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## EFFICIENCY AND CALCULABILITY

### Consumers 1

Chapter 1 dealt with the process of McDonaldization, as well as McDonald's and other brick-and-mortar consumption sites that are reflective of that process. It also dealt with the largely online world, most notably on Amazon.com, as well as that which integrates bricks-and-clicks. It is there where McDonaldization has reached new heights. Needless to say, people exist in and on these settings. It is the norm to distinguish between two types of people in or on these settings: consumers (or customers, clients) and producers (or workers). However, it is important to note that people as exclusively producers are of declining importance in material sites and virtually nonexistent on digital sites. Herrman describes digital consumption sites as "employee-light."<sup>1</sup> For example, while Amazon.com employs about 23 workers for every \$10 million in revenue generated, brick-and-mortar retailers require almost 50 workers to generate the same amount of revenue.<sup>2</sup> Uber and Airbnb do not employ drivers (Uber sees them as "independent contractors" lacking the rights of employees, e.g., for overtime) and homeowners; they are on their own in exchange for a percentage of the income derived from the services they offer. In Airbnb's case, homeowners get the lion's share of the income. They pay Airbnb a 3% fee, while guests pay the company a 6% to 12% fee. In the case of Uber, drivers usually get between 15% and 25% of the fare. However, these companies do employ people to manage these systems; Uber, with revenue of over \$11 billion, has only about 22,000 employees.

These companies are also described as being “asset-light,” and it is the “lightness” in both paid employees and assets that allows Internet sites to reach new heights of McDonaldization. For example, Uber owns no cars; those who drive for Uber own the cars and pay the expenses associated with buying (or leasing) and maintaining them. Similarly, Airbnb owns no properties; those who offer them for rent on the site own them, and they too are responsible for all of the expenses associated with the properties. With relatively few employees and minimal material assets, these Internet sites are free to maximize the process of McDonaldization. However, it is important to note that those who do the work in these systems—the drivers and homeowners—have little ability to McDonaldize most of what they do. In addition, as members of the “gig economy,” they generally earn comparatively little and have no job security, in part because they do not have jobs in the conventional sense. This frees up Uber, Airbnb, and others to exploit them greatly.

The norm of differentiating between consumers and producers will be adhered to in the next four chapters. This chapter and the next will deal with consumers, while Chapters 4 and 5 will be devoted to producers. However, as pointed out previously, scholars are rejecting the binary distinction between producers and consumers and thinking more in terms of *prosumers*, or those who both produce and consume.<sup>3</sup> In fact, both are, in reality, prosumers because producers must consume at least to some degree and consumers must also produce in various ways. We will have more to say about prosumers at several points in this book, but for the time being, we will set that concept aside and deal separately with consumers and producers.

This chapter covers consumers in terms of two of the four basic dimensions of McDonaldization: efficiency and calculability. Chapter 3 deals with consumers through the lens of the other two dimensions of McDonaldization: predictability and control. While the focus is on the consumer, workers—the producers—will inevitably be touched on in these chapters and discussions.

We will discuss a wide array of consumers in the next two chapters, including tourists, students, campers, diners, patients, parents, mothers-to-be, shoppers (including cybershoppers), dieters, exercisers, and those looking for dates (or simply for sex).

## EFFICIENCY: DRIVE-THROUGHS AND FINGER FOODS

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Efficiency is perhaps the dimension of McDonaldization most often linked to the seeming increase in the pace of contemporary life. Increasing efficiency is behind just-in-time production, faster service, streamlined operations, and tight

schedules everywhere—from the workplace, to Disney World, to the home, and most importantly, to consumption sites on the Internet.

Efficiency is generally a good thing. It is clearly advantageous to consumers, who are able to obtain what they need more quickly and with less effort. Similarly, efficient workers are able to perform their tasks more rapidly and easily. Managers and owners gain because more work gets done, more customers are served, and greater profits are earned. But as is the case with McDonaldization in general and each of its dimensions, irrationalities such as surprising inefficiencies and the dehumanization of consumers and workers are associated with the drive for increased efficiency. Most extremely, the drive for efficiency in both brick-and-mortar and digital (e.g., websites) settings has the irrational consequence of the great reduction, if not near-total elimination, of human workers. Along with automated technologies, prosumers increasingly do the work, for no pay, that those paid workers once did.

Efficiency means choosing (or having chosen for you by others) the optimum means to a given end. However, the truly optimum means to an end is rarely found. People and organizations rarely maximize because they are hampered by such factors as the constraints of history, financial circumstances, organizational realities, and the limitations of human nature.<sup>4</sup> Organizations continue to strive for maximization in the hope that they will at least increase their efficiency. Organizations are now coming closer to maximizing efficiency on the Internet, in brick-and-mortar settings where unpaid prosumers do more and more of the work, and in the world that augments the two.

In a McDonaldized society, consumers and workers rarely search for the best means to an end on their own; rather, they tend to rely on previously discovered and institutionalized means. Thus, when people start a new job, they are not expected to figure out for themselves how to do the work most efficiently. Instead, they undergo training designed to teach them what has been discovered over time to be the most efficient way of doing the work. Once on the job, people may discover little tricks that help them perform the task more efficiently, and these days, they are encouraged to pass this information on to management so that all workers performing that task can perform a bit more efficiently. In this way, over time, efficiency (and productivity) gradually increases. In fact, much of the economic boom in the late 20th and early 21st centuries was attributed to the dramatic increases in efficiency and productivity that permitted significant growth with little inflation. Even after the onset of the Great Recession beginning in late 2007, efficiency increased, but this time, employers discovered ways of producing as much or more with fewer and fewer employees, more automated technology, and robots, as well as greater use of unpaid prosumers as “working

consumers” (see Chapter 4). It remains to be seen how the COVID-19 pandemic, as well as the resulting economic decline, will impact all of this.

For their part, consumers are generally interested in the most efficient ways to traverse the remaining shopping malls, get through a fast-food restaurant, wend their way around a theme park or a cruise ship, and arrive at the right website and find what they want. To make this easier, all of these settings have created systems that direct or even force consumers in the most efficient direction. They have done so, at least in part, because it is in their interest to do so. Consumers who are able to get to desired locations and to obtain goods and services more expeditiously are then able to buy more of those goods and services. They are therefore able to spend more money creating greater profits for the owners of the locations. This has coincided with technological advances (automation, robotization, artificial intelligence, the boom in the Internet) that have served to further reduce the need for human workers. The ongoing and coming loss of jobs associated with these changes, especially robotization, has been termed a “robotocalypse.”<sup>5</sup> This loss of paying jobs will enable further the role unpaid working consumers play in the con(pro)sumption process.

Although the fast-food restaurant certainly did not create the desire for efficiency or the methods used to increase it, it has helped turn efficiency into an increasingly universal reality. Many sectors of society have had to change in order to operate in the efficient manner demanded by those accustomed to, among other things, life in the drive-through lane of the fast-food restaurant. This is even more the case online where the level of efficiency far exceeds that found in brick-and-mortar sites. While many manifestations of efficiency can be traced directly to the influence of the fast-food restaurant, many more of them predated and helped shape the fast-food restaurant. Others postdate the founding of McDonald’s and are traceable to the coming of age of the Internet in the late 20th century. Nonetheless, they all contribute to the concern, even preoccupation, with efficiency—a central aspect of what is still best described by McDonaldization. The Internet has greatly enhanced that yearning for efficiency as people nearly effortlessly handle tasks—or more likely have them handled for them—without ever leaving their home. What could be more efficient than that?

## Streamlining the Process

Efficiency will be discussed under three broad sub-dimensions: streamlining the process, simplifying the product, and putting consumers (as prosumers) to work.

## The Fast-Food Industry: Speeding the Way From Secretion to Excretion

As pointed out in Chapter 1, Ray Kroc was obsessed with streamlining McDonald's operations in order to increase efficiency, not only for its workers but also for those who consume its food. For its customers, McDonald's has done "everything to speed the way from secretion to excretion."<sup>6</sup> For example, the process of getting diners into and out of the fast-food restaurant has been streamlined in various ways. Parking lots adjacent to the restaurant offer readily available parking spots. It's a short walk to the counter, and although customers sometimes have to wait in line, they can usually quickly order, obtain, and pay for their food. The highly limited menu makes the diner's choice easy, in contrast to the many choices available in traditional restaurants. ("Satellite" and "express" fast-food restaurants in, for example, gasoline stations, are even more streamlined.) With the food obtained, it is but a few steps to a table and the beginning of the "dining experience." With little inducement to linger, diners generally eat quickly and then gather the leftover paper, cardboard, and plastic, discard them in a nearby trash receptacle, and return to their cars to drive to the next (often McDonaldized) activity.

Those in charge of fast-food restaurants discovered that the drive-through window made this whole process far more streamlined. Instead of requiring diners to undertake the "laborious" and "inefficient" process of parking their cars, walking to the counter, waiting in line, ordering, paying, carrying the food to the table, eating, and disposing of the remnants, the drive-through window offered diners the streamlined option of driving up to the window and driving off with the meal. If they wanted to be even more efficient, diners could begin to eat as they were driving away from the drive-through. Drive-through windows are also efficient for fast-food restaurants. As more and more people use drive-through windows, fewer parking spaces, tables, and employees are needed. Furthermore, consumers take their debris with them as they drive away. This reduces the need for employees to clean up after customers, for trash receptacles, and for workers to empty those receptacles periodically and dispose of all that trash.

Modern technology offers further advances in streamlining. Here is a description of some of the increased efficiency at a Taco Bell in California:

Inside, diners in a hurry for tacos and burritos can punch up their own orders on a touch-screen computer. Outside, drive-through customers see a video monitor flash back a list of their orders to avoid mistakes. They then can pay using a pneumatic-tube like those many banks employ for drive-up

transactions. Their food, and their change, is waiting for them when they pull forward to the pickup window. And if the line of cars grows too long, a Taco Bell worker will wade in with a wireless keyboard to take orders.<sup>7</sup>

Customers' and employees' use of touchscreens and handheld computers (at Taco Bell and others, including McDonald's) streamlines the ordering and paying for food, thereby reducing the need for counter people and cashiers.<sup>8</sup>

Further increasing efficiency is the growing use of credit and debit cards in fast-food restaurants. Fumbling for cash and dealing with change, especially increasingly useless and possibly virus-ridden coins, is far less efficient for consumers (and workers) than swiping their cards or inserting those with a built-in chip into a terminal at the checkout counter. Increasingly common are cards with radio-frequency identification, which read cards that are a short distance away and eliminate all that swiping, inserting, and physical contact. Recent advances increase efficiency further by eliminating the need for credit cards and allowing people to touch their cell phones to a credit card machine in order to complete a transaction. Venmo allows people to send money to and share costs with family and friends and to pay independent contractors.

