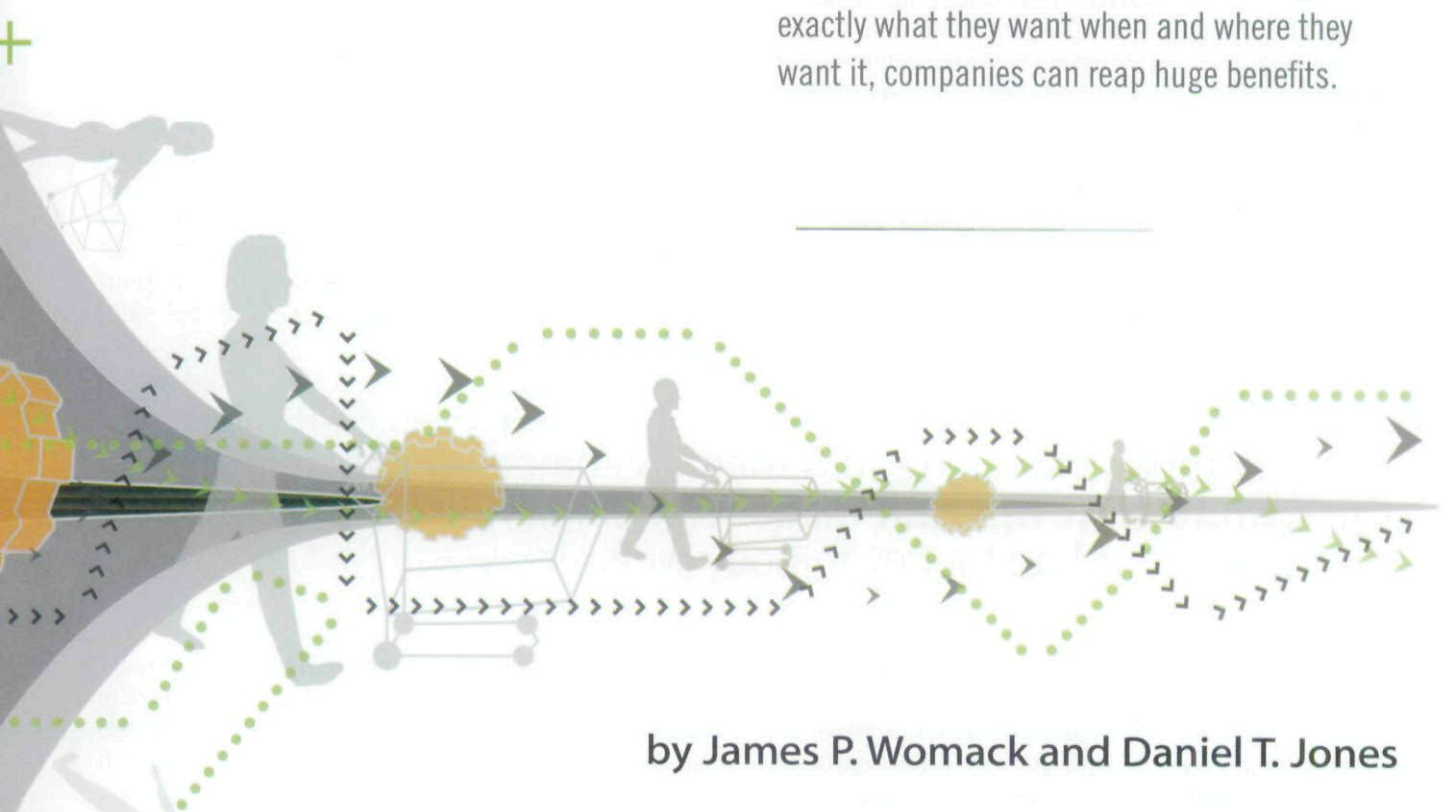




Lean Consumption

Lean production transformed manufacturing. **Now it's time to apply lean thinking to the processes of consumption.** By minimizing customers' time and effort and delivering exactly what they want when and where they want it, companies can reap huge benefits.



by James P. Womack and Daniel T. Jones

OVER THE PAST 20 YEARS, the real price of most consumer goods has fallen worldwide, even as the variety of goods and the range of sales channels offering them have continued to grow. Meanwhile, product quality – in the sense of durability and number of delivered defects – has steadily improved.

So, if consumers have access to an ever-growing range of products at lower prices, with fewer lemons, and from more formats, why is consumption often so frustrating? Why do we routinely encounter the custom-built computer that refuses to work with the printer, the other computers in the house, and the network software? Why does the simple process of getting the car fixed require countless loops of miscommunication, travel, waiting, and defective repairs? Why does the diligent shopper frequently return from a store stocking thousands of items without having found the one item that was wanted? And

why is this tiresome process of consumption backed up by help desks and customer support centers that neither help nor support? In short, why does consumption – which should be easy and satisfying – require so much time and hassle?

It doesn't have to – and shouldn't. Companies may think that they save time and money by off-loading work to customers, making it the customer's problem to get the computer up and running, and wasting the customer's time. In fact, however, the opposite is true. By streamlining the systems for providing goods and services, and making it easier for customers to buy and use them, a growing number of companies are actually lowering costs while saving everyone's time. In the process, these businesses are learning more about their customers, strengthening consumer loyalty, and attracting new customers who defect from less user-friendly competitors.

What these companies are doing has a familiar feel: Just as businesses around the world have embraced the principles of lean production to squeeze inefficiency out of manufacturing processes, these innovative companies are streamlining the processes of consuming. In the early 1990s we popularized the term *lean production* to describe the ultra-efficient process management of our exemplar firm, Toyota. We believe it is now time to recognize *lean consumption* as its necessary and inevitable complement.

