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Research on the O2O Model of Traditional Library Collection Information Services in the "Internet Plus" Environment: Postprint

Authors: Zhang Lu, Wang Ping, Chen Weidong, Zhang Weidong

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Abstract

[Objective/Significance] In response to practical issues such as obstructed user service channels, inadequate outreach to target users, and low utilization rates of collection resources in cultural heritage institutions including libraries, museums, and archives (hereinafter referred to as "LAMs"), this study explores the feasibility of an online-to-offline service model based on "Internet Plus traditional collection information services." [Method/Process] Through literature review, this paper theoretically analyzes the lag of traditional models and the applicability of O2O models in the LAM domain, and illustrates the current application status of "online-to-offline" service approaches in domestic cultural heritage institutions. It proposes a traditional collection O2O information service model, elucidates its connotation, elements, and forms, and examines its practical operational conditions and service workflows. [Result/Conclusion] Cultural heritage institutions are proactively adapting to the transformations of the digital era; the traditional collection O2O information service model aligns with this trend of change and proves beneficial for both user service development and the transformation of physical institutions.

Full Text

Preamble

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Research on O2O Model for Traditional Collection Information Services in the "Internet+" Environment

Zhang Lu, Wang Ping, Chen Weidong, Zhang Weidong
School of Management, Jilin University, Changchun 130022

Abstract

[**Purpose/Significance**] Aimed at addressing practical problems in cultural heritage institutions such as libraries, museums, and archives (collectively referred to as “LAMs”), including blocked user service channels, insufficient contact with target users, and low utilization rates of collection resources, this paper explores the feasibility of an online-to-offline service model based on “Internet+ traditional collection information services.”

[**Method/Process**] Through literature review, we theoretically analyze the lag of traditional models and the applicability of the O2O model in the LAM field, and illustrate the current application status of “online-to-offline” service methods in domestic cultural heritage institutions. We propose a traditional collection O2O information service model, explain its connotation, elements, and forms, and discuss its practical operation and service processes.

[**Result/Conclusion**] Cultural heritage institutions are actively adapting to the changes of the digital age. The traditional collection O2O information service model aligns with this trend of change and is beneficial for both user service development and physical institution transformation.

Keywords: traditional collection; information service; O2O model; Internet+
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Introduction

The “Internet+” action plan aims to optimize the simple application of Internet innovation elements in traditional social sectors, promote the vigorous development of China’s real economy, transform and upgrade public services, and enable open sharing of public information resources. Libraries, museums, and archives (collectively referred to as “LAMs”) serve as important components of public cultural services, bearing the functions of inheriting innovative achievements of social civilization and regional development memories, integrating massive LAM information resources, and extracting and disseminating secondary information about rare collection resources. The most fundamental of these is to effectively provide users with collection information services. However, in the Internet environment, traditional collection information service methods have become contradictory to people’s information demand habits that require speed, simplicity, efficiency, and precision. There is an urgent need to introduce innovative Internet products and industrial operation models to improve this situation, which has practical significance in LAM information services and warrants investigation.

1 Feasibility of Traditional Collection O2O Information Service Model

1.1 Traditional Model and Its Lag

Traditional collections primarily refer to physical items preserved in cultural heritage institutions. Compared with online resources, they require substantial physical space and consist mainly of recorded and physical information sources [3], including paper materials, cultural relics, and other tangible objects. This study takes libraries, museums, and archives as representative cultural heritage institutions for investigation. Traditional physical institution service models and processes require users to be “physically present on site” before they can query needed collection information or obtain access. Cultural heritage institutions need to provide users with higher quality and more precise visitation qualifications. This service approach has gradually revealed certain lags in the Internet age: (1) Information asymmetry between users and physical institutions often causes users to waste time and energy traveling between institutions yet still fail to obtain needed services, resulting in waste of effective resources for both parties; (2) Potential users often do not understand the distribution and utilization methods of collection resources, and the lack of online information channels hinders the transformation of their needs. Additionally, although some collection resources can currently be delivered to users through virtual digitalization via networks, they still suffer from the following limitations: (1) Remote utilization of LAM collections faces inherent constraints in carrier format, transmission security, intellectual property rights, user social experience, budget, and technology; (2) The collection resources of museums and archives possess special characteristics, making complete digital information delivery and cultural exchange services impractical. Therefore, traditional collection information service models have become disconnected from Internet trends, and it is necessary to explore new models to serve users in the new era.

