

## EIRS: An Intelligent E-Commerce Application System for Small Retailers in China

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**Abstract.** E-commerce is a fast growing channel for new business in China. However, Chinese small retailers have many difficulties in e-commerce applications nowadays, such as lack of IT skills, expensive of operation cost, etc. In this paper we present an intelligent retail system named eIRS which can help small retailers to implement their e-commerce strategies. eIRS whose single terminal entity looks like a telephone is an e-commerce platform linking product producers and retailers. It can reduce the redundant courses between product producers and retailers and also can act as an efficient medium, providing service similar to ICP for both of them. The test results of eIRS indicate that it creates a new win-win e-commerce model for producers and small retailers in China. We also analyze the Development Obstacles and Challenges of eIRS finally.

**Keywords:** *eIRS, E-commerce, Intelligent retail system, Retailer*

### 1. INTRODUCTION

Currently in China, surveys suggest that retailing accounts for almost 65% of total sales, which shows that retailing is still dominant and will not be substituted for a long time. However, the complicated distribution channels, excessive sales links, disordered market rivalry, and outdated marketing modes badly hinders its further development and maturity. Moreover, the booming of supermarkets has also posed unprecedented challenges for traditional retailing. In such circumstance, if linking all the retail stores together to form a large chain store, we will make up for the weakness of low level of information and get a win-win solution for both retailers and producers. This channel integration not only shortens the processes, but also reduces the retailers' purchase price. At the same time, producers can administrate the retailers in a unified way, understand their business requirements directly and then divide them into different groups based on their sales.

The eTong is called as "eTong Intelligent Retailing System" (eIRS) developed by Chuyan Information Technology Ltd (now Wuhan Chinasoft International Information Technology Ltd) [1]. The eIRS is an e-Commerce platform aimed at facilitating information exchange and electronic transactions among producers, suppliers and retailers.

## 2. RELATED WORKS

The research to merge the physical world with the virtual world of electronic service and application has been carried for several years. Variable versions with intersection of physical and networking world has been released which dramatically expands the scope for e-commerce.

Microsoft product Tablet PC combines the power of a laptop with the portability of a handheld device and enables the mobile employees to enter critical business information when it is collected. This information can be swiftly integrated with back-end systems via a wireless network, or the Tablet PC's docking station [2, 3]. Many retailers have shown interest on the potential of the Tablet PC. The Convenience store giant 7-Eleven is evaluating the Tablet PC to provide a natural, intuitive selling experience for store employees. Workers can enter merchandising data directly into their Tablet PCs with a digital pen and that information could be uploaded instantly, accessible to anyone else in the company [4]. This will enhance data flow from the stores to the company's network and streamline business process.

In China, a special solution named JijiaE is furnished by China Telecom, integrating communication technology, computer technology and Web technology [5]. By this solution, people can order on-demand messages and subscribe to customized messages through a stationary phone. What the users need to do is to dial a special telephone number and make choice following the instruction. The JijiaE system will process that selection and return the result automatically [5]. So, it is clearly that users, without expensive computers or lacking of IT skills, can also search and gain simple information resource on the Internet with JijiaE. If a special gateway can be supported, users can also send or receive emails with JijiaE. Actually, JijiaE has already been used to facilitate agriculture informatization in rural areas in China since 2005.

## 3. SYSTEM ANALYSIS AND APPLICATION OF ETONG

eTong intelligent retail system (eIRS) is a platform drawing on low cost telecommunication to help mass retailers accomplish electronic ordering and payment. It bases on call-center, database warehouse and middleware.

### 3.1 eTong System

The key technologies of eIRS include: the eTong service platform and the eTong end entity.

The eTong service platform is the control and service center of eIRS, its main functions are as follows:

- Receive goods information from producers and send it to retailers
- Receive orderings from retailers and send it to producers
- Receive ordering response from the producers and send it to the retailers
- Support the search for logistic code and anti-counterfeit code by retailers or

producers

- Submit transition information to the banks
- Provide sales statistics to producers

The eTong end entity of eIRS implements trade data collection and communication:

- Check and download the newest goods information, ordering response or orderings in time
- Upload the goods information, ordering response or ordering information at any time
- Support the bank’s real time payment business
- Support value-added service such as micro-payment
- Support the search for logistic code and anti-counterfeit code by retailers or producers

### 3.2 Business Process Mode

Through its innovative design, eIRS aims to integrate all the retailers to form a highly effective community. In this way, eIRS provides a win-win solution to either producers (or suppliers) and retailers. It can be applied to the key links in distribution channels from producers to retailers and empower them to enhance information exchange and electronic transaction in real time. In addition, eIRS can also provide many value-added services like billing etc, which will not only develop the retailers but also benefit local communities.