“But surely,” you say, “when it comes to consumption, less can’t be more.” Actually it can be, for both consumer and provider. Lean consumption isn’t about reducing the amount customers buy or the business they bring. Rather, it’s about providing the full value that consumers desire from their goods and services, with the greatest efficiency and least pain.

The key word here is “process.” Think about consumption not as an isolated moment of decision about purchasing a specific product, but as a continuing process linking many goods and services to solve consumer problems. When a person buys a home computer, for example, this is not a onetime transaction. The individual has

their customers play in these processes. It also requires consumers to change the nature of their relationships with the companies they patronize. Customers and providers must start collaborating to minimize total cost and wasted time and to create new value.

That may seem like a doubtful proposition. But some companies—along with their customers—have started the culture shift that will make lean consumption possible. And they’re finding that everybody wins.

Why Lean Consumption Now?

While lean consumption would be a sensible idea in any era, we see several convergent trends that we think make it inevitable and, indeed, a competitive necessity now.

With the regulated economy steadily contracting, consumers have a broader range of decisions to make, from how to invest retirement funds, to what telecommunications provider to use, to what airline to fly at what price. At the same time, they must cope with a growing profusion of choices as producers relentlessly customize their offerings, pursue product niches, and increase their sales channels.

Some companies – along with their customers – **have started the culture shift that will make lean consumption possible.** And they’re finding that everybody wins.

embarked on the arduous process of researching, obtaining, integrating, maintaining, upgrading, and, finally, disposing of this purchase. For producers and providers (whether employees, managers, or entrepreneurs), developing lean consumption processes requires determining how to configure linked business activities, especially across firms, to meet customer needs without squandering their own—or the consumer’s—time, effort, and resources.

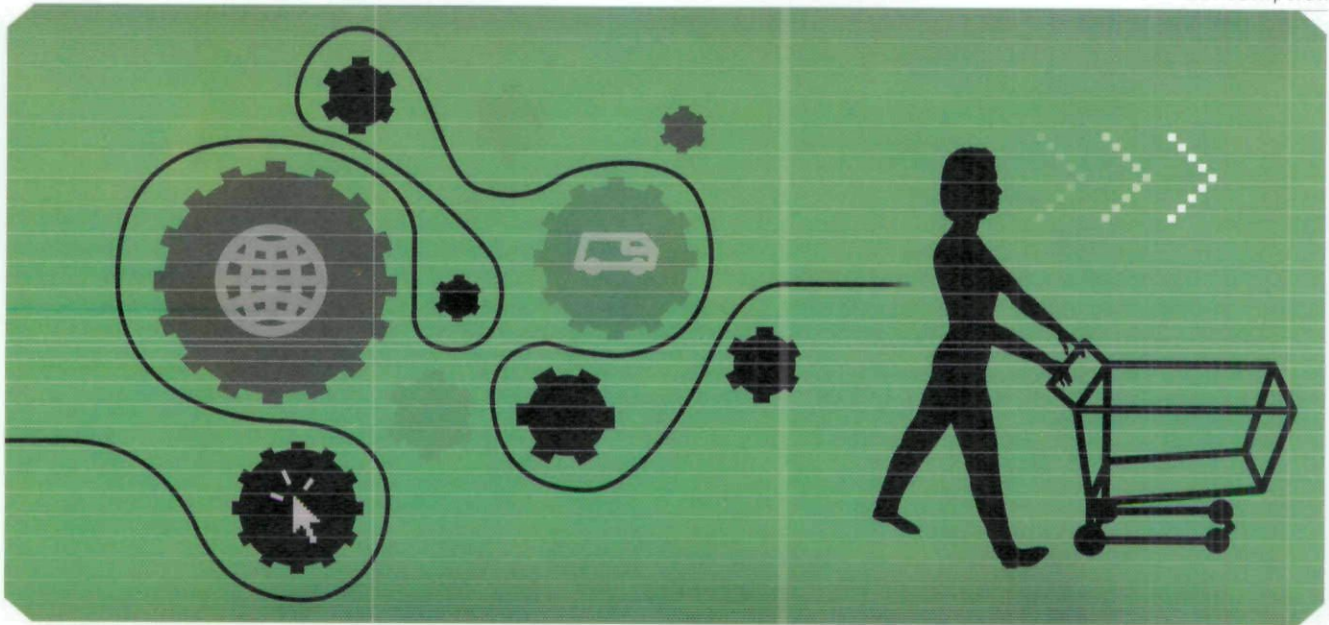
The way to do this is to tightly integrate and streamline the processes of provision and consumption. The challenge is not simply logistical: Lean consumption requires a fundamental shift in the way retailers, service providers, manufacturers, and suppliers think about the relationship between provision and consumption, and the role

*James P. Womack is the president of the Lean Enterprise Institute (www.lean.org) in Brookline, Massachusetts. Daniel T. Jones is the chairman of the Lean Enterprise Academy (www.leanuk.org) in Herefordshire, England. They are the coauthors of *Lean Thinking: Banish Waste and Create Wealth in Your Corporation* (Simon and Schuster, 1996) and, with Daniel Roos, of *The Machine That Changed the World* (Rawson Associates, 1990).*

In this demanding environment, information technology is steadily blurring the distinction between consumption and production. Consumers are doing increasing amounts of unpaid work on behalf of providers, such as entering data into Web-based order forms and tracking the progress of their own orders. And these consumers are spending more and more time and energy to obtain and maintain the computers, printers, PDAs, and other technological tools needed to solve routine problems—for themselves and for providers.

This growing burden on consumers might be sustainable if not for the changes consumers themselves are undergoing. Household configurations in every advanced economy are transforming in ways that create additional time pressures and energy drains. Two-wage-earner and single-parent households, where no one has time to manage consumption, are increasingly common; and aging populations are confronted with an expanding array of choices but have declining energy to address them.

