

# SMART COMMERCE ANALYSIS FOR CLICK AND MORTAR OF INTEGRATION PLATFORM

*Tzu-Chun Weng<sup>1</sup>, Yi-Shu Huang<sup>2</sup>, Chih-Hao Hsu<sup>3</sup>, Eldon Y. Li<sup>4</sup>*

<sup>1</sup>Department of Information Management, National Taiwan University of Science and Technology, Taipei, Taiwan, ROC, E-mail: D9509303@mail.ntust.edu.tw

<sup>2</sup>Innovative Digttech-Enabled Applications and Services Institute (IDEAS), Institute for Information Industry, Taipei, Taiwan, ROC, E-mail:jsgame@iii.org.tw

<sup>3</sup>Innovative Digttech-Enabled Applications and Services Institute (IDEAS), Institute for Information Industry, Taipei, Taiwan, ROC, E-mail:eden@iii.org.tw

<sup>4</sup>Department of Management Information Systems, National Chengchi University, Taipei, Taiwan, ROC, E-mail: eli@calpoly.edu

## ABSTRACT

As mobile, social communities and networks become increasingly prevalent, innovations in business services are often triggered by the real world instances. Terminal services increase the numbers of consumers through the physical channels and Internet. Effectively integrate and link between the Internet and physical services will be a challenge for all channel business and e-commerce industry. How to provide a total solution for building and maintaining the operation is not available absence of opportunities. It is a key issue to balance features of Social, Location-based and Mobile (SoLoMo) in a new business era when the pace of changes is particularly rapid. How to provide a total solution for building and maintaining the operation is not available absence of opportunities. E-commerce has developed rapidly by evolving from sales online only into the actual situation integration (online to offline, offline to online, O2O). The industry will reshape the composition of the target customer, redefine marketing strategy and rethink interactive content and service depth. The goal of this paper provides a total <sup>solution</sup> with an interoperable interface, forward-looking technology, field deployment, and configuration flexibility from the development of business intelligence data collection and analyzes services to support the operation development of business service in the industry.

**Keywords**—social community, innovative, business intelligence

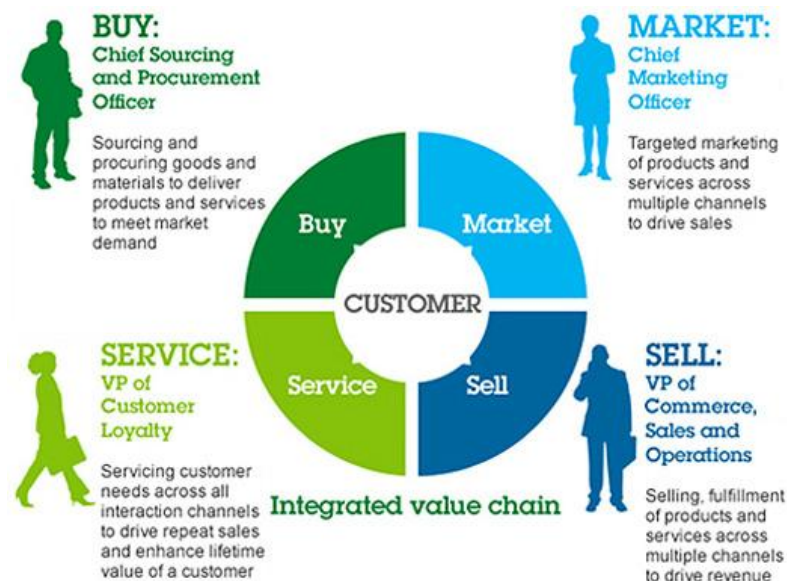
## INTRODUCTION

As mobile, social communities and networks become increasingly prevalent, innovations in business services are often triggered by the real world instances. Terminal services increase the numbers of consumers through the physical channels and Internet. Effectively integrate and link between the Internet and physical services will be a challenge for all channel business and e-commerce industry. How to provide a total solution for building and maintaining the operation is not available absence of opportunities. It is a key issue to balance features of Social, Location-based and Mobile (SoLoMo) in a new business era when the pace of changes is particularly rapid. The development of the next wave of business innovation services and revolutionary solutions should also be addressed, while taking into account the history of the source of production, critical information of management and products to grasp for consumers, and optimization of commodity value chain and production decisions to solve inventory issues.

According to Forrester Research report, U.S. e-commerce generated \$23.1 billion output value in 2012 and is expected to increase by 13% to \$26.2 billion in 2013. E-commerce accounted for about 8% of the total U.S. retail sales which are expected to reach \$37 billion in 2017. E-commerce will regard as one-tenth of all U.S. retail sales. E-commerce sales in Europe are expected to grow even faster than the U.S. from 11.2 billion in 2012 to 19.1 billion in 2017.

