

# Research on construction exhibition integrated information service system in airport economic zone

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*Received 1 March 2014, www.cmnt.lv*

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## Abstract

Information technology has been widely used in the daily management of enterprises. Through the use of it, construct the integrated information service system which is based on exhibition services and takes exhibition organizer, exhibitor and audience as the main service object. Implement digital exhibition service, integrated information service, scientific activity management and customer service network and meet the needs of exhibition service, information service, activity management and customer service. This paper analyzes the service object and domestic demand of exhibition integrated information service system, proposes the system structure of exhibition integrated information service system and analyzes communication platform, operation platform and application platform of the system. Application of exhibition integrated information service system is contribute to realize the interaction among the information flow, capital flow and logistics, implement the purpose of information resources sharing, efficient management and decision science, drive the comprehensive development of enterprise informatization, business electronization, logistics internationalization and supply chain informatization and promote regional economic prosperity and social progress.

*Keywords:* Exhibition Industry, Integrated Information Service System, System Structure, Network Topology Structure, Application System, Airport Economic Zone.

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## 1 Introduction

Exhibition industry was first produced in western developed countries, it has been 150 years of history so far from London hosted the first exhibition in May 1851. Information technology has been fully introduced to exhibition industry. The work efficiency of exhibition publicity, investment, exhibitor registration, customer registration and collection of information has been generally improved and the cost has been reduced. Exhibition informatization through exhibition management informatization, exhibition information service and enterprise supply chain informatization has greatly increased the exhibition efficiency and effectiveness, and promote the development of exhibition and related business [1].

Chinese exhibition informatization still stays in primary level. A large number of exhibition companys inside have no exhibition business management system, large exhibition center has not been equipped with conference and exhibition site management system and online exhibition also has not got the popularization and application. The gap in industrial scale and structure, informatization, specialization and marketization between exhibition economy of our country and developed country is obvious. China's exhibition industry is gradually formed, management level and service level of exhibition industry is improving and the requirements of exhibition informatization are increasingly high. In addition, constantly improvement of information industry technology level and information infrastructure provides a good material and technical basis for the development of exhibition informatization.

The development trend of exhibition informatization is to set up a exhibition integrated information service system

which is based on exhibition services and takes exhibition organizer, exhibitor and audience as the main service object [2]. Implement digital exhibition service, integrated information service, scientific activity management and customer service network, meet the needs of exhibition service, information service, activity management and customer service and implement the purpose of information resources sharing, efficient management and decision science. The application of exhibition integrated information service system can strengthen information communication and resource sharing between enterprises of different regions, make the two sides of supply and demand easier to find potential business opportunities, increase cooperation opportunities and reduce transaction costs. Information communication contributes to commodity transaction, commodity transaction drives capital flow and circulation of goods, drives the comprehensive development of enterprise informatization, business electronization, logistics internationalization and supply chain informatization and promotes regional economic prosperity and social progress [3].

## 2 Service object analysis of exhibition integrated information service system

### 2.1 SYSTEM USER ANALYSIS

From the perspective of system applications, the main users of exhibition integrated information service system include exhibitors, invited guests, exhibition public audiences, information service audiences, journalists, and all kinds of internal staff, just as Fig. 1 shouwn.

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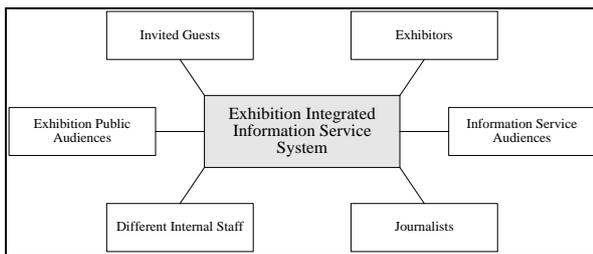


FIGURE 1 Main users of Exhibition Integrated Information Service System

**Exhibitors:** Exhibitors are the main service object of exhibition integrated information service system and the main source of income of the main customers of exhibition and exhibition economy. Merchants come from different regions, with different language and culture background. How to provide them information services, hospitality services and exhibition services through the accessible, easy-to-use and convenient information system, is the key to the success of the exhibition. The information system aimed at exhibitors has the characteristics of multi-language support and friendly interface. Exhibitors can use the system through direct and indirect ways. The so-called direct use refers to the merchants directly through telephone, Internet, mobile phones (SMS), touch screen, information kiosk and other ways get automatic voice response service, SMS notification service, information customization service, web access service, information query service and all kinds of services appointment and so on. Indirect use refers to the merchants put forward their own service request to seating members of customer service center, and then the seating members operate the system to provide a relevant services way for merchants.

