

A Study on the Construction of a Linked Database for an Integrated Service Platform of Local Culture and Arts Resources

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ABSTRACT

In this study, it was intended to explore a way to build a DB which links the resources and areas and regions already registered as cultural assets in connection with a project which is newly building local culture and arts resources. Towards this end, this study first identified the type and scale of existing local culture and arts resources that could be linked. Following which, to link the local cultural resources and collected cultural assets, this study investigated the websites such as the Cultural Heritage Administration's National Cultural Heritage Portal, municipal and provincial tangible cultural festivals, municipal and provincial intangible cultural assets, and Gyeonggi Memory. Furthermore, this study identified the amount of information sources to be built and the current status of each information source to identify detailed information sources. Finally, the metadata of local culture and arts resources were presented by classifying them into material and publication data metadata, document metadata, audiovisual metadata, oral recording metadata, village information metadata, and personal information village information metadata.

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1. Introduction

Local culture and arts resources mean those that which comprehensively encompass local culture and arts resources, and which include the lifestyles shared within the region, tangible and intangible resources created artificially and naturally within the region, and cultural and arts activities within the region, with the recorded types of things necessary in the process of production and distribution of culture with underlying artistic activities included, and they usually include cultural assets, village records, intangible cultural assets, cultural and artistic records, etc., respectively.

The work of collecting such local culture and arts resources may be deemed as a basic premise for enabling a complete appreciation of arts culture by collecting and preserving historical records and supporting research. That is, the local culture and arts resources serve as a regional ‘spiritual asset’ and ‘foundation’, so they may become a source of national competitiveness in a society of knowledge-based economy.

Furthermore, local culture and arts resources are used as the elements for establishing local identity, urban marketing, and local communities. In the past, local culture and arts resources were viewed as a means of preservation, but in the modern time, preservation and utilization are approached in various ways as a concept of economic and regional regeneration using them.

Most cities have many cultural resources. Local culture strengthens social integration, improves the living environment, may be a symbol of city marketing that affects regional development, and may be used as a material for art and cultural activities to attract tourists.

However, it has been known that there are serious preservation problems with such local cultural resources, including the cultural assets that are not designated as cultural assets. In particular, the cultural assets in urban areas are concentrated in the area north of Jongno, taking Seoul as an example, and while there are cases where the modern cultural assets remain in the area of Deoksugung Palace and Namdaemun-ro, it has been said that, in or about 2005, the (former) Korea Stock Exchange, Skara Theater, etc., among some valuable modern buildings, were demolished due to the owners’ will for the property development even before they were designated as cultural assets (Hyeonseok Min, 2008). While they have been part of the region’s long history, buildings that are not registered as non-designated cultural properties by the Cultural Heritage Administration are at the risk of being engulfed in history without even knowing whether they will disappear in the future. Hanok residences, a living cultural asset that vividly conveys the Koreans’ unique residential culture, are determined as old houses and are destroyed in large numbers through redevelopment. According to researcher Hyeonseok Min (2008), the narrow alleys that show old waterways, urban structures, and traditional markets where past commercial activities remain are mostly considered among the poor urban environments.

According to the press reports, in or about 2023, while they have not been designated as cultural assets like Yeongdan Houses, the buildings and relics with potential value are classified as non-designated cultural assets, and despite the Cultural Heritage Administration’s investigation, there are over 2,000 buildings that have already disappeared or are scheduled to disappear soon (Jaehyun Park, SBS, 2023). Hence, to preserve disappearing local culture and arts resources and preserve them before they disappear, preservation is necessary through the construction of a database that

crosses regions and types. There is an urgent need to discover such resources, build and preserve them as a database, and make them serviceable through distribution platforms. Accordingly, researchers are intensively collecting local culture and arts resources that are in danger of extinction and resources whose current status is not yet known (Younghee Noh, 2023). However, it is serviced separately from cultural and artistic resources that are already designated as cultural assets, and there are aspects where integrated search is not possible from the user's perspective. Hence, there is a need to build a database by linking tangible and intangible designated cultural properties, registered cultural properties and non-designated cultural properties managed and preserved by the government, and intangible cultural heritage of humanity registered with UNESCO. Towards this end, it would be necessary to establish an information source for information on existing cultural properties through regional cultural property-linked metadata. Accordingly, this study seeks to design metadata for linkage. Based on the integrated metadata, it is intended to provide both the newly discovered information by region and existing cultural heritage information, and mash it up with map information toward expanding the visual effect and the range of access users.

2. Previous Studies

It may be deemed that studies have been conducted to design metadata for cultural content integration. Yoonhee Cho () compared and analyzed the data elements of each format, focusing on the cases of metadata use at Korea's representative cultural heritage institutions, the National Library of Korea, the National Museum of Korea, and the National Museum of Modern and Contemporary Art. Based on which, she created a cross-reference table of elements for each format and presented minimum level metadata elements to ensure the interoperability of varying metadata formats.

