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TOOL KIT

By thoroughly mapping the job a customer is trying to get done, a company can discover opportunities for breakthrough products and services.

The Customer-Centered Innovation Map

by Lance A. Bettencourt and Anthony W. Ulwick

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The Customer-Centered Innovation Map

The Idea in Brief

We all know that people "hire" products to get jobs done. Office workers hire word-processing software to create documents. Surgeons hire scalpels to dissect soft tissue. But few companies keep this in mind while searching for ideas for breakthrough offerings. Instead, they rely on inquiry methods (such as customer interviews) that don't generate the most promising ideas or exhaustive sets of possibilities.

To systematically uncover more—and better—innovative ideas, Bettencourt and Ulwick recommend **job mapping:** Break down a job that customers want done into discrete steps. Then brainstorm ways to make steps easier, faster, or unnecessary.

For example, while cleaning clothes, people don't notice stubborn stains until they've taken the clothes from a dryer and started folding them. If they find a stain, they must repeat the job. A washer that detects persistent stains and takes appropriate action *before* consumers execute the rest of the job would have huge appeal.

The Idea in Practice

All jobs have the same eight steps. To use job mapping, look for opportunities to help customers at every step:

During this step…	Customers…	Companies can innovate by…	Example
1: Define	Determine their goals and plan resources.	Simplifying planning.	Weight Watchers streamlines diet planning by offering a system that doesn't require calorie counting.
2: Locate	Gather items and information needed to do the job.	Making required inputs easier to gather and ensuring they're available when and where needed.	U-Haul provides customers with prepackaged moving kits containing the number and types of boxes required for a move.
3: Prepare	Set up the environment to do the job.	Making set-up less difficult and creating guides to ensure proper set-up of the work area.	Bosch added adjustable levers to its circular saw to accommodate common bevel angles used by roofers to cut wood.
4: Confirm	Verify that they're ready to perform the job.	Giving customers information they need to confirm readiness.	Oracle's ProfitLogic merchandising optimization software confirms optimal timing and level of a store's markdowns for each product.
5: Execute	Carry out the job.	Preventing problems or delays.	Kimberly-Clark's Patient Warning System automatically circulates heated water through thermal pads placed on surgery patients to maintain their normal body temperature during surgery.
6: Monitor	Assess whether the job is being successfully executed.	Linking monitoring with improved execution.	Nike makes a running shoe containing a sensor that communicates audio feedback about time, distance, pace, and calories burned to an iPod worn by the runner.
7: Modify	Make alterations to improve execution.	Reducing the need to make alterations and the number of alterations needed.	By automatically downloading and installing updates, Microsoft's operating systems remove hassle for computer users. People don't have to determine which updates are necessary, find the updates, or ensure the updates are compatible with their operating system.
8: Conclude	Finish the job or prepare to repeat it.	Designing products that simplify the process of concluding the job.	3M makes a wound dressing that stretches and adheres only to itself—not to patients' skin or sutures. It thus offers a convenient way for medical personnel to secure dressings at the conclusion of treatment and then remove them after a wound has healed.

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We all know that people "hire" products and services to get a job done. Office workers hire word-processing software to create documents and digital recorders to capture meeting notes. Surgeons hire scalpels to dissect soft tissue and electrocautery devices to control patient bleeding. Janitors hire soap dispensers, paper towels, and cleansing fluid to help remove grime from their hands.

While all this seems obvious, very few companies use the perspective of "getting the job done" to discover opportunities for innovation. In fact, the innovation journey for many companies is little more than hopeful wandering through customer interviews. Such unsystematic inquiry may occasionally turn up interesting tidbits of information, but it rarely uncovers the best ideas or an exhaustive set of opportunities for growth.

We have developed an efficient yet simple system companies can use to find new ways to innovate. Our method, which we call "job mapping," breaks down the task the customer wants done into a series of discrete process steps. By deconstructing a job from beginning to end, a company gains a complete view of all the points at which a customer might desire more help from a product or service—namely, at each step in the job. With a job map in hand, a company can analyze the biggest drawbacks of the products and services customers currently use. Job mapping also gives companies a comprehensive framework with which to identify the metrics customers themselves use to measure success in executing a task. (For a description of these metrics and a discussion about how to gather and prioritize them, see Anthony W. Ulwick's "Turn Customer Input into Innovation" in HBR's January 2002 issue.)