**Invited guests:** Invited guests are the important guests of large-scale international exhibition activities, and mainly need to be provided language translation service, escort service, butler service, scheduling, and remind service, etc. They can get related information services through telephone voice and text messages and other means of customer service center, and get access to traffic, facilities use, special offers and other services through VIP card send by exhibition organizers.

**Exhibition public audiences:** Exhibition public audiences are the largest number of system on-site users. They mainly use on-site management system, on-site information query system (touch screen, information kiosks, etc.), self-service ticketing system, opinion polls and public evaluation system and so on. Due to the characteristics of large number and diversity of language, such information and service systems require to have optional interactive language, fast response speed, simple operation, friendly interface and no password control, etc.

**Journalists:** Journalists will mainly use the system in the press center, including information release, information query, press release and background information download, network video retrieval and watch, etc. They can

directly spread their own personal feelings of the service provided by using system themselves, and this feeling will even affect the reporters perceptions and attitudes towards the overall service level and public image of the exhibition. Therefore, exhibition service information system needs to implement advanced features, available and easy to use, friendly interface and substantial in content.

**Information service audiences:** Information service audience is the largest number of system users, mainly referring to the remote user that is not in the exhibition site. It includes telephone users called to customer service center, Internet users log in expo official website and SMS users that on demand and custom text messages through mobile phone, etc. This type of users towards all kinds of information service system the project provided has also directly and indirectly use in two ways [4]. Audience is divided into two types, that is, general audience and registered members. General audience does not need to pass any registration to be able to enjoy the information service we provide, and registered members need to register in advance to land and use, and then get a password protection, accordingly to get all sorts of paid information service and member service. The system provided these services has the characteristics of multiple languages support, supporting a large number of concurrent users, without geographical and time limit (such as WEB services), etc.

**All kinds of internal staff:** Include exhibition center staff, customer service center staff, reception center staff, system management and maintenance staff and so on. Different types of workers have their own characteristics.

**Leaders at all levels:** Mainly consult dynamic information, statistical form and business report, examine and approve various current official document and issue dispatch instructions, etc. The system to this kind of users should generally use the browser interface, by simply operating the mouse can do its job; should try to reduce the information input, especially the Chinese character input operations; interface mainly graphically intuitively display information and data; text appropriately uses a larger font, etc.

**Various management and operational personnel:** Mainly use exhibition integrated management system and activity management system. Responsible for the system business data and all kinds of information editing and input, maintain, update, report generation and printing, etc. This type of users through strict use training have the more skilled computer operation ability and higher input rate of Chinese character. Request system has stronger business functions, the highly effective human-computer interaction ability, strong ability of fault tolerance error correction, etc.

**Customer service center seating member:** Seating member is the connected bridge between remote client and backend system. The quality of customer service center for customer service to a large extent depends on the overall quality of seating member as well as the availability and

usability of the communication system and information system that provided for seating member. In addition to provide multilingual language of supporting information itself for multilingual language services, the information system interface can sufficiently be developed by simplified Chinese. System requires fully functional CIT, customer information comprehensive support, information structure reasonable, content complete, easy to check and understand, fast speed of query response, all kinds of operation simple and convenient and high speed input text, etc.

System management and maintenance personnel: These users belong to advanced users of the system. The system requires to provide powerful tools and platforms such as system management, configuration management, system diagnosis, performance adjustment, data backup and failure recovery, and provide the necessary secondary development platform, system interface specification, the complete technical documentation, etc. Therefore, can directly use the C/S structure to develop the relevant application program based on the principle of efficiency and function first.

## 2. 2 INSTITUTION FUNCTION ANALYSIS

From the angle of logic function of the system, the relevant institutions using this system includes management center, information center, customer service center, press center, exhibition center, dispatch center and reception center, etc, just as Fig. 2 shown.