1.2 Overview of O2O Model

The O2O model is primarily applied in the tertiary sector, and its concept originated abroad. On August 7, 2010, R. Alex stated on TechCrunch that the key to O2O is to discover consumers online and bring them into physical stores. Based on local life services, it has lower marginal costs and better social experiences than traditional B2C [4]. In China, the practical application of O2O preceded the introduction of the concept itself. From Ctrip (1999) and Dianping (2003) to Meituan (2010), Didi Dache (2012), and Suning’s online-offline same-price strategy (2013), until early 2016 when Meituan-Dianping completed the world’s largest O2O financing project [5], the enormous development potential demonstrated by O2O in the localized services and experiential product markets aligns precisely with the fundamental point of cultural heritage institutions providing users with information services or cultural experiences.

Broadly speaking, any business model in which the entire process of commercial activities simultaneously involves both online and offline interaction is collectively referred to as the O2O model, without strictly limiting the start and end points, direction, or whether it forms a closed loop. Narrowly speaking, the O2O model refers to a business model that begins with online channel traffic generation and order confirmation and ends with users obtaining services or products offline.

1.3 Feasibility of O2O Model

Libraries, museums, and archives are representative institutions in the field of public cultural services, and it is necessary to consider the transformation and upgrading of collection information utilization in the Internet era. The O2O model not only conforms to the experiential service forms of LAMs but also meets the needs of users for information acquisition and industry development in the network age, making it a feasible solution.

1.3.1 Policy and Economic Level The Chinese government supports the deep application of the Internet in real industries and vigorously advocates the implementation of "Internet+", issuing a series of guiding documents such as the *Guiding Opinions of the State Council on Actively Promoting Internet+ Action*. Particularly, the *Opinions on Promoting Online-Offline Interaction to Accelerate Innovation and Transformation in Commercial Circulation* issued in September 2015 elevated the O2O model to a policy high ground. According to statistics from the Ministry of Commerce, in the first half of 2016, China's O2O market size reached 304.94 billion yuan, an 80% year-on-year increase [5], and such rapid growth cannot be separated from policy encouragement. Cultural heritage institutions such as LAMs possess inherent resource advantages and can follow policy guidance to introduce the O2O model based on their favorable conditions, enabling O2O projects that embody "Internet+ traditional collection information services" to obtain government financial support. At the same time, since these institutions provide public services, they can consider leveraging social capital when building O2O platforms, that is, adopting public-private partnership models to establish the platform.

1.3.2 Organizational and Technical Level The O2O model has four core characteristics that distinguish it from physical commerce and traditional e-commerce: (1) It takes the real economy as its primary prerequisite, first relying on the support of offline physical stores where consumers ultimately consume [6], with logistics and commercial flow occurring offline, reducing the sense of distance and virtuality in online transactions. This also distinguishes the O2O model from ordinary e-commerce; (2) It takes online transactions as the fundamental approach, with full payment processes electronically online, ensuring the formation of a commercial closed loop, with capital flow and information flow moving online, which distinguishes it from traditional physical industry operations; (3) It generally takes the regional local area as its scope, essentially possessing LBS (location-based service) characteristics, providing services to specific regions through user positioning; (4) It takes precision marketing as the optimal strategy, completely obtaining consumer behavior data throughout the entire process to conduct highly targeted personalized marketing.