Collectively, these trends give rise to the consumer’s emerging dilemma of more choices to make and products to manage with decreasing time and energy. Yet the situation also creates a major opportunity for providers.



The Principles of Lean Consumption

The concepts underlying lean consumption boil down to six simple principles that correspond closely with those of lean production. (For more on these principles, see our book *Lean Thinking*.)

1. Solve the customer's problem completely by insuring that all the goods and services work, and work together.
2. Don't waste the customer's time.
3. Provide exactly *what* the customer wants.
4. Provide what's wanted exactly *where* it's wanted.
5. Provide what's wanted where it's wanted exactly *when* it's wanted.
6. Continually aggregate solutions to reduce the customer's time and hassle.

Let's examine these principles one at a time.

Solve the customer's problem completely by insuring that all the goods and services work, and work together. Customers obtain goods and services to solve problems in their lives. But they don't acquire them in a single transaction. Instead they search for, obtain, install, integrate, maintain, and dispose of them over an extended period – which is a lot more complicated. We don't just buy a car or a home in an hour to solve our mobility and shelter problems. Rather, we search at length, find the right item, purchase it, and begin immediately to maintain, repair, and upgrade it over an extended period as our needs change.

This complex process rarely goes smoothly. Consider personal computing, which now involves your camera, your PDA, and your phones. Most of us are less interested in the specific features of all these items than providers seem to think. What we really want is for everything (hardware, software, and support services) to work to-

gether reliably and seamlessly with minimal drain on our time and emotions. Yet we struggle endlessly with multiple providers of goods and services for our information and communication problems, all of which require our continuous unpaid management.

Why is this? Because providers, instead of working together to perfect the entire consumption process, have created an enormous "failure industry" of help lines and service desks to deal with their individual piece of the solution. Their objective has been ever-greater efficiency (in terms of their own resources) at patching recurring customer problems. Their management goal has been to minimize the time needed to get the customer off the line while avoiding the hard work of getting to the root cause of the problem.

Lean consumption principles suggest a radically different approach. Rather than assigning the least knowledgeable personnel to deal repetitively (but "efficiently") with the same customer problems, a lean provider deploys highly trained personnel who not only solve the customer's specific problem but also identify its systemic source. Management can then put permanent fixes in place, integrating the various elements of the solution, so that consumers no longer need to complain.

This approach has been pursued brilliantly by Fujitsu Services, a leading global provider of outsourced customer service. Companies that contract with Fujitsu to manage their in-house IT help desks find that the number of calls their desks receive about a recurring problem inside the company – say malfunctioning printers – often falls to near zero. What Fujitsu does is identify and fix the *source* of the problem – for example, replace the flawed printers with new ones fit for the particular purpose. By seeking the root cause of the problem somewhere up the value stream (often involving multiple companies),

Fujitsu has pioneered a way to eliminate it. (See the sidebar “Solving Problems at the Source.”)

Don't waste the customer's time. Providers typically send a very clear message to customers: “Your time has no value.” Just think of when you last had your car repaired. You called to make an appointment, took your vehicle to a dealer, went through numerous queues to explain the problem, arranged for a loaner vehicle or a ride to your destination, and then waited for the dreaded call with the diagnosis and cost of the repair. When you went to pick up the vehicle, you may have found that it wasn't ready. Or you may have waited in several queues (again) to pay for and collect the car, only to discover later that the repair had not been done right. (Surveys show that car repairs are done correctly and on time only six times out of ten.) The dealer squandered your valuable time—and goodwill.

The lean provider takes a different approach by looking at the problem from the standpoint of the customer and drawing a “consumption map” of all the steps in the repair process. Then, in each instance where the customer

is forced to expend time for no return in value, the provider asks how the system can be reconfigured to eliminate wasted time.

Most managers instinctively assume that this will raise their costs, but the reality is just the opposite. Purging inefficiency from the “provision stream”—the steps needed to create and deliver goods or services—solves providers' problems even as it helps customers. All those endless queues entail needless work for staff, and reworking jobs done wrong is even more expensive. By marrying a lean provision stream to a lean consumption stream (all the actions that must be taken by the consumer to acquire goods or services), providers can usually reduce their costs—and lower prices to consumers.

Skeptical? Take a look at Grupo Fernando Simão (GFS), a family-owned automobile dealer group based in Oporto, Portugal. GFS is the third-largest dealer group in Portugal, with 900 employees and group sales now more than \$400 million. Since 1999, the company has introduced lean provision and consumption practices throughout its entire business. By prediagnosing every

Solving Problems at the Source

Fujitsu Services is one of the largest providers of IT services in Europe, the Middle East, and Africa, with 15,400 employees in 30 countries and sales of \$4.2 billion in 2004. After providing technical support for its own products for many years, Fujitsu began to offer services to companies that were outsourcing their customer service and technical support activities. Here Fujitsu has often found itself playing the difficult role of mediating between hardware and software vendors and users about the problems the latter encountered. Typically, firms like Fujitsu are paid to respond to user complaints at the lowest cost per complaint handled. This call center model gives firms no reason to reduce the number of complaints received and, indeed, creates a disincentive: If the call volume falls, so does the service company's revenue. Fujitsu approached the problem with a completely different mind-set. It decided to eliminate the root causes of callers' complaints.

When Fujitsu took over the help desk contract in 2001 for BMI (an airline formerly known as BMI British Midland), Fujitsu immediately analyzed the different types of calls coming in from BMI employees. Then it set to work to understand the problems that gave rise to the calls; to track the time and effort required to fix them; and, most important, to measure the impact on the business of failures or delays in doing so. (Note that in this example, the users being helped are BMI employees, such as the check-in staff. Operationally, this works the same way as help lines serving customers at, say, Dell or Microsoft.)