E-commerce has developed rapidly by evolving from sales online only into the actual situation integration (online to offline, offline to online, O2O). Consumers who can purchase from the virtual channel (product / service) can be attracted to the physical store to enjoy shopping and service experience situation or online purchasing parity through mobile devices in the store. The boundary of traditional retailers and online e-commerce industry is blurred. The industry will reconsider who are the target customers, redefine marketing strategies and rethink interactive content and service depth. The money that consumers spend in the virtual path will gradually transfer to the physical path. According to IBM, new types of customers are redefining the interaction model between the buyer and the seller. The forces of these customers come from technology and information transparency. Customers are able to retrieve extensive information from more diverse sources than in the past. Smarter Commerce is customer-centric. Smarter commerce recognizes that the sale is just one aspect of the experience. As with traditional commerce, the customer is at the center of all operations. Smarter commerce turns customer insight into action, enabling new business processes that help companies Buy, Market, Sell and Service their products and services. Smarter Commerce has integrated supply value chain. The type of commerce will change significantly with diversified technology pipeline to enhance the contact experience with customers, employees, and suppliers. The commerce operation will reach smooth seamless to increase the business satisfaction and service efficiency. Figure 1 shows the Smarter Commerce which is a smarter way for companies to buy, sell and market their products by integrating operations.

Figure 1  
Smarter Commerce. (IBM, 2012)



**Buy:** expanding the procurement view

Using a new rules-based order management system, the company can accurately forecast inventory, manage demand and coordinate distribution and sourcing. These customers enjoy an order fulfillment rate of nearly 100 percent. The new approaches enable supply chain decision makers to synchronize supply to demand and gain better control over inevitable disruptions (IBM, 2013).

**Market:** personalizing the message

Companies have become even more precise, and can be delivered through the most effective channels for each customer with powerful analytics and coordinated cross-channel marketing, personalized campaigns. Therefore, marketers are closer than ever to speak directly to customers about products and services and delivering the best offer, automatically, with a more complete understanding of how customers interact and respond to their brands (IBM, 2013).

**Sell:** going where the customer is

Smarter Commerce expands customer options, such as checking product availability on the spot, designating the best shipping location, and essentially enabling customers to order anywhere and pick up anywhere. Especially, it's not just about selling to consumers. Companies with B2B models can offer account-specific catalogs, contract-based pricing, complex product configuration and powerful order orchestration processes (IBM, 2013).

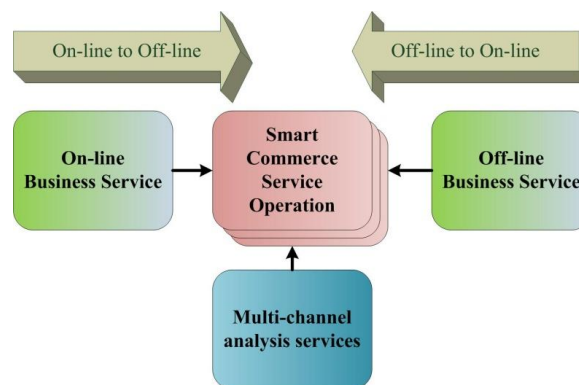
Service: a winning follow-through

Smarter Commerce doesn't end at the sale. A reputation for excellent customer care in the months and years following purchase can be a strong selling point. Executives charged with customer service are using customer insights to predict service demands. From synchronizing product installation and warranty to managing and tracking returns more efficiently, fluently operations imply a better customer experience (IBM, 2013).

Whether taking the perspective from the development of an online business or of a physical channel, Smarter Commerce of the maintenance and operation business services industry will be required. The new type of industry service can integrate the wisdom of the actual situation of maintenance and operation business and of choosing the business information to provide integrated services. In addition, "Data is the King" and "Know What Your Customers Want Before They Do", approaches, together with a strong service system, starting from the actual situation of consumer behavior provides business intelligence services business is the key to success in this industry.

The goal of this paper provides a total solution with an interoperable interface, forward-looking technology, field deployment, and configuration flexibility from the development of business intelligence data collection and analysis services to support the operation development of business service in the industry. Figure 2 depicts the architecture of the Smart Commerce service solution.

Figure 2  
The architecture of Smart Commerce service solution.



#### Click And Mortar Business Analysis

Click and mortar business analysis refers to understanding the track of customers and product information as well as what information should be provided them. Rather than being passive, the industry should actively provide information to customers and analyze consumers' personalized information.

#### Multi-channel analysis services

The goals are to create consumer-centric analysis services and integrate various analytical models in order to identify the common model of the business and production. Composite multi-channel and cross-sector analysis can help the industry to grasp consumer behavior and preferences across different sales channels.