### Home Cooking (and Related Phenomena): "I Don't Have Time to Cook"

In the early 1950s, at the dawn of the era of the fast-food restaurant, the major alternative to fast food was the home-cooked meal, made mostly from ingredients purchased beforehand at various local stores and early supermarkets. This was clearly a more efficient way of preparing meals than earlier methods, such as hunting game and gathering fruits and vegetables. Cookbooks also made a major contribution to efficient home cooking. Instead of inventing a dish every time a meal was prepared, the cook could follow a recipe and thus more efficiently produce the dish.

Soon, the widespread availability of the home freezer led to the expanded production of frozen foods.<sup>9</sup> The most efficient frozen food was (and for a few still is) the "TV dinner." Swanson created its first TV dinner, its meal-in-a-box, in 1953 and sold 25 million of them in the first year.<sup>10</sup> The large freezer also permitted other efficiencies, such as making fewer trips to the market for enormous purchases rather than making many trips for smaller ones.

However, with the advent of microwavable meals,<sup>11</sup> frozen dinners began to seem comparatively inefficient. Microwaves cook faster than stovetops and other ovens, and people can prepare a wider array of foods in them. Perhaps

most important, microwave ovens spawned a number of food products (including microwavable soup, pizza, hamburgers, fried chicken, French fries, and popcorn) similar to the fare people had learned to love in fast-food restaurants. For example, one of the first microwavable foods was Hormel's array of biscuit-based breakfast sandwiches similar to the Egg McMuffin popularized by McDonald's.<sup>12</sup> As one executive put it, "Instead of having a breakfast sandwich at McDonald's, you can pick one up from the freezer of your grocery store."<sup>13</sup> In some ways, "homemade" fast foods seem more efficient than the versions offered by fast-food restaurants. Instead of getting into the car, driving to the restaurant, and returning home, consumers need only pop their favorite foods into the microwave. However, the microwaved meal does require a prior trip to the market.

Supermarkets have long been loaded with other kinds of products that streamline "cooking" at home and eliminate trekking to a fast-food restaurant. Instead of starting from scratch, the cook can use prepackaged mixes to make "homemade" cakes, pies, pancakes, waffles, and many other foods. In fact, entire meals are now available right out of the box. Dinty Moore's Classic Bakes promise to be "hot and hearty, quick and convenient, ready in minutes." Dinty Moore also offers "Big Bowls" of, for example, beef stew, which can be microwaved and served in the bowls in which they are sold. The bowls are then to be tossed in the garbage, thereby eliminating the inefficiencies associated with washing and drying them.

An increasingly important alternative is the fully cooked meal consumers may now buy at the supermarket. People can simply stop on the way home and purchase main courses, sides, and even entire meals, which they "prepare" by unpacking the food and perhaps reheating it—no actual cooking required.

The meal-kit delivery business involves a fascinating new example of McDonaldized meals, albeit ones that *do* require cooking. The industry leader is Blue Apron, but there are others such as Hello Fresh and Marley Spoon. Amazon entered the online meal-kit business in mid-2017 with the slogan, "We do the prep. You be the chef."<sup>14</sup> The enterprises differ slightly, but the main point from the perspective of McDonaldization is that they provide consumers with the recipes and all of the ingredients needed for several meals a week; no trips to the supermarket required. Blue Apron's customers often receive ingredients (e.g., fairy tale eggplant, pink lemon) not typically found in supermarkets. However, the production of those unique ingredients, as well as the rest of Blue Apron's processes, is highly McDonaldized. Once consumers receive their kits, they become prosumers doing the work involved in producing the meal—chopping, stirring, cooking the provided ingredients—as well as cleaning up afterwards.<sup>15</sup> Nevertheless, one of the

company's owners claims: "The food almost cooks itself."<sup>16</sup> One of Blue Apron's early competitors, Munchery (now out of business) went much further in this direction and provided meals that only required "cooking" in the microwave.

Blue Apron has basically helped to rationalize everything from farm production, to the delivery of the kit, to the cooking of the meal. It increases predictability by matching the supply of various ingredients to the expected customer demand. Long before ingredients are shipped to Blue Apron's customers, the company creates its "shopping lists," and farmers are organized to plant and produce the various ingredients, including such exotica as those fairy tale eggplants. This is made efficient by the fact that farmers produce only as much as Blue Apron projects it will need; there is no excess in the crops. This requires a high degree of control, coordination, and organization because plans for what a farm will produce are laid a year or more before the products are needed for the kits to be delivered to the customers. However, adjustments are made along the way; there is flexibility in case, for example, a given crop fails. There is still much non-McDonaldized hand-cutting and packaging at Blue Apron's fulfillment centers, but the company is moving in the direction of increased automation. The supply chain is so highly organized that it is likely that ingredients remain in one of the centers for only a few hours before they are combined, boxed, and sent out for next-day delivery.

In terms of the meals themselves, they are highly calculable in the sense that consumers receive the precise amounts of each ingredient needed for a given recipe. However, each ingredient is packaged separately, thereby creating a great deal of waste. Online consumers order the meals they want (out of a limited set of options), and the ingredients for those meals arrive each week on their doorsteps. The beauty of the Blue Apron system is that consumers believe that they have been creative in cooking their meals, sometimes with unique ingredients, but everything involved has been highly McDonaldized. As one chef put it, "To me, meal kits sound like cheating, not cooking."<sup>17</sup> Everything is disenchanting, especially quantified. Lost is the "heart, and joy, of cooking."<sup>18</sup> Blue Apron customers can feel that they are rejecting McDonaldization while remaining safely within the constraints of a highly McDonaldized, farm-to-table, system.

The McDonaldization of food preparation and consumption closely relates to the booming diet industry. For example, eating too much fast food tends to lead to obesity. Losing weight is normally difficult and time-consuming, but diet books promise to make it quicker and easier. The preparation of low-calorie food has thus also been streamlined. Instead of cooking diet foods from scratch, dieters may purchase an array of prepared diet foods in frozen or microwavable

form—for example, from Weight Watchers. Nutrisystem sells dieters, at substantial cost, streamlined and prepackaged freeze-dried food. Those who do not wish to go through the inefficient process of eating these diet meals can consume products such as diet shakes and bars (SlimFast, for example) in a matter of seconds. (For those who wish to gain weight and muscle, there is Boost—a high-protein, high-calorie drink.) Dieters seeking even greater efficiency can turn to various pills that expedite weight loss—the now-banned “fen-phen” and the still available (by prescription) Xenical (Orlistat). The same drug can be obtained even more efficiently over-the-counter under the name Alli. Further streamlining radical weight loss is cosmetic surgery to quickly drop pounds of fat. Even more radical and invasive is gastric bypass surgery.

There are efficiencies in dieting outside the home as well. There are, for example, brick-and-mortar diet centers such as Jenny Craig<sup>19</sup> and Weight Watchers.<sup>20</sup> In many cases, streamlined online consultations have replaced the more time-consuming ones that require trips to brick-and-mortar diet centers. Beyond online consultations, there are now even a large number of apps (e.g., Noom) available on smartphones dealing with weight loss and health. They can be accessed easily, and they make obtaining information on how to lose weight even more efficient.

### Shopping: Creating Ever More Efficient Selling Machines

Shopping for all kinds of goods and services, not just food, has also been streamlined. The now declining department store was obviously a more efficient place in which to shop than a series of specialty shops dispersed throughout neighborhoods, cities, and suburbs. In its day, the shopping mall streamlined shopping by bringing a wide range of department stores and specialty shops to one location and under one roof.<sup>21</sup> It was cost-efficient for retailers because the “mall synergy” created by a number of shops and department stores in close proximity to one another brought in throngs of people. And it streamlined consumption for consumers because, in one stop, they could visit numerous shops and stores, have lunch at a “food court” (likely populated by many fast-food chains), see a movie, have a drink, and, perhaps, go to an exercise or diet center.

While malls may still seem streamlined and appear to offer various efficiencies, they pale in comparison to those available on online sites such as Amazon. This is a major reason for the decline of malls, as well as of the department stores and chains that are often found in them.

Consumers who do not feel that they have the time to visit the mall are able to shop from the comfort of their homes through catalogs (such as IKEA's)—increasingly available and accessed online.<sup>22</sup> Another alternative to visiting the mall is home television shopping. The efficiency of shopping via catalogs, on TV, and especially online is increased even further by express package delivery systems, overnight or even same day, from FedEx, UPS, and from Amazon.

The drive for shopping efficiency did not end with the malls. 7-Eleven and its clones (for example, Circle K, ampm, and Wawa) have become drive-up, if not drive-through, minimarkets. Efficiency is further increased for consumers because these stores almost always also offer gasoline pumps out front and only a few steps away. For those customers who need only a few items, pulling up to a highly streamlined 7-Eleven (almost 70,000 locations worldwide)<sup>23</sup> is far more efficient (albeit more costly) than running into a supermarket. Shoppers have no need to park in a large lot, obtain a cart, wheel it through myriad aisles in search of needed items, wait in line at checkout, and then tote purchases back to a sometimes distant car. At 7-Eleven, they can park right in front and quickly find what they need. Like the fast-food restaurant, which offers a highly circumscribed menu, 7-Eleven has sought to fill its shops with a limited array of commonly sought goods: bread, milk, cigarettes, aspirin, even videos, and self-serve items, such as hot coffee, hot dogs, hoagies, microwaved sandwiches, cold soda, and Slurpees. 7-Eleven's efficiency stems from the fact that ordinarily it sells only one brand of a highly limited number of items.

For greater selection, consumers must go to the relatively inefficient supermarket. Of course, supermarkets have sought to streamline shopping for consumers who might otherwise frequent convenience stores by automated self-checkout lanes (see below) and 10-to-15-item-limit, no-checks-accepted, lines. Even more efficient is the use of a delivery service, such as Instacart, which works with paid people to do the supermarket shopping for consumers.

### Higher Education: Multitasking in McUniversity

In the contemporary rationalized university<sup>24</sup> (now often dubbed “McUniversity”),<sup>25</sup> students (the consumers in a university) are increasingly able to be more efficient *in* class by using their laptops and smartphones to multitask in various ways. This can be educationally beneficial when it involves doing relevant Google searches during a lecture, but it can have adverse effects when students are playing games online, writing on someone's Facebook wall, or texting on their smartphones. Also worth noting is RateMyProfessors.com, where students can efficiently evaluate their professors as well as find such ratings by other students.

Wikipedia has become an efficient source of information for both professors and students. There was a time when most professors were critical of the use of Wikipedia, but more and more have come to embrace it for their students; they likely also now use it themselves.

One other academic efficiency worth noting is the ability of students to purchase already completed term papers online. A variety of websites<sup>26</sup> now promise to deliver original, customized research papers on any topic for a “low, low fee” of, say, \$12.99 per page. You could (although it is not advised) purchase a 10-page paper on McDonaldization on one website for less than \$130.<sup>27</sup> Websites even have quick service and express delivery available (\$14.99 per page if you need the paper in 48 hours) for those students who have put off academic dishonesty to the last moment. Beware, however, for there are also other websites (e.g., Turnitin.com) that help professors detect plagiarism, thereby combating student gains in efficiency through plagiarism with an efficient system to detect it.<sup>28</sup>

### Health Care: Docs-in-a-Box

It might be assumed that modern medicine and its consumers—the patients—are immune to the drive for efficiency and invulnerable to rationalization more generally. However, medicine has been McDonaldized.

