Introduction

Real Time and the Real-Time Revolution

Ryan Clark of Liberty Bottleworks runs a small plant that makes aluminum drinking bottles. Liberty customers can customize their products online to the exact shape, size, color, and graphic of their choice. Through lean manufacturing, just-in-time inventory, and digital technologies, “we can turn on a dime. We can do customized manufacturing simply and easily,” Clark says. Instead of having to make ten thousand bottles to make a profit, “I can do ten, with the specifications beamed straight from the art department or straight from the customer.” These capabilities for producing customized drinking bottles give this small shop a strong edge over its mass-producing competition.[1] One manifestation of that competitive edge is found in the real-time online interface to the production process. The ease with which customers can enter customized production requirements tangibly demonstrates that Liberty Bottleworks values its customers’ time in completing this process more effectively than competitors do. The faster production demonstrates further the value that Liberty Bottleworks places on time not only for its own benefit but also for its customers.

A growing number of organizational leaders are paying attention to the increasing value that customers are placing on their time. Time is becoming the dominant customer currency. For many interactions with an organization and its products and services, customers would prefer to minimize the expenditure of their scarce time. For example, customers of Liberty Bottleworks would prefer to minimize the time spent customizing product design and placing an order. If they must spend time, they would prefer it to be easy, convenient, and fast. Leaders of Liberty Bottleworks have paid attention. They have transformed processes to make them easier, more convenient, and faster for their customers. When organizations make such transformations, they are valuing customer time more than they did previously.

The actual time for Liberty Bottleworks' customers to customize product design and place an order is the real time for completing those processes. Although the actual time is the real time for these events, "real time" has come to mean instantaneous.[2] Given the customer desire to spend as little time as possible on these processes, the ideal time for these processes would be instantaneous. In addition, these processes would be completed effectively. That means the specifications and order would be complete and accurate. Incomplete or inaccurate orders and specifications would lead to spending additional time to make corrections. To be ideal real-time customer experiences, the experiences should be instantaneous and effective.

Part of Liberty Bottleworks' design-ordering-production process is now instantaneous and effective. The data from the design and ordering processes flow directly to the production process. The order and the design specifications go instantaneously to manufacturing through an online interface between the customer and manufacturing. There is no waiting for someone to process the order.

On a continuum of effective real-time customer experiences, instantaneous is at one end. Submitting an order with production specifications to manufacturing and receiving immediate confirmation would place Liberty Bottleworks at that end. Longer actual experiences would be placed farther from that end. As companies undergo transformations, they often strive to reduce the time of these longer experiences.

Places could be marked on the continuum to compare customer time prior to a transformation and after a transformation. Customizing product design at Liberty Bottleworks may have previously taken four hours for customers to meet with an artist and walk through various choices. After transformation, it may take fifteen minutes to click through various choices without needing to meet with an artist. In addition to comparing those marks, Liberty Bottleworks would also want to compare the marks showing their time to customize product design with the competition's time.

Leaders may find it helpful to post graphs of customer experiences before and after a transformation. Such graphs could show the time of various customer experiences across the life of each affected product and service. These end-to-end graphs would include customer experiences, as applicable, from initial design through use, maintenance, and disposition. The graphs would show the organization's progress toward becoming a more real-time organization if actual time for customer experiences after transformation were closer to the more instantaneous end of the graph.

In an effort to accelerate one customer-facing process, some companies have found that other customer-facing processes have become extended. Consider a company that reduced product testing time only to discover that customer support processes increased as a result. This would be an example of an ineffective effort to make the company more real time and should be visible on an end-to-end graph.

Instantaneously effective real-time customer experiences are at the core of the real-time revolution. Companies striving to provide ideal real-time customer experiences are driving the real-time revolution. They may not currently provide customers with instantaneously effective experiences, but they are focused on that objective. The closer they get to the goal, the more real time they become. Companies that are more real time than their competition are the ones that will survive and thrive.

