

Exploring the Kyoto Digital Archives Project: Challenging the Funding Model of Digital Archive Development

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Abstract. Within the Japanese world of digital archives, Kyoto plays a key role. The city became a pioneer in digital archive development by partnering with academics, private organizations with cultural treasures, and private industry. They created the Kyoto Digital Archives Project, an organization that developed a profit-sharing model for digitizing materials and overcoming complex issues of intellectual property. This paper examines how it developed, and also looks at its framework for proposing autonomous regional archives over a homogenized national digital archive.

Keywords: Digital archives · E-Japan strategy · Intellectual property · Copyright · Cultural preservation · Funding digital archives · National identity · Regional identity

1 Development of Digital Archives as Part of the National Agenda

In Japan, government policy is usually created from the top-down and national to local. For the most part, digital archive planning is no different. The context for the creation of digital archives in Japan emerged from the government's strategy to establish an environment in which education, culture, and art are all accessible for people living in an advanced and highly networked society. This was executed by a government-led organization, the Japan Digital Archives Association, established in 1996, which laid the foundation for promoting the establishment of local digital archives [1]. In parallel, the government issued a series of IT strategy initiatives incorporating digital archives as an effective medium to carry out these policies. Those initiatives include *e-Japan Strategy II* (2003), in which the Ministry of Internal Affairs and Communications and the Ministry of Cultural Affairs planned to construct a digital archive portal called "Cultural Heritage Online" [2]. Both the *e-Japan Priority Policy Program-2003* and *e-Japan Strategy II Acceleration Package* (2004) emphasized a three-pronged approach of enhancing educational content, dissemination, and utilization [3,4].

More recent national government strategies, *Intellectual Property Promotion Plan 2011* and *2012*, recognize digital archives to be a key "knowledge infrastructure" that

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guide the creation of new content, intellectual property strategy in Japan, and also increase its competitiveness internationally [5]. The plan's "Cool Japan" strategy promotes cultural content, games, manga, animé, food, and anything that foreigners may find attractive to expand the international marketplace for "Brand Japan."

From the early development of Japanese digital archives in the mid-1990s to the present, we can identify three continuous developmental stages. The first stage is the development of large-scale national digital libraries or ones fostered by the central government. Several studies have explored this period. Koga [6] examined the development of Japanese IT initiatives, and later [7] analyzed the strategic role of electronic services of the National Diet Library (NDL) and National Archives of Japan. Nakayama [8] focused on the NDL's function as a data provider, aggregating data from other digital archives. Shimizu [9] discussed the significance of digital archives in the national strategic plans, such as the "Cultural Heritage Online Project" and "Strategy for the Nation of Tourism."

The main players in the second phase of digital archives development were the digital archives established by prefectural and municipal governments. Literature on this second stage examined themes of sustainability [10]; operations [11] content selection and processing [12,13]; and effects on local communities [14]. Sugimoto [15] discusses the importance of digital archives as memory institutions. Learning from the 2011 Great East Japan Earthquake, Sugimoto argues that digital archives build on a robust information environment, and that metadata and meta-metadata are essential for preserving community memories for the future.

In the third phase, as the effectiveness of digital archives as a medium to disseminate information has become more established, groups of citizens and private organizations launched their own digital archives. Their purpose ranged from merely introducing new IT technologies, revitalization of their organizations to seeking publicity, with objectives shifting over time [16]. Case studies [1] and surveys and reports [17] are typical of research on citizen and community based digital libraries.

On one hand, these three overlapping phases occurred over two decades, with even more digital archives continuously emerging. On the other hand, a significant number have been discontinued or even disappeared from the web. The establishment of digital archives requires various resources and technical and practical skills, which are important, but assuring a digital archive's continued existence requires organizational commitment and vision.