Perhaps the best example of the streamlining of visits to medical practices in the United States is the growth of walk-in/walk-out surgical or emergency centers. “McDoctors,” or “docs-in-a-box,” serve patients who want highly efficient medical care. Each center is streamlined to handle with great dispatch a limited number of minor problems. Although stitching a patient with a minor laceration cannot be done as efficiently as serving a customer a hamburger, many of the same principles apply. It is more streamlined for the patient to walk into a neighborhood McDoctors without an appointment than it is to make an appointment with a regular physician, perhaps travel great distances to her office, and to wait, sometimes quite a long time, until the patient can be seen. For a minor emergency, such as a slight laceration, using a McDoctor’s office is a far more streamlined process than the cumbersome process of working one’s way through a large hospital’s emergency room. Hospitals are set up to handle serious problems for which efficiency is not (yet) the norm, although many hospitals employ specialized emergency room physicians and teams of medical personnel in order to further streamline emergency care. Docs-in-a-box are also more efficient than private doctors’ offices because they are not structured to permit the kind of personal (and therefore inefficient) attention patients expect (but often do not get) from their private physicians; in other words, they streamline the doctor–patient relationship.

“Minute clinics” are increasingly found in pharmacies (e.g., CVS, which has over a thousand of them) and even in supermarkets, discounters, and big-box stores (e.g., Target). Nurse practitioners and physician assistants may staff these and offer streamlined help in the case of minor medical matters. It has become increasingly common to get shots (for flu, etc.) in a neighborhood pharmacy or supermarket (perhaps offered adjacent to the meat department and by a butcher—just kidding!).

### Entertainment: Moving People (and Trash) Efficiently

Many people no longer deem it efficient to trek to their local theater to see a movie. For a time, DVDs, and the stores that rented them, boomed. Blockbuster, at one time the largest video rental firm in the United States, considered “itself the McDonald’s of the video business.”<sup>29</sup> However, Blockbuster went bankrupt in late 2010, mainly because it was inefficient in comparison to a number of newer, more streamlined, alternatives.

One example is the video rental machine. Redbox—once owned by McDonald’s—is the major player in this area. However, this is far less popular (and efficient) than streaming movies, for a fee, from Netflix, Amazon, iTunes, Hulu, Disney, and others. Then there are the on-demand and pay-per-view movies offered by many cable companies. Offerings from these providers can be viewed at home as well as on a variety of mobile devices. DVRs permit customers to record their favorite shows while they are watching something else or to rewind or pause live television. Then there are the satellite networks that streamline the process of watching football games by allowing viewers to watch several football games at once. With “NFL RedZone,” viewers can watch all games on a given day when the ball is within the opponent’s 20-yard line. Thus, a football game is streamlined by eliminating all the “unnecessary” action between the 20-yard lines; in other words, it is unnecessary to watch 60% of the football field, of the game, and of the action that takes place there.

Another sort of efficiency in the entertainment world is the system for moving people at modern amusement parks, particularly Disneyland and Disney World.<sup>30</sup> A series of roads filters thousands of cars each day into the appropriate parking lots. Jitneys whisk visitors to the gates of the park. Once in the park, they find themselves in a vast line of people on what is, in effect, a huge conveyor belt that leads them from one ride or attraction to another. Once visitors actually reach an attraction, conveyances such as cars, boats, submarines, planes, rockets, or moving walkways move them rapidly through, into, and out of the attraction.

Disney World has been victimized by its own success: Even its highly efficient systems cannot handle the hordes that descended (at least before the pandemic) on the park at the height of the tourist season. Since 1999, Disney has sought to deal with this problem with its even more streamlined FASTPASS system that allows a visitor to arrange a specific time to be at a given attraction and to enter via a separate and much faster-moving FASTPASS line. Of course, there are limits on the number of FASTPASSes that can be issued. It would be self-defeating if every visitor used a FASTPASS for every trip to every attraction. There are still long lines at Disney resorts; even the FASTPASS lines may not be so fast. In 2014, in an effort to further increase efficiency and reduce wait times, Disney introduced the still more streamlined FASTPASS+ system, which allows visitors to reserve times in advance for up to three attractions per day.<sup>31</sup>

The movement of people is not the only thing Disney World has streamlined.<sup>32</sup> The throngs of visitors who frequent such amusement parks eat a great deal (mostly fast food, especially finger foods) and therefore generate an enormous amount of trash. If Disney World emptied trash receptacles only at the end of each day, the barrels would be overflowing most of the time. To prevent this eyesore (and it must be prevented since order and cleanliness—some would say sterility—are key components of the McDonaldized world in general and Disney World in particular), hordes of employees constantly sweep, collect, and empty trash. To take a specific example, a group of cleaners brings up the rear in the nightly Disney parade. They almost instantly dispose of whatever trash and animal droppings have been left behind. Within a few minutes, they have eliminated virtually all signs of a parade. Disney World also employs an elaborate system of underground tubes. Garbage receptacles are emptied into this system, which whisks the trash away at about 60 miles per hour to a central trash-disposal plant far from the view of visitors. Disney World is thus a “magic kingdom” in more ways than one. Here is the way one observer compares another of the modern, highly rational amusement parks—Busch Gardens—to ancestors such as county fairs and Coney Island: “Gone is the dusty midway. . . . In its place is a vast, self-contained environment . . . endowed with the kind of *efficiency* beyond the reach of most cities.”<sup>33</sup>

### Internet Consumption Sites and Streamlining

The Internet (as well as the augmented reality it creates with brick-and-mortar consumption sites) is clearly the most important factor in greatly increased efficiency in consumption. As we saw in Chapter 1, Amazon, via Amazon Go and its physical bookstores, is making brick-and-mortar shopping more efficient in a

variety of ways, but those gains in efficiency pale in comparison to the efficiency of shopping on Amazon.com and other Internet sites. For example, unlike brick-and-mortar shops, Internet shopping sites are “open” 24/7, 365 days a year. Much of the guesswork is taken out of consumption online as a great deal of product information (including photos) is on the site or readily obtainable online. Reviews, often written by the prosumers who have bought the products in question, are on the site (or on dedicated sites) for all to see. Other peer reviews and recommendations can be found on social media sites. Making decisions about a purchase even easier are summary ratings and comparative rankings on various products. No need to even read reviews—all one needs to do is to quickly scan those ratings or rankings. Search engines allow online consumers to quickly and easily find the lowest price.

Instead of traveling to a perhaps distant brick-and-mortar shop, one can find virtually everything online via one’s computer or cell phone. Specifically, in the case of books, instead of trekking to one of the few remaining book superstores or wandering from one small bookshop to another, one can, as is well known, access Amazon.com, which offers visitors millions of different book titles at their fingertips.<sup>34</sup> After selecting and charging the desired book titles—to say nothing of the innumerable other products available on Amazon.com—all consumers need to do is sit back and wait for the books to be delivered to their doors, usually within a day or less (via Amazon Prime) or two. In addition, there are no shipping charges on Amazon Prime (although there is a yearly fee); other online retailers have adopted similar enticing policies. For instance, at Zappos (among many others), there is no charge for returning their shoes.

E-books and e-readers, such as Amazon’s Kindle and, far less importantly, Barnes & Noble’s Nook, have made shopping for and reading books infinitely more efficient. The immaterial books can now be ordered and downloaded almost instantaneously and flipped through more quickly. For the first time in 2011, Amazon sold more Kindle books than it did *both* hardcover and paperback print books.<sup>35</sup> Although precise numbers are hard to come by, the market for Kindle books (as well as Audible books; now also owned by Amazon) continues to grow. Similarly instantaneous and efficient is the streaming music on Apple Music, Google Play Music, Spotify, Pandora, YouTube, and similar sites. In spite of a big increase in revenue from these digital sources of music, overall sales revenue in the music industry is still down from its peak in 1999 when sales of CDs were at their height (CDs have now almost disappeared). Not coincidentally, it was in 1999 that the first source of digital music—Napster—began operation.<sup>36</sup> The efficiency involved in using these digital sites is that one can listen to virtually anything one wants without venturing

out to one of the few stores that still stock CDs (let alone vinyl records). As the number of stores that sell CDs (and records) continues to dwindle, the inefficiencies associated with them will increase further as it requires even more time and effort to travel to these stores in order to make a purchase.

A similar story is to be told about video games where digital access is far more efficient than trekking to, for example, one of the remaining brick-and-mortar Game Stop shops in the world (not long ago there were over 7,000 of them). Rather than going to a GameStop store, more and more gamers are getting their games more efficiently through such online sites as Xbox Live and PlayStation Network.

There are innumerable other Internet sites (e.g., Overstock, Wayfair) where one can efficiently engage in e-tailing and shop for virtually anything. Among the other examples are online banking (the leader is Ally), pharmacies (e.g., Express Scripts, as well as a number in Canada where drug prices are lower than in the United States), grocery delivery (e.g., Amazon and FreshDirect), and flower delivery (e.g., ProFlowers). Consultations with “online doctors” are also available via, for example, SteadyMD and Doctor on Demand.<sup>37</sup> Then there is the leading online auction and shopping site eBay (another is eBid), which allows buyers and sellers, both consumers and businesses, to deal with one another and to buy and sell in a highly efficient manner. Imagine how difficult and inefficient it would be for such buyers and sellers to find, let alone deal with, one another without sites like eBay. StubHub, owned by eBay, allows for online ticket trading for a wide range of events (another is Vivid Seats). Consider how inefficient such trading was before sites like StubHub when, for example, buyers and sellers had to rely on chance meetings outside an event venue. PayPal, once owned by eBay, makes paying for online purchases easy and efficient. An often overlooked aspect of the efficiency of cybershopping is that it can be done while you are at work.<sup>38</sup> Although employers are likely to feel that shopping from work adversely affects worker efficiency, it is certainly very efficient from the perspective of the worker/consumer.

The drive to make Internet shopping ever more efficient continues. There are shopping robots, or “online comparison services,” that automatically surf the Web for specific products, lowest prices, and shortest delivery dates.<sup>39</sup> For example, Google has “Google Shopping”: “Browse by category—apparel, computers, flowers, whatever—or enter a query term, and it will present a list of matching products, each with a thumbnail sketch on the left and description, price and retailer on the right.”<sup>40</sup> However, it is now even more efficient just to go online to Amazon.com, which has virtually everything one might want at competitive prices and without the need for online comparison price services.

