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## The future of marketing

Roland T. Rust<sup>1</sup>

Robert H. Smith School of Business, University of Maryland, 3451 Van Munching Hall, College Park, MD 20742, United States of America



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The main thesis of this article is that several long-term trends are reshaping marketing and forcing marketing managers to change radically to keep up. These long-term trends are technological, socioeconomic and geopolitical. Advances in technology, in particular, are having a profound impact on marketing, resulting in the deepening of customer relationships and the continuous expansion of the service economy. Artificial intelligence, big data, the Internet, and the expansion of networks are creating a revolution in marketing that makes the 1960s-style 4 Ps increasingly obsolete. Compounding the problem for marketers are the socioeconomic factors of diversity and inclusion, as well as major geopolitical threats. I explore the nature of change, extrapolate marketing practice into the future, and examine the implications for marketing managers, marketing education and academic research in marketing.

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### 1. Introduction

There are three major forces that are changing marketing. These are 1) technological trends, 2) socioeconomic trends, and 3) geopolitical trends. The selection of trends was done on the basis of my experience and judgment as a senior scholar in marketing with a track record of successful prognostication. Of greatest importance, the effects of these trends on marketing are predictable, and point the direction to how marketing must transform itself.

#### 1.1. A history of the future

This is not the first attempt to look into the future of marketing. Let us first examine a few notable papers that have helped set the stage for our current conceptualization, especially with respect to the impact of technology (Table 1). Capon and Glazer (1987) noted the impact of technology on marketing strategy, which was explored further by Blattberg, Glazer, and Little (1994). At the same time, the increasing amount of data made possible by technology resulted in the capability to build mathematical models of marketing phenomena, and catalog empirical generalizations (Bass, 1993; Leeflang & Wittink, 2000). Technology has completely transformed media over the last few decades, as cable TV (Krugman & Rust, 1993) and other personalized technologies led to a relative decline of big media (Krugman & Rust, 1994). The Internet brought the next big change, with many of its profound changes predicted even before the advent of the first web browser (Rust & Oliver, 1994). In particular, the Internet and other modern information technologies resulted in deeper customer relationships, facilitating more effective CRM (Winer, 2001) and expansion of the service sector (Rust & Huang, 2014). A truly customer-centered view of marketing (Rust, Moorman, & Bhalla, 2010) is

E-mail address: [rrust@rsmith.umd.edu](mailto:rrust@rsmith.umd.edu)

<sup>1</sup> Distinguished University Professor and David Bruce Smith Chair in Marketing, and Executive Director of the Center for Excellence in Service.

**Table 1**  
Visions of marketing's future.

Authors	Publication	Primary conclusions
Capon & Glazer	<i>JM</i> , 1987	Technology as a central factor in determining marketing strategy
Bass	<i>JMR</i> , 1993	Marketing as a science producing generalizable results
Krugman & Rust	<i>JAR</i> , 1993	Predicts decline of TV network viewing share as cable TV expands
Blattberg, Glazer, Little	Book, 1994	Information technology's increasing impact on marketing
Rust & Oliver	<i>JSM</i> , 1994	Pre-dating the first web browser, this paper describes the marketing use of an electronic network that resembles the modern Internet
Krugman & Rust	<i>JA</i> , 1994	Predicts the relative decline of mass media advertising, as a result of new technologies that enable personalization
Rust	<i>Mktg. Mgmt.</i> , 1997	Predicts that the advancement of AI will lead to computers being customers
Rust, Zeithaml, Lemon	Book, 2000	Proposes managing marketing based on customer equity
Leeflang & Wittink	<i>JIRM</i> , 2000	Describes how technological advances lead to more marketing modeling opportunities
Winer	<i>CMR</i> , 2001	Focuses on how the Internet enhances CRM capabilities
Rust, Moorman, Bhalla	<i>HBR</i> , 2010	Proposes a truly customer-centered view of marketing, due to technology
Rust & Huang	<i>Mktg. Sci.</i> , 2014	Explains how information technology grows the service economy

the natural result of technology, based on customer equity (Rust, Zeithaml, & Lemon, 2000). I next explore many of these ideas in greater depth, grouping our analysis into the three forces (technological, socioeconomic and geopolitical) listed above. The organization of the paper and a summary of some of its main implications are shown in Table 2.

## 1.2. Technological trends

The key long-term trends are a) the increasing capability of the firm to communicate with customers, b) the increasing capability of the firm to collect and store information about customers, and c) the increasing capability of the firm to analyze customer information (Rust & Huang, 2014).

Today in the 21st century, we have a tendency to think only the latest iPhone is relevant to communication, but we often forget that the widespread adoption of the original landline telephone greatly improved the ability of the company and the customer to communicate with each other. The advent of the Internet created another leap forward, as the amount of information able to be communicated increased tremendously. The smart phone took this to the next level, as every customer now has the Internet in his/her pocket. The expansion of networks, as typified by developments such as social media, further supercharged communication, and facilitated customer–customer interaction as well as customer–company interaction. A natural result was the increase in the importance of word-of-mouth.