We live in an increasingly competitive world where business survival requires valuing what customers value. Though the internet has opened the door to a wealth of new business opportunities, that same door encourages competitors to win customers away from other businesses. Customers will always be looking for great products, and companies will always be striving to make potential customers aware of their offerings. Geographic and information barriers are dissolving. That increases the number of competitors fighting for the same customers. In such competitive markets, customers prefer to buy from companies they trust to share their values. Placing a high priority on the value of their time is emerging as a critical value that customers are expecting companies to demonstrate. Although the value of time is not the same for everyone, everyone can agree that time is a finite resource that should not be wasted. When customers are comparing offers from different competitive suppliers, the company that demonstrates a respect for the customer's use of time also demonstrates a shared sense of value that will increase the trust between customer and supplier.

For some organizational leaders, valuing customer time is an extension of their traditional efforts to become more competitive. For example, their existing plans and projects may focus on optimizing operational efficiencies, becoming more agile, executing a digital transformation, or improving customer experiences. These leaders need to shift their view of the value of time from an internal organizational perspective to the customer's perspective. For some of these leaders, valuing customer time will be a revolutionary approach to business, perhaps even an opportunity to leapfrog the existing competition and redefine market expectations. All leaders—whether chief executive officers (CEOs); other C-level executives such as chief marketing officers (CMOs), chief financial officers (CFOs), chief operating officers (COO), and chief information officers (CIOs); or leaders at any level who are responsible for leading a change effort—should consider a fundamental question: "Will using the customer's value-of-time lens lead to reshaping my view of the business and its competitive environment?"

As a core principle, organizational leaders, in concert with their members and other stakeholders, must transform their organizations to value customer time more effectively than competitors do. Research has shown that real-time organizations are growing faster than industry averages (see exhibit 1.1);[3] furthermore, valuing customer time is a defining characteristic for real-time organizations. As discussed with the Liberty Bottleworks example, valuing customer time means investing a company's resources to minimize the expenditure of the customer's scarce time for many experiences. That means providing effective experiences that are faster than customers expect.

A fast but not fully effective experience could have negative repercussions. For example, consider a customer unloading bags after a fast trip to buy twelve bags of mulch, which were loaded by store employees, only to discover eleven bags in the vehicle. Now the customer has to make another trip to get the twelfth bag. Slightly slower but more complete order fulfillment would have created more value for the customer and avoided dissatisfaction with the store.

Speed is relative to the task at hand. For example, faster could mean seconds (e.g., when the interaction involves checking the status of an airline flight) or months (e.g., when the interaction involves the typical process of building a house). Thus, the speed of a real-time experience is not always instantaneous but is related to the process. In addition, it is also related to the capability of the competition, such as how long it takes other builders to complete a house.

Companies that save customers more time than competitors are effectively demonstrating, in a tangible way, that they respect them and appreciate the value of their time. In serving customers it is important to focus relentlessly on time in improving their experiences. The relentless focus on time applies to everyone and everything that contributes to competing successfully in serving customers, starting with the first

Selected chapters include guidance and insights inspired by one or more research projects sponsored by the Institute for Communication Technology Management (CTM) in the Marshall School of Business at the University of Southern California (USC) from 2015 to 2017. Research showing that real-time organizations are growing faster than industry averages comes from one of those projects, which was conducted by Omar El Sawy from USC and Pernille Rydén from Technical University of Denmark.

CTM is a USC Center of Excellence that is devoted to research and education to help the networked digital industry and its customers grow and prosper. The CTM consortium includes companies such as AT&T, CenturyLink, Children's Hospital, the City of Los Angeles, Fox, TDS, Telus, Verizon, and Warner Bros. CTM examines trends associated with networking, entertainment, consumer demand, and business services to better understand how technology impacts business process and markets as well as how business impacts the adoption of technologies.

Exhibit 1.1 USC Marshall Research Projects

time they are introduced to the company and continuing as long as they remain customers. This customer-centric view of time should be a driving force for interactions involving employees, subcontractors, supply chain and other support team members, as well as customers themselves, as they are involved in completing a process.

Historically, a company's focus on time translated to reducing the company's internal operational time. Less time translated to higher operational efficiencies, lower costs, and higher profits. In today's world, the internet has made businesses global. That has increased the competition as more businesses chase the same opportunities. With more competitors to choose from, customers have become more sophisticated in their selection process. They are looking for suppliers that can not only reduce costs through greater time efficiencies in their internal processes, but they are also looking for suppliers that can save them time. This is becoming especially true in a world where customers are increasingly multitasking and managing their personal lives on internet time. Examples of such recognition are seen in ease of ordering, rapid response of customer support, quality products that do not fail or need to be returned, and instructions that allow ease of use.