This paper examines one of the rare examples of a very successful municipal project to promote digital archives in Kyoto. We will explore factors that led to the success, especially the philosophical framework that guided their project over several years and helped foster a unique business model that may work for other digital archives holding cultural treasures. A purpose of the Kyoto digital archives project was to create a business model, and develop a pilot project with one digital collection that would generate energy and encourage others to emulate this. It also intended to shift the present paradigm of centralization of culture and media to a local-oriented one. Kyoto is an old capital of Japan, known for its long cultural heritage, yet also thrives as an innovative and entrepreneurial environment. The Kyoto digital archives model, building on the city's countless cultural treasures and international tourist sites, is rather unique and may not be applicable to other local contexts outside Japan or even within the country.

However, its underpinning spirit of creating a new paradigm for digital archives that would meet local needs and conditions is worth examining. The Kyoto digital archives initiative also exemplifies community members' leadership to orchestrate individual efforts to crystalize a distinctive regional style.

2 Local Digital Archives

2.1 Preservation (*tameru*), Dissemination (*tsunagu*), and Utilization (*ikasu*)

As the national government incorporated digital archives measures into national digital strategic plans, many organizations promoting local digital archives in their communities emerged. In 2001, they organized the first convention, the National Council for the Organization of Local Digital Archive Promotion, in Kyoto to exchange information and technologies. Thirteen local organizations participated from all over the nation. Over the following years, national conventions were held in different cities which were spearheading digital archives initiatives. Those organizations shared the view that digital archives are not only to preserve local treasures and historical records, but also that they should have a more "active" function of "disseminating" and focusing on how the information is "utilized." Further, participants agreed that those digitized materials should be aggregated as human knowledge and preserved for future generations. They perceived digital archives as the center of a circular knowledge organism [18].

Digitization of local culture was also seen as a means of local revitalization. Japanese society is suffering from the graying of society combined with a declining birth rate. An extreme urbanization accelerated depopulation in the countryside and has been greatly diminishing local businesses. Local communities saw digital archives as helping them to brand local culture, food, crafts, and events to attract tourists and rebuild communities. They also hoped that digital projects would encourage the development of IT businesses and human resources and in turn rejuvenate the community. In all, digital archives are perceived to be catalysts to shift the Tokyo-centric media and lifestyle to local oriented ones [1].

2.2 The Kyoto Digital Archives Project

The initiative to create digital archives in Kyoto began with the launch of "Kyoto Digital Archives Plan of 1997." The following August, the Kyoto Digital Archives Promotion Agency was established with the cooperation of Kyoto City, the Chamber of Commerce, and other organizations. In 2000, the project was succeeded by the Kyoto Digital Archives Research Center [18]. The Research Center was a cooperative organization of the Kyoto Municipal Government, a consortium of Universities in Kyoto, and the Chamber of Commerce, as a "membership corporation."¹

¹ Japan Association of Graphic Arts Technology, Degitaru Akaibu: Chuoshuken kara Bunsan e [Digital Archives: From Centralization to Dispersion]. The Kyoto Digital Archives Research Center was closed at the end of 2003. The operation was succeeded by the Advanced Science Technology & Management Research Institute of Kyoto. Kyoto City Official Website. http://www2.city.kyoto.lg.jp/sogo/seisaku/promop/sub-contents/2_3_3_3%28187%29.htm

The initial objectives of the Kyoto Digital Archives Plan were to 1) digitize the rich history, culture and traditional assets of Kyoto for future generations; 2) create new industries by using these digitized assets; and 3) create an environment that promotes intellectual property rights [19]. The Research Center's main activities included cultivating public awareness, industrial development, and human resources. The Center put the emphasis on building a database for digital archives, development of new products, and producing digital content. Among a number of projects the Research Center produced, we will examine the "National Treasure, Nijo Castle Digital Archives," which created a unique business model for digital archive operations.

