

## The Lean, Green Service Machine

by Narayan Nallicheri, T. Curt Bailey, and J. Scott Cade

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To make customer focus profitable, service organizations can learn much from manufacturers.

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**M**any companies prefer not to talk about service. But Dell Inc. does, and it has been rewarded for doing so: In 1998, the leading PC maker began investing in a customer service initiative that uses artificial intelligence (AI) software to automatically provide its telephone-based service agents a series of increasingly “educated” and specific responses to give to customers who are having problems with their computers. Gone is the frustrating interaction in which the first question the agent posed was the inscrutable “Have you tried reloading Windows?” Instead, agents are ready to ask relevant troubleshooting questions that quickly address and resolve almost any problem.

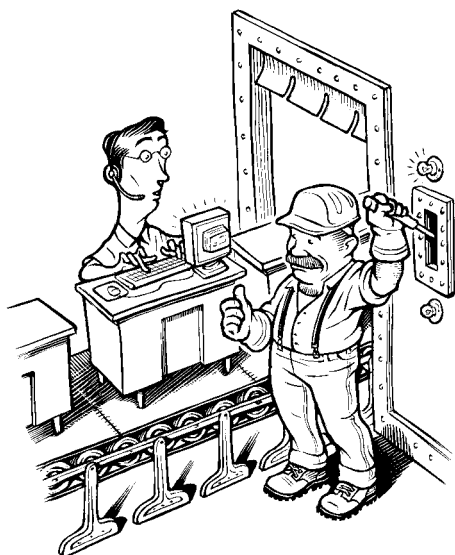
Dell’s returns from this AI system have been impressive: Today, 90 percent of customer issues can be handled in one phone call, and costly product returns from dissatisfied customers have declined. This service network contributed to a Dell cost-cutting campaign that reduced overall operating expenses by \$1 billion between 1998 and 2003. Even though more complicated repairs

are now being handled on the phone, average call times have been trimmed by 8 percent.

Dell is also learning from these interactions with customers by viewing every problem as a potential defect in product hardware, software, or documentation. By communicating call-center data to its engineering unit, Dell expects that any defects can be fixed in subsequent product releases. In other words, at the same time Dell is reducing the expense of customer service, it is using its customer service system to improve the quality of its products.

Most service operations — whether an entire company in a service industry such as health care, financial services, or telecommunications, or a service operation within any type of company — are a long way from achieving what Dell has. The problem is not that customers are being ignored, but that companies are paying the wrong kind of attention to them.

In the name of customer focus, companies incrementally add products and services, and in the process create disparate and redundant customer touch points. For example, adding a call queue to manage a new lending program or introduc-



ing another cell phone plan may appear innocuous enough. But when dozens of these new activities are combined, their impact makes the service business expensive, inefficient, and difficult to manage.

Companies rarely have a conscious strategy to migrate customers to the least-expensive service channel. This results in highly personalized service that is neither appreciated nor needed by many of the customers who receive it, and leads to the customization of products for all types of customers, regardless of whether it is cost-effective for the company or even valued by the customer.

Making matters worse for many companies, the million-dollar CRM and ERP systems installed to handle the information cascading through data-guzzling service operations have done little to improve operational efficiency or aid in cross-selling, because the underlying networks aren't streamlined.

With service costs ballooning without commensurate returns, senior management has become more and more impatient, asking increasingly pointed questions: Why can't the business get more revenue lift from customer service? Given the millions spent on technology investments, why do service centers still have trouble delivering high-quality service at low cost? Why aren't service centers a source of intelligence for product development, marketing, and sales?