Job mapping differs substantively from process mapping in that the goal is to identify what customers are *trying* to get done at every step, not what they are doing currently. For example, when an anesthesiologist checks a monitor during a surgical procedure, the action taken is just a means to an end. Detecting a change in patient vital signs is the job

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the anesthesiologist is trying to get done. By mapping out every step of the job and locating opportunities for innovative solutions, companies can discover new ways to differentiate their offerings.

Anatomy of a Customer Job

Over the past 10 years, we have mapped customer jobs in dozens of product and service categories that span professional and consumer services, durable and consumable goods, chemicals, software, and many other industries. Our work has revealed three fundamental principles about customer jobs.

All jobs are processes. Every job, from transplanting a heart to cleaning a floor, has a distinct beginning, middle, and end, and comprises a set of process steps along the way. The starting point for identifying innovation opportunities is to map out—from the customer's perspective—the steps involved in executing a particular job. Once the steps are identified, a company can create value in a number of ways—by improving the execution of specific job steps; eliminating the need for particular inputs or outputs; removing an entire step from the responsibility of the customer; addressing an overlooked step; resequencing the steps; or enabling steps to be completed in new locations or at different times.

When mapping the job of washing clothes, for example, a company would quickly discover that the step of "verifying that stains have been removed" often comes at the end of the job sequence, after the clothes have been removed from the washing machine, dried, folded, and put away—too late to do much of anything about it. If the washing machine itself could detect the presence of any remaining stains before the wash cycle ended—resequence when verification takes place—it could take the necessary actions at a much more convenient point in the job. If the machine could be designed to remove the need for inputs such as stain removers and bleach, that would be even better.

All jobs have a universal structure. That universal structure, regardless of the customer, has the following process steps: defining what the job requires; identifying and locating needed inputs; preparing the components and the physical environment; confirming that everything is ready; executing the task; monitoring the results and the environment; making modifications; and concluding the job. Because problems can occur at many points in the process, nearly all jobs also require a problem resolution step.

Some steps are more critical than others, depending on the job, but each is necessary to get the job done successfully. For example, when preparing for the task of replacing a hip joint, surgeons sterilize their hands, establish a sterile field between their body and the patient, prep the patient's skin for the incision, and properly position the patient. A janitor about to clean his hands might prepare by simply rolling up his sleeves. Innovation possibilities reside within each of the job steps.

Jobs are separate from solutions. Customers hire different products or services to get the same job done. When preparing income taxes, for example, one person might rely on the services of a CPA, whereas another might use tax preparation software. Others might hire both for different steps in the process.

Many companies are focused on the product or service they're already developing, or on the one the competition is offering, rather than on the help they must give the customer to execute the steps in a job. When the job is the focal point of value creation, companies not only can improve their existing offerings but also can target new, or "blue ocean," market space. While other MP3 manufacturers were concentrating on helping customers listen to music, for example, Apple reconsidered the entire job of music management, enabling customers to acquire, organize, listen to, and share music.

Taken together, these fundamental principles form the foundation of a company's search for opportunities to create customer value.

Creating a Job Map

The goal of creating a job map is not to find out how the customer is executing a job—that only generates maps of existing activities and solutions. Instead the aim is to discover what the customer is trying to get done at different points in executing a job and what must happen at each juncture in order for the job to be carried out successfully. (See the exhibit "Mapping a Customer Job.") Let's look at the steps in detail.

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1: Define

What aspects of getting the job done must the customer define up front in order to proceed? This step includes determining objectives; planning the approach; assessing which resources are necessary or available to complete the job; and selecting resources. A financial adviser may label this step "assessing the investment situation," since she must not only gauge investment priorities and risk tolerance but also consider how much money is available and which types of investments to select. An anesthesiologist might call it "formulating the anesthesia plan," since he must choose which type of anesthesia to provide, depending upon case characteristics and the patient's medical history.

In this step, a company can look for ways to help customers understand their objectives, simplify the resource-planning process, and reduce the amount of planning needed. Consider how Weight Watchers assists dieters with the daunting task of losing weight. The company offers a core weight-loss plan that helps the dieter select appropriate foods without the need to count calories, carbohydrates, or anything else. In addition, it provides meal ideas and recipes that fit into its core and points-based diet plans. For dieters desiring more flexibility, Weight Watchers offers instant access to point values for over 27,000 foods and online tools to help dieters gauge the impact of what they eat.

