jobs, products, technologies, processes, strategies, visions and business models—all have increasingly short half-lives. But the ability to adapt them is constrained by an efficiency-centric industrial age managerial frame that assumes gradual and incremental change.

If any one person deserves credit for originating the core Industrial Age management principles, a compelling case can be made for Frederick Taylor, creator of the Taylor System of Management. For Taylor, scientific management represented a transformational change from what he termed “rule of thumb” management. (See Taylor.)

Time and motion study, efficiency experts, functional hierarchies of authority, best practice and root cause

## BRIEFLY

- **Managers should do more than personally subscribe to a genuinely new managerial paradigm.**
- **Purpose, strategy, structure and governance are the four pillars of a managerial framework.**
- **Context and coordination are taking over where command and control left off.**

analyses, process design/optimization/automation and Six Sigma projects are but some of the familiar 20th century managerial innovations and concepts that flowed directly from the logic of Taylor's model. But more recent innovations—such as cross-functional teams, mass customization, empowerment, rapid prototyping, real options and outsourcing—make no sense in Taylor's framework, which remains the institutionalized logic of how to run a business in virtually every large 21st century corporation.

Even if policymakers successfully effect a managerial initiative that breaks the industrial mold, the embedded logic of the old theory systematically gnaws away at the innovation. In fact, innovation itself doesn't make sense in the industrial age frame because innovation is by nature disruptive, and disruption is the mortal enemy of efficiency. As a result, when leadership changes, or its attention is diverted to other matters, things tend to regress inexorably back to a form that “make sense” institutionally.

### Difficult Paradigm Changes

There is another challenge to be acknowledged: Those who adopt a new framework (mindset, paradigm, way of sense-making) have to confront the issue of explaining their decisions and actions to those whose sense-making remains tethered to the old paradigm. If the scope of the frame change is sufficiently limited—for example, changing a best practice surgical procedure because of a breakthrough in non-invasive intervention—the innovation can usually be harvested in a reasonable amount of time. But if the scope of the frame change is as broad as the one called for here—a complete management theory do-over—it becomes a major challenge to enroll others who have not learned and internalized the new paradigm.

It is rarely sufficient for a manager to learn and personally subscribe to a genuinely new managerial paradigm. He needs an effective way of introducing it to people in the organization who don't yet think that way. Here we can learn once more from Frederick Taylor. He introduced scientific

## Comparison of industrial and post-industrial managerial frameworks

	<b>MAKE AND SELL</b> Demise of efficiency managerial framework	<b>SENSE AND RESPOND</b> Emergence of adaptive managerial framework
<b>PURPOSE</b>	Enterprise-centric	Customer-centric
<b>STRATEGY</b>	Strategic plan OF action	Strategic design FOR action
<b>STRUCTURE</b>	Functional hierarchies of authority	System of modular roles and accountabilities
<b>GOVERNANCE</b>	Command and control	Context and coordination

management as a set of practices, not as a theory. The theory was elaborated over the next few decades by thinkers such as Drucker. But prior existence of a post-industrial theory does not necessarily preclude introducing new practices that are derived from it, as long as a way can be found to apply those practices advantageously in the old framework. We'll start by identifying the generic elements of a managerial paradigm and the transformations in each element necessary to cope with post-industrial realities.

### Managerial Framework Anatomy

Purpose, strategy, structure and governance are the four pillars of a managerial framework. They necessarily change radically when the industrial age assumption of relative stability and predictability gives way to an assumption of rapid, discontinuous and unpredictable change. (See chart above.)

**Purpose.** In the sense-and-respond post-industrial paradigm, organizational purpose is not an internal enterprise objective such as growth, share, profit, margin, return on investment or industry rank. Instead, the purpose, or reason for being, of the organization is defined by the effect it undertakes to produce on an external entity called the customer. For a business customer this might be faster cycle time, improved growth or increased brand recognition; for a consumer it might be greater productivity, more financial security, fun or peace of mind.

