

INTERNET+ AND ELECTRONIC BUSINESS IN CHINA

INNOVATION AND APPLICATIONS

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FOREWORD

At the third meeting of the 12th National People's Congress held on March 5, 2015, Premier Keqiang Li stated that the Chinese government under his leadership will "develop the 'Internet Plus' action plan to integrate the mobile internet, cloud computing, big data, and the Internet of Things with modern manufacturing, to encourage the healthy development of e-commerce, industrial networks, and internet banking, and to guide Internet-based companies to increase their presence in the international market." Therefore, innovation 2.0 is the upgrading of innovation 1.0. Innovation 1.0 refers to innovations in the industrial era while innovation 2.0 refers to all forms of innovations in the information era and knowledge society.

The profound integration of the internet and traditional industries has led to the ongoing enhancement of the entire society's innovative and productive powers and the birth of new forms of economic and social development as aided by the internet as both its infrastructure and its tool of realization, thus constantly creating new models, new industries and new economic norms. In present day China, internet plus has not only been applied to the service industry, creating such new conditions as internet finance, internet transportation, internet health, and internet education. Also it is beginning to combine with the primary and industrial sectors causing a series of innovative models and industries and economic norms such as internet plus industry, internet plus agriculture, internet plus manufacturing, internet plus financial services, and internet plus education. It is against this background that the publishing of this book *E-Business Innovation and Case Study in the Internet+ Era* meets the needs for economic development and talents in the internet era. In the book, the reader is not simply provided with a systematic array of basic concepts, theories and methodology, application innovations, and development trends in e-business. It is also hoped that the large number of application and project cases can help the understanding of innovative thinking and the development of innovative capabilities in e-business to provide practical help with innovation and entrepreneurship in e-business.

Internet+ and Electronic Business in China: Innovation and Applications consists of 18 chapters in four parts. The first part is theoretical foundations

of e-business which includes basic concepts and mainstream theories regarding the definition of e-business, e-business models, e-business intelligence, e-business logistics, and e-business payment. The second part is internet plus innovation models in e-business which includes internet plus agriculture, social commerce, O2O, and internet finance. This part follows the theory plus cases then plus analysis pattern to provide a comprehensive and in-depth analysis of relevant cases to present mainstream e-business theories and trends of development.

The third part is about e-business platform application method innovations which includes application method innovation theories, application contexts and case analysis encompassing bilateral markets, e-business platform information search services, e-business platform information search service diversity assessment, e-business platform information search service diversity information extraction, emotional analysis of e-business online comments, and semantic search in e-business online comments.

Part four contains a careful selection of four actual e-business projects, which are internet plus resource enterprises, mobile internet, big data and business intelligence system, and social campus Witkey. From the perspective of project development, these e-business innovation projects are then analyzed in terms of the entire process of model analysis, design, and development to provide the readers with successful examples of implementing e-business entrepreneurship projects. As an example, “A Case Study of Mitubaba’s Social E-Business Model of Plateau Special Agricultural Products” as collected in this book is the only national special prize winner at China’s 2016 E-Business Case Summit Meeting and the National Top 100 E-Business Case Study Contest. Also included in the book are two-third prize winners. They are “Internet Plus Finance Case Studies Taking Lufax and Oriental Exchange as Examples” and “A Case Study of Social E-Business as Based on Campus Witkey Networks.”

Internet+ and Electronic Business in China: Innovation and Applications is compiled by Professor Qiongwei Ye from Yunnan University of Finance and Economics and Associate Professor Baojun Ma from Beijing University of Posts and Telecommunications. Also thanks to Associate Professor Nangai Yang and Lecturer Yanping Yu, both from Yunnan University of Finance and Economics, and Liu Yang from Emerald (China) for their language compilation.

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Given the limited capabilities of the authors, there are bound to be limitations of different kinds. Any suggestions and feedback from colleagues and readers are much appreciated.