Fujitsu found that more than half the calls to help desks were repeat complaints about recurring problems or repair delays. One of the most common reasons for calls—accounting for 26% of the total—was malfunctioning printers: Ticketing agents kept finding that they couldn't print boarding passes and baggage tags for passengers at check-in. It was immediately apparent that solving the printer problem was critical to the airline's business. Given tight airport security, the inability to print boarding passes and baggage tags that could be scanned at a number of points could cause flights to miss their takeoff slots.

Under BMI's previous contractor, the help desk had struggled to get service technicians to respond more quickly so check-in staff wouldn't keep calling with complaints. Fujitsu's response was to find the most cost-effective way to eliminate the root cause of the printer problem. The answer was to convince BMI senior management to spend money up front to install better printers. As a result, the number of calls about malfunctioning printers was cut by more than 80% within 18 months. This action translated into major savings in flight operations far exceeding the cost of the new printers. In addition, Fujitsu improved the technician-response process so that the average time needed to fix printers that still failed fell from ten hours to three.

Fujitsu coupled this problem-solving approach with a different business proposition for BMI. Instead of being paid for each call handled, Fujitsu asked to be paid a set

car repair whenever possible, scheduling to eliminate queues, standardizing repair processes, and introducing other lean practices, GFS has removed many wasteful steps, increased the speed at which customers and vehicles move through the system, and reduced the total cost to the company of the typical repair by 30%.

This approach yields more than just a cost savings for GFS: It's a boon for customers. The prices customers pay for repairs have fallen – especially in terms of wasted time – and most jobs are now fixed right the first time. Before these changes, a customer could expect to spend about two hours searching for a repair shop, making an appointment, getting the car to the dealer, negotiating the repair, and collecting the vehicle at the end of the process. GFS's lean repair process has cut customers' time commitments almost by half – to an average of 69 minutes. As a result, GFS has climbed from near the bottom of the car manufacturers' customer-service rankings to the top and has dramatically increased its share of the service business for vehicles it sells. (See the sidebar "Drawing a Lean Consumption Map.")



fee based on the number of *potential* callers to the BMI system. This allowed Fujitsu to profitably offer BMI a lower bid than its current vendor.

By addressing root causes, Fujitsu reduced total calls to the help desk by 40% within 18 months and improved customer satisfaction. As the company has progressively applied this problem-solving approach to all of its customers, it has moved beyond its original role as a mediator between vendors and frustrated consumers to become an analyst and optimizer of entire IT response systems. Fujitsu is solving the customer's problem completely – and then some.

While discussing a customer's current problem, for example, Fujitsu personnel pass on new information about the user's computing systems, including how to prevent problems the customer hasn't yet encountered but will, if not warned. At the same time, Fujitsu can learn more about what problems the customer is trying to solve with the system, which can lead to ideas for new products. Instead of simply fixing defects so that customers get the value originally promised, Fujitsu creates *new* value by offering them additional information and services they might want. What starts as a negative customer interaction can turn into an opportunity for information sharing that builds loyalty, generates fresh market intelligence, and saves Fujitsu money. As a result, satisfied clients have rewarded Fujitsu with extra work previously divided among competing subcontractors – a win-win for both parties.

Provide exactly what the customer wants. You may think that if current consumption systems do anything well it is to get customers the exact items they want. Not true. For example, the average item in a typical grocery store is in stock at the right location on the shelf only 92% of the time (this is called the "level of service"). Given that the average shopper has 40 items on a list, multiply the probabilities of finding each of the 40 items together and it's apparent that obtaining all of the items in the same shopping trip will happen only one time in 20. You can buy substitutes, or make additional trips, or change what you plan to eat, but the store is not giving you exactly what you want.

Shoe stores don't do any better. By relocating most production for North America and Europe to Southeast Asia and putting retailers on 150-day order windows, the shoe industry has created a marvel of low cost at the factory gate in combination with an extraordinary array of styles (about half of which only endure for one three-month selling season). But suppose you want the size nine "Wonder Wings" in gray? The chances are only 80% (an industry average) that they will be in stock; and there is a good possibility (because of the long order window) that they will never be in stock again. Not to worry, though. There are millions of size nine Wonder Wings in pink available and many more on the way because the order flow, once turned on, cannot be turned off and the replenishment cycle is so long. As a result, the shoe industry fails to get one customer in five the product he or she actually wants, while it remainder 40% of total production (pink Wonder Wings, for example) through secondary channels at much lower revenues.

There will certainly be differences among industries in the difficulty of implementing lean consumption. But even in those where lean provision seems impractical, there are likely to be practical, if counterintuitive, solutions. Consider that Nike can now profitably deliver even customized bags overnight anywhere in North America. How? By – of all things – locating manufacturing in California. (See the sidebar "Locating for Lean Provision.")

Whatever the industry, the lean provider's approach has a common theme: pull. Rather than infrequently ordering large numbers of items based on very sophisticated centralized forecasts (which are almost always wrong), the lean provider puts in place rapid replenishment systems that quickly restock exactly what a customer has just pulled from the shelf. This is not just a warehousing problem. It's a total-system issue of multiple replenishment loops running all the way back to raw materials. These loops permit a business to quickly restock at every level what the next downstream customer actually wants, as shown by what a previous customer just used.

Tesco, a UK-based retailer, is the world leader in applying these principles and is now approaching a level of service of more than 96%. That's still not good enough to get

Drawing a Lean Consumption Map

Mapping the steps in a production and consumption process is the best way to see opportunities for improvement. A map can reveal how broken processes waste providers' and consumers' time and money.