2: Locate

What inputs or items must the customer locate to do the job? Inputs are both tangible (for example, the surgical tools a nurse must locate for an operation) and intangible (say, business or other requirements that a software developer uses when writing code). When tangible materials are involved, a company might consider streamlining this step by making the required components easier to gather, ensuring that they are available when and where needed, or eliminating the need for some inputs altogether. Consider how U-Haul helps customers locate the inputs necessary to complete the job of moving their physical goods. In addition to being a one-stop shop for moving supplies, U-Haul offers customers prepackaged moving kits that reduce the time it takes to gather the various boxes and supplies required for a move. In addition, an online partnership with eMove helps customers quickly locate a variety of inputs in the form of human helpers—packers, babysitters, cleaners, and painters. Opportunities abound to help customers assemble intangible materials as well: for instance, retrieve stored data, facilitate the collection of new information, and verify that data are accurate and complete.

3: Prepare

How must the customer prepare the inputs and environment to do the job? Nearly all customer jobs involve an element of setting up and organizing materials. Before cooking french fries, the fast-food operator must open bags, portion, and load fries into baskets;

Mapping a Customer Job

To find ways to innovate, deconstruct the job a customer is trying to get done. By working through the questions here, you can map a customer job in just a handful of interviews with customers and internal experts.

Start by understanding the execution step, to establish context and a frame of reference. Next, examine each step before execution and then after, to uncover the role each plays in getting the job done.

To ensure that you are mapping job steps (what the customer is trying to accomplish) rather than process solutions (what is currently being done), ask yourself the validating questions below at each step.

Validating Questions

As defined, does the step specify what the customer is trying to accomplish, or is it only being done to accomplish a more fundamental goal?

valid step: ascertain patient vital signs

invalid step: check the monitor

Does the step apply universally for any customer executing the job, or does it depend on how a particular customer does the job?

valid step: place an order

invalid step: call the supplier to place an order

Defining the execution step

What are the most central tasks that must be accomplished in getting the job done?

- **Validate the steps**

Defining pre-execution steps

What must happen before the core execution step to ensure the job is successfully carried out?

- What must be defined or planned before the execution step?
- What must be located or gathered?
- What must be prepared or set up?
- What must be confirmed before the execution step?
- **Validate the steps**

Defining post-execution steps

What must happen after the core execution step to ensure the job is successfully carried out?

- What must be monitored or verified after the execution step to ensure the job is successfully performed?
- What must be modified or adjusted after the execution step?
- What must be done to properly conclude the job or to prepare for the next job cycle?
- **Validate the steps**

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the nurse must set out and organize surgical tools before an operation can begin. It may also be necessary to prepare a working surface or some other aspect of the physical environment. The dentist readies the surface of a molar prior to restoring the tooth; the painter cleans the wall before applying the first coat of paint.

At this stage, companies should consider ways to make setup less difficult. They might invent a means to automate the preparation process; make it easier to organize physical materials; or create guides and safeguards to ensure the proper arrangement of the work area. (For customers dealing with information, companies can help organize, integrate, and examine required data.) Bosch learned of one opportunity to help customers prepare to cut wood when professional roofers told the company that they would like a way to speed the process of setting bevel levels on their saws. Accordingly, Bosch added adjustable levers to its CS20 circular saw to accommodate the most common bevel adjustments such as 30°, 45°, and 60°. This reduced the time needed to cut the wood and increased the accuracy of the adjustments.

4: Confirm

Once preparation is complete, what does the customer need to verify before proceeding with the job to ensure its successful execution? Here, the customer makes sure that materials and the working environment have been properly prepared; validates the quality and functional capacity of material and informational components; and confirms priorities when deciding among execution options. This step is especially critical for jobs in which a delay in execution might risk a customer's money, time, or safety. For example, after preparing a patient for an operation, the surgical nurse must confirm the readiness of the patient (jewelry removed, vitals in check); of the equipment and instrumentation (battery power sufficient, scalpels available); and of the operating room (materials in place, sterile field intact).