2.3 The Nijo Castle Digital Archives

The largest endeavor taken up by the Kyoto Digital Archives Research Center was a digital collection of the National Treasure, Nijo Castle. Nijo Castle is a world cultural heritage site, its Ninomaru Palace is a National Treasure, and 954 out of the 3,411 wall paintings (*fusuma-e*, paintings on Japanese sliding doors) are designated as Important Cultural Properties. In addition, the Kano-Japanese Painting School's *fusuma* paintings and engraved metal objects, and heavy transom, magnificent hallways, and gardens, are all elaborate artworks that capture the essence of Momoyama era culture. Every part of the castle was digitized using the standard of 130 million pixels. However, what makes the castle a "miracle castle" and the digitization project so quintessential is its wall paintings, which present a wide range of vivid colors. The process of digitizing these rare treasures took an extreme level of care and precision so as not to damage these paintings, which are hundreds of years old and susceptible to light damage.

An essential part of the project's purpose was preservation. However, the costs for this scale of preservation project are enormous, so in order to make it possible, they created a venture business using the digitized images to produce unique products. The royalties from the use of the digitized images would be used to finance continued preservation. In other words, the goal of this project was not only preservation of Nijojo artifacts, but also to develop a self-sustaining business model that would motivate others to launch their own efforts to preserve and digitize Kyoto heritage. It would also cultivate human resources and revitalize the city's economy [11].

The Digitization of Nijo Castle received great response: it was a huge success as a business model [18]. The digitized images were used to create wallpapers, floor tiles, subway walls, train bodies, clothes, and everyday goods. The proposal application for the use of Nijo Castle image is now available at the Kyoto Culture Association's homepage.²

2.4 Solving Copyright Issues

Besides technical aspects of digitization, one of the biggest challenges encountered related to the digitization of cultural treasures surrounded copyright issues. Negotiation with cultural property owners, such as temples and shrines, and old families, over their intellectual property rights is rarely easy. They worry that their original treasures

² <http://kyo-bunka.or.jp/nijyo.html>

would become devalued by the existence of authorized copies, and that unauthorized images would emerge from these. They also were concerned about who would pay for the expenses, how the profit would be divided, and questioned if the digital medium is stable enough to last. In the face of so many difficult-to-answer questions, many cultural property owners simply believed that digitalization was a troublesome process that brought in few rewards, and thus was easy to reject. This situation obviously was a problem for digital archive efforts, especially in Kyoto, where most of the cultural properties were owned by temples or shrines who raise funds by donations or tourists buying tickets or amulets.

The solution was to create a business model for gaining revenue from digitization and to produce success stories. Kazuhiro Shimizu, Deputy Direct of the Kyoto Digital Archives Research Center, argued that the content distribution business consists of two aspects: one is whether the system would work, and the other was whether it could produce sufficient business. More often than not, organizers involved with a digitization project are concerned only with the functionality and security of the system; however, Shimizu explains “that’s like putting a carriage before a horse.” The first and most important question is to see whether it would produce revenue [11]. Based on this vision, the Research Center focused on the business aspect of digitization and designed the “Kyoto Business Model” for its digital archives projects.

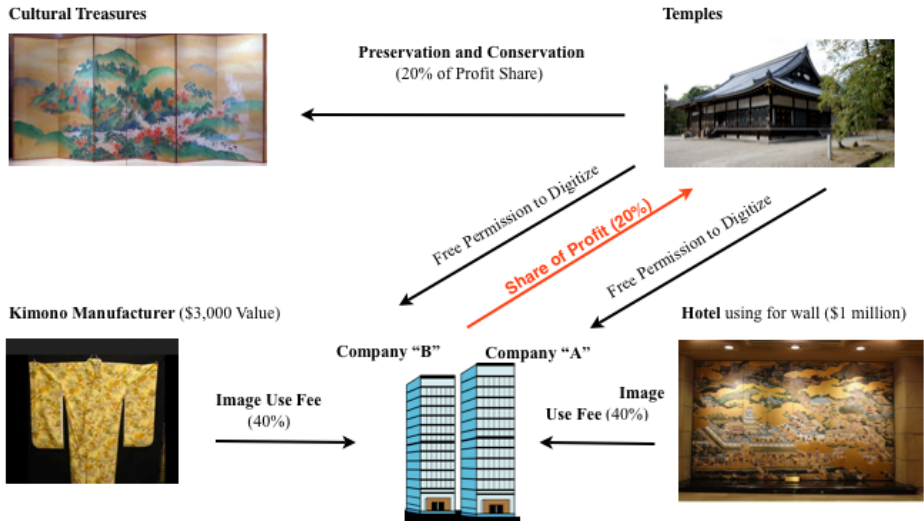
The Kyoto Model is designed based on a profit distribution system. When temples or shrines digitize their cultural properties, they permit companies who are interested in the digitization of a particular object without charging a fee for digitization rights, but costs incurred in the digitization will be at the expense of the company. However, if the digital content is commercialized and produced for profit, a certain percentage of these profits are then shared between the company and the content owner [20].