**Table 2**  
Summary of principal trends and their implications.

Trend	Implications for practice	Implications for education	Implications for research
2. Technological trends			
2.1 Expansion of relationships and service	Organize around customers	Increased emphasis on relationships and service	Research on how IT improvements drive deeper customer relationships
2.2 Artificial intelligence	Manage AI and HI as a team	More emphasis on people skills, less on analytics	New algorithms to serve customers better
2.3 Big data	Personalize, while protecting privacy	Train data users, not data creators	Adaptive personalization systems, customer reactions to privacy
2.4 Networks	Use networks to scale up learning	Classes on complex systems	Agent-based models for dynamic systems
3. Socioeconomic trends			
3.1 Discrimination	Adopt “group-blind” policies	Differentiate discrimination from bigotry	Dynamic models of discrimination effects
3.2 Inequality of wealth	Luxury marketing, marketing to “bottom of pyramid”	Importance of heterogeneity of wealth, not just GDP	Effects of wealth on consumption
4. Geopolitical threats			
4.1 Free trade vs. protectionism	Coping with an uncertain international trading environment	Historical study about tariffs	How planned economies compete long-term against free-trading economies
4.2 Seeking the past	Move from manufacturing to service	Historical study about the shift away from manufacturing	Effect of “propping up” manufacturing
4.3 Innovation vs. patent trolls	Lobby to create barriers to patent trolls	Study barriers to innovation	Optimal government regulation to encourage innovation & discourage trolls
4.4 Climate change	Prepare for massive climate disruptions	Required courses on climate	Changing geographic consumption patterns

### 1.3. Socioeconomic trends

The key factors here are inequality of income and wealth, as well as geographic mobility. As has been true throughout history, economic development produces winners and losers, both within countries and between countries. Inequality of income and wealth produces market segmentation opportunities, but it also causes discrimination (Oliver & Shapiro, 2006; Ukanwa & Rust, 2019). As people become more geographically mobile, they seek better economic opportunity for themselves, which results in immigration from the poorer countries to the richer countries (Greenwood & McDowell, 1991). This immigration results in problems and opportunities related to diversity and inclusion (Safi, 2010).

### 1.4. Geopolitical trends

Increased transportation capability, along with the expansion of the service sector (which I will discuss in the next section) result in easier international trade, which again results in winners and losers. Free trade tends to help the highly-skilled countries (and regions within countries) and hurt the lower-skilled ones, which can lead to a temptation to adopt protectionist policies, which can be exacerbated by politicians' reluctance to let go of declining (low-skilled) industries and their obsolescent workers (Jensen, Quinn, & Weymouth, 2017). Intellectual property theft is another geopolitical risk that stifles innovation (Posner, 2005), as are patent trolls (Chien, 2014). Climate change is another global issue that will have a tremendous impact on business, as traditional ways of doing things are challenged or made impossible (Kolk & Pinkse, 2005).

The remainder of the paper goes into more depth about the key trends and their implications for the future of marketing, and notes the most likely academic research opportunities. In Part 2, I discuss how technological trends are leading to the deepening of customer relationships and the expansion of the service sector. Part 3 discusses the rise of artificial intelligence, and how that will transform business. Part 4 discusses big data and the resulting conflict between personalization and privacy. Part 5 discusses how the increasingly networked economy changes things, from the Internet to the Internet of Things, to the Internet of Brains, and why complex systems are the right way to model this. Part 6 focuses on the socioeconomic issues of diversity and inclusion, and part 7 discusses some important geopolitical threats. The paper concludes with part 8, in which I summarize the implications for marketing managers, marketing education, and academic research in marketing.

## 2. Technological trends

### 2.1. The expansion of relationships and service

One very long-term trend that will continue to shape the future of marketing is the expansion of the service sector (Rust & Chung, 2006). The service sector has expanded as a percent of the economy, in every developed nation of the world, continuously since about 1900. Currently about 85% of the economy is the service sector, and that doesn't include the degree to which service also permeates the goods economy. It should be noted that the trend toward relationships and service is even stronger in the B2B world, with the result that the impact on B2B will be profound, and B2B research will continue to be a lively area of research (Lilien, 2016). It is similarly the case that B2G, which also focuses on long-term relationships, will also be disproportionately affected by technological trends, with strong performance implications for companies with a heavy B2G portfolio (Josephson, Lee, Mariadoss, & Johnson, 2019).

#### 2.1.1. The rise of service

The underlying reason for the expansion of the service economy is the deepening of customer relationships due to the increasing capabilities of information and communication technologies (Rust & Huang, 2014). Advancements in technology have expanded businesses' ability to communicate with customers, store customer information, and analyze customer information. Because relationships are typically central in the service economy, deeper customer relationships create opportunities to expand service, more than the opportunities to expand the goods economy.

#### 2.1.2. Marketing products vs. cultivating customers

With service now being dominant in the economy (Vargo & Lusch, 2004), even in the goods sector, it is reasonable and timely to consider the implicit assumptions embodied in the term, "marketing." It is clear, for example, that marketing implies marketing something, and implies that it is actually about selling something, as opposed to the broader definition of marketing's activities (e.g., including such things as product decisions, customer relationship management, and word-of-mouth effects). In its purest form, the term "marketing" implies promotion and sales transactions of physical goods, implicitly ignoring long-term relationships and post-sales service.

It has been argued that the marketing department should give way to a customer department, and that the emphasis should move from marketing products to cultivating customers (Rust et al., 2010). In fact, it has been shown that it is the customer connection function that is central to the effectiveness of the marketing (or customer) department (Moorman & Rust, 1999).