Heejeong Han, Taeyoung Kim, and Yong Kim (2016) developed the intangible cultural heritage metadata elements based on the multi-entity model. Towards this end, they investigated the newly enacted Act on the Safeguarding and Promotion of Intangible Cultural Heritage in 2016 and the recorded information resources, guidelines, and transmission status of institutions that conducted intangible cultural heritage documentation books and resource surveys, and investigated the intangible cultural heritage of related organizations. By analyzing the digital archiving status and information services, the information items required for intangible cultural heritage were derived. Furthermore, based on the development of intangible cultural heritage metadata based on a multi-object model, the information on actors related to intangible cultural heritage, information on the recorded information resources they produce, and management of such recorded information resources were provided based on the most core intangible cultural heritage information. The records management information required for such purpose was also organically connected and provided comprehensively.

The intangible cultural heritage metadata elements were developed based on the multi-object model. Towards this end, the Act on the Safeguarding and Promotion of Intangible Cultural Heritage newly enacted in 2016 and the recorded information resources, guidelines, and transmission status of institutions that conducted intangible cultural heritage documentation books and resource surveys

were examined, and investigated the intangible cultural heritage of related organizations. By analyzing the digital archiving status and information services, the information items required for intangible cultural heritage were derived. Furthermore, through the development of intangible cultural heritage metadata based on a multi-object model, information on actors related to intangible cultural heritage, information on the recorded information resources they produce, and management of such recorded information resources are provided based on the most core intangible cultural heritage information. The records management information required for this purpose was organically connected and provided comprehensively. Myeongcheol Jeong, Hyoyeon Moon, and Mihee Kim (2014) studied the classification system for rural intangible cultural heritage according to the agricultural heritage registration criteria. Towards this end, after analyzing the registration criteria of the Globally Important Agricultural Heritage (GIAHS), UNESCO, and Korea's intangible cultural heritage-related system, the classification system and detailed list of the Korean Traditional Knowledge Resources Classification Plan (KTKRC) of the Rural Development Administration and the Folk Archive were analyzed, following which, the rural intangible heritage was classified into 5 major categories, 19 middle categories, and 50 minor categories, whose relevant details were organized.

The research on the intangible cultural heritage metadata began with the need to standardize intangible cultural heritage metadata for digital archives of intangible cultural heritage. Juyoung Wi (2010) pointed out that it is problematic to apply the metadata customized for the framework of tangible cultural heritage to intangible cultural heritage, and argued that metadata elements suitable for intangible cultural heritage should be developed. Accordingly, focusing on the craft technology, an attempt was made to derive the metadata for each crafting skill, skill holder, and craft product produced with the skill holder's craft technology. Sujeong Kim and Yong Kim (2013) developed the metadata elements based on the FRBR model for effective management, search, and use of intangible cultural heritage records.

When examining previous studies, it was found that not only were there not many metadata design studies for the local culture and arts resources, but there was also no metadata linkage database that this study intended to conduct.

3. Research Design and Methodology

In this study, with a view to derive the metadata linked to the local culture and arts resources, first, the local culture and arts resources information resources were investigated and analyzed. To establish a source of information on designated cultural properties, including the non-designated cultural properties, it was sought to first determine how many designated cultural properties there are in the country and what metadata they use, and select the key metafields among them to first confirm the metadata. Following which, an expert committee was formed to secure the validity of the metadata field, and the members were comprised of local culture experts and library and information science experts. Finally, actual data was entered based on the designed metadata, and required and optional fields were presented separately. This research method is a procedure commonly followed when designing the existing metadata fields, and the design results were developed to

be easy to understand so that they may be used as a reference when other organizations build the local cultural resources in the future.

4. Status of Local Culture and Arts Resources and the Metadata

4.1 Current status of local cultural resources

To design the linked metadata, it was first examined and understood that it would be necessary to understand the status of local culture and arts resources established in Korea. Accordingly, it was sought to first identify the type and scale of local culture and arts resources that could be linked. Following which, to link local cultural resources and collected cultural assets, it was sought to investigate the websites such as the Cultural Heritage Administration's National Cultural Heritage Portal, municipal and provincial tangible cultural festivals, municipal and provincial intangible cultural assets, and Gyeonggi Memory. Furthermore, this study identified the amount of information sources to be built and the current status of each information source to identify detailed information sources. Finally, the metadata of local culture and arts resources were presented by classifying them into material and publication data metadata, document metadata, audiovisual metadata, oral recording metadata, village information metadata, and personal information village information metadata.

4.1.1 Type and scale of local culture and arts resources that may be linked

The local culture and arts resources managed and preserved by the state include the tangible and intangible designated cultural properties, registered cultural properties and non-designated cultural properties, as well as the intangible cultural heritage of humanity registered by UNESCO. Here, there is a need to build a database by linking tangible and intangible heritage located in the villages as the information of villages is discovered.