These characteristics of the O2O model match the features of collection information services in cultural heritage institutions, manifested as: (1) The information services of LAM institutions are generally supported by corresponding physical institutions, which conforms to the O2O model's characteristic of being based on the real economy. Particularly for museums and archives, due to the uniqueness and rarity of their resources, they are not suitable for being handled by third parties, which determines that B2C and other service models relying on logistics without offline physical entities are not applicable. (2) Most cultural heritage institutions already have relatively well-structured or under-construction websites serving as information query platforms, similar to O2O's online information release and traffic generation. Taking archives as an example, among the 31 provincial, autonomous region, and municipality archives nationwide (excluding Hong Kong, Macau, and Taiwan), 16 provide clear appointment entrances for archive consultation, among which five including Jiangxi, Zhejiang, and Sichuan archives have explicit public appointment responses. Although Beijing and Fujian archives have no responses, the overall query experience is relatively smooth and detailed. The official websites of the other 15 archives basically have no appointment function, but Tianjin has full-text online archive reading, Chongqing and Hunan have relatively detailed online exchanges, and Guizhou has online appointment exchange examples but with unclear specific entrances. Although there are gaps in the level of online information interaction and appointment-to-visit services offered by various cultural heritage institutions, and some modules and actual functions remain to be implemented, they are very similar to online orders in the O2O model, indicating that they have a good foundation for applying the O2O model and can completely provide convenient and humanized services from online to offline. (3) The territorial nature of cultural heritage institutions is suitable for the O2O model. A major characteristic of the O2O model is that its service scope is generally limited to local areas, and libraries, museums, and archives also follow the principle of territorial management because their collection resources and on-site users generally originate from their jurisdiction [7]. Particularly for museums and archives, due to the special nature of their collection resources, they are generally not available for borrowing except under special circumstances, making the O2O model suitable for this "localized" and "institution-based" nature.

In summary, the O2O model is more suitable for collection information services in the network environment and is of great significance for promoting diversified services in LAMs.

2 Traditional Collection O2O Information Service Model

2.1 Definition and Functional Positioning

In foreign practices, the concept of online-to-offline integration of LAM resources has already been reflected. For example, the U.S. National Archives and Records Administration provides users with classified retrieval services while its physical resources are stored in the National Archives and other central-level archives and records centers. The UK's Archives and Collections Online project also performs well [8]. Research on the applicability of O2O in the domestic LAM field is still in its infancy. In the library sector, scholars have proposed, based on the "Internet+" background, that the O2O model is a feasible solution for library service transformation [9-11], and have focused on exploring the status, problems, methods, and strategies of library O2O services [12-13]. At the practical application level of O2O, research has been conducted on specific contexts such as urban libraries and university libraries [14-16], and flexibly proposed a reverse O2O service model in discussions about QR code applications in libraries [17]. Regarding library O2O services, Tao Shucheng et al. [18] defined it as libraries using online promotion and interaction to attract readers, thereby promoting their utilization of offline resources and services. Related research in the museum and archive fields is relatively scarce. Zhang Qian [19] added an O2O module to the university archive user behavior big data system; Tian Zhongqiang et al. [7] defined archive O2O service as follows: using the Internet as the front-end carrier for archive services to organically combine online virtual archive services with offline physical archive services to complete the entire archive service process.

Summarizing existing research, O2O research in the library field started relatively early, covers a wide range, and has relatively mature related technologies and concepts. Although the O2O model has universality in the LAM field, there has been no research from the overall perspective of cultural heritage institutions, and there is a lack of in-depth research on specific operation methods and practical operation models. Combining the connotations of O2O services in libraries and archives, the authors define the traditional collection O2O information service model as: collection information services use the Internet as a platform to attract users through online traffic generation, enabling them to search and make appointments online, and then experience needed services or obtain collection resources in physical institutions with electronic credentials.

