

Shared Visions, Fragmented Realities: Analyzing Digital Collaboration Challenges in Cultural Heritage Institutions



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ABSTRACT

In this paper, we analyze common challenges in digital cultural heritage (DCH) that hinder institutional and user-based collaboration for regional or small-scale cultural heritage projects. In particular, we highlight how DCH has accomplished much in digital storage infrastructure and open access, but, perhaps, has lacked attention towards building sustainable platforms. Without delegitimizing the importance of data management, our goal is to explore how DCH as a growing and independent field of study has not adequately prepared for the development of city-wide or multi-institutional heritage platforms, especially those focused on civilian participation. While there has been much success with multinational platforms such as UNESCO's work surrounding Intangible Heritage or the EU's 'Europeana', we focus on the struggle of a city-wide platform – 'Collectie van de Gentenaar' – that strived to unify and disclose the heritage collections of every heritage institution in Gent. As we demonstrate, these more local types of collaboration face challenges that are generally unaddressed in DCH progress and, unfortunately, leave them rather short-lived.

Author Keywords

Digital cultural heritage; MARC; Intangible cultural heritage (ICH); Europeana; 'Collectie van de Gentenaar'; 'DAMS'

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INTRODUCTION

In recent years, there has been a remarkable surge in demand for digital content across various domains, including heritage institutions. These institutions have therefore increasingly embarked on creating online databases to digitize and showcase their cultural artifacts, historical records, and artistic collections (Clifford, 2002). However, the strategies employed in this digital transition have often been met with several limitations. Firstly, a notable challenge has been the lack of interoperability between different digital heritage projects. This has led to fragmented, sometimes outdated, repositories that hinder the exchange and utilization of information across platforms. Secondly, the focus on digital storage infrastructure, while essential for preservation and access to collections, has often overshadowed the need for versatile platforms that offer interpretative layers and engage the public in meaningful ways. Clifford Lynch defines the difference between digital collections and digital libraries as follows: the former is closer to the disclosing of raw content, while the latter are “the systems that make digital collections come alive, make them usefully accessible, that make them useful for accomplishing work, and that connect them with communities”(Clifford, 2002). Moreover, these digital initiatives have commonly overlooked opportunities for participation by and collaboration with the public, hampering the democratization of cultural heritage (Pruulmann-Vengerfeldt & Aljas, 2014, p. 163).

In an attempt to address these shortcomings, there have been several initiatives aiming to unify disparate collections and establish collaborative frameworks among heritage institutions. On the European and academic level, this has included attempts to standardize digital practices within heritage institutions and develop large-scale digital platforms – such as the EU’s ‘Europeana’ – for public engagement. On a more local level, there have been endeavors to create city-wide or multi-institution spanning infrastructures, exemplified by projects like ‘Collectie van de Gentenaar’ and ‘DAMS’ (*Dams Antwerpen*, n.d.). These platforms strive to unify and disclose the heritage collections of every heritage institution in, respectively, Gent and Antwerpen. We’ll see that, unfortunately, these types of collaborative heritage platforms are often very short-lived.

In Section 1, we discuss some of the early achievements in digital data management that have shaped much of the way Digital Cultural Heritage (DCH) is approached today. In particular, we focus on the benefits and downfalls of semantic Web ‘vocabularies’, such as MARC, Dublin Core and more modern schemes, that work towards standardizing the storage and exchange of cultural metadata. Then, in Section 2, we move to more recent developments

in DCH terminology and public policy that establish the importance of digitizing both tangible and intangible cultural objects for public viewing. This includes discussion on The US and European Commissions on Preservation and Access (USCPA and ECPA) and UNESCO's 2003 Convention for the Safeguarding of the Intangible Cultural Heritage. Lastly, in Sections 3 and 4, we look more closely at multinational and city-wide efforts for digital collaboration. Of the latter, we focus heavily on 'Collectie van de Gentenaar' by mapping its development, its funding, and where it is now. As mentioned above, this project is one of many short-lived attempts to create institution-wide digital platforms. What could be causing this and is there something to be done?

1. STANDARDIZING METADATA: EARLY ADVANCEMENTS IN DIGITAL EXCHANGE

In terms of DCH, many of today's standards for the exchange and management of digital cultural data are largely based on the work of 20th century libraries (McCallum, 2002). During the early 1900s, institutions such as the Library of Congress sought to develop clear cataloguing systems that librarians could use to keep track of their collections. At the time, the best solution was physical "catalogue cards" which were typed or filled out according to sets of rules and stored away. Importantly, as more and more libraries (nationally and internationally) implemented the formats proposed by The Library of Congress, the library community slowly developed "ingenious mechanisms for copying each other's cataloging" (McCallum, 2002, p. 37) – in other words, the spread of catalogue cards served as an early standardization for data exchange, benefiting many cultural institutions.

Cataloguing books essentially follows the main principles of metadata collection and preservation used today. At its core, it is simply data (the cataloging description) about data (the individual book being catalogued). Of course, the main difference between cataloguing in the early 1900s and today's techniques revolve around *how* this data was recorded. Organizing a collection's catalogue has historically required a great deal of time, resources, and finances for each institution, one reason why it has been a key concern for these institutions for so long (Culbertson & Schottlaender, 2020). Because of this, many libraries started looking for new solutions in the mid-1950s-1960s and ultimately became some of the first cultural heritage institutions to take advantage of the popularization of the computer (McCallum, 2002). In particular, 1964-1967 was an important period of time for the DCH community; computer expert Henriette Avram along with The Council of Library Resources and Library of Congress sought to develop a new machine-readable cataloging standard that

could completely replace catalogue cards (Kalita & Deka, 2021). For short, this standard would become known as MARC.

