

Amassing and Analyzing Customer Data in the Age of Big Data: A Case Study of Haier's Online-to-Offline (O2O) Business Model

Shiwei Sun, Casey G. Cegielski & Zhigang Li

To cite this article: Shiwei Sun, Casey G. Cegielski & Zhigang Li (2015) Amassing and Analyzing Customer Data in the Age of Big Data: A Case Study of Haier's Online-to-Offline (O2O) Business Model, Journal of Information Technology Case and Application Research, 17:3-4, 156-165, DOI: [10.1080/15228053.2015.1095017](https://doi.org/10.1080/15228053.2015.1095017)

To link to this article: <http://dx.doi.org/10.1080/15228053.2015.1095017>



Published online: 14 Dec 2015.



Submit your article to this journal [↗](#)



Article views: 779



View related articles [↗](#)



View Crossmark data [↗](#)



Citing articles: 1 View citing articles [↗](#)

Amassing and Analyzing Customer Data in the Age of Big Data: A Case Study of Haier's Online-to-Offline (O2O) Business Model

Shiwei Sun and Casey G. Cegielski
Auburn University

Zhigang Li
Haier Group

Big data provides firms with new opportunities to create business value. However, data sourcing remains a challenge for organizations seeking to adopt and implement new data technology for routine use, particularly in turbulent business environments. The online-to-offline (O2O) business model has become the prevailing e-commerce business model in China. The goal of this study is to investigate how this new business model uses big data technology to explore and amass valuable customer resources. With the support of big data technology, Haier, the largest home appliance manufacturer in the world, has deployed the O2O business model very effectively, transforming the company from a traditional manufacturing commerce operation to a company undertaking Internet-based business. This case study provides a good example of how business value can be created in today's age of big data. This case study provides new insights into implementing O2O business model practices and big data applications effectively by companies worldwide.

The era of big data has arrived. *Big data*—a state-of-the-art technology for data handling—can create and unearth business value due to its unique analytical and predictive capabilities (Chen, Chiang & Storey, 2012; O'Reilly & Paper, 2012), analyzing data in ways that were simply not previously possible by using traditional approaches.

Using big data capabilities to create business value has become an organization's strategic consideration. The emergence of big data has opened up a wide range of new opportunities for firms to create additional business value. Firms in different industries are now trying to build data-driven decision-making business models to guide their operations. Based on big data technology, evidence-based decision-making is becoming increasingly popular because of its significant role in helping firms boost their performance (Ross, Beath, & Quaadgras, 2013). Currently, the business environment is becoming more volatile. In data-rich environments, how

© Shiwei Sun, Casey G. Cegielski, and Zhigang Li

Correspondence should be addressed to Shiwei Sun, Raymond J. Harbert College of Business, Auburn University, 405 W. Magnolia Ave., Auburn, AL 36849, USA. E-mail: szs0100@auburn.edu

to use big data technology in conducting business activities has caught the attention of scholars as well as practitioners.

Companies' offline activities have begun to provide a very effective approach to sourcing customers' data. Customers may support each other in sharing, recommending, and spreading purchasing information. Customers can be considered firms' valuable assets because they can help firms create value. Through the interaction of offline activities between the customers and firms, customer data can be amassed surprisingly quickly. The rationale behind this effort is that access to more extensive user resources eventually has a positive impact on a firm's bottom line.

Although *online-to-offline*, or *O2O* is the latest buzzword in Chinese firms, little is known about how this business model actually operates in a real-world commercial environment. A good tutorial on O2O in China is available on <http://venturebeat.com/2015/07/06/want-to-see-the-future-of-the-o2o-economy-look-east/>. To the best of the knowledge of these authors, little or no previous research has investigated this business model, especially in the context of the rapidly changing age of big data. In the context of this new business model, data sourcing remains a challenge for organizations. By updating and extending previous studies of Haier's practices (i.e., Chen, Ouyang, & Pan, 2013; Huang, Ouyang, Pan, & Chou, 2012), this study provides a timely reflection on how a firm can utilize the latest information technology to amass and analyze customer data in an attempt to acquire a competitive advantage in today's turbulent business environment.

