

inDICES: A MOOC on Developing Digital Transition Strategies for Cultural Heritage Institutions

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Abstract. In the Horizon 2020 project inDICES, a consortium of 14 interdisciplinary partners from research and industry set out to develop an approach on how to understand and measure the impact of digital cultural heritage. Synthesising the results of three years of research, the consortium produced a MOOC on the KULeuvenX edX platform, focused on the development of digital transition strategies for both non-profit business models in heritage institutions as well as broader cultural and creative industries. Built on KU Leuven's experience in developing MOOCs derived from Horizon research, this particular online course is part of a specific segment of the university's MOOC offerings targeting primarily a professional audience. It is the third MOOC in a series intended for current and future professionals in the GLAM sector. In this paper, we discuss the choices behind the development of such a MOOC, and the strategic role such MOOCs play in the business model of the university, particularly with regards to micro-credentials. It also highlights the opportunities that networking with industry stakeholders opens for higher education and research organisations, as a not-for-profit valorisation effort. The MOOC brings insights on data monitoring and trend watching, copyright and digital asset management and development of digital strategies. Most importantly, it positions these topics within the context of new digital value chains for heritage institutions fostered by open access and participatory engagement models. As such, this paper will be of interest both to communities of MOOC developers - to understand how stakeholder communities and professional networks can steer choices, formats and approaches - as well as university MOOC business plan developers. Furthermore, as this MOOC embodies the growing interest of teachers and scholars in digital collections, it will also provide insights into opportunities such formats provided to the education and research sectors. Finally, it will speak to anyone working on MOOCs on the topic of cultural production and heritage.

Keywords: MOOC, digital transformation, digital strategy, galleries libraries archives museums (GLAM)

1. The need for digital transition strategies in GLAM

Previous research done in the context of Europeana¹, the European portal for Cultural Heritage, and NEMO², the organisation of European museums, shows that many smaller to mid-size GLAM (Galleries, Libraries, Archives and Museums) institutions struggle to develop a coherent, encompassing digital strategy, to integrate digital collections in their general workflow.³ This became very apparent during the COVID-19 epidemic, but reflects a more endemic, structural issue. The need to replace on-site visits with online interactions forced many institutions to scramble for visibility on the web - testimony to this is the appearance of new roles such as a social media manager - and producing one-off 3D showcases. However, in many cases there were insufficient resources available and not enough planning time to structurally embed this in a new way of working and real digital agency (Truyen & Bočytè, 2021).

This becomes most apparent in the possibilities that social media offer and how they relate to the digitised collections and GLAM operations. It is about the social in social media. Although there are quite some studies discussing the value of digital communications for museum marketing (Amalia & Hanika, 2021), one should also take into account possible harmful effects of underlying algorithms (Petrescu & Krishen, 2020), e.g. in reinforcing gender bias (Schroeder 2021). Moreover, these platforms do not necessarily improve social well-being (Ryan et al, 2017) - while there is evidence that actual onsite heritage visits do (Sofaer et al, 2021). However, in particular for GLAM institutions, the combination of web presence, apps and social media activity provides an ideal opportunity to develop participatory practices that help to reconnect heritage collections to

¹ <http://www.europeana.eu>

² <https://www.ne-mo.org/>

³ See <https://pro.europeana.eu/project/europeana-common-culture>, in particular the report "MS3 Landscape of national aggregation" and <https://www.ne-mo.org/advocacy/our-advocacy-work/museums-during-covid-19.html>

stakeholder communities and audiences (Fernandez-Lores et al, 2021). In fact, many institutions already tap into the power of crowdsourcing, often to help in identification of heritage objects and the enrichment of metadata (Davies, 2020). But it could go much further than that: communities might want to and should have opportunities to contribute earlier in the internal decision processes of the heritage institutions, e.g. by co-deciding on digitisation priorities, content selection and even curation. Where digitisation and the publication of digital collections can be considered an inside-out process, relying mostly on the knowledge and capacities of the institution, participatory and co-creative platforms can implement a more outside-in approach, bringing the communities who define objects as being heritage back into the process. This is an important paradigm shift that acknowledges and positions communities as knowledge experts (a role previously reserved for heritage professionals) and heritage organisations as facilitators enabling those communities to bring their expertise and continuously reinterpret and bring new meanings to heritage collections.