Figure 1 illustrates the concept of the model. In it, we can see that temples (or shrines or other cultural property owners), would grant “Company A” the right to digitize its images. Company A then self-finances the digitization, but this project could also use subsidies or grants by the government or other organizations. Once digitized, Company A could allow specific usage permission of the digitized image to another business. For example, a hotel might want to use an image as the design for hotel interiors, or even as goods and clothes they would sell. The hotel would then give some portion of the royalties or profit to Company A, which then provides a certain percentage of this royalty with the original property owner.

The fee for using the digitized image would vary depending on the content, quality, purpose of the use and target audience, format of use, and amount produced. The Kyoto Business Model suggests 40% of the product value be paid to the digitization company. For example, if a hotel built an interior wall using the digital image, which has an estimated value of \$1 million, Company A would receive \$400,000, and half of that, or \$200,000 should be paid to the temple.

This system makes digitization of properties possible without the property owner’s self-financing and technical skills. It also spares the owners from assessing individual property values and creating different contracts depending on the nature of a project or conditions. It is also a mechanism that allows cultural properties to self-finance their necessary repairs and preservation.

A key factor in the Kyoto Model is that a cultural treasure would not be required to give “Company A” exclusive rights for the digitized images. The property owners would be able to permit other companies under the same conditions. By holding the freedom of sharing the rights of digitization and image use with an unlimited number of users, the property owners can avoid a number of potential problems, such as monopoly, breach of contract, or be stuck with images produced using low quality equipment.



This explanatory graphic is a translation and modification of the one by Shimizu (2006). **Image Credits:**

- Peter Roan Takao in Autumn by Yamamoto Baiitsu (Japanese, 1783–1856)" Creative Commons Flickr.
- Bermi Ferrer, "Kyoto Temples" Creative Commons Flickr.
- Artwork in main lobby (Okibird, Sep 2013)" at Crowne Plaza Hotel. Tripadvisor.co.uk

Fig. 1. The Kyoto Business Model for Intellectual Property and Preservation

2.5 A Future Model: Decentralized / Clustered Digital Archives

The Research Center staff view the success of the Nijo Castle digitization project as a pivotal point for the development of digital archives in Kyoto. It would shift the present central government led digital projects to the content holders' autonomous movement. They also perceived the initiative as conducive to make the city a treasure of digital archives. The Research Center generated success stories out of the Nijo Castle project to be a model for other digital archives projects. This model encourages temples, shrines, and families with historical records, historic sites, museums, individual artists, and art dealers alike, to become actively involved with establishing their own digital archives. In other words, there would be more independent, decentralized digital archives with unique content that reflect regional cultures. They proposed this bottom-up, more autonomous approach allows the flexibility to highlight unique regional elements and distinctive personality that would otherwise be lost in a highly centralized, top-down model

of digital archives, with the usual imposed standards and appearance. Rather, the organizers of the Research Center hoped to see these independent archives increase and be like a regional cluster of digital archives.