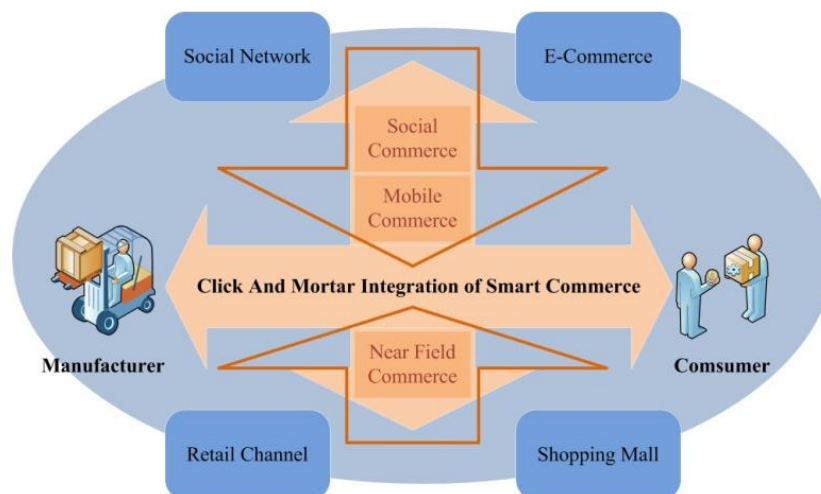
## LITERATURE REVIEW

In this section, we draw on and contribute to several streams of literature, each of which we review below. With the rapid growth of e-commerce, the development of organizations has also been diverse. Click-and-mortar is a type of business model that includes both online and offline operations, which typically include a website and a physical store (Oxford Reference, 2013). A click-and-mortar company can offer customers the benefits of fast online transactions or traditional face-to-face services. In general, a company relies on a mixed channel that involves the use of multiple channels serving sales opportunities (Friedman & Furey, 1999). A conceptual framework includes four types of synergies obtained by integrating e-commerce with physical infrastructures: cost savings, improved differentiation, enhanced trust, and market extension (Steinfeld et al., 2002). Knowledge of consumers' cross-channel shopping behavior was scarce and important. How to obtain the knowledge of consumer shopping behavior is a key issue to success in this industry (Doong et al., 2011).

### BUSINESS ANALYSIS FOR CLICK AND MORTAR OF INTEGRATION PLATFORM

In this section, we describe a click-and-mortar of integration platform with business analysis. Figure 3 depicts the architecture of the Smart Commerce service solution.

Figure 3  
Business Analysis for Click And Mortar of Integration Platform.



#### Consumers detection and tracking

Shopping guide or recommended behavior will depend on the understanding of consumers. This is a difficult issue in the physical world. How to close to the consumer, understand the consumer intention and behavior and analyze consumer attributes and preferences, are some issues to be a breakthrough in technology.

#### Target consumers exploration

In a different location and different consumer groups, these are not the same about what products to launch. How to use information technology to quickly understand the goals and preferences of region consumers in the international market, is a technical issue that must be addressed.

#### Actions shopping guide

Personal services are the key factors for competition which includes understanding and predicting customer requirements, personal selection of quality merchandise, putting up a communication bridge between industry and consumers, or attracting consumers attention with interactive experience to market products.

#### Multi-channel identification and publishing

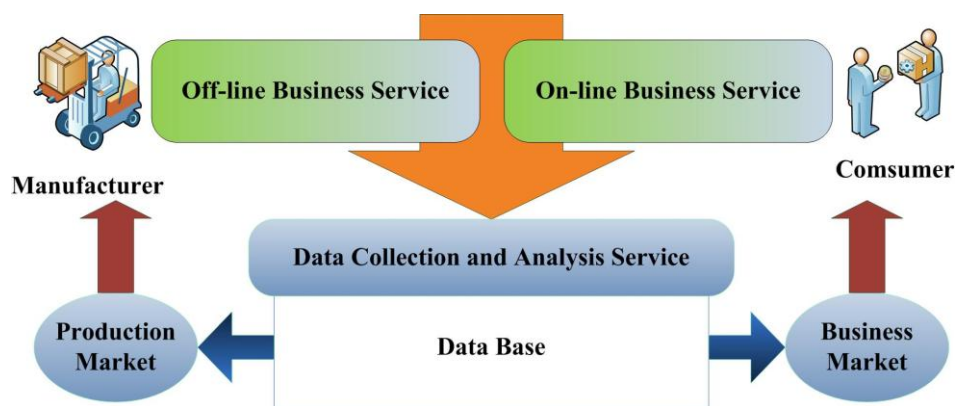
Company needs to add new product information from a pipe to publish for multiple sales platforms in order to supply multi-channel distribution services. The data feedback becomes the company's next

wave of marketing tactics basis. The combination of heterogeneous system functions include displaying and selling platform, cash flow and customer service and et al., so that consumers can purchase and pay directly from the entire transaction platform.