#### 2.1.3. Research opportunities

Let us examine a few potential research ideas that stem from the expansion of the service sector, the deepening of customer relationships, and an increasing focus on cultivating customers.

- As customer relationships become deeper, it becomes essential to manage customers for customer lifetime value (Berger & Nasr, 1998; Rust et al., 2000), and manage the firm to focus on customer equity (Blattberg & Deighton, 1996; Rust et al., 2000; Rust, Lemon, & Zeithaml, 2004). This means extrapolating customer cash flows into the future. Because those flows are uncertain, accounting practice tends to focus instead on completed current payments. This leads top management and boards of directors to prioritize (certain, immediate) costs over (uncertain, future) revenues, leading to marketing myopia (Mizik & Jacobson, 2007). This marketing myopia may also result in lower compensation for executives who favor customer satisfaction (Huang & Trusov, 2019), because satisfaction is reflected mostly in future revenues. One important research project would be to produce better projections of future customer profitability (Rust, Kumar, & Venkatesan, 2011). Another would be to understand better the conditions under which top management attaches appropriate weight to future revenues based on customer relationships (Huang & Trusov, 2019).
- With the steady expansion of the service sector, the importing and exporting of service becomes increasingly important (Mishra, Lundstron, & Anand, 2011). Again, technology is playing a transformative role, as advancements in information technology allow even professional services to be exported (e.g., doctors in India reading electrocardiograms for patients in the US). Research should investigate the conditions that lead a service to be exported or imported. Also, what are the success factors for successful importing and exporting of service?
- We also need research to investigate the skills that will be required of marketing people in the fastest growing parts of the service economy (e.g., information service). Comparing those skills to the skills that are required in the declining goods economy, what are the implications for education and training?

## 2.2. Artificial intelligence

Artificial intelligence (AI), the use of computerized machinery to emulate capabilities once unique to humans, is expected, according to many experts, to have an even greater impact on business than social media (Weber Shandwick, 2016). This section explores the consequences of the AI revolution to marketing, as well as the research opportunities in marketing resulting from AI.

### 2.2.1. AI vs. HI

When AI takes over a task, human intelligence (HI) is displaced. Loss of tasks for HI inevitably also results in job losses for humans in the jobs that perform those tasks (Huang & Rust, 2018). This has resulted in great concern that AI may result in significant HI job losses (Frey & Osborne, 2017). We have already seen many physical and/or repetitive tasks assumed by AI. For example, a modern automobile factory typically involves many AI robots, and far fewer human employees than previously. Telephone automated menus have replaced many customer service employees who used to answer the phone. It has been estimated that many human jobs are in peril due to the advance of AI (Ford, 2013).

Huang and Rust (2018) note that the development of AI research is proceeding roughly from mechanical to analytical to intuitive to empathetic. For example, AI is already very good at mechanical and repetitive tasks, but AI has a long way to go to match human empathy. This suggests a series of stages in which AI is replacing HI. A simple formal theoretical model extrapolates these changes into the future (Huang & Rust, 2018). In stage 1, mechanical tasks are assumed by AI, and human jobs that are primarily mechanical decline. We see this, for example, in the decline of manufacturing jobs. In stage 1, HI must emphasize analytics, intuition and empathy. In stage 2, which is roughly where we are today, AI begins to assume analytical tasks. In this stage, HI must emphasize intuition and empathy. In stage 3, intuitive AI becomes good enough to begin to replace intuitive HI. In such a world, HI must then emphasize empathy, resulting in a “feeling economy” (Huang, Rust, & Maksimovic, 2019).

### 2.2.2. The feeling economy

Marketers (and other business functions as well) are discovering that they spend an increasing amount of their time on interpersonal, empathetic, “feeling” tasks, while AI assumes more of the “thinking” tasks. Empirical analysis using United States government data confirms that the shift to the feeling economy is already underway (Huang, Rust, & Maksimovic, 2019). That research separates tasks into mechanical, thinking and feeling. Ratings of the importance of thinking tasks are still higher, on average, than those for feeling tasks, suggesting that we are still currently in a “thinking economy,” that values analytical capabilities. The expansion of data analytics programs reflects this emphasis.

However, the change in task importance from 2006 to 2016 was much greater for feeling tasks than for thinking tasks, suggesting that feeling tasks may soon become more important. This conclusion is supported by the fact that average wages for feeling tasks are growing faster than the average wages for thinking tasks. This may be the result of supply and demand, in that organizations may be finding it more difficult to find empathetic employees than analytical ones.

The conclusion, drawn from both theory and empirical data, is that we are in the midst of a profound transformation, in which AI competes with HI (and often collaborates with HI (Wilson & Daugherty, 2018)), dramatically changing the skillset that humans need to remain relevant in the workplace. Specifically, empathetic skills will be most important (Huang, Rust, & Maksimovic, 2019).

### 2.2.3. Computers as customers

If AI assumes tasks that were formerly performed by humans, this implies that AI will be making decisions and even making buying decisions. To some degree, this situation already exists (Dawar & Bendle, 2018). If computerized AI is making important decisions, then it is essential to consider computers as customers (Rust, 1997). To this point, computerized decisions (e.g., page

rank algorithms) have been simple enough to be fairly successfully reverse engineered (Zhu & Wu, 2011). That is, the marketers have tried to figure out how the algorithms work.