1.1 The rise and innovation of MARC in DCH

In simple terms, MARC is a machine-readable standard that defines a structure and a set of data elements for record-keeping. These records may include information surrounding a cultural object's title, author, publication date, subject headings, and more. For Avram and her team, MARC was directly meant to help libraries both manage their data more easily and smoothly communicate with other institutions around them. Astonishingly, in the years following Avram's achievements, MARC would become the American and International standard for bibliographic record-keeping (McCallum, 2002). This applied not only to libraries but many other cultural heritage institutions too – archives, museums, and even art galleries have all benefited from this standard.

As different types of DCH institutions have looked to MARC for managing their collection's data, MARC standards have needed to be reworked. Not all institutions are as book-based as libraries or archives may be, and new methods for digitally managing other objects – such as pieces of art – have regularly been required. Additionally, MARC has needed to adapt to the continual advancement of markup languages and other technical advancements. For instance, in the early 2000s, The Library of Congress responded to the growth of XML by promoting it as a possible representation for MARC records (coined MARCXML) (Dahl et al., 2007). Nevertheless, for all of these advancements, continual growth and innovation in DCH has often left institutions in need of different formats.

1.2 Common drawbacks and other formats

While MARC has successfully expanded beyond books and has helped institutions manage data surrounding art, digital recordings, and more, the standard has not adequately responded to the growing diversity of cultural objects in need of digital storage. As O'Neill and Stapleton write, "[MARC] lacks richness for describing disparate objects. This richness is required by GLAM institutions now as not only a cataloguing of books is required but also a cataloguing of disparate artefacts in collections, e.g. video tapes, photographs, artefacts in special collections like 35 mm slides, sculptures, tapestries to name but a few" (2002, p. 893). Other critics such as Kuźma and Mościcka have also criticized MARC for its inability to manage map data. They write, "the number of fields [in MARC] that allow geographic information to be entered is limited, which in turn limits its searchability" (2020, p. 20). In response, cultural institutions have often turned to a multitude of schemes or standards

including Dublin Core, METS, BIBFRAME, SPECTRUM, CIDOC-CRM, and more general developments in Linked Data Scholarship. While each of these programs may respond to different and important needs in cultural data management, these developments simultaneously reveal DCH's frequent preoccupation with digital data storage and invite the potential for a variety of new approaches to data management. As we will see, this has the possibility to both bolster and hinder DCH collaboration.

By focusing on the early development of MARC and other machine-readable standards that have followed, we have drawn attention to early institutional concern surrounding record-keeping and metadata management. This is, of course, an important part of DCH, and one that has greatly influenced the way DCH has advanced. As we shall see in the next section, concerns surrounding digital storage infrastructure have generally remained central to DCH as the field has simultaneously grown an interest in open access policy.

2. “INTANGIBLE CULTURAL HERITAGE”: ECPA, UNESCO, AND THE STRENGTHENING OF DIGITAL HERITAGE POLICY

The success of MARC and other machine-readable standards has provided a strong foundation for cultural heritage institutions looking to digitize their records. However, with the development of digital databases, digital imaging and scanning tools, markup languages, and other technological advancements beginning in the mid-to-late 20th century, DCH members have slowly started asking new questions surrounding their digital practices. For instance, *what* exactly qualifies as a cultural object? And can cultural objects that are not tangibly available (i.e. items ruined by time or non-physical in nature) still be digitally preserved? In this section, we look at material and political catalysts that helped spark a growth in the DCH movement and ultimately legitimize DCH as an important field of study. In doing so, we continue to highlight how heritage institutions have given much attention to data management, storage infrastructure, and growing calls for open access.

2.1 USCPA and ECPA

In the 1980s, many archivists, librarians, and special collection scholars in institutions across the U.S. turned their attention to the protection of cultural objects against decay. Objects can only last so long, and books, rare documents, and many other fragile artifacts face high risks of acidification and embrittlement. (De Lusenet & Drenth, p. 161). While the digital organization of these objects already offered much to these institutions in the 1960s and 70s,

the evolving prospect of digital preservation introduced fresh and exciting strategies to address the omnipresent issue of time.

In 1984, The US Commission on Preservation and Access (USCPA) – which was made up by many cultural heritage scholars – became one of the first programmes to address concerns surrounding cultural preservation in explicitly political ways. As De Lusenet and Drenth note, the USCPA campaigned across the US and abroad throughout the late-1980s and 90s “rais[ing] public awareness of preservation issues and [placing] the topic on the agenda of politicians and decision-makers” (1999, p. 161). Roughly fifteen years after the founding of the USCPA, the EU followed suit with the European Commission on Preservation and Access (ECPA). In similar fashion to the USCPA, the ECPA aimed “to foster, develop and support European collaboration among libraries, archives and allied organizations, in order to ensure the preservation of the published and documentary record in all formats and provide enhanced access to the cultural and intellectual heritage” (De Lusenet & Drenth, 1999, p. 161).

2.2 UNESCO

Admittedly, while the work of the USCPA and ECPA introduced the growing need for digital preservation, much of their attention was directed towards curating, training, and informing other scholars on *physical* preservation practices and funding requirements (De Lusenet & Drenth, 1999, p. 168). Steps towards digital preservation were still in early stages of development throughout the 1990s, but as calls for digital preservation grew in the 2000s, academics simultaneously began to question *what* objects should be preserved. The 2003 Convention for the Safeguarding of the Intangible Cultural Heritage by The United Nations Educational, Scientific and Cultural Organization (UNESCO) highlights this concern and represents a key movement in this history as members of the DCH community for the first time distinguished between the existence of “Tangible” and “Intangible” Cultural Heritage, both in need of (digital and/or physical) maintenance.