2. The inDICES research

The Horizon 2020 project inDICES tries to develop a new way to measure the impact of digital culture, focusing on the role of cultural heritage institutions. Our historical heritage can be considered as a key enabler of the advancement of the Cultural and Creative Industries in Europe, when these heritage contents are opened up for rediscovery and reuse. In this sense, CH institutions can be seen as R&D labs of the cultural and creative ecosystem. However, researchers and policy-makers are struggling to fully understand the crucial role that the Cultural Heritage Sector can play in the digitisation process of the cultural and creative ecosystem in Europe.

inDICES aims to inform policy-makers and empower decision-makers in the Cultural and Creative Industries so that they realise the social and economic impact of digitisation in the sector and create the necessary environment to stimulate innovative (re)use of cultural assets. Based on influential research on modes of cultural production (Sacco et al, 2018) as well as research on impact models (Tanner, 2020) and creative value chains (Devoldere et al, 2017) , further in-depth research has been done to consolidate data gathering, enable monitoring and perform analytics to formulate policy recommendations (Sacco et al, 2021).

In its Open Observatory⁴, inDICES aims to track policies and provides tools to discuss, measure and advance the impact of cultural heritage in Europe. This can help the development of policy priorities for digital transformation in the sector. The inDICES consortium brings together internationally renowned research groups in the domains of Cultural Economics, IP Law and Digital Humanities, representatives from CCI networks and institutions with deep outreach capacity, social innovators and platform developers. The research is data driven: data are gathered from both existing repositories and archives and from specific data collection activities carried out on digital platforms and social media, and analytics is applied to detect and showcase important trends in cultural production and reuse. Another important part of the research, reflected in the MOOC, is an analysis of the legal copyright framework in Europe and how it is conducive or not for creative reuse of cultural content (Janssens et al. 2021).

To sum up, with its impact methodology, the project develops models to measure the socioeconomic impact of access to cultural goods and new modes of content production enabled by digital cultural heritage and at the same time we map Intellectual Property frameworks on European and national levels to understand how they could enhance the competitiveness of the cultural heritage sector. This allows us to develop new business models, best practices and tools to implement creative value chains that help individual organisations overcome bottlenecks in creative reuse and consumption of digital heritage. All this is embedded in a participatory approach to engage stakeholders in collaborative co-creation and introduce a model for community participation built around ethical principles. Finally inDICES made a study of existing self-assessment tools for digital strategy in the GLAM sector, and developed - on the basis of the widely used ENUMERATE surveys - an interactive Self-Assessment tool for heritage institutions. In this context, the development of a MOOC aimed at summarising the most interesting results of the inDICES project while simultaneously giving cultural institutions direction on how to confidently navigate the digital realm, represented a natural evolution of the project. Since the beginning of its development, the MOOC was designed based on a set of recommendations addressed to CHIs (Bočyté & Truyen 2021; Janus et al. 2021), which contained the major results of the main inDICES research areas: digital transformation and self-assessment, digital trends, IPR, capacity building and value chains, impact assessment, and technological innovation. This research areas represented not only the different Work Packages of the project, but also reflected the table of content of the MOOC, as highlighted in the table below.

⁴ <https://participate.indices-culture.eu/>

Table 1: Table of content of the MOOC

Module 1	Digital transformation & self-assessment
Module 2	Digital trends and culture 3.0
Module 3	Empowering IPR for the commons
Module 4	Strategic skills, collaborations & organisation growth
Module 5	Impact assessment
Module 6	Approaching technological innovation

This went hand in hand with thorough collaboration between experts coming from the research sectors explored in the project and the KU Leuven digital education team, which transformed and adapted the experts' ideas and the project's results to fit within a MOOC learning environment.

3. Why a MOOC?

Contrary to the original concept of MOOCs, which were meant as open online versions of university courses, and sometimes literally recordings of such classes, this MOOC fits in a series stemming directly from international research projects. Instead of delivering established academic knowledge to a wider audience, this MOOC is an example of an effort to shortcut the time of delivery of new knowledge to a professional audience. Besides the typical postgraduate students found in MOOCs, it is supposed to attract professionals and aspiring professionals, to make sure new insights reach the work floor.