It is already the case, however, that AI algorithms are becoming complex enough that reverse engineering, or even explanation, is increasingly difficult. For example, the decisions of “deep learning” neural networks are often very difficult to understand after the fact (Gunning, 2017). In such a case, it may be better to abandon any hope of reverse engineering AI, and simply evaluate AI’s behavior, similar to the behaviorist school of consumer behavior (Rust, 1997).

#### 2.2.4. *The singularity*

Ray Kurzweil popularized the idea of the singularity, in which AI becomes so proficient that it is generally superior to HI in everything (Kurzweil, 2005). In such a world, how can HI survive? Kurzweil suggests that the winning strategy is for humans to become cyborgs (part human, part machine), and in fact we already see many early examples of this, ranging from exoskeletons to computer-brain interfaces (e.g., Schalk, McFarland, Hinterberger, Birbaumer, & Wolpaw, 2004). A good question is why AI would want any HI part at all, given that it is less proficient. The only clear advantage that HI would have in such a scenario is that it is, in fact, human. That is, some people may prefer HI to AI even when HI’s performance is worse, just because it is human.

#### 2.2.5. *Research opportunities*

AI represents a profound transformation of the entire business world, including marketing. As a result, there are numerous opportunities for important research in this area.

- AI may eventually devise its own algorithms, but for the time being, the “art” of building AI algorithms still requires human assistance. Therefore, a first, obvious, opportunity for AI research in marketing is to develop better algorithms by which AI can be implemented. This should involve not just machine learning and neural networks, but a wide variety of tools from statistics and computer science. There are already notable examples of this in the marketing literature (Chung, Rust, & Wedel, 2009; Chung, Wedel, & Rust, 2016; Dzyabura & Hauser, 2011; Timoshenko & Hauser, 2019).
- As AI develops, there will be job displacement. We need research that analyzes which marketing jobs are being lost, and which are (for the moment) safe.
- Related to the above, we need to know which skills (especially looking at thinking skills and feeling skills) of marketing managers are valued, and how that is changing over time. The expectation is that the shift toward the feeling economy will accelerate, but this has to be documented.
- The idea of computers as customers needs to be explored much more fully. How can we market effectively to AI as the decision maker?
- We need research to investigate how AI is changing the consumer. With an increasing amount of AI at the consumer’s disposal (e.g., smart phones, virtual assistants, etc.) how does this change consumer decision-making? What kinds of decisions are delegated to AI, and are there decisions that the consumer is uncomfortable about delegating?
- What happens when AI is better than HI at everything? How can human marketing jobs survive? What will that marketplace look like? To what degree will the economy be dominated by AI and less by humans?

### 2.3. *Big data*

In recent years there has been an explosion in the amount of data collected about customers. This is the result of three trends in technology—1) advances in communication technology that enable firms to maintain closer contact with customers, 2) advances in data storage capability that enable a larger amount of customer data to be stored, and 3) advances in computation speed that enable firms to analyze customer data in a reasonable time frame (Rust & Huang, 2014). The resulting large customer databases have become known as “big data,” and hiring data scientists has increasingly become a priority.

#### 2.3.1. *Standardization vs. personalization*

The technological advances listed above, and the large customer databases that have resulted from them have inexorably led to smaller segment sizes (Varki & Rust, 1998), and at the extreme have led to segments of size one—also known as personalization.

In the manufacturing world, standardization is king (Deming, 1986). Quality in the production of manufactured parts is measured as the extent to which the parts manufactured are exactly the same. This has led to quality movements such as Six Sigma (Harry & Schroeder, 2000), with the very name “Six Sigma” referring to manufacturing tolerances.

In service, however, quality is measured as the extent to which customer needs are satisfied, and the heterogeneity of customers implies that service provided to them should be personalized. The standardization strategy only succeeds to the extent that costs can be reduced. Whereas successful goods firms can increase quality and decrease costs simultaneously, through process improvements that reduce manufacturing tolerances and reduce waste (Deming, 1986), successful service firms must choose between a high quality, personalization strategy and a low cost, standardization strategy (Anderson, Fornell, & Rust, 1997). With the economy becoming steadily more service-focused over time (Rust & Huang, 2014) this strategic dichotomy is becoming increasingly polarized.

### 2.3.2. Personalization vs. privacy

All things being equal, customers prefer personalization, because that can address their unique needs and requirements. In the real world, though, communicating one's unique needs and requirements to a company involves giving up personal information and surrendering privacy. Thus, personalization and privacy trade off (Rust, Kannan, & Peng, 2002), and customers tend not to prefer either perfect personalization (because of the cost to privacy) or complete privacy (because that harms the business' ability to meet the customer's needs). Concerns about privacy have led to strong European privacy laws that greatly restrict the storage and use of personal information (Perkins & Markel, 2004). These kinds of privacy concerns have motivated the creation of methodologies that seek to mask individual information while maintaining some degree of personalization (Schneider, Jagpal, Gupta, Li, & Yu, 2017).