The functions of the traditional collection O2O information service model can be positioned as: (1) Aggregating information resources within the field and shifting and gathering service channels and user entrances online; (2) Combining online and offline to build convenient bridges between physical institutions and users, providing convenience for users; (3) Solving information imbalance problems between institutions and between institutions and users, avoiding information channel blockage; (4) Increasing user stickiness and activity of cultural heritage institutions in the network environment.

2.2 Core Elements

The traditional collection O2O information service model contains three core elements, among which there are connections and interactions, generating various directional flows driven by purposes. These elements are:

2.2.1 Users For libraries, museums, and archives, users refer to all individuals who may potentially engage in collection information utilization behaviors. In the new media era, LAM users' requirements for experience and scene construction have reached new heights, such as obtaining the latest and highest-quality collection information push and updates through mobile terminals; enjoying intelligent, fast, and simple on-site utilization and experience processes; and satisfying personalized and ubiquitous service demands.

2.2.2 Physical Institutions Physical institutions (covering collections and cultural activities) are supporting elements. The digital collection information queried by users on O2O platforms and the various paid or unpaid services reserved will ultimately be delivered as actual resources or experiences by physical institutions. Physical institutions can not only provide reservations for regular services on the platform but also hold paid activities (such as special collection exhibitions, expert lectures, knowledge and skills training, in-depth disciplinary information consultation, etc.) and guide users to make reservations through the O2O platform.

2.2.3 Physical Institution O2O Information Service Platform The physical institution O2O information service platform can be directly operated by libraries, museums, or archives, or can be developed and maintained by third parties. The platform serves as an information intermediary, connecting online and offline users and physical institutions. Its basic functions mainly include: (1) Information provision. In addition to providing classified collection resource information of relevant LAM physical institutions, it can also publish cultural activity information such as special exhibitions and training lectures of physical institutions. (2) Order confirmation. It provides users with on-site appointment functions, allowing users to confirm their reserved service or activity forms on the O2O platform, which are then sent to the corresponding physical institution by the platform. If the service is paid, users need to pay online. (3) Online feedback and information analysis. Users provide feedback and share their experiences of physical institutions through the O2O platform. Simultaneously, the platform helps physical institutions mine target user needs based on data, thereby making targeted adjustments to offline collection resources and services [20]. In the network environment, more unique Internet elements should be integrated into the model with an open and interconnected attitude around the above core elements.

2.3 Traditional Collection O2O Information Service Model in Network Environment

2.3.1 Conceptual Level: From Core O2O Model to Open Interconnection In the "Internet+" environment characterized by openness, interaction, cross-boundary, connection, and integration, the distance between people is shrinking, and industry peripheral barriers are constantly being broken and reorganized. Cultural heritage institutions, being in such a wave, should present characteristics of the interconnected era in their online-to-offline services, extending cooperation scope and flexibly carrying out services. Especially, the boundaries of online services should not be limited to a certain service of a single physical institution but should take "people" as the origin, face new-era users, and strive to provide three-dimensional, networked O2O information services, as shown in Figure 1 [Figure 1: see original paper]. This three-dimensional networked O2O service structure runs through front-end marketing, back-end business chains, and feedback, focusing on mining user needs and guiding user experiences. On the basis of the core O2O model composed of "user-physical institution-O2O platform", extensive interconnection with other Internet elements creates connections among countless users and physical institutions.

For example, through connection with network search platforms, O2O platforms can conduct front-end promotion. If a user searches for and wants to purchase an expensive book, and the search results prioritize presenting copies available in nearby libraries that can be reserved for browsing through the library's O2O platform, it provides users with good channels for collection utilization. Physical institution O2O platforms can also connect to online geographic information systems, using user positioning to determine whether other nearby physical institutions have target resources and recommend optimized routes and methods for collection utilization, thereby strengthening inter-institutional connectivity and rationally allocating resources. Meanwhile, open interconnection is also reflected in purchasing cultural derivative products and compilation research results of physical institutions from offline to online, and even revealing collection utilization situations through analysis of user information behavior data on O2O platforms to provide references for publishing, sales, and other industries. These interconnected services are all closely related to technologies such as mobile Internet, cloud computing, and the Internet of Things.