In terms of Intangible Cultural Heritage (ICH), the Convention defines it as “the practices, representations, expressions, knowledge, skills [...] that communities, groups and, in some cases, individuals recognize as part of their cultural heritage” (Convention, 2003, Art. 2). Some key examples include oral traditions, performing arts, social practices, rituals, festive events, and more. As Severo and Venturini note, this distinction is ultimately designed to expand cultural heritage beyond traditional bodies of knowledge to the “vast and complex networks of institutions, associations, nongovernmental organizations (NGOs), groups, and

even single individuals” that create and sustain it (2016, p. 1617). For DCH, the non-physical dimension to ICH invites unique opportunities for digitization.

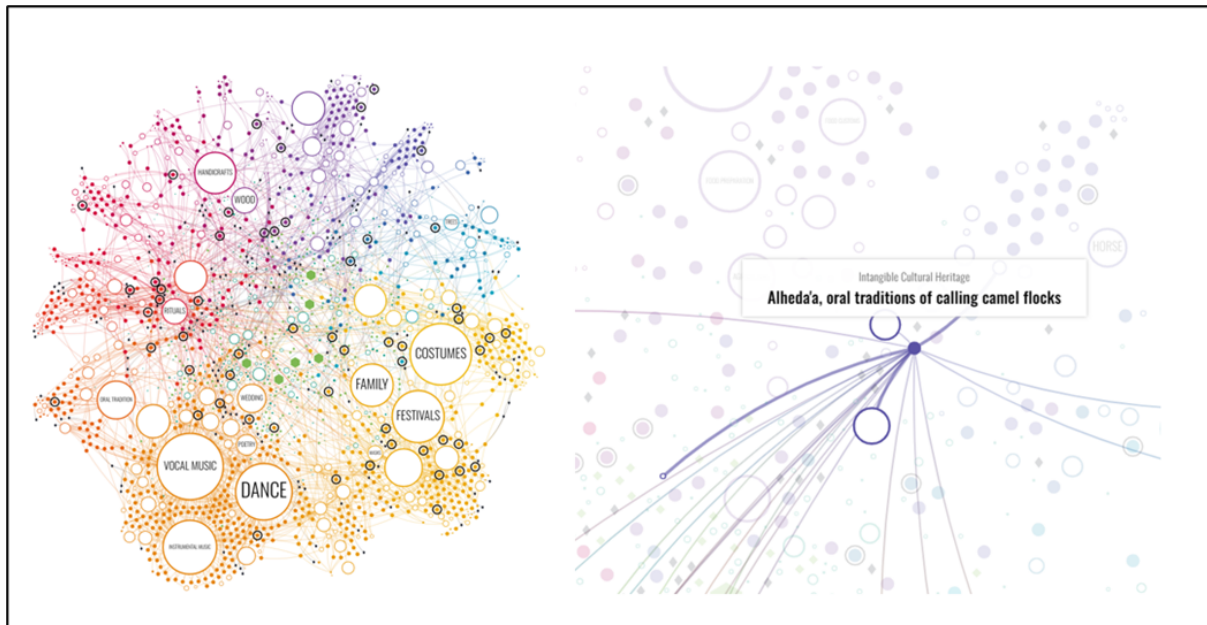


Figure 1. UNESCO, Network and Linked Data analysis of Intangible Cultural Heritage (ICH) objects

In their article “Digitizing Intangible Cultural Heritage Embodied”, Hou et al. write, “[recent] trends in computational heritage and ICT applications have played a crucial role in safeguarding ICH [. . .] [T]hey produce versatile resources while making [ICH objects] accessible to the public” (2022, p. 55). In Figure 1, we highlight UNESCO’s own digital approach to safeguarding ICH. By using cutting-edge network analysis and linked data scholarship, UNESCO has created an open platform based around intangible cultural objects in need of preservation. Each node (i.e., the digitized object) provides expansive descriptions for each tradition, practice, or skill preserved, serving to educate various users interested in this history. Information surrounding these objects are generally shared with UNESCO by institutions from participating States. Importantly, alongside its interactive visualizations, UNESCO also publishes all of this data online in clean and clear language for users to access.

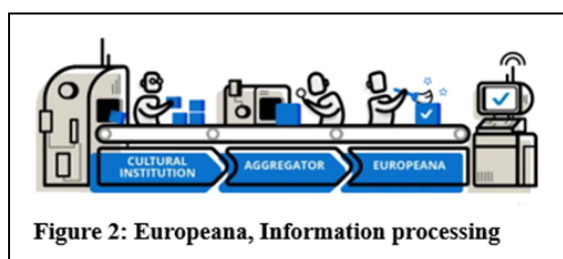
UNESCO’s digital work with Intangible Cultural Heritage represents the culmination of DCH progress from the 1960s to today. As a large- or multinational-scale cultural platform, it has extensive connections and considerable amounts of funding to pursue some of the key goals DCH has prompted: mainly, clean digital infrastructure and open, public access. While we have only briefly introduced this project in this section, we want to discuss another

multinational project that has served as a staple of DCH success in Europe; that is, the EU-funded platform ‘Europeana’.