In the new framework, a declaration of organizational purpose establishes a customer value proposition as the organizational design point. The customer may be any external constituent, but only one of them; the outcomes owed other external constituencies become constraints. For example, General Motors might decide that its rea-

son for being and organizational design point is providing safe, economic and stylish personal mobility to individuals. Providing shareholders with a certain level of return, dealers with a competitive line of vehicles and regulators with compliance would be constraints that must be met, after which all trade-offs would be in favor of the individual consumers. Note that this implies two new twists that are not part of the old managerial paradigm. First, it requires selecting one of the external stakeholders as the organizational design target; and second, it dissolves the false conflict between shareholder and customer value: Customers are recipients of the design point benefit, and shareholders are recipients of the reward for designing and delivering a superior customer value proposition. (Of course, shareholders are also an external constituency, and might be chosen as the primary one, with consumers being a subordinate constituency that sets performance, quality and competitive constraints. If this were the case, you would expect to see, as predominant strategies, such things as buying back company stock and finding innovative ways to exploit quirks in tax laws, regulations and accounting standards.)

**Strategy.** The need to adapt rapidly to the unpredictable change of our post-industrial economy implies a recasting of business strategy from design of action (a process design that depicts a series of activities and decisions to transform inputs into outputs) to design for action (a system design that depicts an architecture of roles and outcomes that interact to produce a customer effect). Rather than planning in advance the optimum way of linking organizational capabilities to achieve a particular objective, the sense-and-respond framework calls for strategy to be dynamically reformulated in response to what is actually happening. This means

expressing strategy as a structure of modular roles, each of which is accountable for using organizational capabilities to produce outcomes for one or more other roles. The operational linking of roles and capabilities into a response-specific configuration is deferred to the time when a specific customer request is recognized—either explicitly or tacitly. In other words, the linkage of capabilities into a response is driven from a customer benefit back rather than from the firm’s plan forward.

**Structure.** Organizational structure in the archetypical industrial age firm is a collection of functional hierarchies of authority linked by cross-functional processes. The knowers are at the top of each hierarchy, and the doers are at the bottom. In between are successive layers of supervisors who tell the people below them what to do and how to do it, and check on them to see that they are in compliance. But over time, the delayering and geographical dispersion of managerial echelons has created spans of control that make it virtually impossible for most managers to supervise the people who report to them. Furthermore, there is increasing recognition that the people being managed are likely to know better than their managers how things should be done. Nonetheless, the form persists.

**Governance.** Organizational governance concerns the propagation and enforcement of global purpose, policy and strategy. That is, the context that leadership provides to minimize ambiguity about (1) what outcome the organization exists to create, and for whom; (2) the boundaries that govern, but do not dictate, individual behaviors; and (3) the way people in the organization relate to one another in car-

## transformations that include a change in business theory involve radical change.

rying out the purpose. As indicated above, the industrial age mechanism for accomplishing this “command and control” is disappearing. Its replacement is “context and coordination,” in which leaders define organizational purpose, global policy constraints and an architecture of organizational roles, leaving it to the people occupying those roles to decide how to create the outcomes for which they are accountable. Technology is used to propagate the declared boundaries throughout the organization and to track the status of dynamically changing commitments between roles, assuring that the actions taken to fulfill these commitments