2.3.2 Structural Level: From Decentralized to Integrated Model Currently, domestic traditional collection O2O information services mainly adopt a decentralized model, where one physical institution corresponds to a separate online O2O platform, and the target user group of that platform is the potential demanders of the resources and activities held by the corresponding physical institution. Platforms are independent of each other, and users often need to search and filter through multiple sources to obtain needed collection information services. Currently, numerous institutions have implemented decentralized O2O services. For example, the National Museum provides visitors with online appointment, offline ticket checking, and experience services; Nanjing Museum provides appointment services for public cultural activities such as offline intangible cultural heritage experiences and Chinese culture classrooms, including themed activities like "A Toast to the River Moon—Wisdom in Ancient Drinking Vessels" and "Peter the Great and the Russian Empire"; the Palace Museum began trial implementation of all-online ticket sales in July 2017 and officially implemented it in late October, setting up fixed consultation desks to help users transition and adapt to this business method. Cultural heritage institutions adopt this approach to improve visitation order, predict visitor numbers, save waiting time, and enhance on-site user experience quality.

Physical institutions choose the decentralized O2O service model mainly because they already have independent online information platforms and only need to further excavate and build upon the existing foundation, or rely on third-party public platforms to conduct business. This generally does not involve large-scale investment, resource reorganization, business chain reconstruction, or complex system development. However, in the long run, constrained by the resources and audience scope of a single physical institution, the functions and service capabilities of the O2O platform are also difficult to expand. In the future, not only will the collection resources of physical institutions gradually open up, but inter-institutional connections and interactions will also become increasingly close and frequent. The Internet provides opportunities for geographically distributed physical institutions to conduct inter-institutional co-construction and sharing, thus consideration should be given to how to better utilize this shift from decentralization to integrated interconnection.

The integrated O2O service model refers to a many-to-one-to-many mapping relationship among physical institutions, O2O platforms, and users. As shown in Figure 2 [Figure 2: see original paper], the data and service lists provided to users by the integrated physical institution O2O platform are generated after processing and reorganizing the collection information catalogs and activity data of various institutions. Due to its large scale, the platform can adopt specialized e-commerce (active server pages) application forms [21] for implementation, that is, cultural heritage institutions outsource information system development, operation, and maintenance work to ASPs, while physical institutions only provide user services and pay rent to the ASPs. In addition to obtaining specific service content from different physical institutions, users can also conduct one-stop retrieval of distributed collections and compare factors such as opening hours, locations, and service quality of various institutions.

Currently, only a few LAM institutions are attempting such resource integration, and most are not well-developed, generally stopping at the online level. For example, the "National Open Archives Information Resource Management and Sharing Utilization Comprehensive System Construction Project" by the Archives Science and Technology Research Institute of the State Archives Administration has established the "China Open Archives Sharing Platform" by integrating open archives information resources from 50 national comprehensive archives and some prefecture-level, county-level, and professional archives, providing Internet query and utilization services. Relying on the platform, it establishes comprehensive archive information management systems for archives in underdeveloped areas and provides remote backup services [22]. The platform has one central cloud center and six local branch centers, obtaining resources from various archive platforms through open interconnection, and has the potential to apply the integrated O2O model.

The comparison between integrated and decentralized O2O service models is shown in Table 1 . The former requires more capital and manpower investment and is more complex and difficult to implement, but if it can operate well in the long term, it is conducive to forming regional public service platforms dominated by public institutions [23]. Physical institutions distributed in a certain region can connect offline services and collect user experience feedback through a common online platform, thereby effectively gathering physical LAM resources in the region, avoiding marginalization of cultural heritage institutions, and enhancing brand value and regional radiation power.