All types of shopping but particularly ordering online from perhaps distant merchants have become far more efficient, with the near-universal use of credit and debit cards (as well as such online payment systems as PayPal). Transactions by these means are obviously more efficient than cash transactions (no need to occasionally stop at the ATM or bank to load up with cash) or paper transactions by check or money order. In any case, the enormous number of online transactions would be impossible on a cash, check, or money order basis.

For the consumer, virtually every digital site is more efficient, often *infinitely* more efficient, than comparable locales in the more material world. Almost all transactions are much more streamlined on websites than they are in the material world.

As a result, to take one example, bookstores and even book superstores seem to be dying. There has been a huge decline of bookstores in recent years. Then there is the 2011 bankruptcy and closing of all Borders superstores and the economic difficulties Barnes & Noble has been experiencing. However, as we've seen, Amazon has run counter to this trend with the opening a number of brick-and-mortar bookstores, with plans to open more in various locations in the United States.<sup>41</sup> Of course, its brick-and-mortar presence is still minuscule in comparison to its online business.

### Uberization: It's All About Efficiency

Uber is just one of a number of “ride-sharing,” or transportation network, companies that are competing with one another and with the traditional taxi-cab industry—both within the United States and globally—to streamline and dominate the transportation business, especially in urban areas. Uber has been of such overwhelming importance in this industry that we can use a term like *uberization* both to reflect its preeminence *and* to offer a parallel to the concept of McDonaldization. The great advantage of these ride-sharing companies over taxicabs is that while they, like taxicabs, offer a very material mode of transportation, they are deeply embedded in the digital world. The cars are usually summoned through an app on the passenger's cell phone linked via the Internet to apps on the phones of available drivers. Those drivers closest to the potential passenger are most likely to respond and to get the job. Once a passenger and a driver are connected through their apps, the rider is informed how quickly the car will arrive. In a big city such as New York (especially Manhattan) with many Uber drivers competing for work, a car is likely to arrive in minutes. Riders are also informed about the nature and license plate of the car that is to pick them up and where to meet it, usually very close by. Riders will also be informed of the cost of the ride to the chosen destination and that amount will automatically be charged

to their credit card accounts (on file with the company). Tipping is rare and discouraged so there is no inefficient calculation of what the tip should be (although some taxi meters now tell passengers how much to tip, with several percentages of the total offered as alternatives). When the destination is reached, the passenger is able to leave the car immediately without any additional steps needed. In these ways, an Uber ride is far more streamlined than one taken in a taxicab.

It is clear that one of the defining characteristics of Uber is its efficiency. The controversial former chief executive of Uber, Travis Kalanick, was famous for his hard-driving pursuit of dominance, profits, *and* efficiency. In fact, prior to Uber, he had founded two other Internet-based startups, Scour (peer-to-peer file sharing, especially of music and media files) and Red Swoosh (sharing of large data files). Of these two companies, as well as of Uber, a former executive at Red Swoosh said, "Scour was about *efficiency*. Swoosh was about *efficiency*. It's just the way his [Travis Kalanick's] brain works. It's like the way Uber works right now: 'What's the fastest, cheapest, *most efficient* way to get from point A to point B.'"<sup>42</sup>

In contrast, traditional taxicabs are inefficient in a variety of ways but, most important, given the focus of this section, in how a passenger obtains a ride. While it is possible that a taxi will be available at a taxi stand (not necessarily nearby) when it is desired or a taxi might be passing by just as it is needed, the likelihood is that a potential passenger will need to wait as long as it takes for an available taxi to pass by. It is not always obvious that a taxi is available, and taxis don't always stop for a fare, or the drivers may refuse to go to a given location (too far, in too dangerous an area, etc.). Getting a taxi in a busy city is especially difficult at "rush hours" or in bad weather and under various other circumstances. This is another advantage of ride-sharing companies. They offer higher "surge pricing" in such conditions. This makes picking up passengers more attractive to drivers because they earn more money (although it costs passengers more) under those circumstances; their percentage is of a higher total fare.

### Online Dating: Show Your Interest With Just a "Wink or a Click"

For many people, especially younger generations, dating has become "dated," inefficient in an era in which they can simply "hang out" together or "hook up." However, hanging out is inefficient, time-consuming for everyone and becomes less possible and attractive as people grow a bit older. Dating is a highly inefficient process that has been streamlined as a result of the Internet and, increasingly, dating apps on one's phone. The ability to find and make dates has been enhanced with various apps as well as online services such as eHarmony.com and Match.com.<sup>43</sup> (For those who are more interested in sex than the less efficient

process of dating, there are sites such as Tinder, [www.findsex.com](http://www.findsex.com), and Craigslist Casual Encounters.)<sup>44</sup> With a single swipe, one can find men or women within a specified age group and a given distance from one's zip code (no long, unnecessary trips needed). Key words are provided on the site (e.g., *charming*, *energetic*), making it easier to find a particular kind of person. It is possible to scroll quickly through hundreds of profiles of potential dates who meet given criteria. Once a profile or photo of interest is located, a simple click on a like, a “wink,” or a “heart” indicates interest in a potential date. Other clicks can organize potential dates into a “favorites” list so that, if one possibility does not pan out, another can be located quickly and contacted.

If a date is chosen, it is likely that sooner or later, the relationship will not work out. Once that happens, it is possible to block the spurned suitor's access to one's profile. Best of all, a person can be back on the dating scene in an instant with a plethora of alternatives on the site or on one's favorites list.

Online dating sites offer a variety of quantifiable (see below) advantages as far as consumers (users) are concerned. For example, one will meet far more people this way than would ever have been possible in, for example, a bar or a club. This is especially clear on the aptly named website PlentyofFish. Indeed, one of the attractions of almost all of these sites is that they offer infinitely more potential dates than any of the other alternatives. One can find a date online much more quickly than, for example, hanging out at a bar. Tinder allows one to plow quickly through a large number of photos of potential “dates.” If users swipe a Tinder photo to the left, they are indicating that they are not interested in pursuing a relationship with the person in the photo. A swipe to the right indicates interest in such a pursuit. One then has the possibility of chatting with that person and, if interested, in taking the relationship further. On most occasions, meeting through one of these sites is likely to lead to a predictably short meeting (“meet up for coffee”) or relationship. Many sites such as Tinder are mainly designed for brief and transient “hookups” rather than for long-term relationships.

Even more recent and efficient is the use of smartphones and mobile dating services, relevant apps, and geo-locating technology to find a date, even with one who is close by. This means that all of this can be done on the go; one does not need to be tied to a computer. As a result, the process of arranging dates is streamlined as they can be arranged even more quickly and efficiently via a smartphone.

## Simplifying the Product

Complex foods based on sophisticated recipes are, needless to say, not the norm at fast-food restaurants. The staples of the industry are foods (e.g., hamburgers,

slices of pizza) that require relatively few ingredients and are simple to prepare, to serve, and most importantly from the perspective of consumers, to eat. In fact, fast-food restaurants generally serve “finger food,” which can be eaten without utensils.

Many innovations over the years have greatly increased the number and types of finger foods available to consumers. The Egg McMuffin is an entire breakfast—egg, Canadian bacon, English muffin—combined into a handy sandwich. For consumers, eating such a sandwich is far more efficient than sitting down with knife and fork and devouring a plate of eggs, bacon, and toast. The creation of the Chicken McNugget, perhaps the ultimate finger food, reflects the fact that chicken is pretty inefficient as far as McDonald’s is concerned. The bones, gristle, and skin that are such a barrier to the efficient consumption of chicken have all been eliminated in the Chicken McNugget. Customers can pop the bite-sized morsels of fried chicken into their mouths even as they drive. Were they able to, the mass purveyors of chicken would breed a more efficiently consumed chicken free of bones, gristle, and skin.<sup>45</sup> Another example of efficiency is McDonald’s apple pie, completely encased in dough, so it can be munched on like a sandwich.

However, what may be efficient from the point of view of the customer may not be efficient for the restaurant and its employees. Take, for example, McDonald’s snack wrap.<sup>46</sup> This was a classic McDonaldized food. For one thing, it was another form of “finger food” that customers could eat quickly and efficiently. For another, it used ingredients already in McDonald’s restaurants and used in other menu items—breaded chicken strips, flour tortillas, shredded lettuce and cheese, and ranch sauce. However, McDonald’s discontinued the sale of wraps. They proved not to be very popular with consumers, who were more drawn to other innovations such as the all-day breakfast.<sup>47</sup> The bigger problem with the wraps was that while they could be eaten efficiently, the same was not true of their production by McDonald’s employees. It took time to steam the tortilla, but even more time-consuming was all the chopping of the ingredients, the stuffing them into tortillas, rolling them, and then fitting them into narrow cardboard containers.<sup>48</sup>

Given their obvious attraction from the point of view of consumers and efficiency in terms of consumption, many other fast-food restaurants (e.g., KFC, Wendy’s) continue to serve and even feature wraps of various kinds. Taco Bell has its “Breakfast Crunchwrap,” as well as its “Triple Double Crunchwrap.” The burrito, perhaps the classic wrap, is popular in many fast-food restaurants, especially Chipotle.

The limited number of menu choices also contributes to customer efficiency in fast-food restaurants. McDonald’s does not serve egg rolls, and Taco Bell does not offer fried chicken. Advertisements like “We do it your way” and “Your way, right away” imply that fast-food chains happily accommodate special requests.

But pity the consumers who have such requests in a fast-food restaurant. Because much of these restaurants' efficiency stems from the fact that they virtually always do it one way—their way—the last thing fast-food restaurants want is to do it your way. Customers with the temerity to ask for a less well-done burger or well-browned fries are likely to cool their heels for a long time waiting for such “exotica.” Few customers are willing to wait because, after all, that undermines the main advantages of going to a fast-food restaurant. Long ago, Henry Ford said: “Any customer can have a car painted any color that he wants so long as it is black.”<sup>49</sup> In the fast-food restaurant, the parallel would be: “Any customer can have any hamburger she wants as long as it is well-done.”

Many food products other than fast food have been simplified in the name of efficiency. Energy drinks, such as 5-hour ENERGY and Red Bull, are basically simplified beverages designed to quickly deliver large amounts of caffeine. Soylent (based on the dystopian 1973 sci-fi movie *Soylent Green*, in which corpses are converted into edible wafers to deal with a shortage of food) is a powder designed to be transformed into a drink that provides all the nutrients needed by the human body. A journalist who consumed the drink for most of his meals for a week and a half found it to be “punishingly boring, joyless . . . everything about Soylent screams function, not fun. It may offer complete nourishment, but only at the expense of the aesthetic and emotional pleasures many of us crave in food.”<sup>50</sup> More recently, Soylent has come out with “Soylent Squared,” a chewable, 100-calorie mini-meal. It is popular with high-tech workers who want to be more efficient in their work by wasting less time eating.<sup>51</sup>

Bananas are an interesting example of product simplification. The banana itself has, of course, not been simplified, but the market for it, at least in the United States, has been simplified by the dominance of one variety of banana. In fact, this kind of simplification is true of other kinds of fruits and vegetables, such as apples. At one time, it was the “Gros Michel” banana that was dominant, but it was decimated by disease and was replaced in the United States market and that of much of the rest of the world by the Cavendish banana. It was chosen for its resistance to disease and *not* for its quality or flavor. As a result, it has been called “the McDonald’s of bananas.”<sup>52</sup> In contrast, India has hundreds of breeds of bananas; the Cavendish is demeaned there by calling it “the hotel banana.”