### Lean Manufacturing Lessons

Executives managing service businesses or operations can find answers to these questions in the success of lean manufacturing. Since the early 1970s, the manufacturing sector has battled to keep pace with consumer demands for higher-quality products that match diverse customer needs, and to compete with new, more efficient startups. Out of

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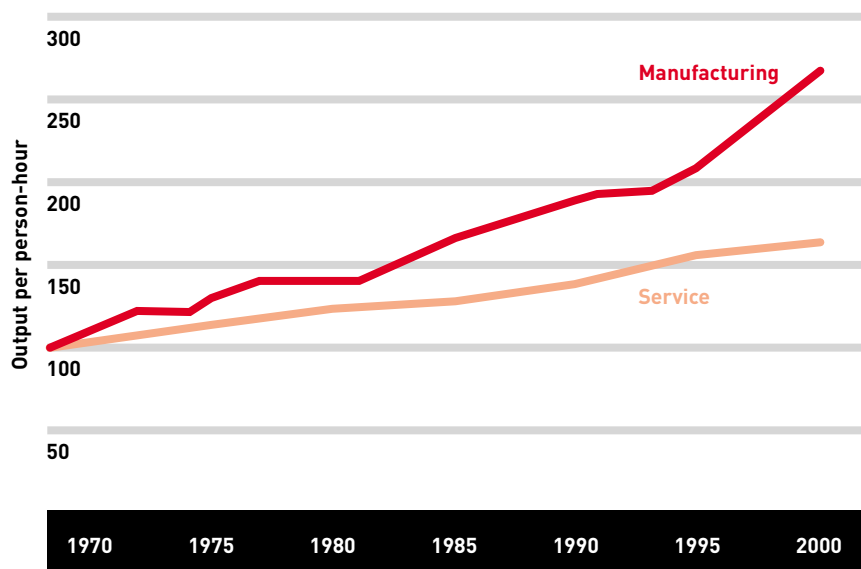
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Exhibit 1: U.S. Labor Productivity Growth



Note: Service industries are financial services, insurance, and real estate. Index 1970 = 100.

Source: U.S. Bureau of Labor Statistics; Booz Allen Hamilton

this struggle have come numerous methods for improving cost and performance: From total quality manufacturing, to just-in-time production, to tailored business streams, each approach drove a fresh wave of productivity improvements.

We believe that organizations that apply these manufacturing principles in service environments can achieve profound improvements in operational cost structure, service levels, and end-product quality, while also enhancing product time to market and increasing revenue. In our experience, savings will vary significantly by company and industry, but it is realistic to expect reductions of 25 percent in costs and 50 percent in response time and in-process errors. In addition, revenue gains of 5 percent annually are not unusual.

To assess how far the manufacturing industry has come and how far the service sector still has to go, we compared U.S. Bureau of Labor Statistics data on productivity growth since 1970 for manufacturing industries and a group of service companies — financial services, insurance, and real estate. (See Exhibit 1.) In the past three decades, productivity among U.S. manufacturing firms has nearly tripled, while U.S. service company productivity is up only about 40 percent.

The potential value of a leaner service model is best demonstrated by the similarity of the challenges faced by service organizations today and those already addressed by many manufacturers. Among these challenges are the need to:

- Improve operations and reduce costs by engineering business processes for speed and quality
- Separate common from

unique product characteristics to extract the most value from commoditized processes and to maximize the gains from variety

- Adopt tailored business streams to segment simple and complex offerings and to industrialize the routine while saving more flexible processes for products targeted at the few customers who demand them (and will pay for them)
- Push decision making and responsibility to frontline managers who interact directly with customers

### Speed and Quality

By increasing the speed of operations, businesses become more flexible and are able to respond more quickly to evolving market conditions and customer demands. And by focusing on quality, businesses can significantly reduce the time spent on reworking projects, fixing or replacing broken products, and handling customer complaints. Both strategies lead to sharply lower cost structures. Just as important, improved products cement customer loyalty, which increases revenue potential.

But speed and quality need to be linked.