The National Cultural Heritage Portal categorizes cultural heritage by type and includes historic buildings, relics, recorded heritage, intangible cultural assets, natural heritage, and other registered cultural assets (Cultural Heritage Administration National Cultural Heritage Portal, 2023)

The current status of cultural heritage belonging to registered cultural properties, designated cultural properties, and non-designated cultural properties by category is as follows. As illustrated in the table, there are a total of approximately 4,300 nationally designated and registered cultural assets, 6,881 provincially designated and registered cultural assets, and 2,880 cultural assets, with a total of 15,079 registered. Finally, this study aims to create a vessel that can build a linked database of about 15,000 cases.

Table 1. Status of cultural heritage by category
(As of December 31, 2022) (Unit: case, category)

Classification	Seoul	Busan	Daegu	Incheon	Gwangju	Daejeon	Ulsan	Sejong	Gyeonggi	Gangwon	Chungbuk	Chungnam	Jeonbuk	Jeonnam	Gyeongbuk	Gyeongnam	Jeju	Other Sum
Nationally designated and registered cultural property	168	6	3	1	2	1	2	-	13	12	12	31	9	22	56	16	-	354
Treasure	756	54	83	28	17	10	9	3	188	87	97	133	109	200	382	187	8	2,351
Historic site	69	6	9	20	2	1	5	-	69	21	19	51	43	46	103	55	7	526
Scenic spot	3	2	-	1	1	-	1	-	5	26	10	3	11	27	18	14	9	131
Natural monument	12	7	2	14	2	1	3	2	22	45	23	18	33	61	71	46	49	475
National intangible cultural heritage	32	5	-	5	1	-	-	-	10	4	4	4	9	14	11	15	5	155
National folk cultural heritage	42	2	6	-	3	2	2	1	23	11	21	24	14	38	98	12	9	308
Subtotal	1,082	82	103	69	28	15	22	6	330	206	186	264	228	408	739	345	87	4,300
Nationally registered cultural property	234	22	13	9	22	23	7	2	93	53	31	76	91	116	66	68	26	952
Municipally and provincially designated and registered cultural property	497	210	88	73	31	58	39	19	333	179	348	206	272	251	496	915	39	4,054
Subtotal	54	25	17	29	21	25	6	3	70	33	27	55	62	53	48	41	23	592
Municipally and provincially designated and registered cultural property	40	52	19	63	24	47	47	11	188	80	138	166	133	197	155	272	128	1,760
Subtotal	35	19	4	2	9	2	2	2	14	4	20	28	36	42	155	21	82	475
Municipally and provincially designated and registered cultural property	626	306	128	167	85	132	94	33	605	296	533	455	503	543	854	1,249	272	6,881
Subtotal	19	2	-	8	-	1	-	-	15	-	2	3	7	-	-	-	9	66
Municipally and provincially designated and registered cultural property	81	123	52	27	31	63	34	14	191	149	95	314	159	245	596	696	10	2,880
Cultural property data	2,042	535	296	280	166	234	157	55	1,234	704	847	1,112	988	1,312	2,255	2,358	404	15,079
Total																		

※ As for the natural monuments which correspond to the animals and plants which inhabit across multiple regions in terms of cities and provinces of location, and if the address of the holder of an item with two or more national intangible cultural heritage holders is not in the same region, it is classified as 'Other'.

4.1.2 Types and contents of cultural heritage information sources

To link the local cultural resources and collected cultural assets, we searched sites such as the National Cultural Heritage Portal of the Cultural Heritage Administration, provincial and provincial tangible cultural festivals, provincial and provincial intangible cultural assets, and Gyeonggi Memory. As illustrated in the table below, it may be examined that the following table shows historic buildings, relics, recorded heritage, intangible cultural assets, natural heritage, registered cultural assets, etc. The types of information sources that may be constructed by type can also be viewed in detail. For example, in the case of relics and buildings, they are classified into residential life, political defense, transportation and communication, education and culture, relics distribution site, relics distribution site, tombs, industrial production, and religious beliefs and character events, etc.

Table 2. Types and contents of cultural heritage information sources

Type	Major information sources	Basic metadata
Ruins building	Residential life, politics and national defense, transportation and communication, education and culture, relic distribution site, relic distribution site, tombs, industrial production, religious beliefs, people events	Village name, designation authority/type classification, type/folk/monument/intangible cultural heritage classification, cultural property name, quantity/area, designation (registration) date, location, era, owner (owning organization), manager (management organization), cultural heritage description
Relics	General painting, other religious painting, Buddhist sculpture, living crafts, other religious crafts, Buddhist painting, general sculpture, other religion, sculpture, Buddhist craft, science and technology	
Documentary heritage	Records, letters, documents, carvings	
Intangible cultural heritage	Traditional performances and arts, traditional skills, traditional knowledge, oral traditions and expressions, traditional lifestyles, rites and rituals, traditional games and martial arts.	
Natural heritage	Natural monument, scenic spot, natural reserve	
Registered cultural property	Movables, educational facilities, other facilities, war-related facilities, memorial facilities, business facilities, industrial facilities, religious facilities, residential and lodging facilities, Movables (artworks), Movables (movies), medical facilities, public facilities, commercial facilities, cultural gatherings facility	

4.1.3 Types of information sources for local culture and arts resources

A form of record where the materials that have not passed through the hands of historians go directly to the village level and are first saved by experts who find valuable items. Because the oral materials are a rough concept, future generations who will use oral materials can conduct research using them. Information sources constructed in this way can also be linked, and media-related materials such as documents containing materials and publications containing information about local culture and history, society and space, documents containing records, and photos and videos are available. It was found that there was audiovisual information, oral records and character information

about people who remembered the life history of the village.