THE CASE STUDY

Case Background

Haier Group is a consumer electronics and home appliances company that started out as the Qingdao Refrigerator Factory in 1984. This business first relied on importing refrigerator production technologies from Germany, but now Haier is now widely acknowledged as a star company in China. Its innovative and entrepreneurial outlook has transformed the firm from a tiny, near-bankrupt, refrigerator manufacturer in China to a multi-national business group in just 30 years. The current Chief Executive Officer (CEO), Ruimin Zhang, is playing a critical role in this phenomenal growth with annual revenue over US \$29.3B in 2013. Haier Group now has more than 240 subsidiary companies, more than 110 design centers, and more than 70,000 employees working in the company's various business locations around the globe. Home appliances traditionally can be categorized into two types in China: *white goods home appliances* and *black goods home appliances*. White goods home appliances mainly refer to large electrical appliances painted white, such as refrigerators and clothes washers. Black goods refer to the electronic goods with black or dark casings, such as televisions. Haier has become the leading white goods home appliance manufacturer in both China's local and world's global markets. Its products are sold in more than 100 countries with approximately 9.7% of global market share and more than 25% of China's market share in 2013.

From early 2013, Haier's business strategy is to transform itself from a traditional manufacturer to a contemporary service-oriented company with the support of its e-commerce platform. To achieve this vision, Haier has evaluated the functions of big data and chosen to adopt state-of-the-art big data technology to sustain its competitive advantage. Combining the new advanced big data technology with its networking strategy, Haier has taken a number of measures to ensure that

its new O2O business model is implemented effectively. Managers within Haier recognized that the first step in utilizing big data is to identify and develop useful data sources. In this context, while designing their O2O business model, two issues were emphasized: 1) *exploring sources of customer information*, and 2) *increasing customers' interactions and experience with the firm* to amass sufficient customer data to create additional value for both the business and the customers.

The growing popularity of the O2O business model in China, especially for manufacturing companies, is probably due to the country's unique business environment. First and foremost, China is a nation with a strong *guanxi* culture (for example, that described by Luo, 2008; Rao, Pearce, & Xin, 2005). *Guanxi* refers to the *general reliance on strong interpersonal relationships*. It has been shown that commercial activities are facilitated by improving business relationships based on personal social connections (Ou, Pavlou, & Davison, 2014). The O2O model characterizes a firm's offline interactions with customers as providing a stabilizing anchor to build customers' trust and improve their satisfaction when doing business with the firm. Given a strong culture of *guanxi*, offline interaction can effectively shorten the distance between the company and the consumers of its products. Consequently, the O2O business model is increasingly becoming popular and well accepted by the consumers in China. Utilizing this model, firms take every opportunity to interact with consumers and gather the customer data they need for effective decision-making. Since the population density in China is very high, especially in megacities such as Beijing and Shanghai, providing extensive opportunities for firms to build a network of retail stores serving the country's many communities, can go a long way in sustaining Haier's competitive advantage.

By taking measures to expand its marketing channels and build good interaction platforms with its customers, Haier has made a major investment in its Internet strategy and this has paid off. Recognizing the role of information technology in creating business value, Haier encourages its employees to collect customer data seamlessly using a wide range of Internet applications such as WeChat and Weibo.¹

This extensive use of Internet applications has enhanced the effect of word-of-mouth publicity because of the strong *guanxi* cultural context in China. These measures are now starting to have an effect on Haier's growth; its one-day sales on the Internet surpassed US \$127 million on November 11, 2014, China's "Black Friday" when stores go into profit for the year, and its online sales have ranked number one among household appliance companies for 3 years in succession.