Simplified products and services are increasingly on offer in many settings. AAMCO Transmissions works mainly on transmissions, and Midas Muffler largely restricts itself to the installation of mufflers. H&R Block does millions of simple tax returns in its roughly 12,000 offices, many of which are overseas.<sup>53</sup>

Because it uses many part-time and seasonal employees and does not offer the full array of tax and financial services available from a certified public accountant (CPA), it is undoubtedly not the best place to have complicated tax returns completed.<sup>54</sup> “McDentists” (e.g., AspenDental) may be relied on for simple dental procedures, but patients are ill advised to have root canal work done by one. Pearle Vision centers offer eye examinations, but clients should go to an eye doctor for any major vision problem. And *USA TODAY* offers readers highly simplified “News McNuggets.”

## Putting Customers to Work

A final mechanism for increasing efficiency in a McDonaldized world is to put customers to work. It is more efficient for workers—and their employers (but not necessarily customers)—to have customers do the work. Consumers who also produce (work) are engaging in prosumption.<sup>55</sup> As mentioned earlier, *prosumption* involves the interrelated processes of production and consumption. McDonald’s customers and those in many other settings are one type of “prosumer”; they are *working consumers*.<sup>56</sup> More specifically, they engage in unpaid “self-service work.”<sup>57</sup> Also as pointed out earlier, all production involves some consumption of, for example, raw materials or ingredients. Similarly, all consumption involves some production, or work.

Many people like being prosumers because it gives them a sense of freedom, even empowerment, in areas such as shopping, education, and health care. On the other hand, prosumption can be alienating, leaving people with the feeling that they are largely on their own and unable to get help from and interact with others.

## Fast-Food Restaurants: Doing It All for Them

Fast-food customers perform many more unpaid tasks than those who dine at full-service restaurants. “McDonald’s came up with the slogan ‘We do it all for you.’ In reality, in a McDonald’s restaurant, we [the customers] do it all for them. We stand in line, pick up food, take it to the table, dispose of the waste, and stack our trays. As labor costs rise and technology develops, the consumer often does more and more of the work.”<sup>58</sup> The customers who use drive-through windows can also be seen as doing the work involved in disposing of the garbage associated with their meal. While it is efficient for the fast-food restaurant to have consumers wait in line or dispose of their own waste, doing so is inefficient for consumers. Is it more efficient to order your own food rather than having a waiter

do it for you? Or to bus your own paper, plastic, and Styrofoam rather than having a busperson do it? Or to figure out what to do with those things once a meal devoured in your car is finished?

The tendency to put customers to work was underscored by Steak 'n Shake's (over 600 restaurants in the United States, as well as in Europe and the Middle East)<sup>59</sup> TV advertisements that describe fast-food restaurants as “workaurants.”<sup>60</sup> In contrast to workaurants, Steak 'n Shake emphasizes its use of china plates and the fact that the food is actually served by a wait staff. Virtually all fast-food restaurants today can be thought of as workaurants.

The salad bar is a classic example of putting the consumer to work. The customer loads up on the array of vegetables and other foods available that day. Quickly seeing the merit in this system, many supermarkets long ago installed their own, often more elaborate, salad bars. Salad lovers can thus work as salad chefs at lunch hour in the fast-food restaurant and then do it all over again in the evening at the supermarket. The fast-food restaurant and the supermarket achieve huge increases in efficiency because they need only a relatively small number of employees to keep the various compartments well stocked.

There is an all-you-can-eat restaurant chain, Souplantation (called Sweet Tomatoes in most areas), with almost 100 outlets in the United States.<sup>61</sup> (The chain temporarily closed its 97 restaurants at the beginning of the 2020 COVID-19 outbreak and then permanently closed all its locations when the pandemic devastated the buffet-restaurant industry.<sup>62</sup> Its main attraction was a lengthy salad bar (really a kind of assembly line) that customers encountered as they entered the restaurant. At lunch and dinner times, there were often long lines on both sides of the salad bar. In fact, at particularly busy times, the lines snaked out the door and into the parking lot. As diners moved slowly along the salad bar, they filled their plates with the desired foods. At the end of the salad bar were two cash registers where those in each line paid for their food. Various other foods and desserts were available at counters in the restaurant, and after they have finished their salads, customers trekked to these additional counters, sometimes over and over again.<sup>63</sup> At Burger King and most other fast-food franchises, people must fill their own cups with ice and soft drinks, thereby spending a few moments as “soda jerks.” Similarly, customers serve themselves in the popular “fresh food” buffets at Shoney's or the lunch buffets at Pizza Hut at a price in 2020 from \$7.50 for adults plus the cost of a soft drink. The buffet includes all the pizza, pasta, salad, “and more” that one can eat.

As pointed out earlier, McDonald's is using digital self-ordering kiosks in some of its restaurants, and they will undoubtedly become increasingly common in the

coming years. They allow customers to use touchscreens to place their food orders (Chili's has such screens at its tables). They allow consumers—as prosumers—to do the work currently performed by counter people at McDonald's; they find and touch the picture on the screen that matches the food being ordered<sup>64</sup> (such touchscreens may disappear as a result of the pandemic).

McDonald's also has an online app allowing the prosumer a greater role in the ordering process, as well as a role in speeding it up.<sup>65</sup> Also of note is the trend toward self-ordering food kiosks (also now in danger as result of the pandemic) at gas station travel plazas, such as Sheetz and Wawa. One company that makes these kiosks for a wide variety of restaurants at airports, drive-throughs, and casinos is Nextep. It claims that these systems outperform humans by displaying attractive pictures of food and offering extras to entice the customer to purchase more food.<sup>66</sup>

Another example of putting the customer to work is the self-serve touchscreen (if it survives) such as the “freestyle Coke machines that offer more than 100 flavors.”<sup>67</sup> They are found in and among an increasing number of locations, including various fast-food chains and AMC movie theaters. By making a series of choices, the prosumer can create such customized drinks as a peach Sprite.

### Other Brick-and-Mortar Sites: Working While Consuming

Food shopping also offers many examples of imposing work on the consumer. The old-time grocery store, where the clerk retrieved the needed items, has been replaced by the supermarket, where a shopper may put in several hours a week “working” as a grocery clerk, seeking out wanted (and unwanted) items during lengthy treks down seemingly endless aisles. Having obtained the groceries, the shopper then unloads the food at the checkout counter and, in some cases, even bags the groceries.

Of course, many supermarket checkout stands now require the customer to do the scanning, thereby eliminating the need for a checkout clerk. These systems allow customers to pay with credit and debit cards and are, therefore, another method for eliminating the need for cashiers. The developer of one scanning system predicted, over-optimistically, that soon “self-service grocery technology could be as pervasive as the automatic cash machines used by bank customers.”<sup>68</sup>

One customer, apparently a strong believer in McDonaldization, said of such a system, “It's quick, easy and efficient. . . . You get in and out in a hurry.”<sup>69</sup> But as an official with a union representing supermarket clerks put it, “To say it's more convenient for the customer is turning the world upside down. . . . In general, making customers do the work for themselves is not customer service.”<sup>70</sup>

All but gone are gas station attendants who fill gas tanks, check the oil, clean windows, and take your cash or scan your credit card; drivers now put in a few minutes a week as unpaid attendants. Although one might think that eliminating gas station attendants leads to lower gasoline prices (and indeed it did in the short run), a comparison of gas prices at stations with and without attendants showed little difference in price. In the end, the gasoline companies and service station owners simply found another way to force the consumer to do the work on an unpaid basis that employees once had to be paid to perform.

In some doctors' offices, patients began (again pre-pandemic) to weigh themselves and to take their own temperatures. More important, patients have been put to work in the medical world through the use of an increasingly wide array of do-it-yourself medical tests. Two basic types are available: monitoring instruments and diagnostic devices.<sup>71</sup> Monitoring devices include blood pressure monitors and glucose and cholesterol meters, as well as at-home kits marketed to parents to allow them to test their children for the use of marijuana, heroin, and other drugs. Among the diagnostic tests are pregnancy detectors, ovulation predictors, HIV test kits, and fecal occult blood detectors. Thus, patients are now being asked to familiarize themselves with technologies that were formerly the exclusive province of physicians, nurses, or trained technicians. In addition, before the pandemic, patients were asked to provide samples of bodily fluids (blood) or waste products (urine, fecal matter [through send-away test kits like Cologuard]) that were once handled (very carefully) by professional medical people. In an era of high medical costs, it is cheaper and more efficient (no unnecessary trips to the doctor's office or to the lab) for patients to monitor and test themselves. Such home testing may identify problems that otherwise might not be discovered, but it can also lead to unnecessary worry, especially in the case of "false-positive" results (early self-tests for COVID-19 were badly flawed and often gave "false-negative" results). In either case, many of us are now "working," at least part-time, as unpaid medical technicians.

The automated teller machine (ATM) in the banking industry allows (forces) consumers to work, for at least a few moments, as unpaid bank tellers (and often pay fees for the privilege). To encourage the use of ATMs, some banks are charging customers a fee for having the temerity to use human tellers.<sup>72</sup> A further advance involves the use of cell phones to do one's banking by, for example, taking a picture of a check and depositing it electronically.

When a satellite-TV receiver fails, DISH mails its customers a new one as a replacement. The customer is expected to return the defective one in the same

box that contained the new one. More important, it is up to the consumer to install the new receiver. There is, of course, help available online and by phone if necessary—and *it is often necessary*. DISH will send someone to install the new receiver, but the time delay involved and the relatively high cost discourage most customers from taking this option.

When calling many businesses these days, instead of dealing with a human operator, consumers must push a bewildering sequence of numbers and codes before they get, they hope, the desired extension.<sup>73</sup> Here is the way one humorist describes such a “conversation” and the work involved for the caller:

The party you are trying to reach—Thomas Watson—is unavailable at this time. To leave a message, please wait for the beep. To review your message, press 7. To change your message after reviewing it, press 4. To add to your message, press 5. To reach another party, press the star sign and enter the four-digit extension. To listen to Muzak, press 23. To transfer out of phone mail in what I promise you will be a futile effort to reach a human, press 0—because we treat you like one.<sup>74</sup>

Instead of being interviewed by the government census taker, people usually receive a questionnaire (one that is supposedly self-explanatory) in the mail to fill out on their own. (The 2020 census can be filled out online.) The self-response rate for occupied housing units was 60.6% in the 2020 census.<sup>75</sup> Census takers obtained the information only about a quarter of the time, and even then, they were deployed only after people failed to respond online or to the mailed questionnaire.<sup>76</sup>

### Internet Consumption Sites and the Working Consumer: Reaching Unprecedented Heights

While the role of the prosumer is undoubtedly becoming more and more significant in areas described above, it is on digital consumption sites that the tasks required of the working consumer have reached unparalleled heights. Because there are no human beings online when consumers click on these sites, consumers are responsible for *all* of the actions required to navigate them and, in the case of consumption, to complete their purchases. On many sites, it is purposely made difficult to contact people associated with the site by e-mail or phone. Online sites discourage such contact because it is inefficient from their perspective in comparison to having the consumer do everything on the site. And, of course, such a “service” is much more costly to the company that owns the site. In fact, in

some cases it is impossible to find a way of contacting a person associated with a given site. This leads to great efficiency for the site and enormous inefficiency for those seeking to consume something on the site.