3 Discussion

The Kyoto Digital Archives Project had many accomplishments, such as a high level of collaboration between academics and industry. However, one of the most significant achievements was elevating a local government project to a business enterprise and its entrepreneurial concept. In this section, we will focus on the project's business perspectives and analyze their approach and philosophy.

3.1 Media Paradigm Shift from Tokyo-Centric to Localized

The Kyoto Digital Archives Project displays a conceptual shift from the present establishment of media in Japan, which is centralized in Tokyo, with information sent to the metropole, where it is homogenized, and then transmitted to the periphery. Kyoto's conceptual challenge may be rooted in its politics and history as the old national capitol. Kyoto, a traditionally politically progressive city, has the disposition of adopting new ideas and technologies on the outside while preserving old traditions and customs at heart. Shimizu's statement below eloquently illustrates this point.

When the globalization of culture is promoted, naturally it raises the quality of lifestyle in a global level. At the same time, local culture will be uniformed and eventually disappear. For this, the preservation of any ethnic events, traditional industries, life equipment and tools, documents on ethnic history, which characterize local cultures, is a critical and urgent matter [18].

The e-Japan Priority Policy Program 2002 stated that it aimed to establish an environment where "various cultural property, art, local culture, performing arts, historical documents such as important official documents will be accessible from anywhere without geographical restrictions." Referring to this point, the Ministry of Internal Affairs in its Information Telecommunications report emphasized "digital archives are playing a essential role as a base for integration and dissemination of digital network culture" [21]. This quote shows us the radical example of the Kyoto Digital Archives Project, and how it cleaves to an autonomous emphasis on the local over national identity. It stands for the paradigm of establishing local identities, disseminating local culture, producing new creative local industries, and upgrading a local information infrastructure, which sums up the initiative of establishing independent governance.

3.2 A Business Model for the Management of Intellectual Property Rights

Copyright issues are often seen as one of the leading obstacles for creating digital archives. A 2009 National Diet Library survey on digital archives indicates that reasons that the respondents (cultural and academic institutions) have not created a digital archive include “a lack of budget (79.7%)”, “a lack of staff (74.2%)”, “a lack of knowledge (59.4%),” and “difficulties with copyright issues (29.9%)” [22].

The Kyoto Digital Archives Project adopted a general business contract without resorting to complex copyright laws. Their “Kyoto Business Model” became a prototype for business using digital content. Creativity and such novelty helped avoid typical problems pertaining to copyright, and managed to launch their project.

3.3 The “Kyoto Business Model” as a Circulatory Model

Kyoto is surrounded by cultural treasures; however, Kyoto Digital Project leaders didn’t believe that funding would naturally emerge to finance preservation efforts just because something has special cultural values. Rather, they saw digital images as actual resources that help them gain monetary resources to repair and preserve these treasures. They embodied this concept into a circulatory business model and promoted it for others to follow suit. Shimizu explained that the project adopted three elements; ‘preservation,’ ‘dissemination,’ and ‘utilization,’ of the central government’s concept of digital archives, but particularly focused on the ‘using,’ because the first two require substantial funds. This fact itself demanded focus first on making business out of the digitization. He explains that ideally a local government’s digitization project should lead to commercial projects; however, it is not easy to overcome barriers such as gaining the understanding of citizens and clearing copyright issues [23]. Many local government digital projects pointed out a large expenditure of digitization limited their work along with a lack of cooperation between industry, academics, and government [1].

3.4 A Digital Archives Project with a Clear Vision

Typical functions of a local government are considered to be the promotion of education, culture, and welfare, but making a profit is seen to belong to the private sector. However, the first and most important goal for the Kyoto Digital Archives Project was to establish a foundation for commercial success, which would stimulate other content holders to follow suit and consequently revitalize the city. It was also to generate funds to preserve and repair cultural treasures.