A company seeking to differentiate itself at this step could help customers gain access to the types of information and feedback they need to confirm readiness and decide among execution alternatives. Another approach is to search for ways to build confirmation into the locating and preparing steps, since this would allow the customer to proceed through the job more quickly and easily. For example, Oracle's ProfitLogic merchandising optimization software removes the responsibility from the merchandiser for confirming the optimal timing and level of markdowns by analyzing thousands of different demand scenarios at the individual product level and recommending the scenario for each product that is likely to yield the highest profit.

5: Execute

What must customers do to execute the job successfully? Whether they're printing a document or administering anesthesia, customers consider the execution step the most important part of the job. Because execution is also the most visible step, customers are especially concerned about avoiding problems and delays, as well as achieving optimal results.

Uncovering Opportunities for Innovation

With a job map in hand, you can begin to look systematically for opportunities to create value. The questions below can guide you in your search and help you avoid overlooking any possibilities. A great way to begin is to consider the biggest drawbacks of current solutions at each step in the map—in particular, drawbacks related to speed of execution, variability, and the quality of output. To increase the effectiveness of this approach, invite a diverse team of experts—marketing, design, engineering, and even some lead customers—to participate in this discussion.

Opportunities at the job level

- Can the job be executed in a more efficient or effective sequence?
- Do some customers struggle more with executing the job than others (for instance, novices versus experts, older versus younger)?
- What struggles or inconveniences do customers experience because they must rely on multiple solutions to get the job done?
- Is it possible to eliminate the need for particular inputs or outputs from the job?
- Is it necessary that the customers execute all steps for which they are currently responsible? Can the burden be automated or shifted to someone else?
- How may trends affect the way the job is executed in the future?
- In what contexts do customers most struggle with executing the job today? Where else or when else might customers want to execute the job?

Opportunities at the step level

- What causes variability (or unreliability) in executing this step? What causes execution to go off track?
- Do some customers struggle more than others with this step?
- What does this step's ideal output look like (and in what ways is the current output less than ideal)?
- Is this step more difficult to execute successfully in some contexts than others?
- What are the biggest drawbacks of current solutions used to execute this step?
- What makes executing this step time-consuming or inconvenient?

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An office worker who prints out a document wants to avoid paper jams, running out of toner, and long print queues. She also wants to improve the quality of printed output. An anesthesiologist wants to prevent negative patient reactions and to ensure that the patient is unable to feel pain.

Here, innovating companies can apply their technological know-how to provide customers with real-time feedback or to automatically correct execution problems. Companies can also think about ways to keep performance consistent in different contexts. Kimberly-Clark's Patient Warming System is a good example of value added in this way. The system relies on a control unit that automatically circulates heated water through thermal pads placed on the patient to avoid temperature spikes during surgery. The system can maintain normal patient temperature with only 20% of the patient body covered, which means the device performs consistently and efficiently in a variety of complex surgical procedures.

6: Monitor

What does the customer need to monitor to ensure that the job is successfully executed? Customers must keep an eye on the results or output during execution, especially to determine whether they have to make adjustments to get the task back on track in the event of a problem. For some jobs, customers must also monitor environmental factors to see whether and when adjustments are necessary. A network administrator, for example, monitors Web traffic to avoid system overload.

While some monitoring activities are passive (like the way a pacemaker monitors heartbeats), others can often be time-consuming and demanding for customers. When the costs of poor execution are significant, as when operating on a patient, solutions that call attention to problems or relevant changes in the environment are especially valuable. Solutions that link monitoring with improved job execution or that provide diagnostic feedback offer considerable value as well. Consider how Nike helps runners monitor their workouts using the Nike+iPod Sport Kit. A sensor placed in Nike shoes communicates with an iPod being worn by the runner, providing ongoing audio feedback about time, distance, pace, and calories burned. When the runner notices he is flagging, he can select his "power song" to reinvigorate himself. The kit also allows runners to track progress against predefined goals.

7: Modify

What might the customer need to alter for the job to be completed successfully? When there are changes in inputs or in the environment, or if the execution is problematic, the customer may need help with updates, adjustments, or maintenance. At this step, customers need help deciding what should be adjusted as well as determining when, how, and where to make changes. Like monitoring, searching for the right adjustment can be both time-consuming and costly. Companies can help by offering ways to get execution back on track when there are problems. They can also provide avenues for reducing the time needed make updates and the number of adjustments the customer has to make to achieve desired results. (In addition, solutions that target the location and preparation steps can be designed to eliminate modifications.) Many software programs perform well at supporting this step. Microsoft, for example, assists customers with the job of modifying their computer to protect against security threats. Automatic updates of its operating system remove the hassle of determining which updates are necessary, finding them, and ensuring that fixes are compatible with various elements of the operating system.