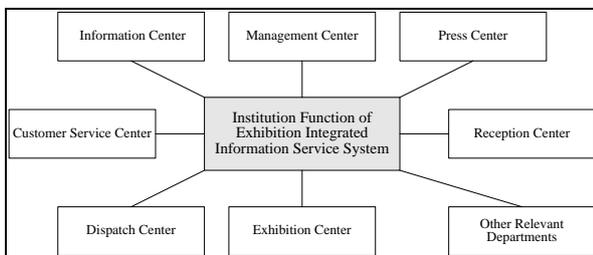


FIGURE 2 Institution Function of Exhibition Integrated Information Service System

Management center: Management center is the organization and management agency of exhibition, mainly responsible for expo promotion, inviting businesses and exhibitors, market development, external liaison and comprehensive coordination, etc.

Information center: Responsible for system management, system maintenance, information collection, information release, data storage, data exchange and Internet access, etc. It is the core and soul of the integrated information service system.

Customer service center: By telephone voice, SMS and other ways provide information consultation, business online handle, service quality complaints, staff scheduling command, online voice translation, information on

demand, SMS customization and personnel notification and visits and other services to customers.

Press center: Responsible for the reporter reception, news gathering and editing, news release and content delivery, etc.

Exhibition center: Provide booth and exhibit management, exhibition decoration services, tickets and entrance guard management, advertisement management, touch screen query system, demonstration and display system and so on for exhibition.

Dispatch center: By phone (mobile phone), SMS, interphone and other ways, command, schedule and comprehensively coordinate staff, vehicles, equipment and other resources of the various activities during the exhibition.

Reception center: Responsible for the reception of exhibitors, buyers, and specially invited guests and other kinds of guests, provide accommodation, catering, transport, exhibition, negotiation, information and other comprehensive services.

Other relevant departments: Include the customs, port, airport, station, etc.

## 3 System structure of exhibition integrated service information system

Exhibition integrated service information system is designed around the goal of digital information resources, exhibition services and related business services network, to realize convention and exhibition business process informatization. It can apply mature technology in the industry at present and emerging IT communications technology haven broad prospects for development (a variety of communication technology integration, XML standard information exchange, network-based call center to achieve, virtual exhibition technology applications, etc.) to integrate exhibition integrated service content, including exhibition service, information service, activity management and customer service, providing professional consulting, service and communication. Providing exhibition service, information service, activity management and customer service four platforms integrates efficient and convenient, diversified communication means [5]. Using modern computer network technology package and expand the traditional services content, capabilities and scope and realize the integration, intelligence and networking of exhibition and the information services based on exhibition.

Exhibition integrated service information system mainly includes: communication service platform, operation service platform, application service platform and security service platform. Among them: communication service platform includes network system, CTI system, SMS system and video conference system. Operation service platform includes server and data backup facilities and operating system, database, middleware, backup software and other system software needed to run [6]. Application

service platform includes exhibition service platform, information service platform, activity management platform and customer service platform. Application service includes exhibition business management system, exhibition site management system, trade matching system and online interactive exhibition system of exhibition service platform; information service platform includes information gathering, editing and issuing system, network broadcast system, network interactive system and adver-

tising management system; activity management platform of resource management system, activity plan system, dispatching command system; customer service platform of customer relationship management system, business travel service system, etc. Security service platform includes: antivirus, network intrusion detection, network security audit, data backup and other system [7]. Concrete structure is shown in Fig. 3.