For seasoned Internet users and visitors who frequent specific sites, actions required on digital sites may seem trivial. Taken alone they are trivial, but they do add up. To many, especially those who are older, these actions are difficult and sometimes impossible. They may even be shut out of the process or have to consult someone younger (say a grandchild) in order to navigate consumption (and other) sites. Of course, as these consumers age, they will pass from the scene, making this a temporary problem. Let us look at one digital subscription music site—Spotify—and examine just some of the steps and options available to one seeking to navigate it and to play some music.

One first encounters an album that is at the top of the screen, perhaps, because its producer has paid for that prime spot. Below that are a series of categories—charts, genres, new releases, discover, and concerts. Clicking on genres, one soon encounters a much more detailed list of over 40 genres and moods, such as Christian, country, workout, sleep, K-pop, and funk. Choosing any of those leads to a number of choices within that category. For example, within funk, one can choose among popular playlists, choices in the category of funk machine, new releases, and a number of selections in rotation.

The ubiquity of such trivial online and offline activities means that the modern consumer spends an increasing amount of time and energy doing unpaid labor. Although organizations are realizing greater efficiencies, customers are often sacrificing convenience and efficiency. However, it is clear that increasing numbers of them are not cognizant of the difficulties and enjoy navigating Internet sites on their own. Over time, we can expect such a perspective to expand among those using digital sites and any lingering awareness that they are actually working on these sites to dissipate.

It is thus on Internet sites that the tasks facing the consumer as prosumer reach unprecedented heights. While paid employees do a great deal of work constructing, monitoring, and updating Internet sites, once those sites are up and running, prosumers are largely on their own to navigate them (such as Spotify), appraise the various offerings, choose one or more of them, and provide all of the information needed for the product(s) to be delivered. This is work that in the past, in brick-and-mortar sites, was done by paid employees but is now done free of charge by prosumers. While it is more efficient, in many ways, for a prosumer to stay at home and order books (and innumerable other products) from Amazon than

to trek to one of the relatively few remaining brick-and-mortar book stores, it is *certainly* more efficient for Amazon to have prosumers do the work than it is to have thousands of paid employees do the same work.

## CALCULABILITY: BIG MACS, ALGORITHMS, AND BIG DATA

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McDonaldization also involves calculability: calculating, counting, and quantifying many different things. With this, quantity tends to become a surrogate for quality.<sup>77</sup> Numerical standards are set for both processes (e.g., production) and end results (e.g., goods). In terms of processes, the emphasis is on speed (usually high), whereas for end results, the focus is on the number of products produced and served or on their size (usually large).

This calculability has a number of positive consequences, the most important being the ability to produce and consume large amounts of a wide variety of products and services very rapidly. Customers in fast-food restaurants get a lot of food quickly; managers and owners get a great deal of work from their employees and prosumers: The work is done, and the services are provided, speedily. However, the emphasis on quantity tends to affect adversely the quality of both the process and the result. For customers, calculability often means eating on the run or in their cars (hardly a “quality” dining experience) and consuming food that is almost always prepared quickly and at the lowest possible cost so that it is almost always mediocre. For employees, calculability often means obtaining little or no personal meaning from their work; therefore, the work, products, and services are likely to suffer.

Calculability is intertwined with the other dimensions of McDonaldization. For instance, calculability makes it easier to determine *efficiency*; that is, those steps that take the least time and energy are usually considered the most efficient. Once quantified, products and processes become more *predictable* because the same amounts of materials or time are used from one place or time period to another. Quantification is also linked to *control*, particularly to the creation of nonhuman technologies that perform tasks in a given amount of time or make products of a given weight or size. Calculability is clearly linked to *irrationality* because, as pointed out above, the emphasis on quantity tends, in many ways, to affect quality adversely.

While calculability has long been important to consumption sites, it has reached, as we will discuss later in this section, a whole new level on digital sites

and their use of highly mathematical algorithms to analyze the “big data” produced on and used by them.

## Emphasizing Quantity Rather Than Quality of Products

McDonald’s has always emphasized bigness; it and the other fast-food chains have a “bigger-is-better mentality.”<sup>78</sup> For a long time, the most visible symbols of this emphasis were the large signs, usually beneath the even larger golden arches, touting the millions and, later, billions of hamburgers sold. This was a rather heavy-handed way of letting everyone know about McDonald’s great success. With the broad recognition of its success in recent years, there is less need for McDonald’s to be so obvious—thus the decline of such signs, as well as the decline in the size of the golden arches. Public protests against the size of the golden arches have also played a role in this reduction.<sup>79</sup> The mounting number of hamburgers sold not only indicated to potential customers that the chain was successful but also fostered the notion that it was the high quality of the burgers that accounted for the immense sales. Hence, quantity appeared to equal quality.

### The Fast-Food Industry: Of “Big Bites” and “Super Big Gulps”

The emphasis on quantity is abundantly clear in the names of McDonald’s offerings. The best-known example is the “Big Mac.” A large burger is considered desirable simply because consumers are receiving a large serving. Furthermore, consumers are led to believe that they are getting a great deal of food for a low price. Calculating consumers come away with the feeling that they are getting a good deal—and maybe even getting the best of McDonald’s.

Many other fast-food restaurants mirror the emphasis by McDonald’s on quantity. Burger King emphasizes the large amount of meat in the “Big King,” as well as in the “Whopper,” the “Double Whopper,” and even the “Triple Whopper.” Burger King’s fish sandwich is “Big Fish.” Not to be outdone, Jack in the Box has its “Jumbo Jack with Cheese;” Hardee’s offers a “Monster Thickburger” (two thirds of a pound of beef); KFC has “Value Boxes” and “Double Down” (no bun, but two pieces of fried chicken, two pieces of bacon, and two pieces of cheese); and Taco Bell offers the “Big Box.”<sup>80</sup> Similarly, 7-Eleven has a large soft drink called the “Big Gulp” and the even larger “Super Big Gulp.” It also offers a “Big Bite” hot dog.

However, it is the case that fast-food restaurants have come under pressure to eliminate their most obscene offerings. For example, Burger King stopped offering BK Stackers for a while. The idea of the stackers was that people could supersize their hamburger sandwich by including up to *three* (!) hamburger patties, two cheese

slices, and three half-slices of bacon. In one advertisement, the foreman at the “BK Stacker factory” is shown yelling “more meat” to workers struggling to produce a bigger burger. Of the product, Burger King said, “It’s the flame-broiled meat lover’s burger, and it’s here to stay—no veggies allowed.”<sup>81</sup> A meat lover who maximized the Stacker would have consumed about 650 calories (the Triple Whopper had 1,140 calories), 1,020 milligrams of sodium (the Triple Whopper had a bit more), and about half of a day’s allowance of saturated fat. However, in 2019 Burger King brought back the stackers in three different sizes with one to three burgers. Not to be outdone, Carl’s Jr. has a “Six Dollar Thickburger,” although the “Double Six Dollar Burger,” with about 75% of a day’s suggested intake of calories (what does one do about eating for the rest of the day?), apparently went too far and was dropped.

Then there is Denny’s, which is well-known for its various “Slam” breakfasts, especially the “Grand Slam.” The emphasis is on not only the size of the meal but also its seeming low price. This is clear in one commercial in which a man proclaims, “I’m going to eat too much, but I’m never going to pay too much.”<sup>82</sup> Of course, he and other consumers of Grand Slam breakfasts are likely to “pay” in the long run (with poorer health) because those meals have many calories as well as large amounts of fat and sodium.

Fast-food restaurants now offer a range of products that provide a lot for a low price. For example, KFC offers an array of “\$5 Fillups,” which include a “main course” (e.g., two pieces of chicken), a “larger” (than what?) serving of mashed potatoes, a biscuit, a medium drink, and a chocolate chip cookie. In 2020 McDonald’s once again offered its “McPick 2 for \$5” special, which includes a choice of two of the following: Triple Cheeseburger, Quarter Pounder with Cheese, Filet-O-Fish, and 10-piece chicken McNuggets (note the emphasis on size in three of the four alternatives).

For years, McDonald’s offered to “supersize” orders of its fries, 20% larger than a large order, and customers were urged to supersize their meals.<sup>83</sup> However, the uproar over Morgan Spurlock’s critical documentary, *Super Size Me*, helped lead McDonald’s to drop the term, although it continues to offer menu items that emphasize large size (e.g., “Daily Double”). Nevertheless, McDonald’s lags behind Hardee’s and Carl’s Jr. and their larger burgers.<sup>84</sup> Interestingly, the controversy over large size led some fast-food restaurants to offer smaller portions of some menu items, although the emphasis is still on size rather than quality. Examples include Burger King’s BK Burger Shots and Jack in the Box’s Jr. Bacon Cheeseburger. In this context, it is hard to know what to make of Hardee’s Little Thick Cheeseburger—it is *both* little and big!

All this emphasis on quantity suggests that fast-food restaurants have little interest in communicating anything directly about quality to their customers.<sup>85</sup> Were they interested, they might give their products such names as “McTasty,” “McDelicious,” or “McPrime.” But the fact is that typical McDonald’s customers know they are not getting the highest-quality food: “No one . . . knows exactly what’s in those hamburger patties. . . . Let’s face it. Nobody thinks about what’s between the bun at McDonald’s. You buy, you eat, you toss the trash, and you’re out of there like the Lone Ranger.”<sup>86</sup> Another observer has argued that customers go to McDonald’s not for a delicious, pleasurable meal but rather to “refuel.”<sup>87</sup> McDonald’s is a place to fill our stomachs with lots of calories, sugar, and carbohydrates so that we have the energy to move on to the next rationally organized activity. Eating to refuel is far more efficient than having a culinary experience.