2.3.3 Business Level: From Core Business to Value-added Business

The traditional collection O2O information service model is driven by "user-oriented" interactive service business, as shown in Figure 3 [Figure 3: see original paper]. In the past, information services on physical institution online platforms often revolved around collections and their digital products. However, currently, the construction focus of cultural heritage institution O2O platforms should shift toward "human experience." On the basis of traditional core business, consideration should be given to developing value-added business and even broader extended business. Users access the O2O platform through network search platforms, select needed services online and obtain orders, and then experience services at physical institutions with online orders. In this process, the O2O platform takes core business as the main line, providing users with comprehensive online previews of collections and activities, appointment information reception, personalized information storage, and real-time collection information updates. These businesses originate from traditional functions of LAM institutions, such as collection or book acquisition and donation; reading, query, and visitation services provided to the public; and research consultation with strong disciplinary and professional characteristics.

However, in an open and interconnected environment, O2O platforms should not only provide online traffic entrances for the traditional functions of physical institutions but also creatively develop value-added and extended businesses. The platform can utilize network advantages for online promotion, preparation, and appointment of characteristic themed cultural activities, and encourage the "introduction" and "outflow" of user-generated content. Through connection with new media, users can not only see others' reviews of collections or activities on the O2O platform but also freely share their offline experiences on social media or personal homepages. Meanwhile, the enabling of big data technology and cross-disciplinary talents can provide users with more interesting and professional services. To fully provide users with vivid and socially interesting online-to-offline experiences, cross-regional circulation of text-based collections can also be attempted. Users in the same interest field can also schedule personal collection interloans and real-person knowledge interpretation through the O2O platform and participate in corresponding activities at offline physical institutions. O2O platform business should not be one-way but should be equalized, multi-dimensional, and allow mutual assistance among people. Thereby, the "Internet+" concept of respecting humanity and opening ecology can be brought into reality through the O2O platform throughout rich businesses, promoting the improvement of information service quality and efficiency and even the emergence of new business forms. Examples include the docking of LAM industry talents with professionals in medicine, architecture, finance, and other fields in cross-disciplinary knowledge services, as well as combined services with the logistics industry in convenient collection utilization, and even the transformation of relationship networks among various physical institutions under Internet influence. This is the key for physical institutions and their O2O platforms to bring users social experiences and value realization in the network era.

3 Specific Operation and Service Process

3.1 Operation of Traditional Collection O2O Information Service Model

Regardless of whether the meso-level adopts a decentralized or integrated service model, the specific operation and service processes are basically consistent. The difference lies only in the quantity and quality of databases, physical institutions, and staff. The specific operation of the model is shown in Figure 4 [Figure 4: see original paper]. After users generate needs for collection resources and activity information, they search on the O2O platform. First, users convert their needs into text and transmit them to the automated retrieval module. The automated retrieval module, supported by the physical institution's collection and activity database, searches for needed services and activities based on keywords. If the automated retrieval module shows that the physical institution can provide relevant services, that is, if the collection and activity database contains that record, it feeds back to the user, who confirms and generates an order. The system then sends the order to the corresponding physical institution and simultaneously sends a message accepting the order to the user. If the automated retrieval module does not obtain search results, the order is transferred to an online consultation librarian. Professional librarians manually screen and search the institution's resources. If they find the service needed by the user, they generate and send the order; if they still cannot find the needed service (due to LAM resource interlibrary loan, special or confidential collections, etc.), they explain the situation to the user and end the online collection information service.