Table 3. Types of information sources for local culture and arts resources

Type	Major information sources	Basic metadata
Materials and publications	Materials published in booklet form through processes such as printing Books, theses, research reports, government publications, legal data, dictionaries/handbooks, news articles, videos, websites, periodicals such as magazines and newspapers, academic journals such as regularly published academic journals, regularly published local cultural journals, etc. Books: Considered as records if they are judged to be valuable in the daily lives of local residents.	Title (name), year of publication, quantity/area, production period, era, producer (author), newspaper signature, image, introduction, publisher
Documents	Includes household account books, diaries, etc.: general documents, other	Name, classification, quantity/area, production period, era, location, owner (ownership organization), image, introduction, publisher
Audiovisuals	Audio-visual records record the vivid scenes as they are. Vividly conveys the cultural, social, and historical site situation of the time Records in the form of video or audio, such as photos, films, tapes, videos, records, and disks	Title, production time, copyright holder, type, file name, classification (location, person), photographer (producer), production location (shooting location address), production registration date
Orals	Oral transmission: Records passed down orally through generations. Oral testimony: An individual describes a specific event or experience from the past by recalling it to the present rather than passing through several generations like oral tradition. Oral life history: An individual's life experiences from birth are recalled and described in the present. Primary data resulting from recording oral speech that has not been used until now and is worth preserving.	Project name, project purpose, project period, oral region, list of interviewees and interviewees, main topics, names of interviewees and interviewees, date and time of interview, recording director, oral outline, major index words, oral details by time, photos related to oral content, photos of oral interview site
Village information	Gather information about villages that are gradually disappearing	Village name, history of the village, origin of the village name, village photo, village population
Personal information	Even if it is not an Intangible cultural heritage, in the village	Name, function, possession/designation date, history, introduction, person history, past function holders, photo

4.1.4 Type of information source to link

This study has identified the amount of information sources to be built and the current status of each information source to identify the detailed information sources.

First, the type of heritage building DB and the number of cases that may be built were identified. The types of heritage building DB include residential life, politics and defense, transportation and communication, and educational institutions, and the total possession status turned out to be 5,826 cases.

Table 4. Types of historical buildings DB and number of cases that can be built

Type	Major information sources	No. of case (cases)
Residential life	Residence, residential architecture, landscape architecture, modern architecture	1,272
Politics/defense	Palaces, government offices, castles, battlefields, modern political defense	677
Transportation/communication	Transportation, communication, modern transportation, communication facilities	141
educational institution	Educational institutions, modern educational culture	609
Relics distribution/dispersal site	Land relics distribution site, underwater relics distribution site, relics distribution site	89
Tomb	Tombs, royal tombs, modern tombs	768
Industrial production	Agriculture, fishing, salting, manufacturing, ceramics, mining, modern industrial production	110
Religious faith	Buddhism, Catholicism, Protestantism, ethnic religions, folk beliefs, ceremonial remains, oral traditions	1,627
Person event	Commemoration of figures, modern figures, historical events, modern events	533
Total ruins buildings		5,826

When examining the types of relic DBs and the number of cases that may be built, the types of relic DBs include general paintings, other religious paintings, Buddhist sculptures, and daily crafts, and the total possession status turned out to be 3,560 cases.

Table 5. Types of historical buildings DB and number of cases that can be built

Type	Major information sources	No. of cases
General conversation	Landscape painting, portrait painting, genre painting, folk painting, documentary painting, Yeongmo flowers and birds, the Four Gracious Plants, modern painting	454
Other religious paintings	Confucian painting, shaman painting	10
Buddhist sculpture	Stone, metal, wood, dry lacquer, molded	1308
Daily life crafts	Wood craft, lacquer craft, Hwagakjang craft, bamboo craft, Chogo craft, paper craft, earthenware craft, metal craft, jade craft, clothing craft, modern craft.	479
Other religious crafts	Confucian crafts	17
Church painting	Trigrammed Buddhist paintings, Buddhist paintings, prints, sutra paintings, murals	742
General sculpture	Rock carvings, tomb carvings, modern sculptures	52
Other religious sculptures	Confucian sculpture, folk religious sculpture	78
Buddhist crafts	Ritual tools, offering tools, solemn tools, relic equipment, clothing, Other	262
Science Technology	Prehistory relics, natural science relics, livelihood technology tools, astronomical and geographical instruments, measurement and trading equipment, mobile transportation technology, craft technology tools, food production tools, printing technology tools, play/entertainment equipment, weapons and weapons.	158
Total relics		3,560

When examining the types of documentary heritage DB and the number of items that may be built, the types of documentary heritage DB include records, epistles, documents, and epitaphs, and the total possession status is 2,420 cases.