This new perspective on the value of time originates with the customer. From the customer's perspective, personal time is a precious resource. Improving the customer's experience vis-à-vis time is an end-to-end issue from the customer's perspective. It should become a similar issue from the perspective of companies seeking to win the customer's business. More specifically, a company wanting to improve its customers' time experience must assume that they start an "experience clock" when they first learn about or contribute to the design of a product or service. This experience clock continues to run through the time customers acquire the product, use it, service it, and achieve the desired level of satisfaction. Reducing the amount of time customers spend on a number of steps in the life of a product or service, such as ordering the product, configuring it for use, or disposing of it, is one way to improve their time experience.

The real-time clock is defined by an organization's customers. An organization's ability to participate in the real-time revolution can only be measured based on the customer's time experience. Customers develop expectations about the amount of time required to achieve a desired result. These real-time expectations are based on experiences with various products and services. These expectations reflect the baseline for the amount of time that a customer expects to invest when interacting with an organization. When the experience begins to extend beyond this baseline, the customer becomes open to alternative solutions that would move the time demand closer to expectations. When the experience is better than expected, the customer credits the company with the incremental value that can be achieved by reinvesting the newfound time savings.

Conversely, with a scarcity of time and an experience that is worse than expected, the customer attributes the opportunity cost associated with the lost time to the offending company. Consider the case when a customer is looking for a fast-food restaurant. For a modest investment of time there are certain expectations associated with the food, cost, and quality of the experience. If a competing restaurant can provide a similar dining experience in a shorter time period, the customer will consider the competitor as a more effective real-time restaurant.

For many products and services, the goal should be minimizing the expenditure of customer time while assuring that customer experiences are effective. However, there are also examples of customer experiences that are enjoyable, productive, or otherwise satisfying because of what the customer obtains. Improving the quality of time spent should be the goal of the organization for these customer experiences. Minimizing customer time in a movie theater is not the goal of a moviemaker; rather, it is to enhance the entertainment value of the customer's time spent. For the customer who wants a higher quality dining establishment, the main dining experience of eating a meal creates the most customer value. The quality of that experience needs to be maintained and improved. Nevertheless, the customer may perceive that faster subsidiary activities, such as making a reservation, getting seated, and paying the bill, enhance the main dining experience.

To illustrate, consider Cheesecake Factory's payment app, CakePay, designed to facilitate bill paying. Customers download the app, check into their specific dining location, and share their code with the server. They can then pay whenever they are ready without waiting for the server and without feeling rushed.[4] The use of a payment app such as CakePay supplements the main dining experience. Its intent is to demonstrate that the restaurant values customer time, particularly the time of repeat customers. It collects one-time information (e.g., name and credit card details) upon installation of the app rather than each time the customer pays. It gives the customer control over the time to pay. The mix of an excellent quality meal and fast, easy payment at a time of the customer's choosing results in a more enjoyable dining experience and, thus, a more valued customer experience.

Responding to an urgent customer need is another example of valuing customer time through improving the quality of time spent. Consider a customer who must present a printed report early the next morning. The customer's printer runs out of ink late in the evening before the report is due. After searching for a place to buy ink, the customer finds a not-so-convenient twenty-four-hour store that will respond to this urgent need. Even though the store is inconvenient, its ability to satisfy an urgent need improved the quality of the customer's experience, so the time spent to find and use this store becomes a positive investment.

Ultimately, valuing customer time means responding to customer time expectations more effectively than competitors do. Reducing the amount of time spent interacting with a company, its products, and its services is an appropriate way to demonstrate a company values its customers' time when they expect efficient interactions. In these instances, real-time organizations prioritize the pursuit of experiences that move the organization toward the instantaneously effective end of the real-time continuum. Alternatively, improving the quality of time spent is an appropriate way to value customers' time when they expect interactions with a company, its products, and its services to be enjoyable, productive, or otherwise satisfying.

A business must consider a whole range of activities that will affect its customers' perception of how the company values their time. Consider the case of Samsung and the Galaxy Note 7.[5] Samsung understood that the increased functionality of the smartphone was driving interest in devices with larger screens and improved performance. In order to respond rapidly to this evolving market, Samsung rushed the Note 7 to market with an inadequately tested battery. The result was that, under certain conditions, a cell phone might heat up and potentially catch on fire. Simply replacing the battery did not solve the problem because the replacement battery also had problems; thus, attempting to service the phone wasted customer time. Further, the phone had been widely distributed. By the time the problem was detected, the process to recall and replace the phone was protracted, further inconveniencing the customer.