Problem Identification

Despite its rapid growth and outstanding business performance in the years 1998–2013, Haier is now facing new challenges as a result of the ever-changing business environment. Traditionally, Haier had only one offline retail system, as the firm had not paid sufficient attention to the growing online market. As soon as the company realized that the business opportunities in the online market had become significant, Haier decided to embrace e-commerce. In 2010, Haier began to expand its business to include a combination of physical and virtual stores. However, the

¹ WeChat is currently the most popular social networking applications in China. The services include mobile text, voice messaging communication, and information sharing platform etc. Akin to Twitter, Weibo is China-based microblogging services, incorporating social chat sites and platform sharing. The majority of Chinese Internet users and mobile Internet users are active users on both WeChat and Weibo, which provides Haier with great opportunity to amass and analyze customer data.

company's lack of experience in the e-commerce arena and the ineffective mobile applications it created initially restricted its growth. Additionally, recognizing the advantage of data-driven decision-making, executives have a strong desire to seize the opportunity that big data brings to the business world.

Although various obstacles remain to be addressed, Haier's constant endeavor to make timely adjustments is likely to lead to success in the long term. Haier has become a major channel service provider in China since 2010, with significant increases in its number of e-commerce transactions and a favorable online market share growth rate. The top management in Haier is convinced that big data will help the firm's development and big data technology will support their O2O business practices more effectively. This article will now examine how Haier has implemented the O2O business model to take full advantage of the opportunities offered by big data.

Research Method

Case studies can be used effectively to capture the knowledge of practitioners and document the practice (Benbasat, Goldstein, & Mead, 1987). The following discussion presents a case study methodology to understand the role of big data technology in O2O business practice. The data in this study were collected from various sources including: interviews with one marketing manager in charge of O2O business model implementation and two information technology managers responsible for big data use design; discussions with 10 loyal customers of Haier brand; corporate presentations in public forums; trade magazines; and corporate documents. The research team interviewed Haier Group's managers and tracked Haier Group's business activities and events during the study period from August 2013 to June 2015. This work with Haier Group covered the early stages of big data adoption and implementation.

CASE ANALYSIS

Online-to-Offline Business Model in Haier

There is a widespread recognition among Haier's managers about their company's three competitive advantages: *brand equity*, *customer asset*, and *logistics network*. *Brand equity* means Haier's products can be easily recognized and are superior in quality and reliability. *Customer asset* means the customers using Haier's products are loyal to Haier's brand and would like to spread their good personal experiences with their friends and relatives. Haier can make better marketing and identify customer needs with their natural support. *Logistics network* means Haier's products and services can be passed to consumers timely and flawlessly using their physical and virtual networks. It can achieve the last mile of the critical link between online ordering and the delivery to the consumer (Esper, Jensen, Turnipseed, & Burton, 2003). How to further exploit and integrate these three advantages has become the focus of its current strategy debate. The O2O business model is generally considered to provide the best fit to fully extend its existing advantages.

Generalization of the Online-to-Offline Business Model in Haier

The rationale behind the O2O business model is to use Internet-based thinking to mobilize Haier's transformation. The goal of Internet-based thinking is to satisfy customers' current needs and then plan to meet their future needs by thoroughly analyzing the information acquired from them. This approach was described by Haier CEO Zhang Ruimin:

The primary goal of firm transformation is to develop a better understanding of the philosophy of "user supreme". Due to the tendency towards decentralization in the age of the Internet, each user could be treated as a center with individualized needs. Firms should transform their role from firm-centered functions of designing customers' needs to customer centered functions of increasing experience and interaction through the whole firm's value creation process.

From the Haier managers' perspective, the key to implementing a successful O2O model is to develop effective interaction activities between the customers and the offline service providers. Currently, more than 10,000 franchised stores sell Haier's appliances. These stores are ideal locations for interaction activities where a customer can search for products or services, place an order, and complete the payment fully online. After finishing the online order process, the customer can then go to Haier's physical stores to engage in a comprehensive experience, including picking up the products; learning more about any related products; and learning more about the company and the after-sales services it provides. The most intense interactions thus occur during the offline activities. Haier's O2O business model architecture is shown in Figure 1. O2O enables the online and the offline channels between customers and offline experiencing sites to be closely integrated.