PART I

THEORETICAL FOUNDATION OF E-COMMERCE

Time flies. It is now the 17th year since 1999, the year China's e-commerce was born. In the spring of that same year, Yun Ma set up the Alibaba e-commerce website at a lakeside garden in Hangzhou's suburb. In the May of 1999, China's first B2C website selling software books, 8848 went online as operated by LaoRong or Juntao Wang. In the June of 1999, four travel enthusiasts from different industries, namely Nanpeng Shen, Jianzhang Liang, Qi Ji, and Min Fan created Ctrip to provide online ticketing and hotel reservation services. In the August of the same year, Yibo Shao and his alumni from Harvard established Eachnet, China's first C2C e-commerce network. By the November of 1999, Guoqing Li and his wife Yu Yu, who had both worked in the publishing business for about 10 years, set up China's first online bookstore, Dangdang. Starting from this year, e-commerce entrepreneurship began to surge and roll, changing people's living and consuming habits along the way.¹

First, e-commerce has changed the way business is done. A typical scenario in traditional business activities is that a salesperson is "constantly on the move trying to break deals," while consumers get exhausted looking for commodities they need. In contrast, people now get serviced online by surfing online stores and purchasing all kinds of products via the internet. Businesses contact customers and conduct loan transactions utilizing the internet, and governments conveniently conduct electronic bids and make government purchases. Second, e-commerce changes people's consumption habits. The most obvious change in online shopping is the dominant customer. This means that the intention of customers to make purchases has become even more important, and consumers can choose to finish a transaction in an easy and self-serving manner, hence fully embodying the dominant role in online shopping. In addition, e-commerce has changed the production of traditional enterprises. For manufacturing enterprises, consumers' special needs, their individual e-commerce activities, and its social impact, all are presented to manufacturing enterprises via the internet so that an increasing number of businesses are targeting the long-tailed market by producing customized

products for consumers. For service enterprises, customized services covering the full spectrum of customers' life are provided by way of such innovative measures as internet financing, O2O, and localized daily services.²

E-commerce has already changed the world. Yet, in this era of the high speed development of the internet, the rapid spread of intelligent terminals, and a revolutionary surge of big data, e-commerce still retains its unlimited potential of vitality and creativity, given its nature of super sensitivity to its time and technology environment. Therefore, the internet plus e-commerce innovations will become a more important driver of national economic development.

CHAPTER 1

CONNOTATION OF E-COMMERCE

Qiongwei Ye and Baojun Ma

1. DEFINITION OF E-COMMERCE

With the development of information technology and the infiltration of economic globalization, the concept and connotation of e-commerce has never stopped expanding, hence the variant definitions as held by different governments, scholars, and businessmen.

In academe, e-commerce is defined as a technical application concerning businesses and workflow automation using telephone lines, computer network, or other electronic methods. By way of facilitating the sending and transaction of digital information, product, service, and payment between individuals and organizations, e-commerce enables producers, consumers, and the management to cut the cost and enhance the quality of products and services. E-commerce provides enterprises the capabilities to purchase and sell products and information via the internet and online services so that an enterprise's business processes, application systems, and organizational structure are merged together to form an efficient business model (Kalakota & Robinson, 2001; Kalakota & Whinston, 1996; Laudon & Traver, 2004; Liu, 2007; Liu, Liu, & Wang, 2013).

In the business circle, e-commerce is applied in two categories, namely the narrow sense of definition as electronic commerce and the broad sense definition of electronic business, as most typically used by IBM. Currently, e-commerce mainly refers to such transactional activities as the buying and selling of information, products, and services using computer networks or any interconnected networks, including telecommunication networks, broadcasting and TV networks, and mobile networks. E-business, on the other hand, refers to all economic activities facilitated by electronic connections. Specifically, it refers to the use of computers and network communication technology

and information technology (ICT) following certain standards to cover the entire process of business exchanges, administrative operations, logistic services, and other organizational administrative activities. The electronic tools as used here can sometimes refer to the entirety of electronic media, which includes telecommunications network, broadcasting network, and mobile networks. Examples are the electronic market utilizing ICT technology, business networks, and networks that provide services in travel, finance, insurance, customer services, and commodity distribution. In 2002, IBM came up with the idea of “E-Business on Demand” to mean that e-business is easily available when you need it, just like water and electricity. Armed with such on-demand services, an enterprise is easily enabled to comb, optimize, and integrate its business procedure from placing an order to the delivery of the end product. Then electronically the enterprise will be able to integrate the entire supply chain, seamlessly linking important business partners, suppliers, and clients to respond quickly to market opportunities, the needs of its customers, and the external challenge.

Based on the above views from academe and businesses, further defining of the concept of e-business is the logical next step, namely the concept of e-business can be narrowly and broadly defined. The narrow definition refers to only such business activities that closely connect businesses and the internet or other networks that are part of the internet.