Here's how Grupo Fernando Simão (GFS), a Portuguese automobile dealer group, discovered the inefficiencies in its processes. First, the company looked at consumption. It listed the steps a typical consumer takes to get a car fixed—from searching for a repair shop to arriving home with the vehicle repaired—and the time required for each. Then GFS drew

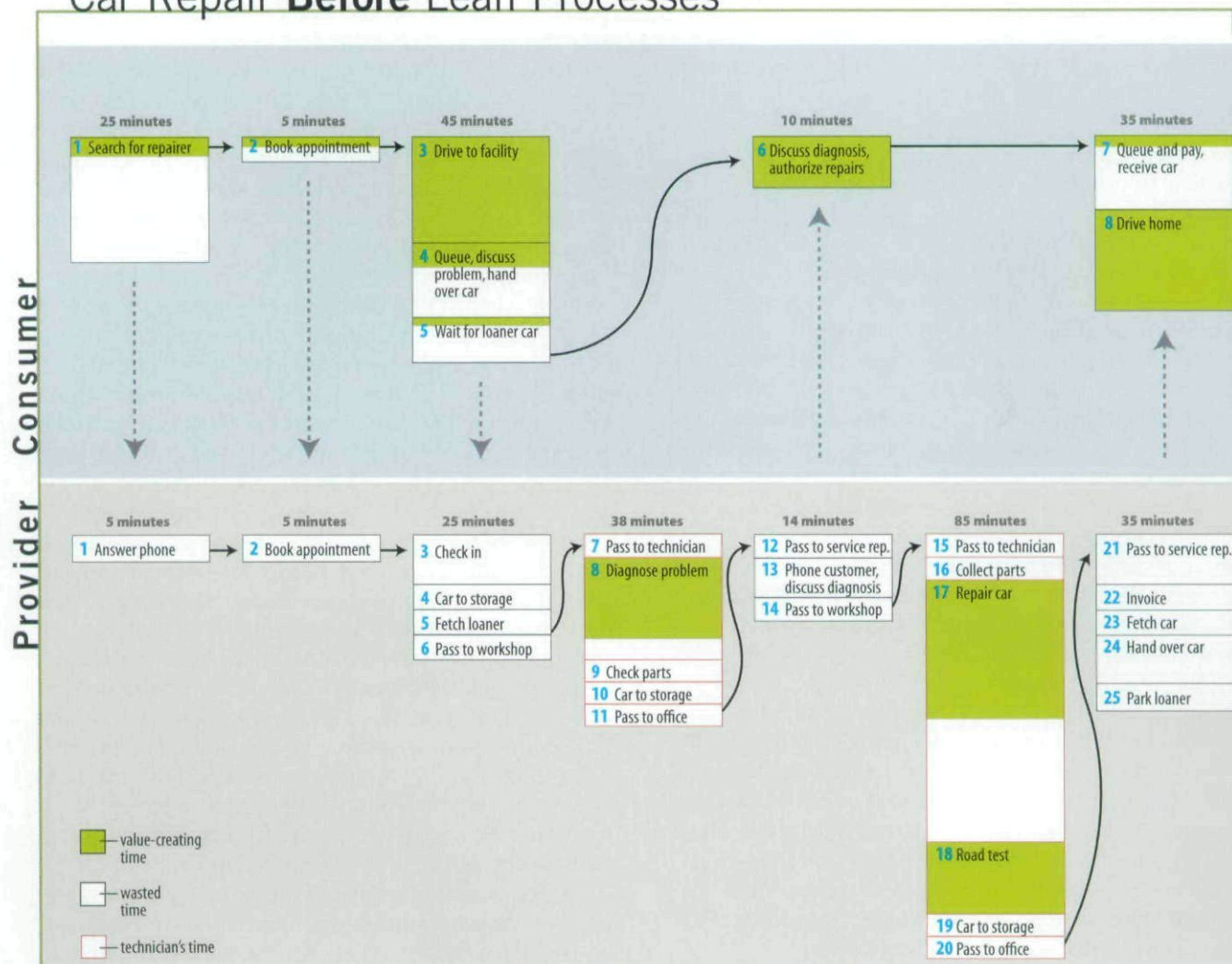
boxes representing the eight steps it identified, sized each box in proportion to the time needed to complete the corresponding task, and shaded in the value-creating time. The company also collected data on the percentage of jobs done right the first time and on time.

GFS found that these consumption steps took the average consumer a total of 120 minutes. And, because dealers often couldn't do repairs on the day they received the car—either because they didn't have time after diagnosing the problem or because they lacked necessary parts, tools, or knowledge—almost half of the custom-

ers' time was wasted. What's more, only 60% of the jobs were completed on time.

Next, GFS mapped the 25 steps in its provision process, adding arrows to show where these provision steps interacted with the steps in the consumption process. The group discovered that the provision steps took 207 minutes of paid time, only 27% of which created any value for the customer. A closer look revealed that technicians, the sole creators of customer value, were creating value during only 45% of their paid work time. Not impressive. (See the exhibit "Car Repair Before Lean Processes.")

Car Repair Before Lean Processes



Using this map, GFS eliminated unnecessary steps in both the provision and consumption processes. The gains for GFS and its customers become clearly visible when we look at how the process works today (see the exhibit "Car Repair After Lean Processes").