According to the 2009 National Diet Library’s survey on digital archive operations, in which respondents were asked to choose the most important purposes of their digital archives selected: 47.8% of the institutions chose “publicity and promotion of the institution’s activities” as the most important purpose, followed by “maintenance and preservation of materials” (23.7%). Among the reasons chosen as second most important were “increase search ability” was most popular, followed by “publicity” [22]. In any case, the questionnaire did not even include “making profit” as a reason although respondents could write their own answer in “other.” This again makes a sharp contrast with the Kyoto Digital Archives.

3.5 Frequent Organizational Change in the Promotion Agency

As the Kyoto Digital Archive Initiative developed, it went through many stages. In 1997, the project became the “Kyoto Digital Archive Promotion Agency.” Three years later, it was dismantled once it achieved its goals. A new organization, the “Kyoto Digital Archives Research Center” immediately succeeded the mission with new goals, and it was closed in 2004 when the Center fulfilled its promised mandate. The project promotion organization’s short period of existence and dissolution was planned, and was not the consequence of an unsuccessful operation.

The missions of the first agent, the “Kyoto Digital Archive Promotion Agency,” included the construction of a database for digital archives, the development of new products, and established the foundation for creating a digital content business. The project completion was planned in March 2001, and was successfully achieved, with the agency closed after three years. A new organization, the Kyoto Digital Archives Research Center was formed with the goal of producing a business model in three years, which was met with the production of the Nijo Castle Digital Archives Project and dissolved in 2004. It is said to be the philosophy of Inagaki Kazuo, a leader of the project, who claimed “an essential project to lead the time needs to produce significant results in 1,000 days or three years at longest” [24]. The Project’s next step announced for the 21st century archives is aimed to move to dispersion type archives with government subsidies [25].

It is often the case that leaders involved in a public business use the opportunity to advance their own fame or profit; however, their priority was to maintain the organization’s energy at the highest level to produce visible success. In order to move on to the next step with new missions, a succeeding agent was to be established, which was to be an opportunity to introduce new generation of staff and technologies. In his survey study of 2011, Kawakami found that digital archives created by local governments tended to have closed down more than those led by private organizations [10]. These results suggest that digital archives need to focus on sustainability. However, the organizers of the Kyoto Model were focusing on a model for sustainability rather than in becoming an agency supporting digital archives or a repository itself.

3.6 The Universality of the Kyoto Digital Archives Project as a Model

Although there are many things we could learn from the Kyoto Digital Archives Project, the Project took place in rather an unusual environment to be seen as a model for a regional digital archival development. Kyoto is an old Japanese capital and holds literally millions of national and regional treasures, which naturally could lead to countless digital projects. In addition, Kyoto had already established its own ‘brand’ domestically as well as internationally before the digital era as a tourist site and a center of Japanese traditional culture and arts. Therefore, the potential for success was already there.

The Project suggests that participating in a digital archives project led by the central government might not be in the best interest for a regional community since it would lose local autonomy and unique cultures. It rather suggest a future direction to be decentralized, dispersed archives, with individual independent archives forming a

cluster type digital archives. In a decentralized archive, digital contents are independently managed within the institutions, and these archives are independent yet connected in a cluster manner instead of being aggregated and mixed in a large national digital entity. This model would again be disadvantageous for a region which does not have as abundant cultural significance that would bring about business opportunities and form an economic foundation.

4 Conclusion

Examining this Kyoto Model from the perspective of archival profession in North America, this is an interesting experiment. The model helps to address two key problems, how to gather materials still in private hands, and also how to gather funds for expensive digitization projects in a time when public funds are in tight supply. On the other hand, it also raises some key questions over such foundational questions of ‘what is a digital archive’ and the mission of an archive. In North America, the key point would not only be preservation, but also access. Clearly, there is a need for more research from a historical and comparative model. It is essential to develop an understanding of how archives, digital archives, and digital libraries are unique endeavors in each country, and how they develop missions, standards, and sense of national and local identity, reflecting the wider social and political contexts.

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