The broad definition of e-business includes the narrow definition of e-business, business intelligence (BI), customer relationship management (CRM), supply chain management (SCM), enterprise resource plan (ERP), and SoloMo business models (social, local, and mobile). It refers to business transactions, logistic services, and other organizational activities such as ERP, CRM, SCM, cooperative partnership, competitors, and the interaction with the external environment as facilitated by computer networks or any networks that consist of the internet, such as telecommunication network, broadcasting network, mobile network, social network, and the internet of things. Transaction objects or targets could be products, services, information, or experiences that are able to be transmitted or projected into reality via the internet. The narrow and broad definitions of e-business are shown in Fig. 1.1. During the process of the above-mentioned activities, enterprises have accumulated vast amounts of data of value flow, commodity flow, fund flow, business flow, and people via the intranet, the extranet, and the internet, thus forming “the gold mine of big data” for guiding business operation.

These are transaction data, people data, and data of things. Transaction data include operational performances and internal documents in an enterprise’s intranet and sales turnover contracts in the extranet. People data

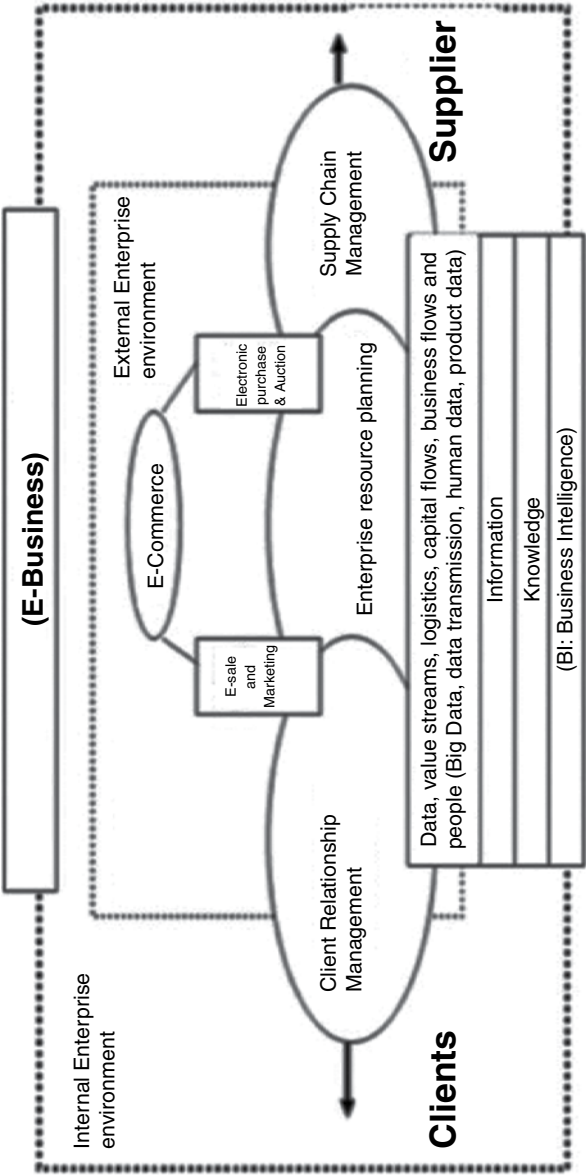


Fig. 1.1. Broad Definition of E-business.

include data generated in internal social networks as BBS, forum and blog in the intranet, and data in the form of branding in microblog and WeChat, and user comments in commentary platforms in the external social networks. Data of things include inbound logistics data such as commodity QR code, bar code, and FRID in the intranet and outbound data in the form of public transportation imaging data and satellite data in the extranet. As the foundation of big business data, business intelligence via the use of such technologies as ETL, data warehousing, data mining, and data analysis transforms these massive, rapidly upgrading, and structurally complex data into information and knowledge needed for business operational decision-making. In so doing, businesses are enabled to more effectively learn about client needs and implement precise positioning and large-scale customization.

2. EMERGING CHARACTERISTICS OF E-BUSINESS

2.1. E-Business and Big Data

According to Gartner's definition, big data require a new coping model to deal with information assets that are rapidly increasing, large in volume, and very diverse so as to gain in power of decision making, discerning insightfulness, and procedural optimization. In fact, we can use four Vs to summarize the characteristics of big data, namely volume, variety, value, and velocity. In terms of volume, big data are now so large in volume that its data sets are now beyond the reach of traditional data base software to retrieve, store, manage, and analyze. In terms of variety, the types of data now collected and analyzed can come from such diverse data sources as text, images, audio, or video clips, or even geographical location information. In terms of value, the collected large volume of data contains no small amount of noise, sometimes even reducing the proportion of useful information to less than 1% out of the total. In terms of velocity, due to the constant production and updating of big data, there grows the need for instant analysis and efficiency when it comes to data collection and management. Predictably in the digital future life, big data will pool the information of people, money, and things to connect individuals, organizations, and societies so that information can be used by people in the fields of medicare, transportation, and finance via the use of data application technology.