After users receive the message that the physical institution has accepted the order, they can experience services at the institution with the electronic credential information in the order through the transportation system. Four points need attention throughout the entire process: (1) Each order should have a unique code or serial number and complete a closed loop through collecting evaluations, enabling process tracking and big data accumulation for collection information services; (2) The departments managing collection information and organizing cultural activities in physical institutions need to maintain contact with the O2O platform to ensure real-time online updates of collection data and various (paid or unpaid) activity information, and to effectively and timely process reservation forms; (3) There exist information flow, user flow, and capital flow among physical institutions, O2O platforms, and users, with information flow being bidirectional and widely present, user flow moving from users to physical institutions, and capital flow occurring in situations such as deep knowledge services, special collection utilization, and collection donations, and can flow bidirectionally between users and physical institutions; (4) After retrieval needs and orders are obtained by the platform, they are transferred to the user and form database, which establishes personal accounts for users and obtains user preferences based on their query and reservation behaviors. Subsequently, it matches information with the collection and activity database to discover and push collection resources or activities that users may need, satisfying personalized user needs. The personalized push process is indicated by dashed arrows in Figure 4. During operation, the overall schematic of the physical institution O2O information service platform that plays a bridging role is shown in Figure 5. In addition to independent O2O businesses of relevant physical institutions, the platform can also access resources and businesses of other cultural heritage institutions in the region, expanding user reach and influence through data association. It can also provide personalized collection information O2O services for users through themed service appointment windows.

3.2 Linear Service Process

The traditional collection O2O information service process is similar to the O2O service process in the commercial field. Taking libraries, museums, and archives as examples, throughout the entire linear process, the LAM O2O platform client directly faces users, while the back-end faces physical institution librarians and O2O platform managers. The LAM O2O service process has four key nodes: (1) **Online search**. Users search for needed collection information or cultural activity services on the O2O platform. The back-end should establish a collection and activity database and timely display new information to support searches. (2) **Online ordering**. LAM users confirm needed services and place orders, while the platform receives user forms and replies with credentials. It should be emphasized that collection information services and activities provided by cultural heritage institutions involve both paid and unpaid types, with paid services including professional information consultation, exhibitions, lectures, etc., requiring online payment. (3) **Offline experience**. Users obtain services at physical institutions with orders based on information from the O2O platform.

Physical institution librarians input credential information provided by users, which is verified by the O2O platform back-end. After successful verification, relevant services are provided to users. (4) **Online feedback**. After completing the experience, users evaluate and share their experiences of the service online. The O2O platform back-end collects and organizes user evaluations, conducts system maintenance and management, and physical institutions obtain data from the O2O platform and income from paid services, adjusting their collection and human resource allocation based on the data, as shown in Figure 6 [Figure 6: see original paper].

Conclusion

This study aims to introduce new ideas and methods for industry development and industrial upgrading in the Internet era to the LAM field. This concept aligns with national policy calls and future industry development trends. The core essence of the traditional collection O2O information service model lies in: first, shifting the user service front-end online to save manpower and material resources for physical institutions; second, it can open the door of LAMs to a broader public, and its "open source" essence is to integrate scattered physical collection information online in a virtual manner, providing users with browsing and access channels for offline resources and activities, thereby deeply exploring the value space of traditional physical institutions. Therefore, this model can not only meet user needs in the mobile Internet environment but is also more beneficial to the long-term development of cultural heritage institutions such as libraries, museums, and archives. In practical application, physical institutions can flexibly provide O2O services by combining specific forms such as websites, apps, mobile or digital libraries, and should establish brand concepts or adopt check-in schemes to enhance user awareness of the O2O platform. In the era of deep integration between the Internet and traditional industries, the development of online services in cultural heritage institutions should not confront traditional offline businesses but should become an aid. Which methods to adopt requires further consideration. In the future, the development of LAMs and other cultural heritage institutions in terms of online-offline linkage and collaborative services is highly promising.

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Author Contribution Statement

Zhang Lu: Research idea determination and manuscript writing;
Wang Ping: Paper revision and framework guidance;
Chen Weidong: Paper revision and figure editing;
Zhang Weidong: Paper framework adjustment.