Two kinds of online platforms are used: the first is the Goodaymart website (rrs.com) operated by Haier itself, and second is the Haier e-mall (eHaier.com). Goodaymart combines the strengths of four networks: *logistics*, *virtual network*, *marketing*, and *service*. These four networks can also be classified into two categories, *virtual network* and *real network*. According to Haier, the *virtual network* consists of the online network via the Internet by which Haier interacts with the users in its virtual community. The aim of a virtual network is to build prospective customers' stickiness. Unlike the virtual network, the term *real networks* refers to the marketing, logistics, and service networks, all of which operate in the real world. The *marketing network* refers to the physical experience stores built and operated nationwide by Goodaymart, while the

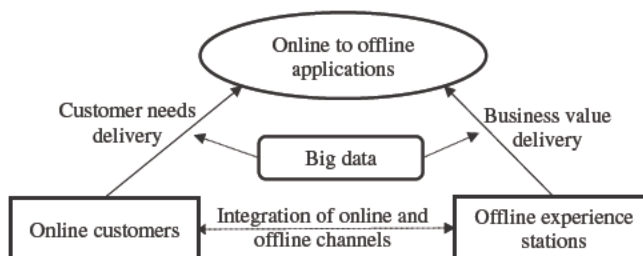


FIGURE 1 Haier's online-to-offline (O2O) business model architecture.

service network refers to Goodaymart's functions providing customer solutions, including services related to home appliances, bathroom accessories, furniture, building materials, and home decoration products, for example. Apart from providing services related to Haier's home appliance brands, Goodaymart's service network also offers end-to-end service solutions for around a hundred other home furnishing brands. *Logistics network* refers to the distribution and delivery of products quicker and more reliably.

Goodaymart has become the leader in China's logistic service industry. It provides users with end-to-end solutions by closely integrating virtual and physical networks (Haier, 2015). To some extent, the firm's O2O strategy is embodied in this type of virtual-physical integration strategy. Goodaymart plays a vital role in the success of Haier's O2O strategy as it provides an open interface platform to satisfy the needs of diverse users. In 2012, Goodaymart's revenues exceeded 50 billion yuan (about 7.86 billion U.S. dollars).

Other E-commerce platforms are operated by unrelated online commerce companies, such as Alibaba and Jingdong Mall. Haier's official flagship store is hosted by Tmall, a Chinese website for business-to-consumer (B2C) online retail operations run by the Alibaba Group. This official flagship store can also be found on Jingdong Mall, one of the largest B2C online retailers in China.

O2O applications typically include sellers' mobile apps and third parties' social networking apps such as WeChat and/or QQ Space (a Chinese Facebook-like network), among others. Customers on the O2O platforms can input their customer needs information through O2O applications. Haier's offline experiencing sites can also deliver additional business value through these O2O applications. During the interaction between O2O activities, on one side big data technology collects and analyzes the customers' information, while, on the other side, big data analytics reports help optimize Haier's logistics network and improve service quality. Big data thus supports the implementation of O2O in a variety of ways.

Obtaining Interaction Data Through O2O Business Model Implementation

The first stage to implement O2O strategy by Haier was to acquire the interaction data it needed to proceed. As a Haier marketing manager explained:

From my own working experience, the higher the frequency with which we interact with consumers and the longer the time we spend discussing home appliance solutions with customers, the higher the likelihood that the consumers will buy our products.

For this stage, the main challenge for Haier was to build a platform that could attract customers and encourage them to engage in substantial interactions. The more a prospective customer engaged in interactions regarding products and services, the more likely was he/she to purchase Haier's products and/or services. The five primary characteristics of offline interactions between Haier and its customers can be summarized as:

- The customers communicate directly with the company through offline experiencing stations to ask further questions about the company or its products.
- Haier's offline experiencing stations can respond to customers' specific questions quickly and efficiently.