So, while Samsung had the best of intentions in moving quickly to bring a technically advanced product to market, undetected flaws from rushed testing led to issues that undermined the value of the new product. Although the time to market was shorter, the time to service a flawed phone was too long, and a burning battery ignited a negative customer experience. To avoid similarly negative consequences, businesses should not focus on just one or two activities where they can trim time for specific processes. Instead, they must consider a whole range of activities affecting customer perceptions of how a company demonstrates that it values customer time. Those activities include the steps in the life of a product or service, from developing through producing to using the product or service. They include a broad range of activities for a business to consider as it seeks to transform itself and its products and services to value customer time better than competitors do.

The Real-Time Revolution

We are at the beginning of a revolutionary shift as an increasing number of individual leaders are undertaking projects within their companies to make them more real time. Most of these efforts would be best characterized as distinct and independent projects. As the scope increases and these projects become more frequent, the composite set of projects will need to be coordinated and orchestrated for maximal impact. Independent projects create an environment where individual departments seek to improve their own efficiencies. That risks redistributing time allocations within the organization without producing company-wide, customer-visible time-value improvements.

For organizations to survive and thrive, they must make valuing customer time—a precious as well as nonrenewable resource—their primary priority. When organizations adopt maximizing the value of customer time as a driving priority, they develop a North Star that can drive a series of coordinated business transformation projects. Such a guiding principle allows a real-time organization to continually engage customers more effectively than competitors do throughout the life of the organization's products and services. Managers of successful real-time transformations will change their products and services, processes, data, and people in order to continually improve their ability to value customer time more effectively than competitors. As competitors become better at valuing customer time through faster, more respectful, and more satisfying interactions with customers, the bar for what is "real time" will be raised, thereby raising customer expectations.

Over time, rising expectations mean that what was once considered real time is now slow. The former real time was considered fast, but what is now fast is closer to instantaneously effective. Competition will lead to a continuing cycle of rising customer expectations about what "real time" means. That will drive more organizations to seek to become more agile at detecting and responding to evolving real-time expectations.

The real-time revolution will accelerate as organizations begin to pursue more real-time transformational programs that require coordination between different functions. When multiple transformation projects are integrated and orchestrated to bring a much larger innovation to life, the benefits of transformations will begin to compound. Ultimately, companies will shift from thinking about real-time transformation programs as an effort to move from point A to point B to a situation where efforts to improve the customer's expenditure of time become a focal point for continual improvement. Valuing customer time is a continually moving target. Becoming a more real-time organization is a continuing journey rather than a destination.

Many organizations are currently undergoing pervasive, fundamental changes through digital transformations. Changing the way an organization conducts its business through innovative use of digital technologies focuses on such goals as offering new products, expanding markets, improving operational efficiencies, lowering costs, and increasing profits. Those transformation efforts are often missing the customer-centric focus of the real-time revolution. In contrast, the most successful business leaders in the real-time revolution undertake digital transformations with an overarching goal of valuing customer time. The value of time is emerging as the new competitive battleground. Leaders who fail to drive digital transformations in an atmosphere where valuing customer time is pervasive will eventually lose to those who embrace the real-time revolution.

Becoming more agile is another transformation organizations are currently pursuing. Some of these transformations have their roots in an effort to make software development teams more responsive to changing customer requirements. However, being agile has become important not only for software development but more broadly for project management and even more broadly for organizational management. In all of these situations, it is important to have the ability to monitor and evaluate relevant conditions and respond innovatively and effectively to changes in those conditions.

Being more agile is also important for becoming more real time. Major differences exist, though, between becoming more agile for a real-time organization and becoming more agile for software development, project management, and organizational management. These differences occur in the conditions that are monitored and the innovative responses to changes in those conditions. The real-time organization monitors and evaluates how it and its competitors value customer time. It also focuses on identifying and implementing innovative responses that value customer time more effectively than competitors do. Becoming more agile in the real-time revolution means that a real-time organization will continually monitor, evaluate, and respond to how it and its competitors value customer time. It will also seek to improve its effectiveness in doing so.