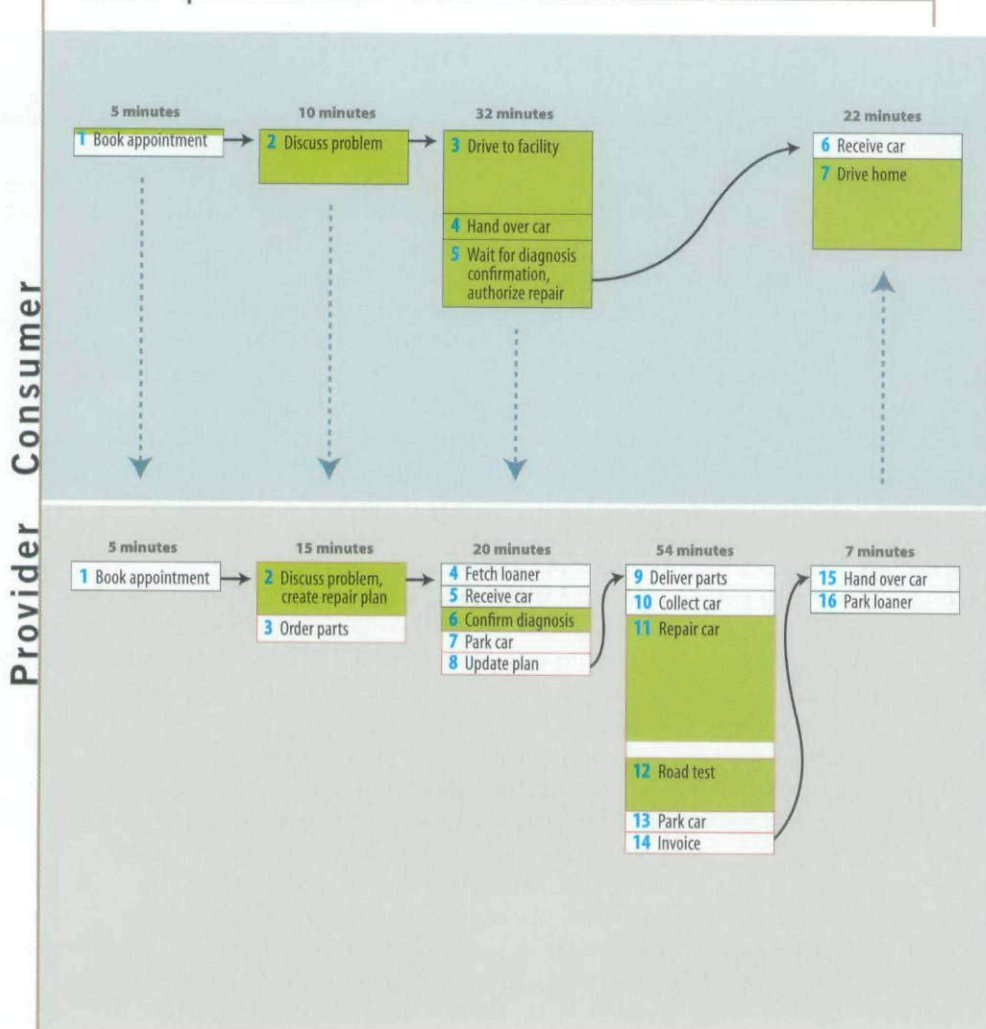
Here, GFS leverages its ongoing relationship with customers, eliminating the need for them to search for a new repair shop because of dissatisfaction with a previous repair. GFS prediagnoses the problem by phone whenever possible and confirms the diagnosis as soon as the car

arrives. If customers can wait a few moments, they can authorize the repair work right then and avoid the extra phone call. The dealers have also smoothed the work flow by carefully scheduling arrivals to eliminate queues and passing work directly to the technician, with no handoffs. In addition, they have minimized the technician's time by leveling work flow and separating jobs according to their complexity and the time required to complete them. Parts and tools are pre-kitted and delivered to the technician in the service bay just as needed. And common repair

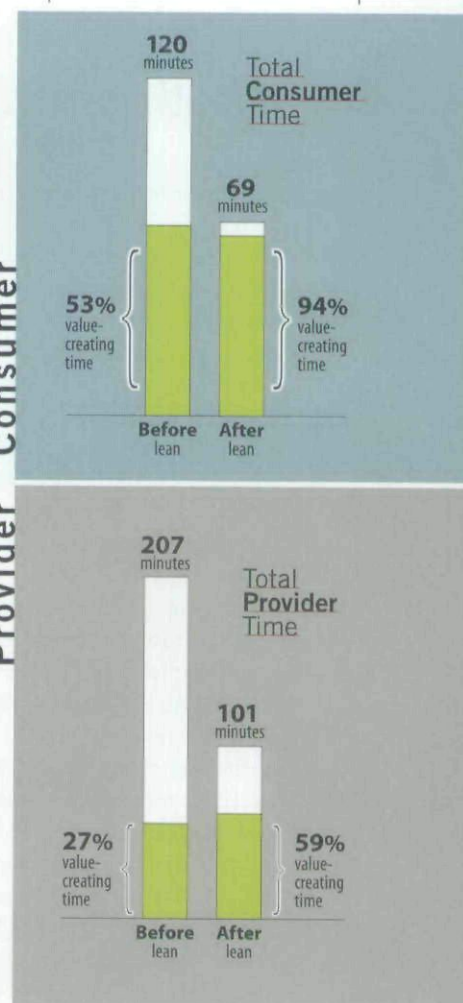
tasks are standardized to reduce time spent as well as to increase the chance of getting the work done correctly and on time.

These gains create a win-win situation. Customers' time is no longer wasted and GFS can handle a greater volume of business. GFS's technicians are now creating value during 78% of their work time and they complete nearly twice as many jobs per day. More jobs are done right the first time, so fewer cars are brought back for a second visit. As a result, GFS requires a smaller support staff and needs only one-quarter the number of loaner cars.

Car Repair **After** Lean Processes



Time Saved



all customers exactly what they want, but it's a big leap—and proof that lean production principles can support lean consumption.

How does Tesco do it? By replenishing every store continuously, over a 24-hour day, to eliminate the need to hold stock either at the back of the store (as does Wal-Mart) or in high-bay storage (like Home Depot). Tesco reorders from key suppliers that produce—in a matter of hours—items that have just been purchased. What's more, Tesco picks up directly from suppliers' shipping docks at precise times and takes the goods to regional distribution centers where fresh products and fast-moving items are cross docked onto vehicles delivering to stores. In a further lean innovation, Tesco satisfies Web-shopping orders by having store personnel fulfill orders from the shelves during lulls. This process has reduced personnel costs, avoided the cost of separate warehouses for Web orders, and made Tesco the world's largest Internet grocer.