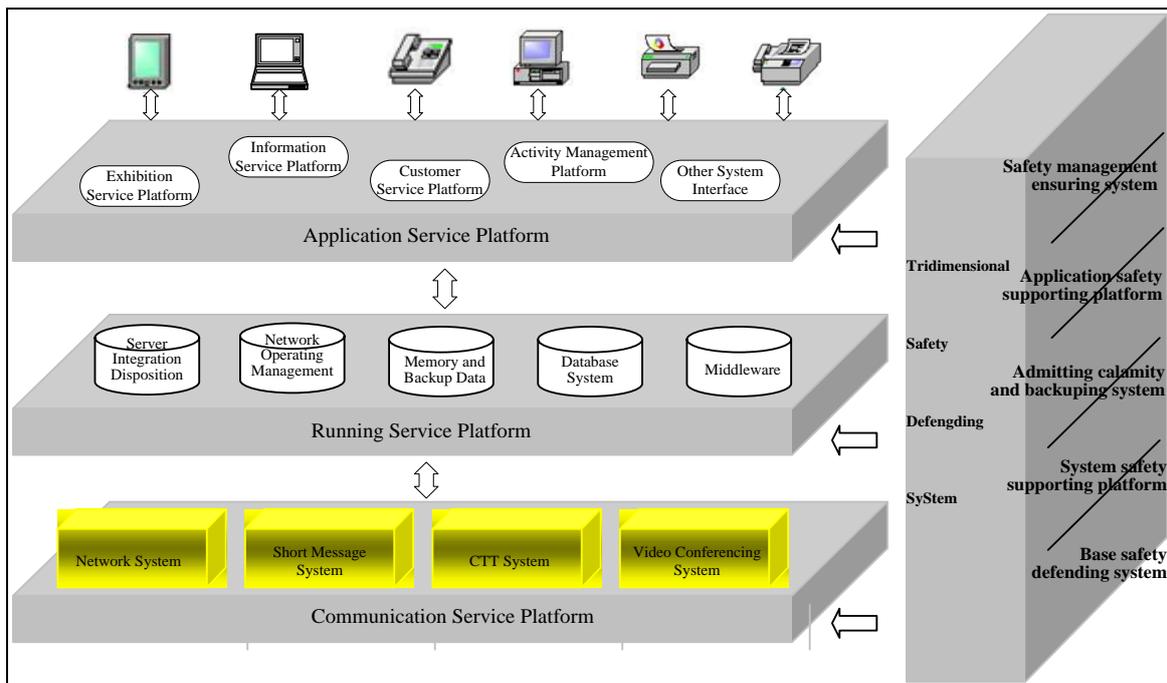


FIGURE 3 System Structure of Exhibition Information Service System

**Application service platform:** Through consolidation and integration of all kinds of information, data, applications and services existed in internal, make them form all kinds of applications and services faced different service objects, including exhibition service platform, information service platform, activity management platform and customer service platform four big application platform.

**Operation service platform:** The foundation platform of Supporting the application system running. Include data storage and backup, database system, server integration and configuration, network operation management, as well as application integration system for data exchanging and application system integration.

**Communication service platform:** Communication platform provides multiple interactive access methods of access system for service object of the system, including the Internet, voice, SMS, video, etc.

**Security service platform:** System security protection system is an important link of the exhibition integrated information service system construction. It covers all aspects of the total application framework system, forming a protection system top-down throughout the entire system platform. Include: security isolation of data store in the

running platform, data encryption management in the application integration system(VPN, encrypted transmission), authorization, authentication and signature of application system layer, firewall of communication platform and active intrusion detection, security vulnerability scanning and virus protection, etc.

#### 4 Design analysis of exhibition integrated service information system

##### 4. 1 OVERALL DESIGN OF COMMUNICATION PLATFORM

Exhibition integrated information service system is an integrated application platform, it requires that network system has a high speed data exchange, IDC center, IP phone video conference, video on demand, mail service, and file transfer service, and other functions [8]. Due to the information of transmission on the Internet is not just text and images, but also high bandwidth data stream such as voice and video, therefore, the construction of the network requires high bandwidth, high speed, at the same time the following characteristics: high reliability, high security,

easy extensibility, easy to upgrade, requires network can operate in high speed, reliably and safely.

Communication platform will use network, SMS and voice three access ways to integrate, in order to provide diversified and personalized information transmission means for comprehensive information services. Custo-

mers can through the network IP phone/fax, WEB voice, PDA, SMS text messaging on mobile phones and other diversified and personalized ways interact information with facilitating agency with no restricted by time and space and low cost [9]. Network structure of the communication platform design is shown in figure 4.