Table 6. Types of documentary heritage DB and number of cases that can be built

Type	Major information sources	No. of cases
Records	Manuscripts, woodblock prints, printed books, records	1,280
Letters	Calligraphy, Gandok style, poetry style, rubbings, modern letters	117
Documents	King's documents, government documents, private documents, temple documents, Seowonhyanggyo documents, modern documents, documents	383
Carvings	Wood engravings, epiphytes, modern carvings	640
Total documentary heritages		2,420

The types of intangible cultural heritage DB include traditional performances and arts, traditional techniques, traditional knowledge, oral traditions and expressions, and the total possession status turned out to be 330 cases.

Table 7. Types of intangible cultural heritage DB and number of cases that can be constructed

Type	Major information sources	No. of cases
Traditional performance and art	Music, dance, entertainment, general arts, and other performing arts	100
Traditional technology	Crafts, architecture, art	130
Traditional knowledge	Folk medicine knowledge, production knowledge, nature and space knowledge, and other traditional knowledge	5
Oral traditions and expressions	Verbal expression, oral tradition, and other oral expressions	4
Traditional flower customs	Seasonal customs, clothing, diet, daily life, and other lifestyle habits	17
Ritual and ritual	Folk religious rites, life rites, end rites, and other rites and rituals	43
Traditional games and martial arts	play, festival, arts, martial arts	31
Total intangible cultural heritages		330

The types of natural heritage DB include natural monuments, scenic spots, and natural protected areas, and the possession status turned out to be 852 cases.

Table 8. Types of natural heritage DB and number of cases that can be constructed

Type	Major information sources	No. of cases
Natural monument	Cultural and historical monuments, biological science monuments, and earth science monuments	686
Scenic spot	Cultural landscape, natural landscape, historical and cultural landscape	148
Natural reserve	Integration of culture and nature, natural science	18
Total natural heritages		852

The other registered cultural property DB types include movable property, educational facility, other facility, war-related facility, memorial facility, business facility, industrial facility, religious facility, residential accommodation facility, movable property (art work), movable property (movie), medical facility, and public facility, commercial facilities, cultural assembly facilities, etc., and the total possession status of other registered cultural properties turned out to be 852 cases.

Table 9. Total possession status of other registered cultural properties

Type	Major information sources	No. of cases
Other	Movables, educational facilities, other facilities, war-related facilities, memorial facilities, business facilities, industrial facilities, religious facilities, residential and lodging facilities, Movables (artworks), Movables (movies), medical facilities, public facilities, commercial facilities, cultural gatherings facility	978
Total registered cultural properties		978

4.2 DB metadata for the local culture and arts resources

The metadata of local culture and arts resources were presented by classifying them into material and publication data metadata, document metadata, audiovisual metadata, oral recording metadata, village information metadata, and personal information village information metadata.

4.2.1 Metadata for materials and publication

The materials and publications DB includes materials and publications published around the village, such as the locally published reports, village articles, village websites, government publications, dictionaries and handbooks, magazines and newspapers, and local cultural papers. The metafields for this include LC (Local Culture) type code and LC detailed type code, and the metafields are as follows.

Table 10. Metadata for materials and publication

Name of metafield	Required/Optional	Details
Area code	Required	• Region code of relevant materials and publications
LC Type Code	Required	• Enter LC101 Type code
LC Detailed Type Code	Required	• Enter LC101-AType code
Data name	Required	• Name of the relevant Materials and publications
Village name	Required	• Name of the village where the materials and publications were produced
Author	Optional	• Author name of the relevant materials and publications
Issuer	Required	• Publishing organization of relevant materials and publications
Year of publication	Required	• Publication year of relevant materials and publications
Attachment	Optional	• Attached files of relevant Materials and publications
Introduction	Required	• Introduction and overview of relevant materials and publications

4.2.2 Document metadata

The construction resources include diaries, letters, memo notebooks, booklets, documents, and local papers containing major events in the village, and the metafields for such include area code, LC type code, LC detailed type code, village name, subject/field, author, year of production, and issuing organization, etc.

Table 11. Document metadata

Name of metafield	Required/Optional	Details
Area code	Required	• Region code of the document
LC Type Code	Required	• Enter LC102 Type code
LC Detailed Type Code	Required	• Enter LC102-AType code
Village name	Required	• Name of the village where the Hedang document was produced
Topic/Field	Required	• Subject and field of the document
Author	Required	• Author of the document
Production year	Required	• Production year of the document
Issuer	Required	• Issuer of the relevant document

4.2.3 Audiovisual metadata

The construction resources are records in the form of video or audio, such as photos, films, tapes, videos, records, and disks, and the metafield for such has been designed as follows.