- The customers can also communicate in real time using experiencing stations with other customers who share their interest in certain product categories.
- Interacting with Haier's offline experiencing stations is like having conversations with sociable, knowledgeable, and warm representatives from the company.
- Customers perceive the experiencing stations personnel as being sensitive to their need for additional product or service information.

Based on Haier's O2O practice, the business model can be generalized with an interaction loop. This loop of Haier's O2O interaction process is illustrated in Figure 2, which shows how the activities of prospective customers and sellers are intertwined throughout the entire process. The role of the Internet guarantees that O2O interactions remain within a closed loop.

Activities involved in the customer purchasing process can be roughly divided into four stages—*attention, search, purchasing, and share*.

- First, for customers, they surf the Internet or consult other sources (e.g., friend, relatives), receiving the stimulating/useful information either proactively or accidentally. Customers do not order during this stage but show their original demand information. Concurrently, for Haier at this stage, staff offline at Haier scan barcodes and make preparations to facilitate the online ordering process. As the four stages are in a circling loop, the Haier's offline activities partially have to rely on the useful information collected online. The analyzed consumer data can help improve the decision quality in providing the products that consumers might like. Thus, the offline ordering preparation process in this stage is executed based on the prediction of customers' need from the online consumer information.
- Second, customers are becoming familiar with using mobile devices for information search. They are considerably influenced by the "we media" applications, such as the Sina Weibo² and WeChat. Any valuable comments about the products can be collected and analyzed for future use. Meanwhile, Haier readies the physical store and tries to use the "we media" to distribute attractive products information.

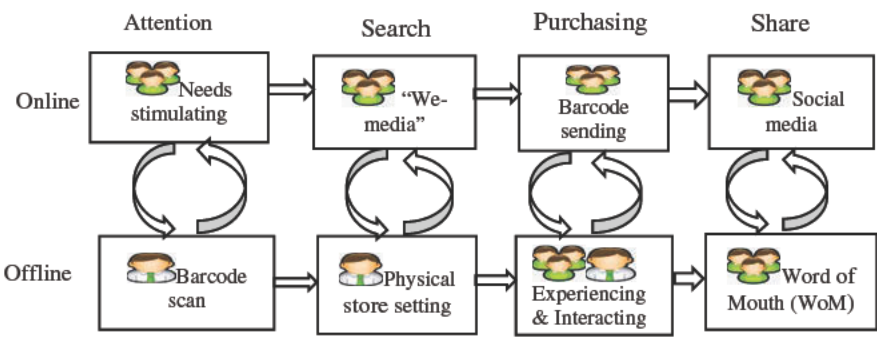


FIGURE 2 Haier's online-to-offline (O2O) interaction loop.

²Sina Weibo is one of the most popular Chinese microblogging websites. Much the same as a combination of Twitter and Facebook, it has millions of Internet and mobile users. Each day over 100 million comments are posted on this site. Please set footnotes on same page as their in-text notations.

- Third, the customers place an order online and pick the products offline. In the physical store, the interaction activities are carefully designed to help Haier achieve the goal of “zero distance” between customers and the offline service providers. During the short time of this interaction, Haier will try its best to collect as much customer information as possible to help with further decision-making, such as new product design. The customers also learn more about the purchased products and other related products or services during their visit. This interaction builds trust and satisfaction between customers and Haier.
- Fourth, the customers make their experiences of using a product or service known to others through two avenues: *online through social media* and *offline through word-of-mouth*, or *WOM*.

An important aspect of this process is that in the second stage, the goal of building the O2O platform is not only to provide communicate platform for Haier’s interaction with prospective customers, but also to amass potential customers. As Haier’s Interim President Zhou Yunjie explained:

Under Haier CEO Zhang Ruimin’s guidance, Haier is not only selling products, but also buying customer resources, so its logistics subsidiary Goodaymart is positioned to do more than the simple role of delivery. It also seeks useful customer data to acquire added value for use.