Lean techniques have helped Tesco to grow its share rapidly and become the UK's market leader in groceries, fueling its global expansion in Eastern Europe and East Asia as well. They have also allowed the grocer to increase customer satisfaction and loyalty by giving shoppers what

they want (and, as we shall see, by providing it where and when they want it)—without wasting their time.

Provide what's wanted exactly where it's wanted. Conventional wisdom holds that customers usually obtain needed items from a single format (the price-conscious suburban shopper goes to Costco or Sam's Club; the time-pressed urban professional goes to Trader Joe's). But the conventional wisdom is wrong. Balancing many considerations, chief among them price and convenience, most of us use a variety of formats to get what we want as our circumstances change. We make the occasional trip to Costco for bulk items, the weekly trip to the standard supermarket for its wide selection of groceries, and several stops at the convenience store for the little things we missed, and we order out for home delivery when time's especially tight or we're just exhausted. By using different formats depending on circumstances, we minimize our total cost of consumption: the sum of prices we pay for products plus the time and effort expended to obtain them. In this equation, typically, price goes up as time and hassle decrease; we pay—sometimes a lot—for convenience.

Imagine, though, a provision process that maximizes convenience while keeping prices nearly uniform across

Locating for Lean Provision

From the lean perspective, the stampede to outsource manufacturing to China in order to serve North American and European customers is questionable, but not for the reasons usually cited. The real challenge for lean providers is the inability of remote production facilities to respond instantly to changing customer demands, such as a surge in requests for size nine gray "Wonder Wings."

Most manufacturers and their retail partners seem to have no method for calculating total costs of the entire provision stream for their products. These include costs for parts, actual logistics (not just the cheap container shipping probably called for in the business plan), stock-outs, remaindering, and carrying inventory over extended supply lines. In our experience, when all these costs are added up to accurately calculate total product costs, the lowest-cost location for labor-intensive products with unpredictable demand is often at the lowest wage point within the region of sale. That means Mexico for North America, Romania and Turkey for Western Europe, and, yes, China for Japan, because rapid replenishment at reasonable cost is possible from these locations.

For lean thinkers, the general rule is that shipping by boat is cheap but slow and, when forecasts are wrong, must be replaced by airfreight that is fast but expensive. By contrast, trucks are much faster than boats and much cheaper than planes. They permit overnight replenish-

ment through each of the loops in a typical provision stream, provided that production is within the geographic region of sale. If you can't eliminate costly activities within production processes, you may still need to relocate to low-wage countries—but do it in a way that minimizes total costs.

In the case of products that are made to order, it might make sense to move manufacturing closer still to the customer, even when that's not the lowest wage point in the region. Consider Nike's surprising approach to the low-cost manufacture of customized goods. On Nike's Web site, you can customize a bag or backpack, choosing from a variety of fabrics and colors for the bag's panels, and even have Nike embroider a monogram or personal message on the item you order. And your customized bag will cost only \$10 more (including express shipping) than a standard version in a retail store.

What you wouldn't have known is that your bag will be manufactured to your precise order at NuSewCo, a small contractor in the San Francisco area. At \$15 per hour, NuSewCo's labor costs are 20 times higher than the fully loaded labor costs of the contractors in China that make Nike's other products. But Nike calculates that the total expense of obtaining its customized bags using high-priced American labor and offering express delivery is lower than the total cost of sourcing its standard bags for

formats and preserving retailers' margins. In fact, this is possible if one fulfillment channel can supply every format. That's because the cost to the provider of the products entering its channel from suppliers depends predominantly on the buying power of the channel operator rather than on scale economies in larger bulk orders or scale advantages in larger stores.

For instance, the reason Wal-Mart sells hammers more cheaply than the corner hardware store isn't that the scale of Wal-Mart's order reduces hammer production costs or that the store's size significantly reduces its costs. It's because the scale of Wal-Mart's order causes the hammer maker to accept a low selling price in return for volume, and Wal-Mart passes on this savings to its customers.

The opportunity is ripe for large retailers using lean logistics techniques to offer a complete range of formats with uniform pricing to serve every customer need. Tesco is already doing this. It has created a full complement of formats ranging from local convenience stores (Tesco Express), to midsize stores in town centers (Tesco Metro), to standard-size supermarkets in the suburbs (Tesco Superstore), to hypermarkets on the periphery (Tesco Extra), to Web-based shopping (Tesco.com). By integrating the ful-

fillment channel behind all these formats, Tesco is answering an expanded array of consumption needs.

One result of this efficient channel sharing is that Tesco seems to be the only grocer making money on Web-based grocery shopping while continually increasing sales volume. Another, more provocative consequence is that all of the goods entering this unified fulfillment channel benefit from the same purchasing power: The tube of toothpaste going to the tiny Tesco Express outlet costs Tesco the same amount to buy from the supplier as the tube going to the vast Tesco Extra store, and the fulfillment cost is very nearly the same as well. This strongly suggests that the age of mass consumption retailing, in which the industry keeps heading toward ever larger formats, is coming to an end. Why drive miles to a "big box" if the items you want are available nearby from a smaller format at the same prices?

Perhaps the biggest benefit Tesco gains from this approach is that its customers are no longer strangers. By offering loyalty cards that are accepted at all formats, Tesco has begun to harvest invaluable data about the entire purchasing pattern of the 12 million UK customers in its loyalty program, who account for 80% of Tesco's sales revenue. This information is now being used to put the right items in the right stores and to target the right customers with the right promotional offers.

With Tesco's multiple-format model, customers can get what they want where they want it, and at a nearly uniform price; and the retailer captures additional consumer spending—and loyalty.

