

## Full Length Article

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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

### 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

- 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)

rank algorithms) have been simple enough to be fairly successfully reverse engineered ([Zhu & Wu, 2011](#)). That is, the marketers have tried to fi

### 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

#### 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)

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







(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 fi