3. DEVELOPING MULTINATIONAL PLATFORMS: THE CASE OF ‘EUROPEANA’

Europeana was first released in 2008 and represents one of the most comprehensive DCH endeavors worldwide. Giving global citizens free access to over 55 million digital artifacts from more than 3,500 European libraries, archives, museums, and more (Plank et al., 2020), the platform seeks to “empower the cultural heritage in its digital transformation” and “develop expertise, tools and policies [that] embrace digital change and encourage partnerships that foster innovation” (Europeana, “About”, n.d.). As a growing multilingual interface, Europeana currently allows users to view its digital content in 25 different languages and is continuing to expand its linguistic accessibility.

In terms of data management, storage, and infrastructure, Europeana is based around the ‘Europeana Data Model’ (EDM), a framework for data exchange that seeks to “preserve [its] original metadata as well as serving as a more flexible and expressive model” (García et al, 2016, p. 61). In other words, the EDM model can work with traditional markup languages such as Dublin Core, while simultaneously extending its cultural metadata according to newly defined categories and advancing more cutting-edge technologies, such as Linked Open Data. In practice, this responds to many of the concerns surrounding MARC standards discussed in Section 1 and allows for a large degree of interoperability between Europeana and the cultural institutions it ultimately gathers digital data from.



Importantly, Europeana has also centralized much of its digital processes by developing independent protocols established by the Europeana Foundation, an “independent, non-profit organization that manages the Europeana platform and collaborates with other

digital initiatives that make use of cultural heritage worldwide” (Borin & Donato, 2023, p. 421). Instead of having individual institutions share their data directly with Europeana, a series of Aggregators trained in the aforementioned protocols (See Figure 2) work with Europe’s cultural institutions and prepare their data for the Europeana platform. This “middle step” helps both ensure the authenticity of individual cultural data and preserve the integrity of the Europeana structure.

In terms of user accessibility, Europeana offers much. Individuals have the opportunity to freely search through the platform's extensive database or search for different information based on theme, topic, trending items, and more. If users wish to know more about where this digitized content comes from, there are additional links to the organization or cultural institution each item comes from. On top of this, individuals associated with institutions across Europe have the ability to directly collaborate with Europeana. After signing up, these members can choose to share their cultural content with Aggregators directly on the platform's "share your data" page. Of course, while this is limited to those associated with cultural institutions and not directly available for any individual wishing to share, it still represents an important step towards fostering more personal engagement.

Similar to the work of UNESCO, Europeana represents DCH at its best. Following the movement's emphasis on clean data management and open access, Europeana has successfully organized their digital content, and turned that organization into a platform for public engagement. Nevertheless, Europeana's status as a multinational organization provides it with a level of political and social influence that is not ubiquitous across DCH. While it has developed centralized processes for the smooth digitization of cultural objects, not all institutions have been able to achieve the same results. In the next section, we question whether collaboration in DCH has progressed as successfully as projects such as Europeana suggest. In particular, we focus on 'Collectie van de Gentenaar' and 'DAMS' and provide an in-depth analysis of the challenges these types of projects face.

4. DEVELOPING CITY-WIDE PLATFORMS: THE CASE OF 'CoGhent'

In this section we zoom in on a specific project that is attempting to unify multiple digital heritage collections: 'Collectie van de Gentenaar', or 'CoGhent' for short. We outline its objectives, key developments, technical aspects, project management, final outcomes, and future prospects.

"The Collections of Ghent project wants to connect local citizen-centric cultural heritage and the collections of the city's museums through a central open data system. In addition, the project wants to create value on the intersection of cultural heritage, technology and neighborhood social cohesion. This will be done by developing next-generation hybrid spatialized cultural interfaces that contribute in improving neighborhood social cohesion, namely the CoGent-box." (Baccarne et al., n.d., p. 19)

This quote reflects the initial objectives of the CoGhent project during its exploratory phase. We can conclude that the project aims to create two main outcomes: first a city-wide infrastructure for digital heritage collections and secondly the ‘CoGent-box’ as a way for citizens to interact and participate with the heritage collections. The project received 4,7 million euros of funding from the European Union’s ‘Urban Innovative Actions’ initiative. CoGent was a collaboration between the city, Ghent University, the Flemish government (via MeeMoo, the Flemish Institute for the Archives) and several NGOs and private companies from the creative sector (Studio Dott, Inuits, Fisheye, iDrops and Chase Creative). Additionally, various cultural heritage institutions, including S.T.A.M. (the Ghent city museum), Industry Museum, Design Museum Gent, Archief Gent (the city archive) and Huis van Alijn, contributed manpower and their collection (*Project: CoGhent*, n.d.).

Let’s delve into the project’s main outputs individually and evaluate them. First, the online heritage initiative, as this is the biggest part of the project and the most interesting to our paper. This component of the project is meant to offer a city-wide infrastructure for heritage institutions to present their collections, accessible through a web interface.