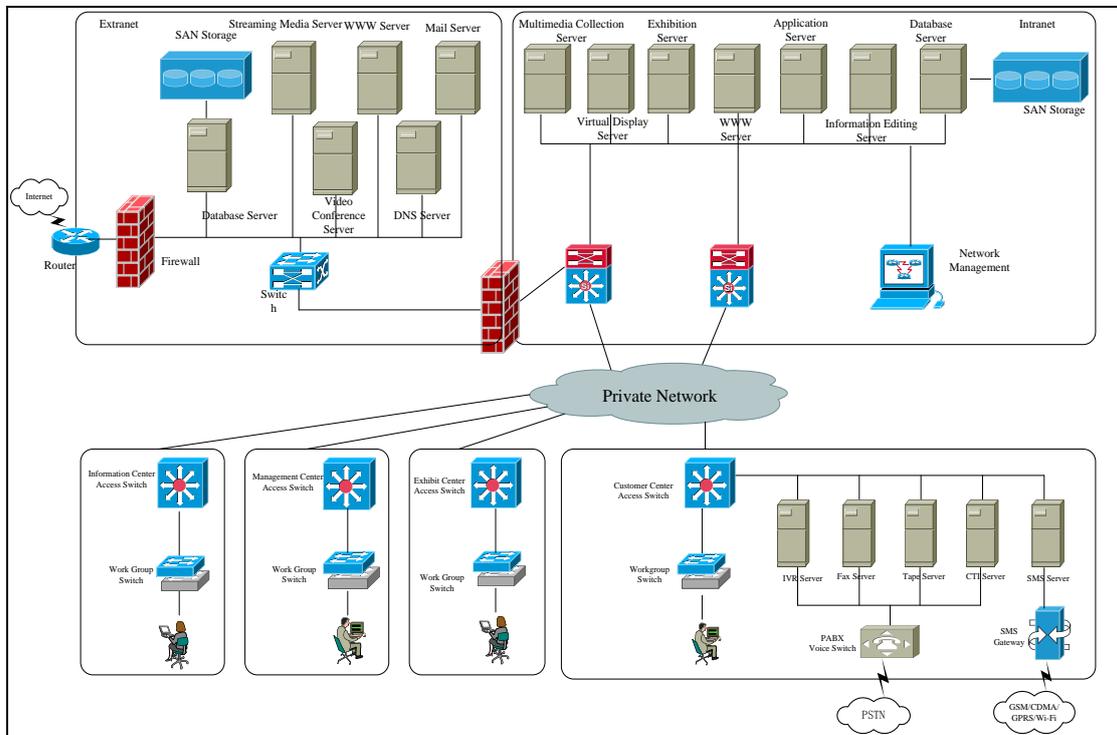


FIGURE 4 Network Structure of Communication Platform of Exhibition Information Service System

4. 2 OVERALL DESIGN OF OPERATION PLATFORM

Operation platform is the computer system built on communication platform, they reciprocally communicate through the network , and ultimately provide service for the upper application system [10]. Operation platform include the server and data backup facilities, operating system, database, middleware, and backup software.

Application system overall design: Exhibition integrated service information system apply mature technology in the industry at present and emerging IT communications technology haven broad prospects for development(a variety of communication technology integration, XML standard information exchange, network-based call center to achieve, virtual exhibition technology applications, etc. ) to integrate exhibition integrated service content, including exhibition service, information service, activity management and customer service, providing professional consulting, service and communication. The system provides exhibition service, business service, logistics service and information service four platform, integrates efficient convenience and various forms of communication means, using modern computer network technology package and

expand the traditional services content, capabilities and scope and realize the integration, intelligence and networking of exhibition and the information services based on exhibition. Application system structure is shown in Fig. 5.

Application system function structure: Application system includes four application service management platform and thirteen application system, and function structure is shown in Fig. 6.

Four application service platform include: exhibition service platform, information service platform, activity management platform, customer service platform. Thirteen application systems include: exhibition business management system, exhibition site management system, trade matching system and online interactive exhibition system of exhibition service platform; information service platform includes information gathering, editing and issuing system, network broadcast system(graphic live, video broadcast), network interactive system(mail subscription system, SMS service system, guest chat room), advertising management system; activity management platform of resource management system, activity plan system, dispatching command system; customer service platform of customer relationship management system, business travel service system, etc.