Provide what's wanted where it's wanted exactly when it's wanted. Most consumers have been trained to believe that goods and services are purchased on impulse. And for small items—the latest DVD release, for example—this may be true. *When* we want them is right now. However, for most items—and in particular for major durable goods, which account for the bulk of our spending—most of us continually plan ahead. We still want the goods when we want them, but that date is often some ways off.

Think about your household vehicles. Do you suddenly decide to buy a new car while driving past a dealer? Probably not. But you probably are contemplating a future purchase even as you read this: You know that you can trade your boring van for a two-door roadster as soon as you haul the youngest child to college next fall, and the SUV will reach a point of questionable reliability by the end of next summer.

Imagine that you could get a customized product for a reduced price simply by sharing your plans with a producer and ordering in advance. This purchasing model already works well for services such as vacation cruises, where advance ticket purchases are not only cheaper but can guarantee a preferred (in a sense, "customized") room. And it could work for consumer goods and a broad range of services—if producers would only listen to you.

American customers from Southeast Asia and selling them through retail.

How can this be? It's possible because sourcing locally and manufacturing only to order permits Nike to leave out a large number of steps in the logistics and sales processes: The storage of items at the plant in Southeast Asia until there is a full container to take to the port. The further storage of the container at the port while shipping awaits a full load for the container ship. The customs processes on both ends. The storage of the items in the distribution center on the U.S. West Coast and the assembly into containers to send to the stores. The *entire cost* of the store. The cost of the inevitable overstocks. The cost of lost sales due to stock-outs. And the cost of remaindering (which sometimes simply means discarding) the items produced on forecast for those customers who never materialized.

As Nike's cost analysis shows, the touch labor is actually a small portion of the total cost of producing and delivering these products, despite their labor intensity. Most of the costs reside in the various overheads at Nike, the management of the many handoffs from production sources on the other side of the world, the large inventories at many points, the retail dealers' overheads, the lost sales from too few goods, and the lost pricing power from too many.

But most current interactions actually penalize the customer for planning ahead. For example, if you ask to special order a specific vehicle for delivery sometime in the future, the dealer will be frustrated that you don't want one of the vehicles already in inventory and will try to steer you to available stock through price discounts. And if you insist on ordering ahead, you will pay a penalty when the dealer refuses to budge on price. This situation is bad for both consumers and producers. It thwarts customers' desire to get exactly what they want when they want it, and it increases the producers' production and distribution costs. Producers incur these extra expenses because they can't accurately predict the total volume of

your computation and communication problems by evaluating your specific needs and then determining the best equipment, software, and services? The provider could then obtain, install, maintain, upgrade, and replace the required items for a standard fee, with no unpaid work or hassle for you. And why can't another solution provider put the vehicles in your driveway, then maintain, repair, and dispose of them as appropriate, for a simple usage fee, without consuming any of your time or attention?

Few such solutions are currently being offered cost effectively for consumers' small number of really big problems: mobility, communication, shelter, health care, financial management, and shopping. (Concierge services

The age of mass consumption retailing, in which the industry keeps heading toward ever larger formats, is coming to an end.

products that will be wanted at a specific time or the mix of features each customer will seek. As a result, they must keep extra production capacity available, keep large inventories of finished units and parts on hand, or both.

Most of us do plan ahead for large, durable purchases and would be willing to share our plans with the producer in return for getting exactly what we want at a future date with a discount. And those who absolutely must have a specific product (standard shift, purple paint) right now are usually willing to pay a premium for it. If producers can find a way to share the gains with their retailers, it should be possible to presell a large fraction of products to customers' specifications (at a lower cost and price) while keeping the capability to build customized products (at a higher cost and price) right away for the "got to have it now" customer.

A major challenge to "when it's wanted" consumption is that in complex, multifirm provision streams, the interests of the customer, the retailer, the producer, and the suppliers must be aligned. This brings us to the final principle of lean consumption.

Continually aggregate solutions to reduce the customer's time and hassle. With our background in lean production, we are repeatedly struck by a phenomenon most business analysts seem to miss: Consumers are using more and more suppliers—frequently strangers reached through impersonal markets—to solve smaller and smaller problems, often on a onetime basis. By contrast, lean producers, following Toyota's example, are steadily reducing their supply base for each item and asking fewer suppliers with deeper knowledge of their needs to solve bigger problems on a continuing basis.

This same concept can be applied to the process of consumption. For example, why can't a single provider solve

and consumer advocates may be available, but are actually a step backward into a world where the well-to-do hire staff to cure their consumption headaches, which are caused by broken processes.)

However, advances in information technology— for managing providers' logistics and connecting consumers and providers—will lift the technical barriers to solving these problems and make solutions cost effective. And transparent pricing of bundled goods and services, along with clear rules governing how providers use consumers' information, will be essential. Finally, providers and consumers will have to truly open lines of communication and learn how to plan together over the long term.

Making Lean Consumption Work

We believe that consumers will be quick to learn their role in lean consumption. Most of us would surely embrace the opportunity to solve our consumption problems completely, getting just what we want, when we want it, where we want it, at an attractive price from a small number of stable providers, with no waste of our time, and with no unpaid work.

The real challenge lies with the retailers, service providers, manufacturers, and suppliers that are not used to looking at total cost from the standpoint of the consumer and are even less accustomed to working with customers to optimize the process of consuming. Lean production has clearly triumphed over similar obstacles in recent years to become the dominant global model. Can lean consumption, its logical companion, be far behind? 

Reprint R0503C; HBR OnPoint 9432

To order, see page 151.

Harvard Business Review and Harvard Business School Publishing content on EBSCOhost is licensed for the individual use of authorized EBSCOhost patrons at this institution and is not intended for use as assigned course material. Harvard Business School Publishing is pleased to grant permission to make this work available through "electronic reserves" or other means of digital access or transmission to students enrolled in a course. For rates and authorization regarding such course usage, contact permissions@hbsp.harvard.edu