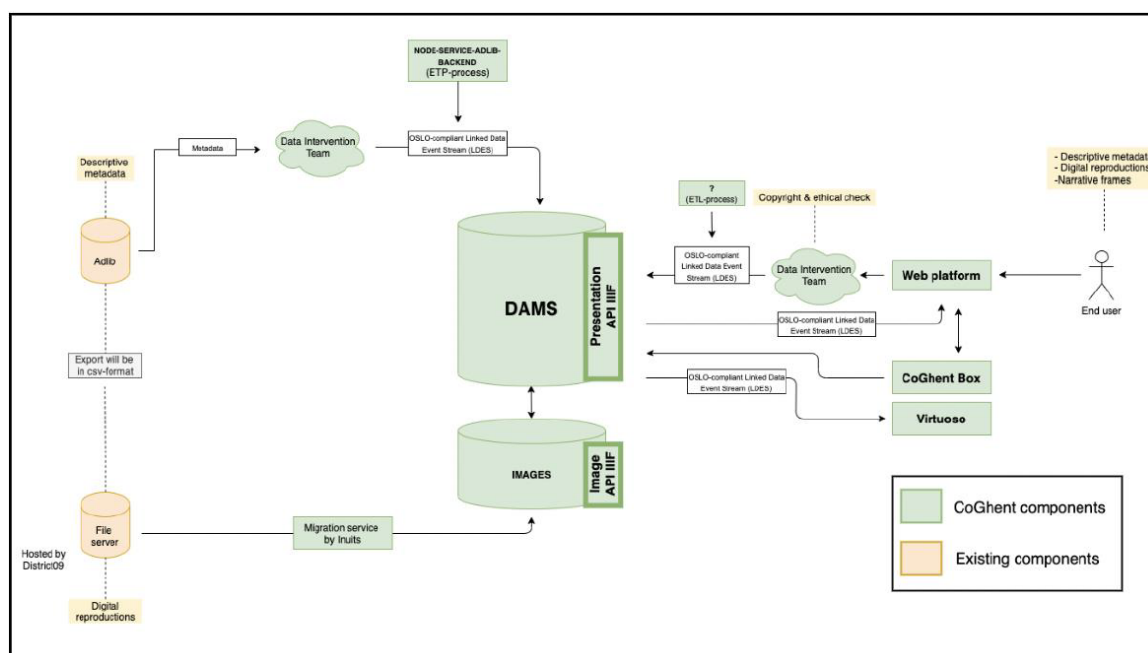


Figure 3: overview of CoGhent system (Verbrugge et al., n.d., p. 14)

The online platform’s architecture is depicted on the CoGhent system overview (chart 1). First of all, the data from the different collections are digitized and opened up according to existing (inter)national standards for collection and information management: SPECTRUM, CIDOC-CRM and OSLO, while adhering to FAIR principles. We have seen these standards

in section 1. The Data Intervention Team, an integral part of the project, handles metadata transposition according to these standards, while image migration tasks are outsourced to Inuits. The entire CoGhent system operates on Linked Open Data principles, ensuring open access to the data for co-creation or co-curation. The data is collected via LDES (Linked Data Event Stream) and published as LOUD (Linked Open Usable Data) in DAMS (Digital Asset Management System). DAMS can be accessed via the CoGhent web platform. The image-based resources are also accessible as linked open data, via the International Image Interoperability Framework (IIIF) (Output 5.1.1 Data Management Plan Version 2.0, 2021, p. 7–8; 30) Though an in-depth exploration of these systems is beyond the scope of this case study, it is important to note that the project is entirely based on Linked Open Data principles, meant for interoperability and more sustainable use of digital heritage data. The project succeeded in digitizing 80.000 objects, stories and documents (*Projectresultaten CoGhent*, n.d.).

Secondly, the CoGhent Box aimed to bridge the gap between the online world and the real world, allowing citizens to interact and participate with the project, by bringing the project to the people. The CoGhent Box carries most of the burden to accomplish the project's aim to "improve cultural participation and social cohesion in public and third places" (Pauwels & Van Kerkhove, n.d., p. 3). It sought to achieve this by utilizing and visualizing data in an immersive digital experience room. As detailed in the project's policy documents, the box had two main functions: "1. to facilitate interactions between citizens and the digital heritage collection of Ghent. 2. to add more objects and stories to that collection through participatory technology." (Pauwels & Van Kerkhove, n.d., p. 3). The box displayed the CoGent collection via interactive screens showing assets and stories from the web interface. The box has traveled through three neighborhoods in Ghent, where Cogent organized activities for citizens to explore the CoGent box and offer their own knowledge of the neighborhood. The significant stories gathered through this participation were compiled into a participation-toolkit (*Verhalen Uit De Wijken. Een Inspirerende Zoektocht.*, n.d.). The main web interface was also supposed to have a place for citizens to add their own knowledge on certain objects, but this function was never fully implemented. Allowing for participation through the website seems to be the most ambitious part of the project and the hardest to accomplish. Because the website allowed anyone to submit stories, it required a lot of labor to curate these submissions and develop ways to display these stories effectively. The effort to involve citizens in adding their stories as a "Sixth Collection" mostly didn't succeed through the website alone, but it proved successful through the CoGent Box and associated

activities and workshops. The policy document also highlighted that there was a lack of motivation among citizen participants to contribute to the project, primarily attributed to the inherent technological threshold of this type of participation (Van Den Bossche & Desseyn, 2023, p. 27).

Shifting our focus to the project's management aspects, let's look at the total costs and benefits of the project. The cost can be divided into four categories: overhead costs, costs during deployment, operational cost and the cost for continuation. The overhead costs (figure 4) mostly contain the management of the project, costs related to marketing and activities related to the writing of funding proposals. The deployment phase (figure 5) envelops the first year of the project and consists of three parts: building and managing the CoGent box, building the online system and community (mostly cost for recruitment and planning). In the operational phase (figure 6) we have the same three clusters of cost but are mostly dealing with management and upkeep. The continuation cost (figure 7) estimates the investments needed to ensure the continuation after 2023. Namely, the CoGent-box would need to be renovated and there would still need to be a Data Team to onboard new collections to the platform (Verbrugge et al., n.d., p. 35–37). This, in the end, all comes down to coordination and looking for an entity that wants to invest in the project.