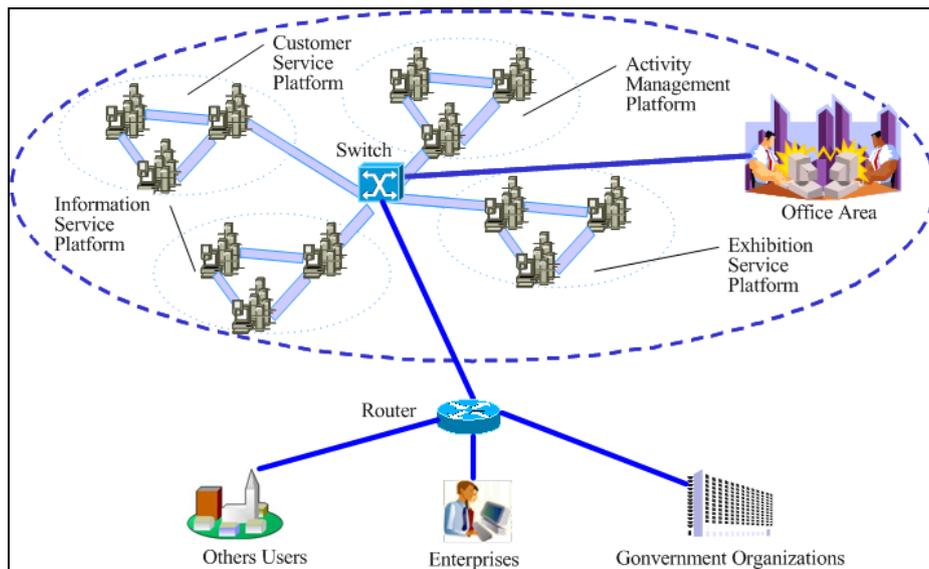


FIGURE 5 System Structure of Application System

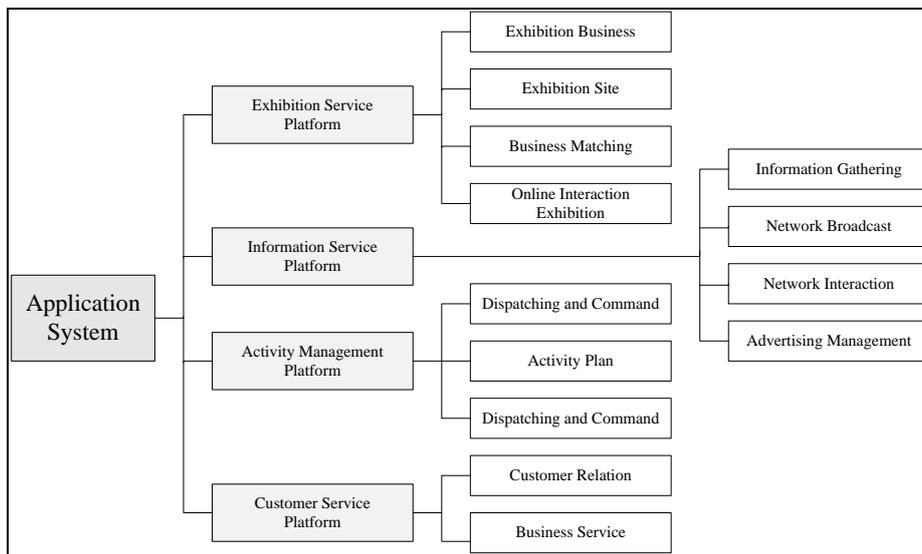


FIGURE 6 Function Structure of Application System

**Conclusion**

Using information technology construct exhibition integrated information service system and integrated information service platform which is based on exhibition and takes regional enterprises as the main service object, to realize the regional enterprise integrated information service resources digitization, exhibition services, business services and logistics service network, integrated information service scientization and internationalization and to achieve the goal of regional enterprise integrated information service sharing, scientific decision-making and management efficiency. The application of exhibition integrated information service system can give play to the leading role of exhibition information service and technology, drive the realization of regional enterprise business process informatization, promote the coordinated development of

regional enterprise supply chain, promote regional economic development, drive the application of small and medium-sized enterprise information technology, to further improve the level of enterprise information technology application, effectively enhance the competitiveness and innovation of small and medium-sized enterprises.

**Acknowledgments**

This paper was supported by NSFC (71272207, 71301150, U1304705, U1404704), NSSF 13BGL061, 10YJC630326 and 14YJC630126 (Humanity and Social Science Foundation of Ministry of Education).

This paper was supported by Science and Technology Research key project in Henan province department of education (No. 14A630053) and the humanity and social science research projects in Henan province department of education (2014-GH-057).

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