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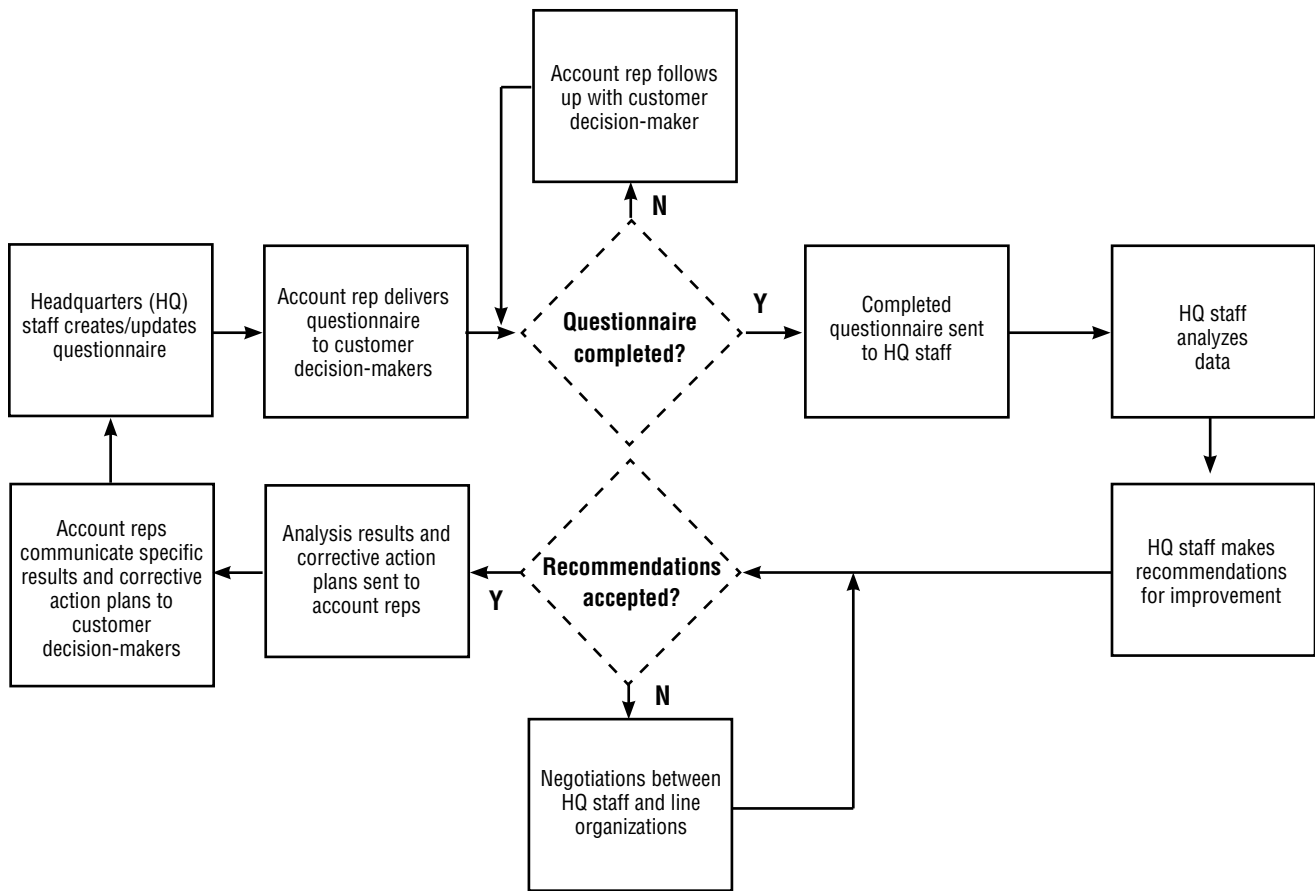
### Changing Managerial Paradigms

Transformations that incorporate a change in business theory involve radical change. The last transformation of this scope took the better part of a century to accomplish, and very few commercial enterprises survived it. Therefore, a highly desirable property of a new business theory is an ability to support a transition from the old one that does not require a one-time, all-or-nothing reconstitution of the enterprise. Accomplishing this requires that the replacement theory be scalable (i.e., applicable to all levels of organizational structure from the extended enterprise down to a specific project, department or division of an enterprise).