Transforming to a Real-Time Organization—Essential for Survival

Business leaders who do not transform their organizations to value customer time more effectively will find the survival of their organizations increasingly challenged as customers move to competitors that do. Not participating in the real-time revolution will lead to a withering customer base. A robust customer base that perceives that you respect them by valuing their time is essential for survival.

A real-time company is always striving to improve the customer's expenditure of time. Each step to improve this time expenditure will require some level of change within the company and, as a result, a real-time company has to embrace change as being a part of its DNA. Most people are inherently resistant to change. Thus, a barrier to participating in the real-time revolution is lack of interest or even resistance by others in the organization. These situations should be expected if employees are doubtful that change will bring a positive result for the company or if they think that change will negatively impact them. To overcome these potential barriers, it is often best to develop active participation and support of a critical core of employees. Persuade this core group to see the issue from the customer's perspective and to accept the transformation as a longevity issue for the company. They can serve as topical evangelists. They can help persuade others that the company's survival depends on pursuit of a real-time transformation. Developing this support is an important aspect of becoming a real-time revolutionary!

We present many examples of companies that are valuing customer time. They serve as signposts that indicate the real-time revolution is upon us. As a leader, expect that competitors are constantly pushing to make their companies increasingly real time. Set a target that gets ahead of the competition. Continue to strive to beat customer time expectations, whether those expectations arise from the competition or a self-established benchmark.

Demonstrating value for customer time is a primary driver of companies that have been convinced to join the real-time revolution. Nevertheless, those real-time organizations do not abandon traditional fundamentals of business. Real-time organizations must continue to pursue fundamental business goals of developing new products, expanding markets, improving operational efficiencies, lowering costs, and increasing profits. The guidance we provide in subsequent chapters is intended to provide an incremental focus on various levers that may be used to orchestrate changes that support becoming a more real-time organization. Those changes, though, should also be compatible with fundamental business goals.

The justification for a real-time transformation includes the conviction from an organization's leaders, members, and other stakeholders that to survive the organization must demonstrate that it values customer time more effectively than competitors do. It also includes a collective belief that customer time is the most precious resource guiding customer behavior; furthermore, failure to value that resource competitively will cause the organization's customer base to wither. This justification may be bolstered by how well a real-time transformation supports fundamental business goals. For example, a real-time transformation could involve a digital transformation that would allow the organization to get products to customers faster while also producing more in less time.

Beyond Survival

Leaders typically want their organizations not only to survive, but also to thrive. Surviving and thriving require succeeding in three different, but interrelated, areas:

1. Consistently demonstrating that the organization values customer time.
2. Monitoring how well the organization and its competitors value customer time and evaluating where to make improvements.
3. Continually identifying and implementing innovative improvements to demonstrate an ongoing commitment to improving customer time value more than competitors do.

We discuss each of these areas in the chapters that follow.

The skills required for each of these areas are quite different. The first area—consistently demonstrating that the organization values customer time—requires the mastery of repeatable procedures that allow for consistent performance. A number of organizational processes in this first area (e.g., production, delivery, and maintenance) involve actions and interactions with customers that make it possible to consistently demonstrate that the organization values customer time. Having the ability to work with these procedures to achieve traditional business goals of improving operational efficiencies, lowering costs, and increasing profits is also important to survive and thrive. The key distinction for a real-time organization is that the mastery of these skills must occur within the context of valuing customer time as a primary priority.

The skills for the second area—monitoring how well the organization and its competitors value customer time and evaluating where to make improvements—include the mastery of procedures that collect data. Moreover, evaluating where to make improvements includes data analysis and decision-making skills. The key distinction for a real-time organization is that the collection of data and subsequent analyses and decisions must take into account not only traditional business goals but also the overarching goal of valuing customer time. Without the overarching goal, the onrushing crush of real-time competitors will prevent thriving and surely threaten survival.

The third area—continually identifying and implementing innovative improvements to demonstrate an ongoing commitment to improving the value of customer time more than competitors do—is most challenging. Skills here include being innovative, managing change, and eventually institutionalizing innovations as routine procedures across a range of organizational functions. Having the ability to blend these skills while also achieving a variety of traditional business goals is also important to survive and thrive. Besides cost-control goals, traditional business goals include revenue-generating initiatives such as pursuing new or growth opportunities through new products or services, new market geographies, and new customers. The key distinction for a real-time organization is that the mastery of these skills must occur within the context of valuing customer time as a primary priority.