The propensity for fast-food restaurants to minimize quality is well reflected in the sad history of Colonel Harland Sanders, the founder of KFC. The quality of his cooking techniques and his secret seasoning (which his wife originally mixed, packed, and shipped herself) led to about 400 franchised outlets by 1960. Sanders had a great commitment to quality, especially to his gravy: “To Sanders himself the supreme stuff of his art was his gravy, the blend of herbs and spices that time and patience had taught him. It was his ambition to make a gravy so good that people would simply eat the gravy and throw away ‘the durned chicken.’”<sup>88</sup> After Sanders sold his business in 1964, he became little more than the spokesman and symbol for KFC. The new owners soon made clear their commitment to speed over quality: “The Colonel’s gravy was fantastic, they agreed . . . but it was too complex, too time-consuming, too expensive. It had to be changed. It wasn’t fast food.” Ray Kroc, who befriended Colonel Sanders, recalls him saying, “That friggin’ outfit . . . they prostituted every goddamn thing I had. I had the greatest gravy in the world and those sons of bitches they dragged it out and extended it and watered it down that I’m so goddamn mad.”<sup>89</sup> At best, what customers expect from a fast-food restaurant is mediocre but strong-tasting food—hence, the salty/sweet French fries, highly seasoned sauces, and saccharine shakes. Given such modest expectations of quality, customers do, however, have greater expectations of quantity. They expect to get a lot of food and to pay relatively little for it (they think they are getting a bargain).

Even the more upscale McDonaldized restaurant chains are noted for the size of their portions and the mediocrity of their food. Of the Olive Garden, one reviewer said, “But what brings customers in droves to this popular chain remains a mystery. The food defined mediocrity. Nothing was bad, but nothing

was especially good, and it certainly isn't authentically Italian." Of course, the reason is quantity: "Portions . . . are large. . . . So you'll probably end up leaving stuffed, which is not to say satisfied."<sup>90</sup> The Cheesecake Factory, started in Beverly Hills in 1978 and now with nearly 200 full-service restaurants, is another example of an upscale restaurant known for its huge portions (although many devotees consider its food to be higher in quality than, say, Olive Garden). Quantity is also in evidence in the menu, which contains over 250 highly varied items, including over 50 varieties of cheesecake and other desserts.<sup>91</sup> The cost of a meal at Cheesecake Factory is considered low for the amount of food one gets.

### Higher Education: Grades and Scores

In education, most college courses run for a standard number of weeks and hours per week. Little attention is devoted to determining whether a particular subject is best taught in the given number of weeks or hours per week. The focus also seems to be on how many students (the consumers) can be herded through the system (this came to a halt during the pandemic) and what grades they earn rather than the quality of what they have learned and of the educational experience.

A student's entire high school or college experience can be summed up in a single number, the grade point average (GPA). Armed with their GPAs, students can take advanced examinations with quantifiable results, such as the MCAT, LSAT, SAT, and GRE. Colleges, graduate schools, and professional schools can thus focus on three or four numbers in deciding whether or not to admit a student.

For their part, students may choose a university because of its rating. In the United States we might ask whether it is one of the top 10 universities in the country. Is a university's physics department in the top 10? Are its sports teams usually top ranked? Most important, at least to many students, is it one of the top 10 party schools?

The ranking of universities is even more prevalent in the United Kingdom, where a number of "league tables" rank universities in various ways. These rankings are very important to UK universities. Rewards (especially funding) flow to those universities with high rankings while those with low rankings tend to get fewer rewards. Those whose rankings are very low might even be forced to cut back or even close. "Universities, therefore, have to spend an inordinate amount of time ensuring their position or trying to move up a few places on the growing number of league tables."<sup>92</sup>

The success of online universities (threatened not long ago by revelations about their abuses but now buttressed by fear of in-person education) is traceable to

various quantitative factors. For one thing, courses are far less expensive than those at four-year residential colleges, and credits can often be transferred to traditional colleges. For example, in one case, a student paid \$750 for seven credits that would have cost \$2,800 at a nearby college. In another, a two-year master's degree program in health care management from online Western Governors University cost only \$17,300 rather than the approximately \$40,000 it would have cost at a traditional university.<sup>93</sup> At the online company StraighterLine, which has had more than a hundred thousand students, it costs \$99 *per month* to register, plus charges starting at \$59 for various courses. A full "freshman year" would cost slightly more than \$1,000.<sup>94</sup> However, students trying to get degrees in this way are likely to take courses for many years and to run up a large bill. As of early 2017, StraighterLine claimed to have saved students (and taxpayers) almost \$130 million.

Potential employers are likely to decide whether to hire graduates on the basis of their scores, their class ranking, and the ranking of the university from which they graduated. To increase their job prospects, students may seek to amass a number of different degrees and credentials with the hope that prospective employers will believe that the longer the list of degrees, the higher the quality of the job candidate. Personal letters of reference, however important, are often replaced by standardized forms with quantified ratings (for example, "top 5% of the class," "ranks 5th in a class of 25").

The number of credentials a person possesses plays a role in situations other than obtaining a job. For example, people in various occupations can use long lists of initials after their names to convince prospective clients of their competence. (My BA, MBA, and PhD are supposed to persuade the reader that I am competent to write this book, although a degree in "hamburgerology" from Hamburger University might be more relevant.) Said one insurance appraiser with ASA, FSVFA, FAS, CRA, and CRE after his name, "The more [initials] you tend to put after your name, the more impressed they [potential clients] become."<sup>95</sup> The sheer number of credentials, however, tells little about the competence of the person sporting them. Furthermore, this emphasis on quantity of credentials has led people to make creative use of letters after their names. For example, one camp director put "ABD" after his name to impress parents of prospective campers. As all academics know, this informal (and largely negative) label stands for "all but dissertation" and is the label for people who have completed their graduate courses and exams but who have *not* written their dissertations. Also noteworthy here is the development of organizations whose sole reason for existence is to supply meaningless credentials, often through the mail.

## Internet Consumption Sites: Of Big Data and the Algorithms Used to Analyze Them

Crucial to any discussion of McDonaldization in general, especially calculability, in contemporary society is the impact of the computer, smartphones, and, of course, the Internet.<sup>96</sup> The proliferation of personal computers and smartphones allows more of us to do more calculations with increasing speed and to access quantified data on a wide range of matters. Most important for our purposes, these devices allow us to access the Internet where our key strokes create intentionally—and increasingly unintentionally—mountains of easily quantifiable data for a wide range of websites. The real revolution today is *not* in the technology but rather in the data produced and their massive accumulation, especially on many websites. Many aspects of today's quantity-oriented society could not exist or would need to be greatly modified were it not for all that data and the modern computer with its ability to accumulate, to store, and to have the power to process those enormous bodies of data. Those organizations that have large amounts of that data (Google, Facebook, Amazon, Twitter, to say nothing about governments, especially the U.S. and the Chinese governments) and are continually accumulating more of it have become enormously powerful entities. They can use it in myriad ways, especially given the concerns of this book, to shape what we buy. Although society was already moving toward ever-increasing calculability before computer technology advanced to its current level, computers have greatly expedited and extended that tendency.

Many entities ushered us into the computational culture's<sup>97</sup> era of "datafication."<sup>98</sup> That is, in this era, the goal is to turn as many things as possible—even the self through self-tracking devices such as Fitbit—into data; to replace subjectivity with objectivity.<sup>99</sup> Datafication is well illustrated in the movie (and book)<sup>100</sup> *Moneyball*, which, among things, depicts a debate about personnel moves by a baseball team. On the one side are grizzled baseball scouts arguing on the basis of tradition and their subjective judgments of ball players. On the other side are those who are drawing conclusions about the players on the basis of "sabermetrics,"<sup>101</sup> that is, analysis of hard data on what actually transpires on a baseball field. The sabermetricians are shown to win the argument about the personnel directions the team involved ought to take.

Digital sites lend themselves easily to the collection of massive amounts of data—part of the new and increasingly important world of big data.<sup>102</sup> These data are provided, usually free of charge and often unknowingly, by users and providers. The users provide that data (e.g., preferences for various products) every

time they click, for example, on products available on Amazon. The latter then turns around and extracts and uses that data in various ways, most obviously in targeting users with ads for products related to their preferences. Google uses extracted search data to “sell targeted ad space to advertisers through an increasingly automated auction system.”<sup>103</sup> Such data were the basis of more than 80% of Google’s and 98.5% of Facebook’s revenue in 2019.<sup>104</sup> Remember that virtually all of these data come from users (prosumers) who receive no monetary reward for their contributions.

Amazon’s purchase of Whole Foods reflects the growing importance of big data. Supermarket chains have not been able to create or to have access to the abundance of big data that is available to Whole Foods under the Amazon umbrella. The fear is that such data, along with Amazon’s other advantages, will allow Whole Foods to become a much more dominant player in the supermarket business, much bigger than it heretofore has been. Established supermarket chains will find it increasingly difficult to compete and even survive in this market. Furthermore, the addition of Whole Foods will enable Amazon to gather much more big data on food shopping. It can then use that not only to enhance Whole Foods’ position in the supermarket world but also to improve its role in the online sale of food.

Another major example of quantification on digital sites is the wide range of rating systems, with the ratings provided, once again, by users free of charge. Among the rating (actually ranking) systems on Amazon are its rankings of all books, as well as rankings in specific categories (for example, of books in sociology). Passengers rate Uber drivers from one to five stars on each ride. The driver’s average rating is crucial; if that average falls below a certain number (4.6 leads the company to become concerned), they are let go by Uber. Drivers get an e-mail each week that includes their rating and a clear indication (in red) when it is below average; they also get some of the comments made about them by passengers. The most likely cause of a low rating is taking a bad route and not knowing the city well enough.<sup>105</sup> Another statistic collected by Uber is the number of requests, or “pings,” accepted by drivers. The rate is expected to be above 80%, but the closer to 100%, the better. (Guests of an Airbnb use a five-star rating system of a host’s lodging, as well as offering subjective comments on it.)

Uber collects other types of data for other purposes. For example, it uses its data to be sure that its drivers are not also working for other ride-sharing (or taxi) companies. Data on traffic patterns is used to determine the most efficient route for a trip. Data also allow Uber to predict where demand is likely to arise and

to match passengers with the closest drivers. All of this “enables Uber to have a service that is quick and efficient from the passenger’s point of view, thereby drawing users away from competitors.”<sup>106</sup> Of course these data can be used for more nefarious purposes such as, in China, where Uber monitors whether drivers attend protests.

As will be discussed below, datafication is particularly important in relationship to Internet sites, especially, given our interests in this book, those that involve consumption of goods and services. The Internet has played a huge role in the emergence of the era of big data.<sup>107</sup> Machine technologies are crucial in this new era, especially their ability to learn over time, to be able to collect information, and to be able to communicate (especially exchange data) with other machines in the “Internet of things” (IoT).<sup>108</sup> Much of that data has been accumulating over a long period of time. Furthermore, the amount of data is now growing exponentially, especially on such sites as Facebook. Data not previously quantified are now being counted and being transformed into formats that enable tabulation and analysis. These data can be used in a multitude of ways. They also can be reused over and over. Data sets can be combined, and data from different sets can be commingled in a multitude of ways. Every time anyone does anything on the Internet in general and particularly on Facebook, they leave a digital trail that adds to the body of big data that can be analyzed in many ways. The Internet and its many sites have made it possible for those sites to capture an enormous amount of highly complex digitized data on many things, especially, in the case of sites like Amazon, on consumers and their consumption preferences.