Table 12. Audiovisual metadata

Name of metafield	Required/Optional	Details
Area code	Required	• Area code of the relevant Audiovisuals
LC Type Code	Required	• Enter LC103 Type code
LC Detailed Type Code	Required	• Enter LC103-AType code
Village name	Required	• Name of the village where the relevant audiovisuals were produced
Data production date	Required	• Data production date of the relevant Audiovisuals
Collection location	Required	• Where the relevant Audiovisuals are stored
Producer	Required	• Producer of the relevant Audiovisuals
Topic/Field	Required	• Topics and fields of applicable Audiovisuals
Image	Required	• Images from corresponding Audiovisuals
Sound and video	Required	• Sound sources and videos of the relevant Audiovisuals

4.2.4 Oral metadata

The construction resources include video (recording), audio (recording) and transcripts, photos of the interviewer, other donated materials, oral report, interviewer's identity card (consent form),

etc., and the metafields towards this end are as follows.

Table 13. Oral metadata

Name of metafield	Required/Optional	Details
Area code	Required	• Area code of the corresponding Orals
LC Type Code	Required	• Enter LC104 Type code
LC Detailed Type Code	Required	• Enter LC104-AType code
Village name	Required	• Name of the village where the Orals were produced
Donor/Teller	Required	• Donor/narrator of the Orals in question
Date of donation/date of dictation	Required	• Date of donation/dictation of the relevant Orals
Name of transferee	Required	• Name of successor of the relevant Orals
Data production date	Required	• Data production date of the relevant Orals
Oral topic	Required	• Oral subject matter of the corresponding Orals
Overview of oral transcription	Required	• Overview of oral transcriptions of the Orals
Interviewer	Required	• Interviewee of the relevant Orals
Supervisor	Optional	• Supervisor of the relevant Orals
Other interviewees	Optional	• Other interviewees from the Orals
Degree	Optional	• Degree of the corresponding Orals
Utilization disclosure	Required	• Disclosure of use of Hedang Orals
Attachment	Required	• Attached files of the corresponding Orals

4.2.5 Village information metadata

According to the survey, the total number of villages (neighborhoods) at the eup, myeon, and dong level in the 17 cities and provinces was 3,517, and the total number of cities, counties, and districts was 232. As a result of a current status survey conducted at the city, county, and district level for areas that have village record reports or websites, approximately 52% of them are not managed nationwide by city, county, or district.

When examining eup, myeon, dong, and ri (administrative districts), it turned out that there are actually more villages and those villages are rarely recorded (Source: Statistics Korea). It would be necessary to build such a village information DB focusing on areas where population extinction by administrative district is accelerating, covering 52% of the village information which is disappearing among the 3,517 villages in Korea surveyed based on eup, myeon, and dong (village map, general village status, village characteristics and fact-finding survey). The metadata fields towards this end are as follows.

Table 14. Village information metadata

Name of metafield	Required/Optional	Details
Area code	Required	• Area code of the relevant village information
LC Type Code	Required	• Enter LC105 Type code
LC Detailed Type Code	Required	• Enter LC105-AType code
Village name	Required	• Name of the village where the village information was produced
Address	Required	• Corresponding Village information address
Image	Optional	• Image of the relevant Village information
Household population	Required	• Village households and population provided by the village information
Introduction	Required	• Introduction of relevant Village information

4.2.6 Personal information metadata

Finally, the resources for building the character information include general information about the record holder, receiver, etc., the person’s entertainment/skills and explanations, photos of the person, videos about the entertainment/skills, etc. The metafields towards this end are as follows.

Table 15. Personal information metadata

Name of metafield	Required/Optional	Details
Area code	Required	• Area code of the relevant personal information
LC Type Code	Required	• Enter LC106 Type code
LC Detailed Type Code	Required	• Enter LC106-AType code
Village name	Required	• Name of the village where the relevant personal information was produced
Personal name	Required	• Name of the person in the relevant personal information
Image	Optional	• Image of the relevant personal information
Description and Overview	Required	• Description and overview of the relevant personal information
General information	Required	• General information of the relevant personal information

4.3 Linked DB metadata

Based on the local culture and arts resources DB metadata above, linked metadata focused on designing core metafields which may comprehensively build various types of information sources.

The linked DB metafield is consisted of LC (Local Culture) type code, detailed type code, DB detailed item, unique number, location, designation (registration) date, era to which the historic structure belongs, cultural property description (introduction), owner and manager (organization), cultural heritage portal, etc., among the related URLs, and while the details of the metafield may change depending on each type, it basically operates based on the same structure.