Among manufacturers, Ford's highly successful quality program in the early 1980s is the best illustration of this approach. The automaker dramatically reduced defect rates by investing heavily in quality controls in internal assembly operations. It also qualified incoming parts and suppliers, initially by inspecting samples of components, and later by giving its seal of approval to suppliers who demonstrated a high standard of process control. In parallel, Ford sped up the cycle for moving from concept to production, so it

could respond faster to changes in consumer tastes. This strategy broke down only when the company, in a rush to expand internationally, began to emphasize speed at the expense of quality.

Dell's AI-based customer service system shows how a successful service strategy can similarly be built on speed and quality. The effectiveness of the system is predicated on Dell's using the information culled from service calls to manufacture better products, which, in turn, should lead to fewer calls (lower service costs) and more satisfied customers (higher revenue).

A product's architecture, whether it is a service or a physical product, is most cost-effective and efficient when it is designed to maximize the market value of variety. By separating the common from the customized, companies can use scalable, modular platforms to squeeze the greatest profit margins out of the commoditized portions of their products, while also supporting more customization where the potential return justifies the cost. When businesses fail at this — that is, when companies are unable to exercise enough discipline over their architecture to keep complexity from incrementally creeping in — waste and cost add up quickly. For instance, it is wasteful for a bank to offer everything from basic credit card support to high-asset banking through one telephone call center. Too much is spent on servicing a routine customer base when a lower-cost channel like the Internet would be fine for this group. Meanwhile, high-value clients don't get the attention they should.

Manufacturing costs in produc-

tion lines that accommodate multiple products are driven up by frequent plant changeovers, increased setup times, higher administrative costs, and increased capital investment. In service businesses, excess variety increases complexity costs in the form of overtaxed back-office processing procedures, too many unique processes, higher transaction errors, too many customer service centers, and too much staff training.

Manufacturers such as Boeing have been among the most enthusiastic adherents to the idea of separating common and custom product architecture. During the original design and development of the 777 aircraft frame, the aerospace giant went to extraordinary lengths to take a modular approach to airplane configuration. The intent was to create an acceptable series of options for the 777 that would meet customer requirements for variety and provide an inexpensive production system for most of the content of Boeing's planes.

Board any 777 today and you'll see the results. Where minimal configuration changes are involved — for example, color or seat choices — Boeing's customers are encouraged to order from a selection of customizable designs offered by the company. But when a customization request increases the cost of manufacturing significantly because it is outside this tight range of options, the customer must pay more.

It could be said that credit card issuer Capital One — with its extensive use of statistical models to assess consumer lending profiles and predict the probability of default for specific customer segments — epitomizes a service organization's version

of separating the common from the unique and gaining value from each. By deeply analyzing credit models and examining the demographics of potential customers, the \$10 billion company divides consumers into microsegments. It can customize lending rates to a person's credit history, but it does this with one common cost-effective platform. In this way, Capital One appears to offer a wide array of rates and lending limits, which is an alluring feature for customers. Meanwhile, Capital One's innovative and proprietary value architecture allows it to maximize market penetration and return on lending (increasing customer acquisition and retention while minimizing default risks) and improve the efficiency of its processing systems, back-office infrastructure, and call center.

### Scaling Differentiation

The concept of tailored business streams (TBS) holds that 80 percent of customer demands are routine and can be industrialized, but more flexible (and more expensive) processes are needed to serve the remaining 20 percent. For manufacturers or service organizations, TBS drives down cost-to-serve, improves service levels, and preserves flexibility by allowing companies to achieve a high degree of differentiation without compromising economies of scale. Many companies segment their service delivery streams, but very few simplify the underlying delivery processes, which is where the use of TBS drives savings and performance improvements.

A North American automotive components manufacturer was able to reduce its operating costs by more

than 25 percent by targeting the bulk of its manufacturing operations on its "runners and repeaters" (high-volume, relatively standard products) and consolidating production of its "cats and dogs" (low-volume, highly complex products) into a separate, centrally located facility. In doing this, the manufacturer improved customer service in the form of fewer out-of-stock items and faster shipments for both product lines, and also raised its revenue. Moreover, by reducing the number of stock keeping units produced at each plant by 80 percent and manufacturing products closer to the customers that needed them, this automotive company was able to trim capital costs and increase inventory turns. And by consolidating North American manufacturing operations for "cats and dogs" into another facility, the company was able to pay more attention to designing efficient, flexible factory operations for these lower-volume items.