As a result, these data become monetizable assets and are, in many ways, the most important corporate (intangible) asset to Facebook, Twitter, Google, Amazon, and many other Internet giants. These data can be used by the company collecting them to earn money and increase profits. Money can also be earned by leasing the data to others who can use them in unlimited, often novel, ways.

It is no longer necessary to limit analysis to samples of large data sets; we are now able to deal with huge bodies of data in their totality. This avoids many problems, especially sampling errors of various kinds. In some cases, conscious consumer actions and choices are the basis of big data, but increasingly that data involves innumerable digital traces left, usually unwittingly, by visitors to a wide range of sites. In addition, such data are being gathered by sensors accumulating data unbeknownst to consumers. Automated systems now exist to rapidly search, aggregate, and cross-reference these incredibly vast bodies of data. Based on these data, among many other things, patterns of consumer preferences and

trends, both individual and collective, can be described and, based on probabilities, predictions made about them. Amazon.com, for example, uses its data to make personalized recommendations on what other products a user might be interested in buying based on, among other things, previous clicks on the site. In accumulating these data, the goal is not, as it was in the past, to find out causes, why something is the case, but rather to simply uncover what the data show. To put this another way, the goal is not to deal with causality but rather with the patterns of correlations that emerge. For example, are those who buy Stephen King books on Amazon.com also more likely to buy knives and hatchets offered on the site? These descriptions and predictions affect, among many other things, what Internet sites offer for sale to given individuals as well as to large collectivities. Internet sites also frequently use such information to deploy online ads tempting consumers into further purchases of goods and services, as their clicks indicate what they are interested in.

While in many ways big data speak for themselves, it is beyond the capabilities of humans to deal with these huge and complex data sets. This brings us to the importance of algorithms for analyzing big data, especially to those who control the websites devoted to consumption. Algorithms involve a set series of steps that lead rapidly to an automated computation of, for example, what a specific visitor to a site might be interested in purchasing (and to pop-up ads aimed at that visitor). More generally, algorithms can reveal large-scale patterns derived from composite data, and specifically, the algorithms indicate what thousands or even millions of consumers might be interested in purchasing. This leads to a far less targeted approach to ads, as well as to decisions by those associated with sites on what products to stock, to push, or to phase out. This, in turn, affects the actions of manufacturers who, in any case, have their own big data and algorithms informing them independently on what they do and do not need to produce based on expected demand.

Many companies both off- and on-line have proprietary algorithms that allow them to make calculations based on their own information and needs. (They can also earn money by leasing those algorithms to noncompeting companies that can gain from them without threatening the business of the algorithm's owner and creator.) The "bigger" the big data, the more likely they are to lead to algorithms that produce useful results.<sup>109</sup> Outside of the realm of consumption in, for example, criminal justice, proprietary algorithms can, among other things, "set bail, determine sentences, and even contribute to determinations of guilt or innocence."<sup>110</sup> Google has very sophisticated algorithms that allow it to make

predictions on a wide variety of things, especially, in terms of consumption, what goods and services are of interest to consumers and which ones they are likely to buy. This leads to, for example, the appearance of paid ads when consumers are searching for something of interest on the Internet. These ads are a huge source of revenue and profits to Google and many other Internet sites.

There are more and more of these paid ads everywhere on the Internet. They are a variant on “product placement” seen, among other places, in movies where a particular brand of, for example, automobile or breakfast cereal is highly visible in various scenes. Such ads are likely to appear on Google at the top of a list of relevant sites. This placement makes it more likely that they will be accessed than the unpaid listings that appear farther down on the list. Furthermore, many users are unaware of this practice and therefore are likely to click naively on sites that they do not realize are listings rather than ads for less- or non-commercialized information.

Users are also likely to be unaware of the many other ways in which Internet companies get access to and use their data. A scandal occurred in mid-2017 when it was revealed that Uber was using data collected by Slice Intelligence to spy on Lyft, one of its main competitors. Slice runs a free service called Unroll.me that allowed users to clean up their mailboxes by unsubscribing from e-mail lists. It appears that Uber either bought or stole information gleaned by Slice from users’ mailboxes that included, among other things, receipts for services by Lyft. Slice, like almost all other such data service businesses (the major ones are Acxiom, CoreLogic, Datalogix, and ID Analytics), adheres to a privacy policy and does not sell personally identifiable data. However, the collective body of big data is highly useful to buyers of the data such as Uber, as well as Lyft. Slice users, like users of many other sites, did not know that or how their data were being used, especially in this way.

While Unroll.me has a written policy on this, few users bother to read it. The policy is, “We may collect, use, transfer, and disclose *nonpersonal information for any purpose.*” The data can then be used by Unroll.me “to build anonymous market research products and services.” Uber could use such information to undermine Lyft’s business by figuring out why, where, and how people were using Lyft and then adjusting its operations to make itself more attractive to consumers of Lyft’s service. This was not an isolated event but rather is “part of an expansive and largely unregulated world of selling personal data collected by online consumer services.”<sup>111</sup>

This is also related to the replacement of human by nonhuman technologies. While humans can, at least theoretically, do the computations needed to

analyze big data, the fact is that the data sets are far too large and complex to be analyzed in that way, especially in a timely manner. Thus, it is increasingly machines, employing artificial intelligence (AI), that are doing the computations much more quickly and accurately than humans could ever do them.

Along with the previous examples, big data and their analysis using algorithms can be used in many other ways and for many different purposes. Take, for example, Didi Chuxing, the competitor in China to Uber in the ride-sharing business. It is using big-data algorithms that aim to help ease congestion on roadways. “By analyzing commuter patterns, Didi may help traffic jams go the way of the flip phone.”<sup>112</sup> While Didi is interested in reducing traffic jams, it is most interested in increasing its profitability through the use of these algorithms to produce better knowledge of traffic jams and how to circumvent them. Didi hopes that this knowledge will give it a big leg up on its competition in the ride-sharing business in China and perhaps ultimately elsewhere in the world.

Jeff Bezos, the head of Amazon, has said that in at least some cases, he is *more interested in collecting data on consumers than in selling products*, some of which are, in any case, offered at prices that bring little profit or may even be sold at a loss.<sup>113</sup> These data are of great importance to Amazon and its ability to predict trends and target sales in the future. They also become part of big data sets that can be sold to others. For example, information on what books groups of visitors to Amazon.com click on and in some cases buy is of great interest to publishers who might purchase such information from Amazon or other sites.

## Quantification on Augmented Sites

Amazon has succeeded in creating a highly sophisticated augmented reality in its developing relationship between its online site, especially as it relates to books, and its burgeoning brick-and-mortar bookstores. This augmentation was made clear by the president of Amazon Books on the 2017 opening of its book shop in Manhattan: “We call this a physical extension of Amazon.com. . . . We incorporate [online] data about what people read, how they read it and why they read it.”<sup>114</sup> Thus, on entering the New York bookstore (and presumably others), customers first encounter a display table packed with “Highly Rated” books, or those that have gotten an average rating of 4.8 (out of 5) online. Then there is another table, “Page-Turners,” which includes books that Kindle readers have completed in less than three days. Still another table includes books that have been reviewed online by at least 10,000 customers. It is expected that using these data will serve

to pique the interest of customers in Amazon's stores and lead them to buy at least some of the books on those tables.

Mimicking the look of the Amazon.com website, books are displayed face out on those and other tables. There is a card under each book with quantitative data derived from the website, such as its average rating and the number of online reviews; there is also one qualitative review from an Amazon.com reader. One number that is *not* immediately visible is the price of the book. Customers must either use an Amazon app on their smartphones or a digital kiosk in the store to find the price. This allows Amazon to alter the price depending on supply and demand. Akin to Uber's "surge pricing," Amazon's dynamic pricing allows it to raise the price of books when demand is high and to reduce it when demand flags.

What makes Amazon's book stores unique is their access to and use of the big data constantly accumulating on its website (and augmented, if only minimally, by data from the stores). Instead of the largely hit-or-miss approach of traditional book shops, Amazon bases its stocking decisions on its proprietary logarithms analyzing its own unparalleled body of big data. Thus, it is producing its own "unfiltered and unedited" (or so it says) best-seller list, Amazon Charts, to compete with the filtered and edited industry leaders, such as the *New York Times* best-seller lists. While the latter presumably merely reflect book sales, Amazon's charts attempt to shape future sales by including Amazon's own self-published (it now has nine imprints), Kindle, and Audible books. As one executive of a book consulting firm said, "They are hijacking the best-seller list to conform to what they are doing."<sup>115</sup>

### User-Consumable Data

In addition to being a source of data, consumers themselves can find a great deal of useful data on Amazon.com. For example, in looking at the site for a previous edition of this book, a potential buyer learns all of the following:

- Number of pages in the book
- Most recent edition
- Publication date of that edition
- ISBN numbers
- Product dimensions—inches thick, width, and height

- Shipping weight and rate
- Average customer review
- Whether it is in the top 100 in all books
- Its overall rank in a list of all books
- Where it ranks in terms of social science books
- Sale price
- Rental price
- Kindle price

Amazon also sells used textbooks, although most of them are offered by resellers through the Amazon site. For such books, the potential buyer can view a long list of used books available and their highly variable prices and cost of shipping. Furthermore, each of these sellers is rated. The buyer can find such information as how many people have rated each seller in the last year and the sellers' average rating (percentage positive). This allows the buyer to choose among sellers on the basis of those ratings, as well as price.

Ratings and rankings of books are regularly updated (sometimes on an hourly basis), and this is especially the case at the beginning of each academic semester when such books are most likely to be in high demand and to sell.

Similar data are available on many other products available on Amazon.com. Take, for example, Samsung's 4K, Ultra HD Smart LED TV:

- Price
- Product dimensions
- Shipping weight
- ASIN—Amazon Standard Identification Number
- Item model number
- Number of customer reviews
- Average rating—1 to 5
- Ranking among all electronics
- Ranking among television and video

There are also subjective reviews (814 of them linked to this site when I checked). There is much to be gleaned from them, but many may find the overall average numerical rating sufficient for their purposes.

On eBay, quantified information on a similar television includes list price, discounted price, number of ratings, average rating (perhaps top-rated plus), number remaining in stock, shipping cost (if any), and how many people happen to be looking at that product.

Thus, consumers on these sites have a massive amount of quantitative (and some qualitative) data to help them make a decision on the purchase of, for example, textbooks or television sets. This is another of the great advantages of digital over brick-and-mortar sites where such information is comparatively meagre, difficult to come by, and harder to compare to data on similar products.

Important, at least as far as Amazon is concerned, is the massive amount of data it collects for its own use as well as to sell to a wide range of interested businesses. Of course, of even greater importance for Amazon is the profits to be derived from using and selling such data.