### 2.3.3. Continuous online tracking

The Internet, and especially mobile smart phones, have resulted in an explosion of ability to track customers' online behavior. The use of tracking cookies makes it possible for firms to surreptitiously snoop on customers' online behavior, at the expense of personal privacy (Kannan & Li, 2017). Such tracking makes possible more personalized advertising. Facebook, especially, has been criticized for both collecting data from other smartphone apps (including highly sensitive information from such things as health apps) (Carroll, 2019), and for not protecting user information. In the Cambridge Analytical scandal, for example, an unscrupulous company gave personal information about millions of people to political operatives in Russia, who used it to manipulate the 2016 U.S. Presidential election (Cadwalladr, 2018).

### 2.3.4. Adaptive personalization systems

Information services often involve continuing relationships with customers. Also, the low cost of personalization in the information service environment (changing bits is much cheaper than changing physical objects) makes personalization more feasible. Putting these two features together creates an *adaptive personalization system*, in which the product itself is iteratively adapted over time to the customer's personalized needs and wants. Adaptive personalization systems go beyond recommendation systems, in that they literally change the product over time, rather than just providing recommendations similar to previous choices. Prototype adaptive personalization systems have been devised for mobile music (Chung et al., 2009), in which music playlists are made more customer-specific over time, and mobile news (Chung et al., 2016), in which a smartphone news feed becomes increasingly personalized over time. In the latter example, it has been shown that news feeds created by the adaptive personalization algorithm are better read than news feeds created by the customers customizing for themselves.

### 2.3.5. Research opportunities

- As personalization methods increasingly become automated using AI, the cost benefits of standardization become possible, even in personalization. In effect, the personalization becomes standardized. Thus, one major research opportunity is the development of new AI algorithms for personalization.
- The tradeoff between privacy and personalization is an individual one. We need behavioral research to investigate how people make this tradeoff. What causes people to prefer more personalization at the expense of privacy, or vice versa? Are there national differences on this? Are people changing in how they trade these things off over time? Are young people really less concerned about privacy, and will that last as they age?
- The business models of companies like Facebook and Google are dependent on collection and analysis of huge amounts of individual customer data. If privacy safeguards are increased dramatically, what new business model(s) will be required for these companies to survive? The development of new technologies that will both preserve individual privacy and maintain the company's ability to personalize will need to be developed.
- Adaptive personalization systems are still in their infancy, but hold great promise. Developing new adaptive personalization systems for a variety of information services is a research area of great opportunity. Some promising application areas might be search, entertainment, dating, education, and medicine.

## 2.4. Networks

The Internet is just the most visible manifestation of the trend in which entities are increasingly connected, forming networks. The future of marketing will be profoundly affected by these networks, because both customers and service providers are being strongly affected.

### 2.4.1. Recommendations and tribalism

Most sites on the Internet have an advertising business model, and on most sites that means the objective is to get the customer's attention. For example, once a customer has chosen a video to view, YouTube then recommends other videos that data show the customer is most likely to view. Because extreme videos tend to capture more attention, they often become recommended. The unintended consequence of this is that customers are led (based purely on a profit motive) to increasingly extreme content (Tufekci, 2018). This increases the influence of extreme content, and can lead to a "tribal" polarization, in which shared knowledge and moderate views are downplayed. Tribalism is also exacerbated by nations (e.g., China and Russia) that seek to control information by censoring information and limiting access to outside sources (Clark et al., 2017). The problem of tribalism is an "echo chamber" in which one is never exposed to competing points of view, except as the subject of one-sided ridicule.

#### 2.4.2. The Internet of Things

It isn't just customers who are networking. The Internet of Things (IOT) refers to connections between physical objects, typically with the Internet as a network backbone. *IJRM* published the first article in a major marketing journal on the Internet of things (Ng & Wakenshaw, 2017), and subsequent authors have provided additional insight (e.g., Hoffman & Novak, 2018; Novak & Hoffman, 2019; Verhoef et al., 2017). Examples include household appliances that communicate with the factory to order parts or indicate need for repair, and inventory monitors (both in businesses and homes) that can automatically re-order when stocks run low. One central feature of the Internet of Things is that we may consider machines to be both the customer and service provider.

#### 2.4.3. The Internet of Brains

A milestone was achieved recently, when researchers successfully connected a human brain to the Internet, such that information could be sent both ways (brain to Internet, and Internet to brain) through a physical connection (Wits University, 2017). As multiple brains get hooked up to the Internet at once, this raises the prospect of an Internet of Brains, also referred to as a "brainternet," in which people can communicate with others directly. For example, one person's memory could be shared with everyone. In addition, a group consciousness could form, in which the network is more than the sum of its parts, similar to what happens in a beehive or anthill. There is also the somewhat scary prospect that such a network might be easier for a central entity (e.g., dictator) to control. An Internet of Brains would change marketing from focusing on individuals to focusing on the whole, with the probable implication being that marketing becomes more of a "winner take all."

#### 2.4.4. Complex systems

Networks tend to be complex systems, in that simple choices and behaviors by individuals may result in emergent complex phenomena (Rand, Rust, & Kim, 2018). Modeling the system is not the same thing as modeling its constituent parts individually. One methodology that has become widely used to study the complexity of networks is agent-based models (ABM) (Rand & Rust, 2011). That methodology starts from the simple behavior of individual entities, and then catalogs the complex emergent phenomena that result. The methodology has already been widely and successfully used to model word-of-mouth networks and new product diffusion (Goldenberg, Libai, & Muller, 2010; Libai, Muller, & Peres, 2013). ABM can model the dynamics of networks that cannot tractably be analyzed using analytical or econometric methods. ABM seems ideally suited to investigate the Internet of Things, for example, and might also eventually model the Internet of Brains.