The era of big data has brought the change of view in e-business and new management model of data, promoting better integration of the actual application of data and business operations, hence upgrading service models. Massive amounts of consumer data provide e-business enterprises the tool to

learn about users' consumption model. This enables the enterprises to provide via the use of big data personalized, intelligent, and precision advertisement push services to establish more interesting and effective service models. At the same time, e-business enterprises could also use big data to locate better methods or channels to increase user loyalty, market new products or services, and reduce operational costs. According to Liu, Chen, and Yao (2014), specific e-business models in the big data era might include the following.

2.1.1. Personalized Shopping Guide as Based on Big Data

The e-business model of personalized shopping guide comes from the combination of personalized services and third-party service providers. This model demands the aggregation of big data, which include such records as a user's browsing history, shopping history, and consuming preferences. Via data mining, precision shopping guide can be achieved by the use of personalized advertisements and recommendations. Appropriate advertisements can be recommended for the user based on the big data of consumer behavior, analysis of the user's web browsing behavior, and the most appropriate and currently needed products recommended after the analysis of everyday behavior. Precision marketing by demand will greatly reduce the marketing cost of e-business enterprises and promote increase in sales.

2.2. Vertical Segments Service Based on Big Data

In the big data era, with the increase in data integration capacity, e-business enterprises are enabled to more easily and more conveniently share information and resources with their upstream and downstream supply chain, thus greatly blurring the obvious boundary between enterprises. This has led to the end users focusing on solving their own business problems. Therefore, in the industrial value chain, whoever is closer to the end user has greater space of survival. By understanding the needs of their clients in the industrial value chain based on the big data in their respective horizontal industrial segments, businesses could keep improving their services so as to provide professional products and services for specific clientele.

2.2.1. Big Data Product Services

In the big data era, data have become the most important asset of an enterprise. The future competition for an enterprise would be the competition

of data size and data usefulness. The role and economic impact of data are receiving growing attention by enterprises, propelling the birth of many data-related businesses. These include the business of data analysis, a service now offered by providers to provide standard report and data services using non-structured user data, visual data services, and crowd-sourcing model. Visual data display data size and data points in visual formats similar to data charts. In the case of crowd-sourcing model, enterprises use the internet for working projects distribution to solve technical or creative problems or the discovery of a model that data might present.

3. E-BUSINESS AND PERSONALIZATION

As mentioned afore, e-business enterprises could conduct user preference analysis utilizing massive data to provide personalized information services for users. This will satisfy specific information needs of different users, including the provision of personalized information according to their individual needs or the provision of information services by e-business platforms in accordance with users' individual differences in surfing the internet. Personalized information recommendation services in e-business include personalized content of services and personalized methods of services (Hu, 2015).

3.1. Personalized Content of Services

Information and service needs of an individual user vary with individual circumstances, and the user is not simply on the receiving end of personalized information services. e-business websites are able to provide the user with a wide range of choices. But more importantly, they are able to provide the user with commodity information by their purchasing habits. This will shorten the time used for searching their desired products. In addition, websites can use the data the user leaves during the purchasing process and apply it to product promotion in order to address better user's personalized needs.

3.1.1. Personalized Method of Service

Currently, the most widely used method of information service is the "pull" service model. By this, the information provider directly publishes the information on the web and the user searches for them on the web according to their own needs. This service model entails a lot of energy spent on the

transition between different web pages. Corresponding to the “PULL” model is “PUSH” model. In a “PUSH” model, the information provider sends the most recently updated information in the form of abstracts to the user so that the user could filter the information according to their own needs. The advantages of the “PUSH” model lies in the fact that users don’t have to waste their energy searching, hence saving large amounts of time.

The personalized recommendation service in e-business has two implications. For the client, personalized recommendation services could reduce their time of shopping and deliver them from tedious commodity information. For the information provider, personalized recommendation services could help retain the number of users, and improve user visits in a given amount of time so that the user could browse more products and increase purchases. As big data get more widely used, personalized recommendation services will get better. This will not only earn unprecedented profits for e-business enterprises but also will offer greater development for providing information services.