But before we look at the future of the project, it's essential to consider the benefits and challenges it encountered. CoGent conducted its own analysis detailing the benefits and costs of the project, primarily through interviews with the collaborating heritage institutions. As for the benefits, the project yielded time and cost savings for these institutions by reducing labor spent on managing their individual databases. This saved money and time can then be invested in other areas and allow for the exploration of new opportunities. The platform could also offer new revenue streams for the institutions, as top collection pieces are more easily identified, which in turn makes it easier to attract subsidies. The project also has some indirect benefits, namely the social benefits of more social cohesion and community engagement. These benefits are of course very hard to quantify (Verbrugge et al., n.d., p. 29–33). As for the pitfalls of the project, the interviews revealed that while the heritage institutions do see the value of a shared database, they felt insufficiently informed about the platform's development. CoGent also observed that there were disparities among the partners in their willingness to share data and that not all partners were aligned in vision. This caused institutions to selectively share their collection with the platform and no complete commitment to the CoGent system (Verbrugge et al., n.d., p. 39–40). From our evaluation of the website, we found the interface challenging to use and it still has a few bugs (e.g. if you

search for something and click on one of the results, when you go back you lose your search and go straight to the home page).

So what will happen to CoGent? As the project concluded in 2023, the CoGent Box and associated neighborhood stories will find a place in the Industry Museum in Ghent. Despite discussing several ideas for project sustainability, these primarily revolve around reusing collected data rather than continuing the project (Jégou, 2023). The project stresses the need for continued collaboration between Ghent's heritage institutions and a fair distribution of maintenance costs among partners. However, none of the institutions are willing to shoulder this responsibility independently (Van Den Bossche & Desseyn, 2023, p. 53). This is the crux of the issue: while the project had its merits, offered some solutions for digitization, brought some institutions closer together and engaged with the public, the project is finished and there are no concrete steps taken to keep at least the digital side of the project intact. Only limited funds exist to sustain the web interface and servers for a few more months, and there's no data management team to incorporate new collections. The CoGent platform will die out and a new project with roughly the same objectives will try to do it all over again. Today, this seems to be the 'dams' project. This is currently already functional in Antwerp, and will also take over the torch in Ghent (*Dams Antwerpen*, n.d.). Hopefully this will be more sustainable than the previous projects. In the meantime these fragmented projects are becoming harder to get off the ground floor because of declining trust among heritage institutions. Each institution has its own online database system, making them less inclined to invest in new shared heritage projects that end abruptly, resetting progress. Despite promises from the Flemish government for a large-scale shared digital heritage database since 2019, which the heritage institutions seem to be waiting on, there has been no visible progress on this initiative (*Toekomst Erfgoeddatabanken: Studieopdracht Integratie Erfgoeddatabanken*, n.d.). In the current climate, a government funded centralized approach does seem to be the most viable strategy, given that current collaborative projects are yielding short-lived results without lasting impact.

5. CONCLUSION

We started this paper by noting several issues that the cultural heritage sector has encountered during its digital transition. In particular, we emphasized how concerns surrounding data management, digital preservation, and public engagement have often led to DCH's preoccupation with data standardization and open access. Attention to these questions are

important for the success of DCH, but have simultaneously led to a lack of attention towards sustainable platforms. While collaborative efforts under large multinational organizations such as Europeana have flourished under DCH progress, institutional and user-based collaboration for regional or small-scale cultural heritage projects have often been hindered. With the continual development of data standards and technical advancement, city-wide and multi-institutional organizations have struggled to find productive ways to work together, regardless of their shared visions for the future.

In our principle case study on the CoGent project, we demonstrated how adherence to key DCH principles through innovative approaches to data management and open access did not guarantee success. The CoGent project aimed to unite digital heritage collections in Ghent, creating an online heritage platform and the CoGent Box. It received significant funding from the European Union and involved various entities, including the city, Ghent University, the Flemish government, NGOs, private companies, and several cultural heritage institutions. The online platform helped digitize collections and facilitated open access through Linked Open Data principles. Simultaneously, the CoGent Box sought to enhance cultural participation and social cohesion by allowing citizens to interact with the project, although the website's participatory element faced challenges. Cost-benefit analyses showed that the project offered savings in labor and costs for heritage institutions, facilitating new opportunities and potential revenue streams. Yet, challenges arose from disparities among partners' willingness to share data, a bad information flow regarding platform development, and a lacking website interface. As the project concluded in 2023, the CoGent Box found a home in the Industry Museum in Ghent. However, the digital project will die out, with proposals centered around reusing data rather than continuing the initiative. Notably, the lack of commitment among heritage institutions poses a significant obstacle to continuing the digital platform. Fragmented initiatives and dwindling trust among institutions complicate efforts to initiate shared heritage projects. While multinational DCH platforms such as Europeana have been able to establish strong digital infrastructures, open platforms, *and* effective collaborative networks between international heritage institutions, we can conclude that more local city-wide and multi-institutional collaborative projects are yielding short-lived results without lasting impacts. The need for a centralized government-funded approach emerges as a potential solution, given the challenges faced by ongoing initiatives. This shift towards a more centralized approach appears crucial in achieving sustained and impactful digital heritage preservation.

6. LINK TO COURSE

In our study of the CoGent project, we encountered parallels with the software management challenges discussed in class. The important topics we covered in class match the issues we found in the CoGent project.