Our Urgent Message

Organizational leaders, in concert with organizational members and other stakeholders, must transform their organizations to value customer time more effectively than competitors do. As urgently as we can say it, our message is a matter of life and death for competitive business organizations.

Customers have an understanding of time that is different from the companies they buy from. Through experience, customers have developed expectations about how much time they are willing to invest in the companies they patronize; they have also developed expectations about the quality of that time, i.e., how satisfied they should be. These expectations have been shaped by previous experience with the company's competition and the company itself so that when a competitor offers a product or service that allows customers to personally become more efficient or satisfied, that competitor has an opportunity to gain mind and market share. Real-time organizations prioritize customer time and make sure that their efforts are a source of additional value for their customers. These organizations strive to become more real time. They strive to provide instantaneously effective customer experiences for activities that customers ideally expect to take none of their scarce resource of time. This striving is the distinguishing characteristic of a real-time organization.

We are at the beginning of a revolutionary shift toward more and more organizations transforming to become real time. As real-time competition increases and customers elect to abandon organizations that do not meet their real-time expectations, only those organizations that do meet real-time customer expectations will survive.

Supporting our urgent message above are three related guidelines:

1. The real-time organization must be agile enough to detect and respond to changing customer expectations regarding time better than competitors do.
2. The real-time organization must engage customers throughout the life of its products and services such that customers view the organization as valuing their time and, thus, meeting their needs more than competitors do.
3. The real-time organization will be transformed to value customer time through these core organizational levers: products and services, processes, data, and people.

We help current and potential organizational leaders, members, change agents, and other stakeholders interested in an organization's survival understand these guidelines more fully in subsequent chapters.

Notes

Introduction

1. Travis M. Hessman, "Have It Your Way: Manufacturing in the Age of Mass Customization," *Industry Week*, June 3, 2014. Accessed June 13, 2018 at http://www.industryweek.com/technology /have-it-your-way-manufacturing-age-mass-customization.
2. https://www.dictionary.com/browse/real-time. Accessed 10/28/2018.
3. Omar El Sawy and Pernille Rydén, "The Shades of Grey in Real-Time Management—a Multi-Method Study" (presented to the Institute for Communication Technology Management, Marshall School of Business, University of Southern California, April 29, 2016, available at https://www.marshall.usc.edu/sites/default/files/2019-01/Real-Time %20Management-El%20Sawy%20R3.pdf). There is also an article based on the study: Pernille Rydén and Omar El Sawy, "How Managers Perceive Real-Time Management: Thinking Fast & Flow," *California Management Review* 61, no. 2 (February 2019): 155–177. Article first published online December 19, 2018, https://journals.sagepub.com/doi/abs/10.1177/ 0008125618818840.
4. Peter Forbes, "How Payment Technologies Ease the Pain of Restaurant Bills," Food Newsfeed, *FSR Magazine*, May 2017. Accessed June 12, 2018 at https:// www.foodnewsfeed.com/fsr/vendor-bylines/how -payment-technologies-ease-pain-restaurant-bills.
5. "When Corporate Innovation Goes Bad—The 132 Biggest Product Failures Of All Time," CB Insights, June 25, 2018. Accessed August 2, 2018 at https://www. cbinsights.com/research/corporate-innovation -product-fails/; Steve Kovach, "How Samsung Out-Designed Apple," Business Insider, August 2, 2016. Accessed August 2, 2018 at https://www .businessinsider.com/samsung-galaxy-note-7-vs-apple-iphone-design -features-2016-8; Steve Kovach, "Samsung Announces What Caused the Galaxy Note 7 to Overheat and Explode," Business Insider, January 22, 2017. Accessed August 2, 2018 at https://www.businessinsider.com/samsung-is-sues-galaxy-note-7-battery-report-2017-1; Steve Kovach, "Samsung's Galaxy Note 7 Explanation Didn't Go Far Enough," Business Insider, January 23, 2017. Accessed August 2, 2018 at https:// www.businessinsider.com/samsung-galaxy-note-7-report-what -was-missing-2017-1.