Table 16. Linked DB metadata

Name of metafield	Required/Optional	Details	Name of metafield
Area code	Required	• Enter region type code	Local people
Village code	Required	• After assigning a village code, enter the village code	Village name
Classification	Required	• Registration of designated cultural property, registered cultural property, and non-designated cultural property type of the relevant ruins building	Registration and classification of designated cultural properties
LC Type Code	Required	• Enter LC Type code	Type
LC Detailed Type Code	Required	• Enter LC Type code	Event
Cultural property name	Required	• Name of the relevant cultural property	Cultural property name
Cultural property DB details	Optional	• Detailed items of the relevant cultural property	Details
Cultural property DB unique number	Required	• Unique number of the relevant cultural property	Designation
Cultural property DB quantity/area	Required	• Quantity/area of relevant cultural assets	Quantity/Area
Cultural property DB location	Required	• Classification field for the location of the cultural property	Location
Cultural property designation (registration) date	Required	• Designation (registration) date of the relevant cultural property	Designated (registration) date
Era of occurrence of cultural assets	Required	• Classification field for the era of the cultural property	Era
Cultural property description	Required	• Description of the relevant cultural property	Introduction to the cultural festival
Owner (Owning Organization)	Optional	• Owner (ownership organization) of the relevant cultural property	Owner (Owning Organization)
Administrator (management organization)	Required	• Manager (management organization) of the relevant cultural property	Administrator (management organization)
Related URL	Required	• URL related to the cultural property	URL

4.4 Standards for building local culture and arts resources

Additionally, the standards for establishing local culture and arts resources were also presented. What must be considered when building and linking local culture and arts resources is the decision on which information sources to collect and what content to collect. It seems that objective standards are needed rather than decisions based on the situation or subjectivity, and it is recommended to refer to the standards presented in the Korea Culture and Tourism Institute's fact-finding study in 2022 for the evaluation area, evaluation elements, and evaluation items of local cultural resources. The standards for establishing local culture and arts resources, compiled by referring to other nationally designated cultural heritage sites, are as illustrated in the table below.

The construction standards may be broadly classified into the area of selecting record information resources subject to digitization, the area of creating digital record information resources, and the area of preserving digitized record information resources. It would also be necessary to refer to the detailed evaluation elements and evaluation items.

Table 17. Standards for building local cultural resources

Area of evaluation	Factors of evaluation	Items of evaluation	
Areas of selection of recorded information resources subject to digitization	Purpose	Have you confirmed the environment (management infrastructure, professional manpower, status of intangible cultural heritage recording information resources subject to digitization, etc.) of the region or country subject to digitization? Have you set clear goals for digitization (digitization of intangible cultural heritage record information resources, establishment of management infrastructure, continuous education and management)?	
	Variability	Have all the recorded information resources of intangible cultural heritage that changed according to the conditions of the transmission environment (performance period, costumes, tools, performance participants, generation of transmitters, etc.) been included?	
	Locality	Even if it is the same item, has it included all intangible cultural heritage record information resources that appear differently depending on the region?	
	Value	Are the intangible cultural heritage recorded information resources subject to digitization of sufficient value and directly related to intangible cultural heritage?	
	Dispersibility	Have all intangible cultural heritage record information resources that exist in various types for one item (subject) been included?	
	Commonality	Has the copyright of the intangible cultural heritage recording information resources subject to digitization been confirmed?	
	Community	Is the intangible cultural heritage that is the subject of intangible cultural heritage records and information resources recognized by the community itself as their culture?	
Areas of digital record information resource creation	Context	Have you taken steps to ensure that historical information on important actions that occur in each digitization process can be managed as metadata? Have you acquired the necessary metadata so that you can manage the intangible cultural heritage recording information resources produced during the digitization process as copies? Has technical metadata been created properly?	
		Intangible cultural heritage	Have you acquired metadata elements such as item information, era, region of transmission, tradition details, and subject of transmission?
		Subject of action	Have you obtained metadata elements such as transmitters, transmission organizations, participants, and research investigators?
	Records information resources	Have you acquired metadata elements such as production information, details information, media information, usage information, and collection information?	
	Classification system	Did you follow the classification system according to the intangible cultural heritage area standards (national standards or UNESCO standards)?	
	Status	Was the original order maintained? Are related images properly linked? Is the file name correct? Do the details of the list and the digitized image match? Are there any missing or duplicate images?	