3.2. E-Business and Experience

Innovations in e-business are not confined to products and services. In recent years, there is a gradual emergence of “experience” beginning with the very popular “stealing vegetables” game in 2010, WeChat exercise ranking among friends, the present day surging of virtual reality (VR), augmented reality (AR), and now to mix reality (MR). Experience is now becoming an important part of e-business.

3.2.1. Online Experience Only

In 2008, such social games such as “Happy Farm,” “Taking Parking Spot,” and “Trading Good Friends” were born. These social games break the barrier of time and space and promote online interactions among friends to provide a pleasant and relaxing experience in virtual reality. Take the most popular game of “Stealing Vegetables,” for example; it is based on a social networking site and is a simulated farming operation game.³ During the game, players take the role of a farmer finishing the entire process of purchasing seeds, sowing seeds, watering, fertilizing, spraying pesticides, harvesting, and selling the produce. Since this game includes a simulation of the growing crops, players could enjoy the fun of growing things while operating a farm. When playing the game, most of the things that a player can do to his/her crops can also be done to their friends. Therefore, the player can choose to be “a very nice person” by

watering and weeding for their friends or be “a looting villain” doing things such as stealing things. The most outstanding characteristic of this game is the interaction among friends on social networks – one can not only enjoy the fun to water, weed, and conduct pest control for friends but also get a taste of secretly taking their friends’ things. In addition, friends also interact by giving each other special props. It is also necessary to protect from attack. For example, using chemical fertilizers reduces the time for crops to mature and let farmers harvest in advance to prevent stealing. The same month this game was launched online, millions of internet users paid attention or participated, thus successfully triggering a national surge of “stealing vegetables.” This has provided inspiration to the development of mobile games on social platforms, community platform services, and the internet advertising businesses, making it very successful e-business model. Now that SNS social websites and social games have lost their appeal, it denotes the arrival of experienced e-business.

3.3. From Offline Experience to Online Experience

“WeChat Exercise” is a typical example of e-business programs in which offline experiences lead online experiences. Following the official account “WeChat Exercise” and using a bracelet or iPhone with pedometer database, users will see their friends’ step counts every day. These numbers of steps will show in a ranking list. Good friends could give a “like” for mutual support. Whoever comes out first will have the privilege to showcase their chosen picture so that friends can see. Thanks to the interactive experience among friends and the ranking function, people get to enjoy top ranking positions online among friends which is brought by their offline physically exercise. Meanwhile, WeChat Exercise could utilize its vast amounts of traffic to direct users to health or medical products or services, thus successfully turning experience activity into a fact of their lives.

3.3.1. Online Experience “Projected” onto Offline Experience

Virtual reality, augmented reality, and mix reality use advanced technology to “project” online experiences onto offline experiences. Virtual reality creates a three-dimensional virtual world by using computer simulation. It provides users sensual simulations in visual, hearing, and touching, which is like living in the real world that users can feel and observe without restrictions. Augmented reality or virtual reality also uses computer technology to apply virtual information to the real world so that the real environment and virtual objects are brought together in the same scene or space and coexist in real time. To contrast, mix reality includes

enhanced reality and enhanced virtual reality. This is a new visual environment born of combined reality and virtual world. In this new visual environment, physical and numerical objects exist side by side and interact with each other.⁴

E-business models using virtual reality make proactive consumers. Consumers, for example, could interact with businesses regarding their ideas and choose to “see” “the actual product” they want in all dimensions via virtual scenes. A business, on the other hand, keeps modifying the virtual products until customers are satisfied. This will not only improve the efficiency of design and lower the production costs but also render the final product satisfaction to consumers. A case in point is the shopping of clothes online with virtual reality. Customers need only to input their data of height, shoulder breadth, chest measurement, and waistline and the system will have a virtual model just like the buyer to try on clothes. Interactively, buyers only get to pick color and style online and have the virtual model turn around for an inspection from multiple angles. In this way, consumers are more likely to get their appropriate clothes. To compare, the enhanced reality-based e-business model demonstrates online shoppers of different products in a three-dimensional way. Shoppers are able to experience the entirety of the product from different angles and feel like shopping in a physical shop. By doing so, convenience and comfort is provided to consumers to pick carefully the product they need and without the crowd.

4. NOTES

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