First of all, dealing with platform and infrastructure change. The course stressed the importance of flexibility and scalability, which was found lacking in the CoGent project. The platform had persistent bugs, encountered hurdles with collection partners hesitant to contribute, and ultimately abandoned aspects of the participation side of the website. As for scalability, this was not built into the platform because the project only lasted three years. Despite this, the project's decision to adhere to linked open data principles ensures the data's potential reusability for future projects. Secondly, the issue of governance surfaced prominently in our study. We already mentioned the lacking communication between the heritage partners and the project. The partners were not aligned in vision which impacted the platform's capability to meet their collective needs effectively. Thirdly, budget. While we know how much funding the project received, we don't have access to precisely how this budget was allocated and what the workflow looked like. From the project's central system overview and charts detailing the costs, we know that the project chose to outsource certain elements (e.g. the image migration to IIIF) to other companies, alleviating the burden on the project developers. Finally, resilience and sustainability were also big topics in this paper. The current landscape of collaborative digital heritage projects consists of many fragmented, short-lived projects. They are almost completely unsustainable with the exception of large-scale, multinational platforms we introduced in parts 1-3. We concluded that this has led to a feedback loop of heritage institutions losing trust in these projects, impeding sustainable progress in developing digital heritage platforms. This connects to module two, where we examined the complexities of implementing new information systems. The course emphasized that this involves much more than just new software; it entails changes in jobs, skills, management and organizational structures. In our case study this was made even more difficult because multiple heritage institutions, that have their own unique databases, catalogues, etc. were required to completely overhaul their established practices and collaborate with other institutions that may have different visions.

In summary, our research into the CoGent case study not only echoed the software management challenges discussed in our course but also the difficulties faced when implementing new information systems.

ILLUSTRATIONS



Figure 4: CoGhent overhead costs (Verbrugge et al., n.d., p. 35).

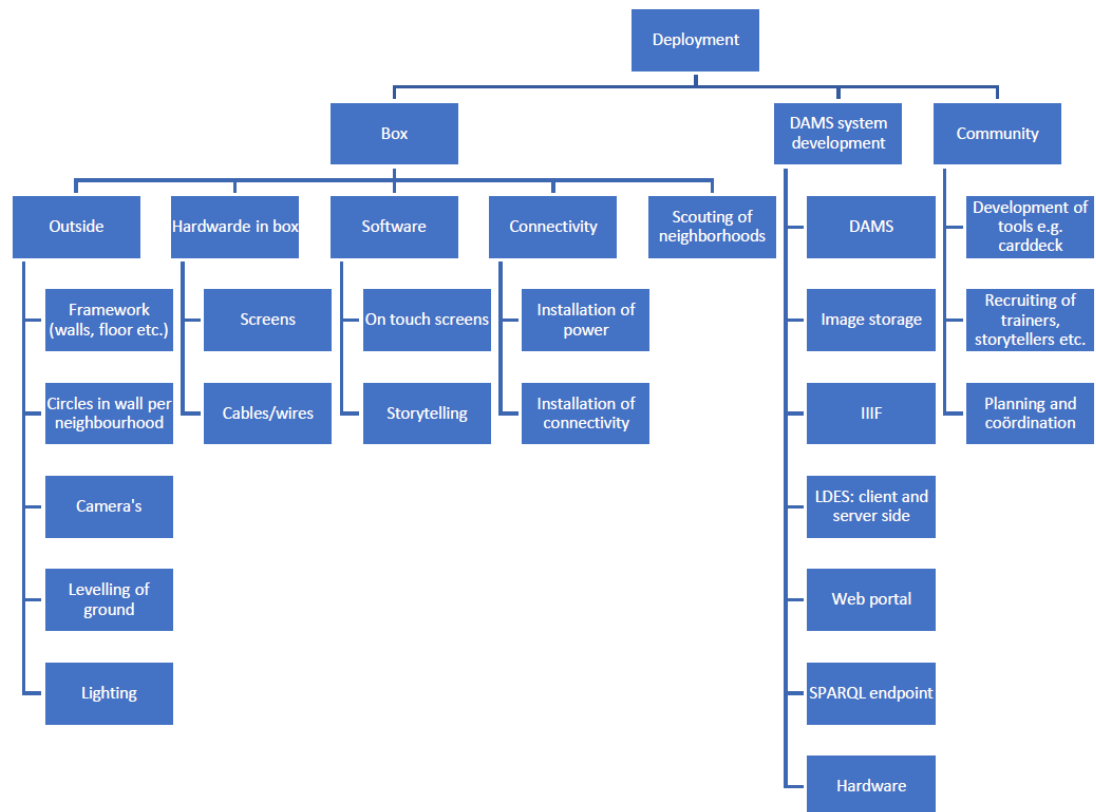


Figure 5: CoGhent deployment costs (Verbrugge et al., n.d., p. 36)