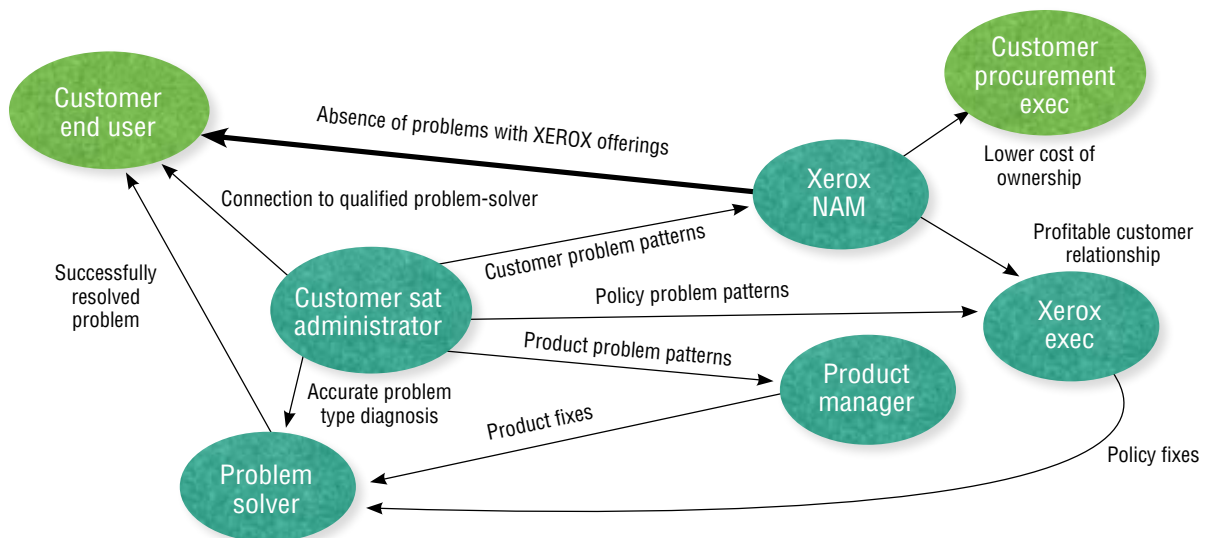
Because it is usually extremely difficult to change the way people think about how they think, few leaders will take on the challenge of replacing the institutionalized managerial paradigm just because they believe it is necessary. Even if they are convinced they know what the new paradigm should be and are given a plausible prescription for how to proceed, and even if they believe successful adoption would provide significant and credible benefits, the task of educating people in the organization in a new set of concepts, behaviors and metrics, and then waiting while they climb the learning curve is too daunting. The time required, and the attendant diversions from running the business are prohibitive obstacles for most executives.

A few will take it on anyway; others only when in survival

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## Customer satisfaction assurance system design



mode and after all other options have been exhausted. Many will simply pass the challenge on to the next generation and hope that business schools will eventually create a post-industrial curriculum that produces “new paradigm ready” managers.

There is an alternative: Address pressing current strategic and operational issues with post-industrial “next-practice” innovations that, if adopted and successful, will foster incremental changes in skills, behaviors and metrics. If these innovations are compatible with an internally consistent set of post-industrial prescriptions, such as those shown in the right column of the chart on page 28, the paradigm shift can occur backwards from new practices to new frameworks, rather than the other way around. Of course, internal consistency of these new practices can be achieved only if the leader has both understood and internalized the new paradigm in advance.

Here is an incomplete set of post-industrial competencies. Some are new while others exist but are not yet nurtured as core competencies in most businesses.

**Knowing earlier.** Rapidly sensing and interpreting the meaning of what is happening now is the *sine qua non* of “anticipate and preempt” sense-and-respond strategies. Signals known to be relevant must be captured earlier and made sense of faster. New technologies and techniques for doing that, such as stream computing, event-driven processing, and sophisticated statistical, linguistic and metaphor analysis are recent examples. Signals not thought to be relevant, but that become so, are an even greater challenge met only by extending the scope of an organization’s sensors and creating new diagnostic models to derive meaning from them.

**Managing by wire.** This is the managerial equivalent of the fly-by-wire capability that enables pilots to adapt rapidly while flying at several times the speed of sound. It incorporates and extends “knowing earlier” capabilities by using technology to translate managerial decisions into operational action. It requires role-specific information support of a decision-maker’s iterative cycle:

**Sense → Interpret → Decide → Act**

**Dispatching capabilities from the customer back.** This behavior is implied by the co-creation of value, but has significant implications for how risk is managed, how opportunities are identified and assessed, and where both general management authority and accountability must reside.

**Commitment management.** Rapid and dynamic linking of modular capabilities is accomplished through the negotiation and renegotiation of commitments between accountable roles. In larger organizations, a rigorous commitment protocol and tracking technology are required to

propagate policy and ensure that inter-role commitments are compliant.

**Authentic and rigorous negotiation.** Unlearning the defensive mechanisms that are a survival trait in traditional organizations and learning how to negotiate authentically is a cultural adaptation that must occur for a sense-and-respond organization to sustain itself and thrive.

**Designing an organization as an adaptable system.** This is a new and indispensable leadership competency. It must be learned and should not be delegated because in post-industrial organizations, structure does not follow

**systems are** intrinsically customer-oriented because their design is always an external (customer) effect.

strategy; it *is* strategy. The sense-and-respond prescription for organizational design incorporates new principles, methods and tools derived from systems theory, along with adaptive design principles such as modularity. The result is a role and accountability design that serves as a structure for action and becomes the central strategy document of the organization.