The wide implementation of eTong will generate significant economic and social benefits. Especially, the “producers to eTong to retailers” model initiated by eIRS is challenging the traditional marketing. In this model, the eTong will replace the complex intermediate distributors which enables the direct interaction between the producers (or suppliers) and the retailers. This will be able to integrate and speed up the flow of information, fund, business and logistics throughout the distribution channels (see Fig.1). Therefore, eIRS can be a solution of great promise for improvement of current marketing in China.

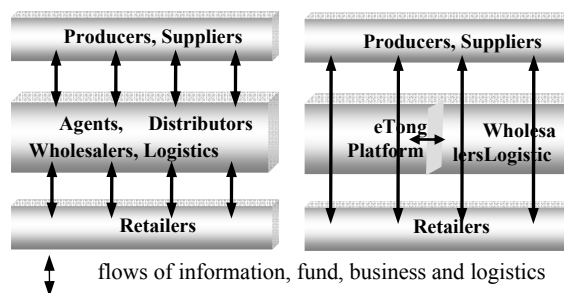


Figure 1. Traditional Business Mode Versus the eTong Business Mode

### 3.3 Application in Tobacco Industry

Most tobacco retailers are small retailers with a special license of selling tobacco, dispersing among communities and running a public phone service. They are just the target client for eTong devices and eIRS. An eIRS is launched in Xianning City of Hubei Province in June, 2004.

The tobacco industry in Xianning City has already organized a logistic system; eTong will utilize this system. Orders collected by eIRS will be delivered to the tobacco bureau's logistic team who are responsible for the distribution. The goal of payment electronically has already been achieved in tobacco industry that each tobacco business man owns an electronic account. When orders are generated, transfer will be done through this account.

Figure 2 and Figure 3 illustrate the experiment results.

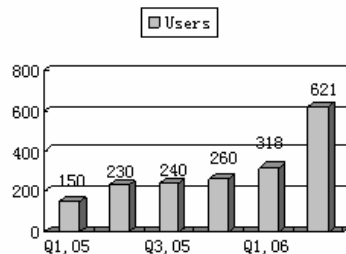


Figure 2. Users

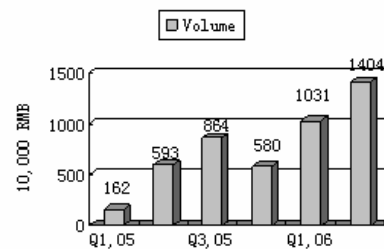


Figure 3. The Total Amount of Trading

Those results testify that tobacco retailers accept the use of eTong entity gradually. Since market grows mature gradually, it is time for a larger expanding..

### 3.4 Revenue

As it is still on cultivation stage, now there are only two main revenue sources for eTong devices and eIRS:

(1) Admission fees from producers logging into eIRS.

(2) Share revenue with China Telecom. When information services are delivered, they split revenue on the use of telecom network.

Besides, when the market grows mature, eTong could gain more revenue by the following ways:

(1) Value-added information service. This is mainly designed to charge the users for the information itself.

(2) Commission. eTong will gain commission on each transaction.

(3) Advertisement service.

(4) Provide statistics to producers. For its integration of all retailers, eTong will be convenient to collect sales figures vital to producers and then charge producers desiring for the information.

Through one year's expansion, eTong has already successfully cooperated with China TieTong Telecommunications Corporation and Chinasoft International Limited. Meanwhile, direct optical fibers linking to the Industrial and Commercial Bank of China (ICBC), Agricultural Bank of China (ABC) and China Construction Bank (CCB) have already been accomplished separately. Those extensional business partners provide eTong with extra policy, finance and device support to expand the market for its exploration. In addition, eTong is still searching for more new partners, such as China UnionPay, China Mobile and China Unicom.

### 3.5 Challenges

Although no dominating congeneric product in the market of China now, some companies also started their research and exploration on similar products. JijiaE is a good example. Their basic theory and technologies are just the same, and functions also resemble each other. The biggest difference between eTong and JijiaE is that JijiaE with a thinner client can only operate on China Telecom's network while eTong on variable networks. However all these products are in test, who will succeed mainly depend on who can augment the cake first.

## 4 CONCLUSIONS

eTong is an innovation approach for retailing industry Informatization. It is a unique and efficient e-commerce solution of small retailing industry in China right now.

We have already witnessed a successful implementation case in tobacco industry in Xianning City of Hubei Province. In the future, eTong and eIRS will focus their attention on non-tobacco industry. However, without policy privilege and mature marketing system the extension of eTong in non-tobacco business is a far tougher task because all marketing, logistic and payment need new strategies. From the test results we can see that most retailers have not completely accepted eTong ends entities, so eTong and eIRS applied to non-tobacco market needs more time.

All in all, eTong is a viable and effective invention, but there still have some obstacles to overcome. Whether eTong will succeed or not depends on its operation which we will continue to pay attention to.

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