Area of evaluation	Factors of evaluation	Itmes of evaluation
Areas of digitized information resource preservation		Is the digitized image skewed or cropped?
		Are there any scratches, dots, lines, etc. that do not exist in the original?
		Are the resolution and density of the image reproduced enough to be readable by the human eye?
		Are the gradations of the highlights and dark areas of the image properly reproduced?
		Is the grayscale value of the histogram between 9 and 247?
		Are the colors reproduced properly compared to the original?
		Does the image match the original size 100%?
		Is the image saved in the desired format?
		Was the image reproduced with the input bit depth and color mode (2-tone/grayscale/color)?
		Is there moire in the image?
		Have the details of the original video/audio been extracted without addition or subtraction in the form of a digital stream?
		Was a lossless compression codec applied to the generated digital stream?
		Have you cut out unnecessary segments and processed noise in the file (remastering)?
		Have you created the master file and service file separately?
Has the file format ensured universality by using open standards?		
Security		Have measures been taken to prevent unauthorized access attempts through security and access control for digitalized intangible cultural heritage recorded information resources?
		When backing up digitalized intangible cultural heritage record information resources, have you included backup of metadata related to the backup policy and taken steps to ensure that it is backed up along with intangible cultural heritage record information resources?
Expense		Preservation processing cost Have you considered processing and preservation costs?
		Storage cost Have you considered the cost of storage?
Continuity		After digitization, has the issue of disposal (disposal or preservation) of the original data been decided?
		If it is decided to preserve the original data after digitization, have preservation guidelines been prepared for this?
		After digitalization, have you established and implemented a technology transfer plan through technical training and documentation?
		Have measures been taken to prevent digitalized intangible cultural heritage recorded information resources from being modified or altered in all storage devices?
		Are digitized intangible cultural heritage recorded information resources managed in a way that they remain accessible for as long as they are needed?

5. Conclusion and Recommendations

Once faded away, local resource are lost in history and memory and could not be restored. By building small but valuable local cultural resources, relevant researchers and historians can use them as research materials, and as source material for second and third creations. There is a need to ensure that it may be utilized.

If local cultural resources are systematically built and served on an online service platform, they may become an engine base for regional revitalization and revitalization of culture and arts. That is, it will regenerate disappearing villages, preserve numerous local cultural resources within the villages, and enrich national and regional sensibilities by being reborn through various stories and various media. By using this service platform, anyone can use local culture and arts resources as a resource for building AR/VR experience content and as a basis for artificial intelligence curation (Korean heritage cases, etc.), and local governments can use local culture and arts resources as a basis for resource creation. It can also be used as a raw material for diffusion, promotion, and local commercialization.

Accordingly, in this study, it was sought to explore the ways to build a DB that connects resources and regions already registered as cultural assets on this platform in connection with projects that are newly building local culture and arts resources, and used the link to prevent duplication and improve the linkage effect. That is, it was intended to serve as an integrated portal for all local cultural resources in Korea by utilizing already existing resources in conjunction with them rather than duplicating them.

The specific linkage plan is to establish an information source using previously preserved cultural property information through regional cultural property linkage metadata. That is, based on the integrated metadata, the newly discovered information for each region and existing cultural heritage information may be provided together, and by mashing it up with map information, visual effects and the range of access users may be expanded.

Towards this end, this study first identified the type and scale of existing local culture and arts resources that could be linked. Following which, to link the local cultural resources and collected cultural assets, we investigated sites such as the Cultural Heritage Administration's National Cultural Heritage Portal, municipal and provincial tangible cultural festivals, municipal and provincial intangible cultural assets, and Gyeonggi Memory. Furthermore, this study identified the amount of information sources to be built and the current status of each information source to identify detailed information sources. Finally, the metadata of local culture and arts resources were presented by classifying them into material and publication data metadata, document metadata, audiovisual metadata, oral recording metadata, village information metadata, and personal information village information metadata.

The information source to be built through this study will be able to conduct an extensive search by linking with already established information sources, and through which, the block chain-based local cultural resource sharing platform will likely play the role of such a highly accessible platform rooted in the general public and an access point to national cultural resources.

References

- Cultural Heritage Administration's National Cultural Heritage Portal.
<https://www.heritage.go.kr/main/?v=1697275238902>
game memory. <https://memory.library.kr/main>
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- Han, Hui-Jeong Kim, Tae-Young, & Kim, Yong (2016). A Study on the Development of Metadata Schema for Intangible cultural Heritage Based on Multiple Entity Model. *Journal of the Korean Society for Library Information Science*, 50(3), 329-359.
<https://doi.org/10.4275/KSLIS.2016.50.3.329>
- Kim, Do-Hwan (2021). Study on satisfaction evaluation and improvement measures for public records digitization project: Focusing on the digitization project of basic local governments in Gyeongsangnam-do. Master's thesis, Dong-Eui University, Department of Library and Information Science & History.
- Lee, You-Jeong (2016). A Study on Digitization of the Nonelectronic Records of Local Government: Focusing on 8 Local Self Government of Daegu. Master's thesis, Daegu Catholic University, Department of Archiv.
- Provincial Intangible Cultural Heritage. <https://www.kogl.or.kr/search/search.do>
- Provincial Tangible Cultural Heritage.
<https://www.kogl.or.kr/search/search.do?query=%EC%8B%9C%EB%8F%84%EC%9C%A0%ED%98%95%EB%AC%B8%ED%99%94%EC%9E%AC>
- Ryu, Jae-Hyen (2017). Digitization Process and Improvement Plan of Important record in public institutions. Master's thesis, Han-Shin University, Department of Archive.
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