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In 2017, more than 300 external review experts participated in the peer review work for *Library and Information Service*, reviewing over 2,000 manuscripts in total. Among them, 155 reviewed four or more papers, with an average review time of 6 days. The efficient and high-quality review provided a guarantee for *Library and Information Service* to select high-quality manuscripts. Considering the quantity, quality, and timeliness of reviews since the beginning of this year, 65 outstanding review experts have been selected (list below). *Library and Information Service* will issue certificates to these outstanding review experts and provide them with a free one-year subscription. We thank all review experts for their strong support of *Library and Information Service*! (The following outstanding review experts are sorted by pinyin of surnames):

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Ding Yi, 21st Century Development Research Center & WISE Laboratory, Dalian University of Technology

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Hu Changping, Center for Studies of Information Resources, Wuhan University
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Liu Jianzhun, School of Management, Tianjin Polytechnic University
Liu Kan, School of Information and Safety Engineering, Zhongnan University of Economics and Law
Liu Xiaojuan, School of Government, Beijing Normal University
Liu Yu, School of History and Archives, Yunnan University
Liu Yuxian, Tongji University Library
Liu Ziheng, Department of Information Management, Peking University
Mu Dongmei, School of Public Health, Jilin University
Pei Lei, School of Information Management, Nanjing University
Qin Hong, University of Electronic Science and Technology of China Library
Sheng Xiaoping, School of Economics and Management, South China Normal University
Song Ge, Institute of Library and Information Science, Southeast University Library
Su Xinning, School of Information Management, Nanjing University
Teng Guangqing, School of Computer Science and Information Technology, Northeast Normal University
Wang Cuiping, School of Computer Science and Information Technology, Northeast Normal University
Wang Jianfang, Institutes of Science and Development, Chinese Academy of Sciences
Wang Lixue, Institute of Scientific and Technical Information of China

Wu Jianhua, School of Information Management, Central China Normal University
Wu Zhenxin, National Science Library, Chinese Academy of Sciences
Wu Zhirong, Shanghai Normal University Library
Wu Yishan, Chinese Academy of Science and Technology for Development
Xie Rong, Library of Shanghai University of International Business and Economics
Xu Haiyun, Chengdu Documentation and Information Center, Chinese Academy of Sciences
Xu Xin, Business School, East China Normal University
Yan Hui, School of Information Resource Management, Renmin University of China
Yang Jianlin, School of Information Management, Nanjing University
Yang Siluo, School of Information Management, Wuhan University
Yu Liping, School of Management Engineering and E-commerce, Zhejiang Gongshang University
Yuan Shunbo, Business School, Jiaxing University
Zhang Jin, School of Information Management, Wuhan University
Zhan Qingdong, Fuzhou University Library
Zhang Guangqin, Department of Information Management, Peking University
Zhao Fei, Peking University Library
Zhao Yuxiang, School of Economics and Management, Nanjing University of Science and Technology
Zheng Dejun, Department of Information Management, Nanjing Agricultural University
Zheng Qiaoying, Shanghai Jiao Tong University Library
Zhou Chunlei, School of Information Management, Zhengzhou University
Zhou Qingshan, Department of Information Management, Peking University

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The Study of Traditional Collection O2O Information Service Mode in the Environment of "Internet+"

Zhang Lu, Wang Ping, Chen Weidong, Zhang Weidong
School of Management, Jilin University, Changchun 130022

Abstract: [Purpose/significance] In view of the realistic problems of cultural heritage institutions' user service channel blocking, insufficient contact with target users, low utilization rate of collection resources existing in libraries, museums and archives, based on "Internet+ traditional collection information service", this paper explores the feasibility of online to offline service mode. [Method/process] The paper uses literature review to theoretically analyze the drawback of traditional mode, and O2O mode's application in the field of LAM theoretically, illustrates the present situation of internal cultural heritage institutions' application of O2O service method, puts forward traditional collection O2O information service mode, explains its connotation, elements and forms, and discusses the practical operation and service process. [Result/conclusion]

Cultural heritage institutions are adapting to the changes in digital age. The traditional collection O2O information service mode accords with this tendency, and is helpful to user service development and transformation of LAM.

Keywords: traditional collection; information service; O2O model; Internet+

Note: Figure translations are in progress. See original paper for figures.

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