In the second stage, based on results of the first stage, Haier explores and amasses the prospective customers. The users are viewed as valuable assets as they help to create a competitive advantage for Haier. Because of the company’s recognition of the value of its customers, Haier expends considerable efforts to move forward its “creating customers” activities. Generally speaking, these loyal customers represent a potential profit for Haier because they purchase the products directly from Haier. However, these customers, who are characterized as resources, can also influence other customers to purchase Haier’s products. The potential effect of word-of-mouth from those customers could also snowball because of the role played by *guanxi* in the Chinese cultural context.

The Role of Big Data in Online-to-Offline Business Model Implementation

One critical element that enables the successful implementation of O2O business model is the usage of information technology. As a traditional manufacturing company, Haier lacked a significant information systems advantage. To alleviate this disadvantage, Haier Group and Alibaba Group (a leading Chinese e-commerce company), announced a joint strategic cooperation agreement in December 2013. This agreement was designed to give the two companies complementary advantages. The terms of the agreement specified that Alibaba would help Haier build an online logistics platform, building on Alibaba’s mature e-commerce advantage, while Haier would utilize its logistics channels to deliver appliances ordered on Tmall, a subsidiary of Alibaba.

Haier’s original intention with this strategic move was to connect its offline “real network” with its online “virtual network” enabling Haier to develop its capabilities and provide the closest Internet portal to its customers, seamlessly integrating the two networks. Under this agreement, Haier further intensified its logistics capabilities with the help of Alibaba. Now, the subsidiary of Haier Goodaymart has become China’s leading company for logistics services. By the end of 2014, Goodaymart had grown to more than 2,400 franchise stores nationwide.

Big data technology plays a critical role in any O2O platform. The technical assistance provided by big data can be summarized by looking at two aspects. The *first aspect is to collect customers' preference data*. This approach was described by Interim President Zhou Yunjie:

Haier's objective for cooperating with Alibaba is to take advantage of the data collecting and information acquisition from Alibaba. This would give Haier the users' resources and data when it provides an integrated delivery service for the whole process of delivering home appliances.

Prior to the integration of these systems, Haier's annual revenue was approximately USD 29.3 billion in 2013. Under this integration of the customer information-gathering systems, design and manufacturing systems, and supply chain management systems, the sales ratio for customized products to all products accounted for approximately 30% of the company's annual sales in 2014.

The *second aspect is the use of the collected data for prediction as part of the decision-making process*. These prediction results may be used to set future production targets, the design of new products and marketing activities, among others. According to Interim President Zhou:

After amassing substantial amounts of customer resources and building a mature supply chain management system, Haier could precisely predict customers' consumption preferences, making the possibility of personalized customization a reality. Only by doing this could Haier speed up the pace of transformation along the path to Internet and e-commerce-based retailing.

These comments demonstrate that big data and associated data analytics now play a critical role in supporting Haier's strategic moves. A good example of this effect is how Haier uses big data analysis results to design new products. China's Public Weather Service Center and Haier entered into an exclusive strategic partnership on November 4, 2014, agreeing to jointly carry out professional weather services based on big data. Based on Haier's appreciation of their customers' diversified and personalized needs, the firm has agreed to work with the Weather Center to promote big data applications in the air conditioning industry. China's Public Weather Service Center has more than 50,000 ground stations and the meteorological data gathered every year is reaching a petabyte magnitude. This big data source could be used to accurately predict future weather patterns and provide small-scale weather and environmental information. This cooperative venture will enable Haier to analyze vast amounts of meteorological data and form extensive short-, medium-, and long-term weather forecast data reports. Haier air conditioning can then take into account this large weather pattern data to design new products. For example, Haier has already successfully developed new air boxes, air conditioning and other innovative products based on the results of big data analyses. This development is allowing the company to transition from being simply an air conditioning manufacturer to an ecological services provider, greatly enhancing the customers' experience. Reports detailing the customers' experiences feed through its O2O platform directly to Haier, enabling the company to further improve the products.

ACKNOWLEDGMENT

The authors thank the Editor-in-Chief Dr. Shailendra Palvia for the constructive feedback, and valuable suggestions and comments. The authors are also grateful to him for his patient editing of the manuscript multiple times.