The same strategy could be easily employed in a service organization. To illustrate, a major health insurance company found itself facing mounting claims-processing costs, with adjudication of these claims taking up more than 10 percent of total administrative expenses. An internal investigation found that highly customized manual processing was being used for the lion's share of claims. There were few processes and automated systems to treat claims differently on the basis of their complexity.

To address this, the insurer is setting up a two-tiered claims system, in which the vast majority of paperwork — primarily routine reimbursements — will be handled by an automated

system. Incoming claims will be verified for member and provider eligibility, and if no anomalies indicating an out-of-the-ordinary claim are detected, the document will go to payment quickly with virtually no human intervention. A second channel will process exceptions — claims that require careful scrutiny by highly trained claims examiners before payments can be issued. This new TBS approach could result in nearly 75 percent of claims being handled without human intervention in the next few years. And the cost savings for the insurer could top 20 percent of annual claims-processing expenses.

### Frontline Power

As a company's operational processes improve — that is, as these processes become focused on quality and speed, are segmented by customer value and needs, and are differentiated by routine versus complex systems — less management oversight throughout the organization is required. In effect, finely tuned, streamlined, and highly sophisticated operations provide a strong set of tools and a systemic foundation for employees to make more of their own decisions; they offer principles by which to operate instead of rigid rules on which to base choices. And such operations free workers from focusing solely on basic transactions, allowing them to give more personal attention to customers (so they can have a more direct impact on increasing revenue).

In the manufacturing environment, employee empowerment usually translates into self-governing teams whose performances can be measured by both output and quality. These workers often have the ability to stop the production line if

quality issues arise, or make reasonably sized capital investments if they can demonstrate the payback in terms of speed and performance. Workers also tend to have their bonus compensation linked to these measures.

For those involved in service activities, these principles are embodied in decision making that favors “satisfying the customer.” As an example, in the Ritz-Carlton Hotel Company chain, front-desk staffs have their own monthly discretionary budget for settling billing disputes and have the authority to provide such perks as room upgrades and complimentary food on a case-by-case basis. And when a guest has a problem, employees are *required* to break away from their regular duties and immediately address the issue.

As with manufacturing companies, service organizations should reward with higher compensation those employees who make the types of decisions that lead to improvements in organizational performance.

Empowerment brings a new risk, however. Well-intentioned but destructive tinkering by middle management can eat away at hard-won process and business-model improvement gains, leaving the company no better off than it was initially. For instance, it is easy to see how a hotel chain's regional managers, enamored of the idea of using computers for curbside check in, might give out PDAs with customer information to increase its service staff's ability to interact with guests. But this new level of service infrastructure, requiring maintenance, training, and staffing, could actually distract employees from their primary task of

giving top-flight customer support.

To avoid creeping complexity, it's important for companies to adopt policies that require group approval and appropriate notification before an employee can introduce systems that go beyond the businesses' operating philosophy. With such governance mechanisms in place, authority and responsibility can safely be introduced at lower levels of the organization.

In implementing a leaner service program, it's not necessary to address all four challenges to achieve results. It's possible, for example, to design tailored business streams for service offerings without significantly attacking the company's product or service architecture. And in all cases, improving quality and focusing on employee responsibility (while doing virtually nothing else) can bring almost instant benefits.

By applying concepts that until recently had been alien to service industries — attacking speed and quality, simplifying complexity, scaling differentiation, and empowering employees — service organizations can finally share in some of the productivity gains already enjoyed by the makers of autos, planes, trains, appliances, and many other products. For service companies, these solutions have come just in time. +

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