#### 2.4.5. Research opportunities

- If advertising drives the business model of online companies, and extreme content drives advertising, how should the firm trade off profits against the social good? How should public policy makers regulate online content for companies like YouTube in such a way that the market remains as free as possible, while discouraging the growth of extremism?
- What is the nature of economic loss for closed Internet systems such as China? Commentators have said that a free Internet is vital for economic growth (OECD, 2016), but is that true?
- What marketing efficiencies can result from the Internet of Things? To what degree are consumers willing to entrust the IOT to work for their individual interests? To what point does autonomous action by the IOT increase value to the customer, and at what point does it become just creepy? What are the tradeoffs between privacy and added utility when the IOT assumes more responsibility?
- What are the dangers posed by an Internet of Brains? Is there a way to design an Internet of Brains such that consumer well-being will be enhanced? What happens when there is a common consciousness or common memory?
- How can ABM best be used to model the IOT? Can ABM be used to model the dynamics of an Internet of Brains?

### 3. Socioeconomic trends

#### 3.1. Diversity and inclusion

Unlike the field of Economics, which tends to study social issues from an aggregate point of view, the field of Marketing pays considerable attention to the heterogeneity of the population. Marketing tends to focus on the effects of social issues on individual consumers. Two important issues that call out for further study are discrimination and the inequality of wealth.

##### 3.1.1. Discrimination

Discrimination is likely to become even more of an issue in the future, because the increasingly widespread migration of people from the less-developed countries to the more-developed countries ensures that the more-developed countries will be sure to have an "under class" for many years, and the immigrants are likely to be more diverse. For example, the United States is currently facing substantial immigration pressure from Latin America, and Europe is trying to figure out how to assimilate Muslims from the Middle East and Northern Africa. Given the population projections for Africa, people emigrating from that continent are likely to be numerous in all of the developed economies in the coming years (Nathale, Münz, & Migali, 2018).

Research has shown that in the short run it may be optimal for a rational company to discriminate in service against consumers who come from groups that are on average less profitable, even if those consumers are of equal quality, and exhibit equivalent objective quality measures (Aigner & Cain, 1977; Phelps, 1972; Ukanwa & Rust, 2019), even if the firm has no irrational bigotry.

In the long run, these findings can reverse (Ukanwa & Rust, 2019). The Ukanwa and Rust work shows that the long-term unprofitability of discrimination depends on an improving quality trend for less advantaged groups—something we generally observe empirically (Goldin, 2014).

### 3.1.2. Inequality of wealth

Inequality of wealth has been shown to lead to social instability, and also to slower economic growth (Cingano, 2014). From the standpoint of marketing, inequality of wealth implies different opportunities for different wealth levels. At the high end, inequality of wealth implies that the luxury market becomes important. For example, if we know that 1% of the population has more than 30% of the wealth, as we see in Germany (Vermeulen, 2016), then that 1% needs to be carefully targeted and nurtured. On the other end of the continuum, the “bottom of the pyramid” is also important (Prahalad, 2012). Although the profit per customer is less, there are so many people in that category that the total profit potential is still large. Income inequality also tends to result in a decline of the middle class. While the middle class is still growing rapidly in some parts of the world (e.g., China and India) (Sheth, 2011), the middle class is declining in wealthy economies like the United States (Krause & Sawhill, 2018).

### 3.1.3. Research opportunities

- How should service be designed, in such a way that discrimination is minimized, and long-term profit is maximized?
- What government regulations will protect consumers from discrimination, with limited damage to corporate profits?
- What characteristics cause minority groups to assimilate faster, and close the income and wealth gaps more rapidly?
- What is the most effective way to market to the *nouveau riche* in developing countries? Is their consumer behavior different from the wealthy in more-developed countries?
- How can we most effectively market to the bottom of the pyramid? How does access to smart phones (sometimes direct, sometimes indirect) make the poorer consumers behave differently from poor consumers in the past?
- How should marketers market to Muslims? What changes are necessary to appeal to this growing segment?

## 4. Geopolitical trends

Marketing is the driver of the economy, which means that macrogeopolitical issues that affect the economy also have a major effect on marketing. Government policies can have a large impact on such issues as free trade vs. protectionism, support for declining industries, judicial threats to innovation, and climate change.

### 4.1. Free trade vs. protectionism

International marketing is strongly influenced by the international trade environment, and especially free trade agreements, protectionism, and tariffs. Following the failure of the Smoot–Hawley tariffs of the Great Depression (Irwin, 2017), the world's most advanced economies have moved toward free trade over the last 75 years. Currently, the Trump administration's tariff introductions, along with moves toward de-unification in Europe such as Brexit, have disrupted global trade. This impacts not just international sales, but also the supply chain, as firms that manufacture across national boundaries, such as most of the car companies, need unencumbered movement across those boundaries. For example, a car that is manufactured in the US may use parts that were produced in Mexico. International marketing is roiled when pricing (and therefore demand) is altered in unforeseen ways.