FUNDING

We greatly appreciate the funding support in data collection and interview coordination in China by the Humanities and Social Science Research Foundation of the Ministry of Education of China, “Research on Value–Oriented and Integrated Governance Mechanism of Supply Chain on Social Responsibility” (# 14YJA630021).

CONTRIBUTORS

Shiwei Sun is a Ph.D. student at the Raymond J. Harbert College of Business, Auburn University, USA. His research interests include information technology diffusion, innovation management, social media and social networks, supply chain management, and information security. His research has appeared in journals such as *Expert Systems with Applications*, *Journal of Coastal Research* and some other leading conference proceedings AMCIS and DSI. He is one of finalists for the 2014 Best Paper Award presented by the 2014 Annual Meeting of the Decision Sciences Institute (DSI).

Casey G. Cegielski, PhD, CISA, CISSP, is a Professor of Management Information Systems and former KPMG Faculty Fellow in the College of Business on the faculty of Auburn University in Auburn, Alabama. His current research interests are in the areas of innovation diffusion, emerging information technology, information security, and the strategic use of information technology. His research has appeared in several international information systems journals including *Communications of the ACM*, *Information & Management*, *Decision Support Systems*, and the *Information Systems Journal*. Additionally, he has more than 15 years of professional experience within the domain of information technology.

Zhigang Li is a manager working in Haier Group. After graduating from Ocean University of China in 2006, he worked for Haier Group in the Department Marketing and Customer Service. In 2013, he was assigned to Department of Marketing Management in Shanghai branch. He is mainly responsible for the Haier’s O2O community service project, logistics network operations, and consumer value-added service systems operations work.

REFERENCES

- Benbasat, I., Goldstein, D. K., & Mead, M. (1987). The case research strategy in studies of information systems. *MIS Quarterly*, 11, 369–386.
- Chen, H. C., Chiang, R. H. L., & Storey, V. C. (2012). Business intelligence and analytics: From big data to big impact. *MIS Quarterly*, 36(4), 1165–1188.
- Chen, J., Ouyang, T. H., & Pan, S. L. (2013). The role of feedback in changing organizational routine: A case study of Haier, China. *International Journal of Information Management*, 33(6), 971–974. doi:10.1016/j.ijinfomgt.2013.09.002
- Esper, T. L., Jensen, T. D., Turnipseed, F. L., & Burton, S. (2003). The last mile: An examination of effects of online retail delivery strategies on consumers. *Journal of Business Logistics*, 24(2), 177–203. doi:10.1002/jbl.2003.24.issue-2
- Haier (2015). Goodaymart. Retrieved from http://www.haier.net/en/about_haier/brands/goodaymart/
- Huang, P.-Y., Ouyang, T. H., Pan, S. L., & Chou, T.-C. (2012). The role of IT in achieving operational agility: A case study of Haier, China. *International Journal of Information Management*, 32(3), 294–298. doi:10.1016/j.ijinfomgt.2012.02.001
- Luo, Y. (2008). The changing Chinese culture and business behavior: The perspective of intertwinement between guanxi and corruption. *International Business Review*, 17, 188–193. doi:10.1016/j.ibusrev.2008.02.002
- O’Reilly, K., & Paper, D. (2012). Want value from big data? Close the gap between the C-Suite and the server room. *Journal of Information Technology Case and Application Research*, 14(4), 3–10. doi:10.1080/15228053.2012.10845709
- Ou, C. X., Pavlou, P. A., & Davison, R. M. (2014). Swift guanxi in online marketplaces: The role of computer-mediated communication technologies. *MIS Quarterly*, 38(1), 209–230.
- Rao, A. N., Pearce, J. L., & Xin, K. (2005). Governments, reciprocal exchange and trust among business associates. *Journal of International Business Studies*, 36, 104–118. doi:10.1057/palgrave.jibs.8400116
- Ross, J. W., Beath, C. M., & Quaadgras, A. (2013). You may not need big data after all. *Harvard Business Review*, 91(12), 90–98.