8: Conclude

What must the customer do to finish the job? With some simple jobs such as hand washing, the conclusion is self-evident. Complex jobs, on the other hand, may involve some concluding process steps. The office worker has to retrieve a document from the printer and possibly collate, bind, and store it. An anesthesiologist must document surgery details, as well as wake and oversee transfer of the patient to a postoperative recovery area.

Customers often think of concluding steps as burdensome because the core job has already been completed, so companies need to help them simplify the process. Also, the conclusion of one job cycle is often the start of another or may affect the next one's beginning. When a job is cyclical, companies can help customers make sure that concluding

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activities are closely connected to the starting point of a new job cycle.

One way to help customers finish the job is to design benefits sought at the conclusion into an earlier step in the process. 3M's Coban Self-Adherent Wrap, for example, offers a convenient way for medical personnel to secure wound dressings at the end of treatment, because it is made of a material that stretches and adheres only to itself. This self-adherence property makes the wrap easy to remove, because it doesn't stick to patient skin or the wound. 3M designed the product in such a way that putting on the wrap anticipates the act of taking it off.

Ancillary step: Troubleshooting

What problems must the customer troubleshoot and resolve in the course of performing the job? Even in the simplest jobs, things occasionally go wrong—orders are late, printers jam, surgical tools are misplaced, and software test cases fail. When that happens, the customer must disengage from the core job process and enter into a distinct ancillary job of troubleshooting and resolving the problem at hand. What customers want at that point is a speedy resolution—which is a function of how clearly the problem is understood. If the printer jams, for example, how should the office worker remove the damaged paper? If a nurse gets cut when a surgeon hands him a scalpel, what steps must the nurse take to avoid being infected with a blood-borne organism?

When a problem arises, customers need resources, tools, and diagnostics to help them determine a resolution quickly, protect themselves and resources that might be affected, and know when the problem is fixed. They also want solutions that prevent problems at each job step. Consider how MasterCard helps customers with the job of paying for products and services when problems occur. In addition to its zero-liability coverage policy, MasterCard provides downloadable contact numbers so that customers who lose a card while traveling know exactly how to contact the company to report the loss. Then MasterCard can send out emergency cash advances and a replacement card within 48 hours.

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To identify opportunities for innovation, some companies focus on product leadership, some on operational excellence, and some on customer intimacy. Some offer services; others offer goods. Regardless of which business model a company chooses, the fundamental basis for identifying opportunities for growth is the same. When companies understand that customers hire products, services, software, and ideas to get jobs done, they can dissect those jobs to discover the innovation opportunities that are the key to growth.

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The Customer-Centered Innovation Map

Further Reading

ARTICLES

Breakthrough Thinking from Inside the Box
by Kevin P. Coyne, Patricia Gorman Clifford, and Renée Dye
Harvard Business Review
December 2007
Product no. R0712E

Once you've analyzed the jobs your customers want to get done, brainstorm new ways of doing them. But be systematic about it, using the approach recommended in this article. For example, pose concrete questions that focus people's thinking in ways that spark fresh ideas. Helpful questions include "Who uses our product in ways we never expected or intended?" "How would our product change if it were customized for every customer?" "Who spends most of our product's cost to adapt it to their specific needs?" "Which technologies embedded in our product have changed the most since the product was last redesigned?" and "What breakthroughs in efficiency or effectiveness have we made that could be applied in another industry?"

Blue Ocean Strategy
by W. Chan Kim and Renée Mauborgne
Harvard Business Review
October 2004
Product no. R0410D

When searching for innovative ideas, look beyond jobs customers know they want done. Also consider jobs customers haven't yet dreamed of but would want to get done if they knew about them. In these uncontested market spaces, competition is irrelevant. You invent and capture new demand, offering customers a leap in value while streamlining your costs. Result? Brand equity and profitability that last for decades while rivals scramble to catch up. Examples include Cirque du Soleil, which invented a new industry that combined elements from traditional circus with elements from sophisticated theater, enabling customers to be entertained in an entirely novel way. In just 20 years, Cirque du Soleil scored revenues that Ringling Bros. and Barnum & Bailey (the world's leading circus) needed more than a century to attain.

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