### 4.2. Seeking the past

As the economy of every developed nation moves away from manufacturing and toward service (Rust & Huang, 2014) many manufacturing jobs are lost. That shift is part of a century-long trend that politicians are helpless to affect. That, however, does not stop “populist” politicians from claiming that they will save the manufacturing jobs, or even the agricultural jobs. However, those jobs are not coming back. Some poorer countries may benefit from manufacturing in the short-run, but as GDP improves, manufacturing becomes too expensive because of wage increases, and needs to be either automated or off-shored. We have seen this play out in mainland China in recent years, as the Chinese economy has advanced. Many items formerly manufactured in China are now manufactured in cheaper countries such as Bangladesh or Vietnam. From the standpoint of marketing, the emphasis needs to move away from goods-based concepts such as the 4 Ps, and toward a conception of marketing that is more relationship- and service-based (Rust & Huang, 2014).

### 4.3. Innovation vs. patent trolls

A free economy works best when innovation is encouraged. This means that inventors must be able to profit from their inventions (e.g., there should be a working patent system, and theft of intellectual property should be prohibited). Unfortunately, we have seen the rise of non-innovators (“patent trolls”) who seek to shake down the real innovators by “protecting” overly broad patents that have no real value in themselves. This may be discouraging innovation, as, for example, the number of entrepreneurial startups seems to be declining in the United States (Appel, Farre-Mensa, & Simintzi, 2019). For the system to work properly, there

needs to be a balance between protecting patents and discouraging patent trolls. Because innovation is a product issue, which is a marketing issue, marketers need to manage the patent issue with respect to competition from patent trolls.

#### 4.4. Climate change

The physical climate is changing at a rate that is unprecedented in human history (Henson, 2019). This is having a profound impact on agriculture and frequency of violent weather. All of this will greatly affect geographical patterns of supply and demand worldwide. Marketers must respond to this issue by discarding the assumption of equilibrium and steady state, and adopting the assumption that the system is one of dynamic disequilibrium. Another impact of climate change is the growth of green marketing and sustainable offerings.

#### 4.5. Research opportunities

- What is the impact of tariffs on sales? How are the sales of non-protected items affected? Do tariffs slow the progress of an economy toward a service economy?
- Do nations (or states) that do a better job of “saving” manufacturing jobs do better or worse economically? Does propping up manufacturing help or hurt the creation of service jobs? What is the effect of off-shoring on consumers?
- What should be the nature of the regulatory system to encourage innovation, while at the same time discouraging patent trolls? How can innovation be defined, in a way that will protect true innovators?
- What is the effect of intellectual property theft on marketing profits? When does it pay a company (or a nation) to get tough on intellectual property theft?
- How will the world's import and export patterns be affected by climate change? Where are the new marketing opportunities due to climate change? How can consumers be motivated to adopt more sustainable consumption patterns? Who will be the winners and losers?

## 5. Summary and implications

Advances in technology are creating one of the most exciting (and also most risky) eras for marketing. Also having a major impact are significant changes in the socioeconomic and geopolitical spheres. The business environment is being radically transformed, leading to both wonderful opportunities and existential threats. Given the nature and extent of these changes, there are many important implications for marketing managers, marketing education, and academic research in marketing. I highlight below some of the most important of these implications.

### 5.1. Implications for marketing managers

The future holds many opportunities and challenges for marketing managers. Here are some of the most important implications:

- *Focus on service.* Service has been an increasing part of the economy for more than 100 years, and this trend will continue. Goods-producing companies should figure out a way to move toward service, realizing also that information service is the economy's biggest growth opportunity.
- *Avoid short-term decision-making.* A focus on service and relationships demands attention to customer lifetime value and customer equity, which require consideration of long-term effects. Proxies for those long-term effects, such as customer satisfaction, should play a more central role in performance measurement.
- *Export professional services.* As information and communication technologies advance, exporting professional services (and employing remote professional services domestically) will be increasingly viable. AI will help make the language barriers easier to manage.
- *Create feeling jobs.* As the Feeling Economy advances, there will be increasing need for employees to focus on feeling, empathy, and interpersonal relationships, as well as a decreasing need for humans to do analytical work. Smart companies will create new job descriptions that focus on the “softer” side of business, in collaboration with AI, which will focus on the “harder” side.
- *Manage AI/HL teams.* With AI assuming much of the analytical work, management will focus more on managing AI/HL collaboration.
- *Personalize for the customer.* The trend toward smaller segment sizes culminates in the segment of one, also known as personalization. Standardized offerings should give way to offerings that reflect the idiosyncratic needs of individual customers.
- *Employ adaptive personalization systems.* In the relationship context, personalization implies having the service adapt over time, based on observed customer behavior. The machinery to make this possible is AI.
- *Leverage the Internet of Things.* If virtually everything is connected, and accessible on the Internet, companies must take advantage of the possibility for real-time continuous communication, from customer to machine, machine to machine, and company to machine. The forming of multiple entities into larger assemblages also provides companies the opportunity to manage entire systems more holistically.

