Research on the strategy of smart logistics service system construction of colleges and universities in the new period

Runeng Zhong*, Zhongli Sun, Ken Chen

Logistics Support Service Center of Yunnan Normal University, Kunming, China

*zhong_rn@126.com

Abstract. The high-quality development of colleges and universities needs the support of high-quality logistics service system. In order to effectively solve the practical problem of the transformation of university campus service demand to high-quality and diversification, a new way of smart university logistics service supported by information technology is put forward. This paper analyzes the connotation and function of smart logistics in colleges and universities, studies the restriction factors, design principles, system structure and business projects of smart logistics planning and design, and puts forward the specific measures to realize the construction of smart logistics in colleges and universities.

Keywords: University logistics, Smart service, Countermeasure thinking, Realization path

1   Introduction

University logistics is an important guarantee for the normal development of the work, study and life of teachers and students in colleges and universities. It plays an important role in serving education, environmental education and maintaining campus stability and safety. After decades of exploration, Chinese universities have initially established a logistics service system to meet the needs of the development of higher education, which provides a strong support and guarantee for the development of higher education[1]. However, with the change of social life style and the advent of information age, university logistics operation mode and service object have changed, how to meet the quality, diversified campus service needs of teachers and students become the new era of university logistics workers facing realistic problems, based on the concept of "wisdom" and its technical path to build smart logistics service system, is the development direction of university logistics management and service in the future[2].

2   The connotation and function of smart logistics in colleges and universities

Smart logistics is a way of intelligent optimization management of logistics, supply chain and other logistics services supported by the support of the Internet of Things, artificial intelligence, big data, cloud computing, block-chain and other information technologies[3]. Through the intelligent self-perception, self-adaptation and self-optimization of the human, material and logistics management function system of universities, the logistics needs can manage and serve comprehensively, efficiently and accurately, and realize the comprehensive and in-depth perception of logistics services, the interconnection of broadband ubiquitous, the application of intelligent integration and sustainable innovation. Smart logistics construction is the logistics affairs as the management object, college teachers and students as the service object, by optimizing the logistics service mode, with the most intelligent equipment and its application system, for teachers and students with more convenient learning equipment, more safe campus learning environment, more superior communication way, meet the demand of teachers and students more school security, the ultimate goal is to realize the depth of the information technology and logistics services, promote the transformation and upgrading of logistics service work.

Smart logistics is characterized by data, intelligent and personalized, which can improve production efficiency, reduce costs and optimize resource allocation[4]. Compared with the traditional logistics service mode, it has the following functions and advantages. First, relying on information technology, it can comprehensively, efficiently and accurately carry out logistics management and service, with a high degree of information; Second, through data analysis and prediction model, it can help universities to develop more scientific and reasonable logistics management strategies and improve management efficiency and operation efficiency[4]. Third, the use of smart logistics technology can conduct real-time monitoring and early warning of the management process, timely find and solve hidden security problems, and provide personalized service and better service experience for teachers and students. Fourth, it can realize data sharing, facilitate the cooperation and information exchange among various departments, and improve the comprehensive governance ability of universities.

3   Planning and design of the smart logistics system in colleges and universities

Intelligent logistics construction is a systematic engineering highly integrating technology and service, which can be planned and designed as shown in Figure 1.

3.1   Constraint factors in the implementation process of smart logistics

The construction of smart logistics is a systematic project, which may be restricted by many aspects for ordinary colleges and universities. First, the shortage of investment

funds, it is difficult to bear the hardware and software costs of logistics facilities reno-vation. Second, logistics business types and large scale, it is difficult to collect basic information. Third, there is a lack of reference balance between the service needs of teachers and students and their own privacy protection under the transparent monitoring system. Fourth, there is a lack of professional talents in smart logistics, and the depend-ence on talents is too much.
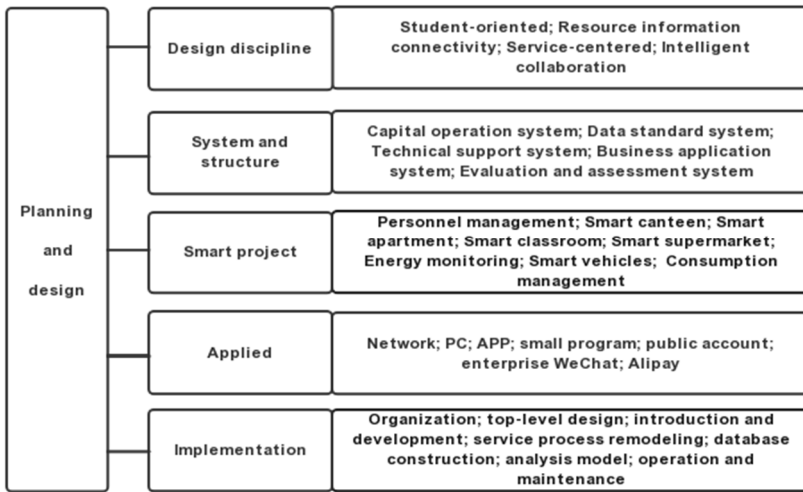

Fig. 1. Planning and design ideas of the intelligent logistics system in colleges and universities

3.2   Design principles of smart logistics in universities

First, we should take students as the center, take students and teachers as the main body of the comprehensive governance of colleges and universities, respect, rely on, facili-tate and develop teachers and students, meet the diverse needs of teachers and students, and let teachers and students become the real beneficiaries[5]. Second, through the in-terconnection of information resources, we should meet the various needs of teachers and students, and provide convenient services for their study, life and teaching. Third, we should focus on service, emphasize service efficiency, and realize high service ef-ficiency. Fourth, it is necessary to highly coordinate the different departments and sub-jects involved in logistics services to achieve intelligent coordination.