Collection and analysis service of business intelligence is a critical requirement for new business channel. Collecting the data of consumer behavior for mobile consumer at various channels is first step. And then, analyzing business intelligence through business-related analysis model to provide operators to develop smart commerce and to serve production industry, system integration industry, E-commerce industry, physical shopping channels, as well as brand advertising industry.

First step is to develop key technologies and solutions to break in some issues related about exchange interface, forward-looking technology, field deployment, and configuration flexibility. Next step is to practice solutions to reduce the risk of industrial investment. Final step is to analyze the data from smart commerce to provide analysis service for business operators. After repeating to correct and modify the analysis model and analysis result, smart commerce platform continues to provide business intelligence data collection and analysis services to become the technology and service providers. Figure 4 depicts the processes of smart commerce.

Figure 4  
The processes of smart commerce.



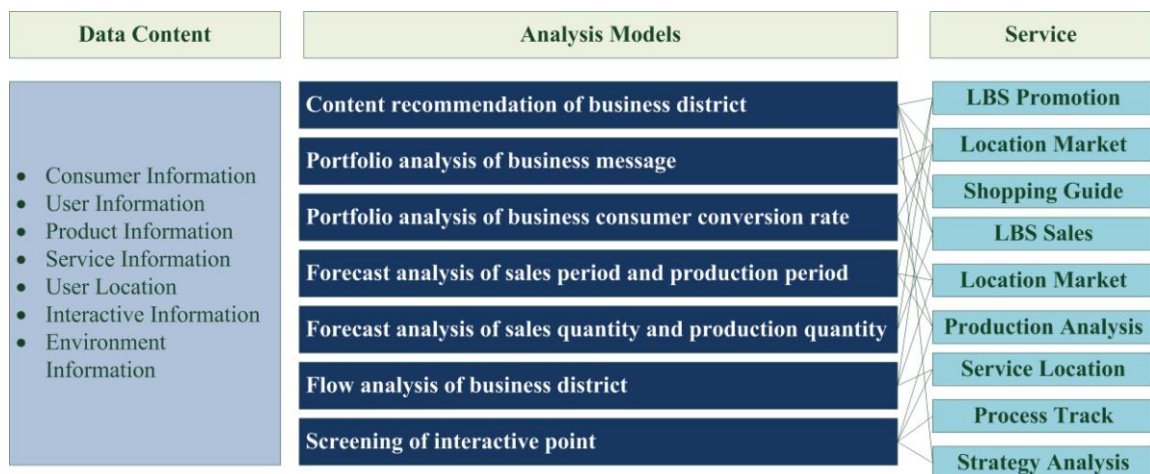
This paper develops seven analysis models which include content recommendation of business district, portfolio analysis of business message, portfolio analysis of business consumer conversion rate, forecast analysis of sales period and production period, forecast analysis of sales quantity and production quantity, flow analysis of business district and screening of interactive point. Figure 5 describes the seven analysis models.

Figure 5  
Seven analysis models.



Academic researches focus on how to optimize and achieve targets to provide profits maximization. This paper uses different data content from consumers through analysis models to provide various services for business operators to make better sales and improve profits. Figure 6 indicates the architecture of analysis models.

Figure 6  
The architecture of analysis model.



## CONCLUSION

This paper intends to complete an intelligence service information platform and focuses innovation and development of business services to solve the related issues. And then, the integration of business intelligence system architecture and related specifications and standards are developed. Business services are quickly extended to create new types of e-commerce industries revenue. The relevant industry can start an opportunity in the next wave of business revolution.

## ACKNOWLEDGMENT

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## REFERENCE

1. Friedman, L.G. and Furey, T.R. (1999), "The Channel Advantage: Going to Market with Multiple Sales Channels to Reach More Customers, Sell More Products, Make More Profit," Boston: Butterworth Heinemann.
2. Steinfield, C. Bouwman, H. and Adelaar, T. (2002), "The dynamics of click-and-mortar electronic commerce: opportunities and management strategies," International Journal of Electronic Commerce, Vol. 7, pp. 93-120.
3. Doong, H. S. Wang, H. C. and Foxall, G. R. (2011), "An investigation of consumers' webstore shopping: A view of click-and-mortar company," International Journal of Information Management, Vol. 31, pp. 210-216.
4. IBM, (2012), "IBM Expands Smarter Commerce," <http://www.dataversity.net/ibm-expands-smarter-commerce/>
5. IBM, (2013), "It all starts with the customer," [http://www.ibm.com/smarterplanet/be/en/smarter\\_commerce/overview/](http://www.ibm.com/smarterplanet/be/en/smarter_commerce/overview/)
6. Oxford Reference, (2013), "Web application meets bricks and mortar : A Dictionary of the Internet Oxford Reference," Oxford University Press.