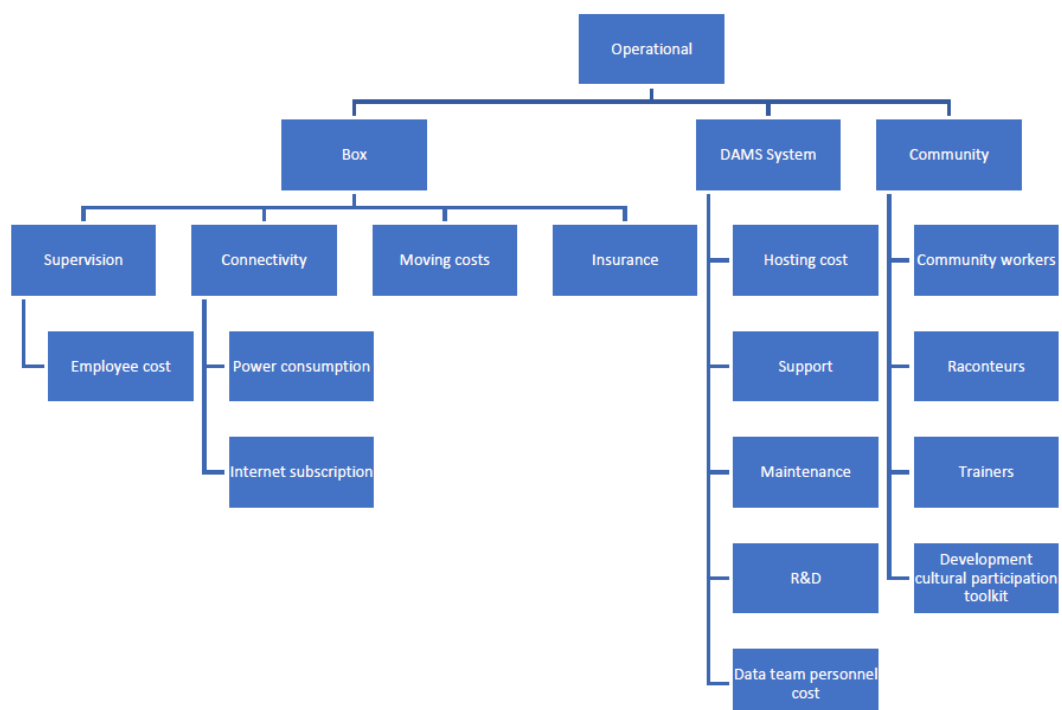


Figure 6: CoGhent operational costs (Verbrugge et al., n.d., p. 37).

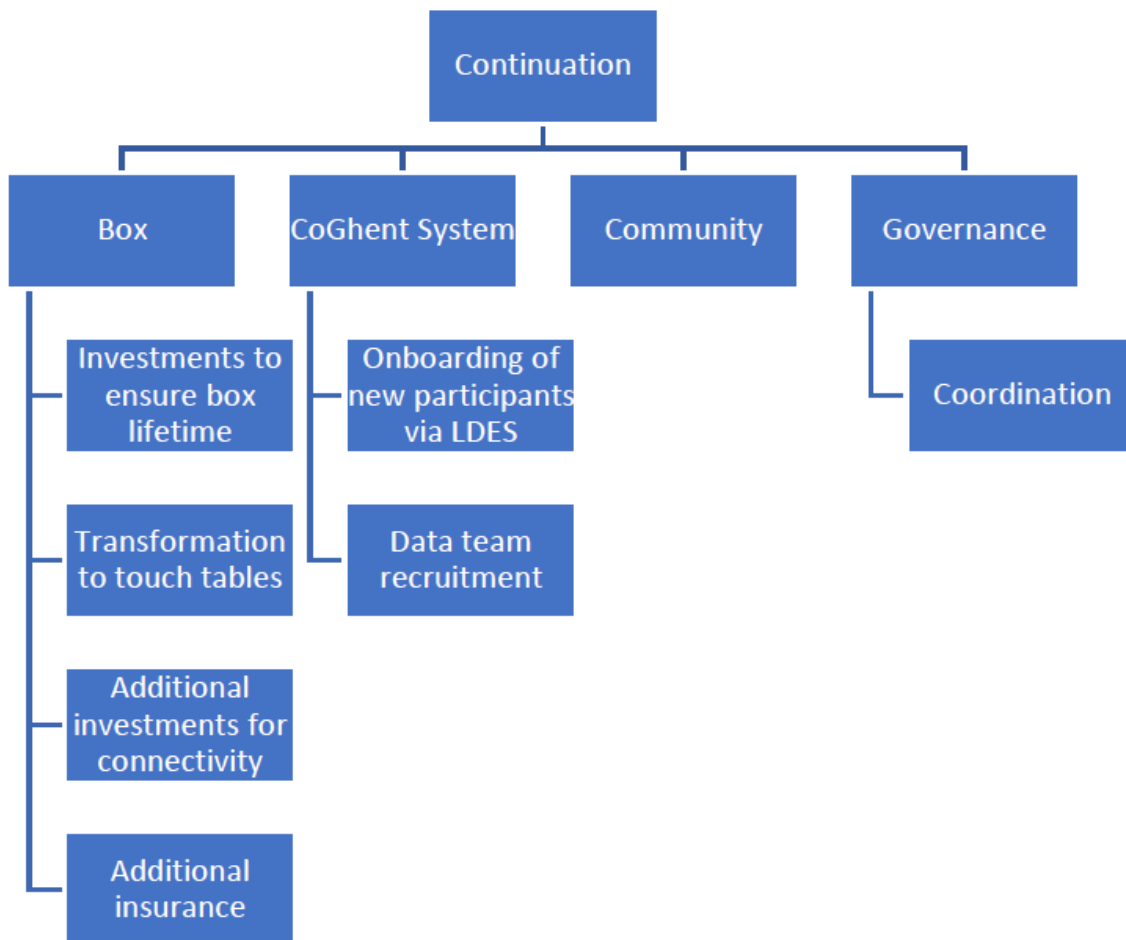


Figure 7: CoGhent continuation costs (Verbrugge et al., n.d., p. 38).

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N.b.: ChatGPT was used to assist in rewording our texts. It was not used for research or writing the paper. After we finished our texts, we used ChatGPT to suggest alternative wordings and correct grammar. Even then, we never copied ChatGPT fully, we only selected certain words or sentences.