- Take advantage of the inequality of wealth. Extreme wealth inequality provides marketing opportunities. The “bottom of the pyramid” should be considered an important market, due to the sheer number of potential customers. On the opposite side of the wealth distribution is an unprecedented number of very rich people. This ensures that luxury marketing will be an important area of emphasis.
- Avoid seeking the past. Companies should seek to deemphasize their exposure to the manufacturing economy, which is a shrinking part (percentage-wise) of the total economy. Companies should accept that the future economy will be global, service-dominated, driven by information, increasingly automated, and will demand abandoning business models and practices that used to be successful and profitable.

### 5.2. Implications for marketing education

The implications for management, as listed above, change how students should be prepared for a marketing career. Here are some of the major changes that will be required in marketing education:

- Focus curriculum on service rather than goods. Most class and textbook marketing examples should be from the service sector rather than the goods sector, because that is the lion's share of the economy. Conceptualizations such as the 4 Ps, which focus on transactional sales of physical goods, should be replaced by conceptualizations that have a relational basis, and focus on service.
- Emphasize STEM skills less, and people skills more. As the Feeling Economy approaches, AI will assume many of the tasks that currently involve STEM skills. This means that the skills that will be in most demand are people skills such as empathy and communication skills. This should be the focus both in curriculum and in admissions.
- Phase in AI as an instructor. Currently, AI is used only for mechanical and repetitive instructional tasks, but as AI continues to advance, and develops better analytical and intuitive skills, the opportunity will arise for AI to assume higher-level instructional responsibilities. This may eventually mean a much smaller faculty, as much of the instructional work is done by machine.
- Put more attention on complex, dynamic systems. In a service world driven by long-term relationships, in a connected environment that includes not just the Internet, but also IOT, the marketing managers of the future will need to be able to understand complex, dynamic systems. The economic concept of static *equilibrium* will give way to understanding dynamic *disequilibrium*. Techniques such as agent-based models and other computationally intensive approaches, will be necessary to understand the complexity of such systems.

### 5.3. Implications for academic research

As the marketing environment changes, many opportunities for research will emerge. Some of the most important and fastest-growing topics are the following:

- Develop new AI algorithms for marketing decisions. Deep learning is in vogue right now as a method for developing analytical AI, but AI's capabilities should not be restricted to any one methodology. Training with vast amounts of data is feasible sometimes, but other approaches that require less data and more understanding are likely to emerge in the future. General intelligence AI, although not yet well-developed, will be a game changer, and fast Bayesian statistical methods, that utilize prior knowledge as well as new data, also have excellent promise (e.g., Chung et al., 2009; Chung et al., 2016).
- Monitor the advance of AI in marketing. As AI advances in marketing, where does it provide the most value, and how is that changing over time? Does the use of AI in marketing provide a competitive advantage?
- How do consumers use AI? Businesses aren't the only users of AI. Consumers use AI, too, through such vehicles as Alexa and Siri. How does this affect the way consumers behave?
- Move toward computationally intensive research methods. The price of computation and data storage is declining rapidly, which (from a cost of inputs argument) implies greater use of computationally intensive methods. We can expect simulation-based approaches such as agent-based models, to become more important, and analytical modeling to become less important.
- Develop methods to understand computers as customers. Traditionally the way to do this has been to discover (or reverse engineer) the algorithms employed. As AI algorithms become more opaque (as is already happening with deep learning), the algorithms are probably better understood through regularities in their behavior, as is currently typically studied in *consumer* behavior.
- How do frontline workers team up most effectively with AI? With AI/HL teams becoming more commonplace, we need to understand when this teamwork operates effectively, and when it doesn't.
- How does the Feeling Economy affect marketing? As human workers focus more on feeling, what are the implications for how marketing works?
- Which jobs are being (or will be) lost to AI the soonest? We need longitudinal data analysis to see the effects of AI on work tasks and jobs, and to project job trends into the future (e.g., Huang & Rust, 2018).
- How can we balance personalization vs. privacy? What information management methods can be employed to maximize the degree of personalization, while limiting the loss of privacy?
- Develop adaptive personalization systems. Adaptive personalization systems change the offering(s), over the course of a customer relationship, to personalize better over time. Although some applications of adaptive personalization systems currently exist

(e.g., Chung et al., 2009; Chung et al., 2016), there are many potential applications, with most arising from long-term use of information services.

- *Understand the Internet of Things.* There are many possible topics to explore, including how people interact with IOT (people to machine), how non-human elements of the IOT interact with each other (machine to machine), and how to optimally build an IOT system.
- *Prevent automated discrimination.* It has been shown that AI methods can discriminate against certain groups, even if there is no bigotry or intent to discriminate (e.g., Ukanwa & Rust, 2019). Methods need to be developed that can identify such discrimination, and avoid it.
- *Research the “bottom of the pyramid”.* The world contains a large number of poor people, and marketing needs to figure out how better to serve their needs.
- *Research the luxury market.* The opposite of the bottom of the pyramid is the very rich. Although the numbers are relatively few, the total importance to the economy is substantial. Thus, we need to know how to market effectively in the luxury market.

## 6. Summary

In many ways, the future of marketing will seem discontinuous with the present. Such advances as artificial intelligence, the Internet of Things, and huge leaps in computation and data analysis, will lead to a marketing environment 50 years from now that few would recognize today. Marketing practice, marketing education, and marketing academic research will all be transformed to an unprecedented degree. It is the most fun time ever to be a marketing scholar.

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