### **Xerox’s customer-back design**

The breakthrough change in customer satisfaction called for by Xerox executives in 2000 required a reconceptualization of the purpose, structure and metrics of “customer sat.” Responding rapidly to the unpredictable requests of tens of thousands of individual end-users dictated against a process approach. Why? Because process design requires too much prediction (e.g., inputs, outputs, contingencies and task sequences). So Vaccarelli and von Bergman opted for a customer satisfaction assurance system design, which they called Sentinel.<sup>TM</sup>

**Sensing.** Sentinel features an e-mail connection to all users of Xerox products and services in a given account. The system polls these users frequently and makes replying quite easy. Users are asked simply to click on a smiley-face or frowney-face icon to indicate if they are happy or unhappy about their current experiences with Xerox—or to delete the message if they have no comment. A negative customer response invokes interactive software that captures the nature of the specific problem or problems causing the dissatisfaction. The problem profile is matched to the profiles of potential problem-solvers throughout Xerox, and



a particular problem-solver is put in direct e-mail contact with the individual customer user having the problem. Data mining software tracks the result of each intervention, identifying significant patterns and updating customer relationship management (CRM), policy management and product management databases.

**Responding.** Executive reviewers were impressed by the technological solution proposed, but Vaccarelli understood the fundamental difference between a responsive technology solution and a responsive organization. Knowing earlier what end-users were experiencing would be of little use if Xerox was not organized to capitalize on that knowledge. He sought the advice of an executive coach on how to make Sentinel a sense-and-respond solution. The answer he got was: Design an adaptive meta-organization of roles and accountabilities that can leverage the technology and near real-time market intelligence provided by Sentinel.

A Vignette of the Xerox Sentinel project with details on the organizational design steps and results achieved can be found at [www.senseandrespond.com](http://www.senseandrespond.com). (See Vignette.) Here it suffices to say that the project was a success beyond all expectations and has now been implemented in 12 languages, 29 countries and 249 accounts worldwide. More than 116,000 end-users are regular responders, and thousands of other users are sporadic responders.

Sentinel's role and accountability response architecture is shown in the lower half of the diagram on page 30. It rigorously follows the principles of system design and looks very different from the process design above it. (See Sidebar.)

Some of the differences include the following:

1. The system design depicts roles as ovals and outcomes as unidirectional arrows between supplier and customer roles. The process design depicts tasks as boxes and unidirectional arrows to denote their sequence.
2. The system design shows WHY the organization and each role in it exists. The process design shows HOW outputs are to be created.
3. There is no time dimension in a system design. It is a structure for action, like the architectural design and specifications for a house. The process design is a time-ordered sequence of action, such as a construction contractor might prepare.
4. Accountabilities are clear in organizational systems designs, because they explicitly show who owes what to whom. Process designs show what happens next and happened previously.
5. Systems are intrinsically customer-oriented because their design point is always an external (customer) effect. Processes are intrinsically internal.

Recall the perennial issues mentioned previously: alignment, authentic customer orientation, organic growth and coherent empowerment. Because it is a system, alignment is assured: Every role in the Sentinel organization exists only because it is derived from Sentinel's purpose. The organization is authentically customer-oriented because it is literally designed around a customer benefit. Organic growth opportunities emerge from the continuous flow of near real-time feedback from end-users about what they like, don't like and would like. A simple e-mail connection with the people who used their products and services, combined with an organization designed to respond rapidly led to a quick and radical improvement in customer perceptions of Xerox. Now, with the deployment of advanced analytics, Xerox is able to learn continuously how to improve its offerings. Because they know earlier than their clients what is happening at the end-user level, Xerox can anticipate customer needs and provide diagnostic information as a unique benefit. And because the Sentinel design relates roles in terms of outcomes, not activities, the people occupying those roles are empowered to innovate and improvise how those outcomes are produced. Coherency, like alignment, is an inherent property of system designs.

As onrushing streams of rapid and unpredictable change become ever-more prevalent in our post-industrial economy, anticipate and preempt becomes the must-have managerial prescription. And Peter Drucker's call for a new theory of business becomes more urgent. One might reasonably expect that the man who defined the purpose of industrial-age business as the acquisition and retention of customers would embrace a post-industrial paradigm in which it actually makes business sense to organize systematically around the co-creation of customer value. **MM**

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