3.3   smart logistics architecture structure of universities

First, to establish the smart logistics capital operation system, through a variety of meth-ods to raise the required funds. Second, to establish an smart logistics data standard system, clarifying various technical standards, data standards, technical procedures and

operating procedures unified with the national standards[3]. Third, we should build the support system of smart logistics technology, and establish the basic technology based on the ubiquitous technology of university logistics communication technology, the popularization of Internet technology and the development of embedded technology[6]. Fourth, the construction of smart logistics business application system, the perfect business application as the driving force and foothold of the construction of smart logistics. Fifth, the establishment of smart logistics evaluation and assessment system, through the evaluation index system and evaluation method, from the perspective of standard construction, income analysis, application effectiveness and technical applicability of a comprehensive and objective comprehensive evaluation.

3.4 Project design of university smart logistics

Taking the content of the existing logistics business of a university in southwest China as the observation point, the design of the business project can be divided into the following parts. First, personnel management application: there is no need to supervise the attendance and work performance of logistics staff. Second, smart canteen: adopt the client takeout ordering, smart dining table settlement system, intelligent ordering system and other dining methods to realize the upgrade and optimization of canteen management service. Third, smart classroom: using infrared human sensor integrated module to detect human activities, and launch the classroom automatic energy control system. Fourth, smart apartment: based on the Internet of Things technology, complete the closed-loop information exchange among various parties, and integrate the concept of campus apartment culture, smart logistics and green campus construction[4]. Fifth, smart supermarket: adopt the application of target detection technology, big data and cloud computing to realize the self-service shopping process. Sixth, maintenance management: to realize the remote repair report and the whole process management of the maintenance process. Seventh, the energy saving supervision system: to realize the remote monitoring of the whole school water and electricity line operation. Eighth, official vehicles management: realize the intelligence of vehicle application, registration, reporting, monitoring and settlement. Ninth, consumption management: through the one-card, timely grasp the consumption status of students in the campus canteen, bathhouse, supermarket, laundry, entertainment and other activities. Ten is the front-end application: based on the department website, the construction of multi-form, multi-port, multi-functional application platform with PC terminal, APP, small program, public account, enterprise We-chat, pay treasure and other carriers as the carrier, to realize the mobile interconnection of people, machines and things.

4 The realization path of university smart logistics

First, a special working group should be set up to fully investigate the needs and expectations of students, formulate the smart logistics construction plan of universities, strengthen the top-level system design, and clarify the objectives, tasks and time nodes, so as to provide comprehensive guidance for the follow-up construction. Second, Adopt

the principle of "the combination of imported technology and independent development"[7],To build a basic platform integrating information collection, storage, exchange, sharing, governance, analysis, application and other functions, relying on the smart campus platform, realize the sharing of all kinds of database information, combine teaching, life, security, management, communication and other information modules to realize data exchange and resource sharing[8].Third, focus on the remodeling and optimization of the service process, carry out the transformation of the logistics digital process, implement digital management from the procurement, storage, distribution and other links, build a comprehensive, refined, wide coverage of the information service system, improve work efficiency and reduce costs. Fourth, pay attention to the construction of database, strengthen the construction and backup maintenance of hardware equipment, strengthen the education of data security use and protection, realize the convenience, simplification and sharing of information system, and protect the personal information security of teachers and students. Fifth, establish data analysis and prediction model, dynamic analysis of data, guided by the needs of teachers and students, according to the needs of different service objects, optimize the logistics service process, and try to introduce more intelligent equipment and technical means[9]. Six is according to the demand change to introduce professionals to strengthen database security maintenance and operation development, the introduction of high-tech products, strengthen the depth of the application in logistics service, promote artificial intelligence technology in logistics services, improve staff quality and technical level, comprehensively promote the wisdom logistics construction.

5   Conclusions

In general, intelligent service is a new thing born in response to the development of the times[10]. Developing intelligent logistics construction can improve the efficiency, quality and level of logistics management and service in colleges and universities, meet the new expectations of teachers and students for a better campus life, and realize the goal of service and environmental education. In the future development, the integration with 5G, cloud computing, Internet of Things, artificial intelligence and other technologies to create a high-speed and low-delay intelligent campus ecosystem is the development goal of improving the level of internal control and security management of colleges and universities. College workers must examine the new needs of campus services and the new progress of information technology in the new era from the perspective of development, and make scientific planning, standardized planning and overall promotion, so as to give full play to the function of intelligent logistics in management and service education.

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