A second aspect that sets this MOOC apart is the fact that the research does not only come from academic institutions but emerges from a collaboration between university research departments and GLAM organisations. Both parties have good reasons to engage in these efforts. For the universities involved, research in collaboration with the professional field offers an important reality test and validation exercise for new ideas. It gives access to hitherto inaccessible resources, which are held, in our case, in heritage institutions. More importantly, it gives access to the audiences and stakeholders of these institutions. This facilitates new ventures such as e.g. Citizen Science projects.

Because of these elements, this MOOC does not entirely insert itself within the type of educational approach generally conceived by edX, which usually orients its courses towards a textbook-structure model (also recognized as xMOOC), which favours independent learning over interaction (Waller et al, 2019). Instead, it can be recognized as a dynamic learning environment which shares elements both with the xMOOC approach and the collaborative MOOC model (cMOOC) (Mary Queen & Vel Murugan, 2020). The integration of aspects belonging to both models aimed at creating an environment that could enhance knowledge acquisition through collaboration and connection among participants and not uniquely through passive learning (Wang et al. 2017, Siemens 2005). There are also more practical reasons universities want to connect their study programmes to the labour environment, such as, for example, facilitating job uptake not only for graduates but also for postdoctoral researchers, as there are many more PhD researchers than academic vacancies.

But how does a MOOC fit in all of this? A recent development in the business model of many universities, and in particular in Europe, is the elaboration of a micro-credential system⁵. Currently, due to advanced digital platforms and tools offered by online learning solutions, there is a myriad of informal learning going on, which has difficulties connecting to formal learning. On the one hand, there is a need for a wide variety of very specific, job-oriented learning modules, on the other, there is a need for certification of knowledge and skills acquired in such way. For universities, there is a clear motive to facilitate the transition from partial, specific learning components to degree learning. Micro-credentials are meant to play an important role in facilitating this⁶. And, as it happens, a very flexible way to organise micro-credentials is to offer MOOCs.

⁵ See <https://education.ec.europa.eu/education-levels/higher-education/micro-credentials>

⁶ See e.g. <https://mce.eadtu.eu/> and for an attempt at definition <https://www.voced.edu.au/content/ngv:91634>

It needs to be acknowledged that similar criticisms are being forwarded towards micro-credentials as were advanced against MOOCs during their introduction and hype in the period 2008-2012 (Daniel 2012; Boullier 2012; Holton 2012), such as that it doesn't solve structural problems in formal education (Boud & Jorre 2021), that it has too much of a focus on employability than on Bildung (Wheelahan & Moodie 2021), that its impact on the Higher Education business model is limited (McGreal & Olcott 2022). However, in this case registered university students are also invited to join the MOOC as part of their formal classes, to attract better dialogue between students, aspiring professionals and professionals. Of course, part of the aim is improving employability, but it also encourages students to critically assess current labour organisation in GLAM starting on a reflection of its declared core mission, which is part of the MOOC activity. It is a much more cyclic, integrative, two-way learning and teaching approach than the linear supply chain model which is presupposed by many critics. It actually brings institutional and expert knowledge into the academic program.

For the professional organisations, in our case from the heritage sector, contributing to the development of a MOOC and sharing their expertise would be beneficial in the academia at an educational level. As participating in the MOOC is free, it is also a way to support in-house capacity building. This is the main reason why important GLAM network organisations were part of the innovation project behind the MOOC.

4. Previous MOOC experience

There are important differences between MOOC content and academic course content. One aspect is the difference in implicit context: while an academic course is embedded in a larger education program, and often builds further on previously taken courses, a MOOC is a stand-alone course. This also means that a lot of process information, which is normally given by the educational institution or the professor, needs to be made explicit in the MOOC.

There is also a difference in duration, as it does not really make sense to have one hour recordings for the MOOC, as online consumption habits are quite different and oriented to shorter content digestion. This meant that for the development of this MOOC it was needed to rely on in-house expertise at the university to develop the content as well as the learning activities in the MOOC. The support team at KU Leuven uses an ABC design model⁷ for this which allowed the design of a well-structured development environment. Fortunately, for the current MOOC the academic team also had previous experience with developing MOOCs for the humanities, such as "Europeana Space: Creative with Digital Heritage", "Creating a Cultural Heritage Community" and Euro-noir: Cultural Identity in European Popular Crime Narratives.⁸ This helped us to understand the mechanics of developing a coherent MOOC with the collaboration of distant, independent, multi-disciplinary research teams. Creating such a MOOC with a large number of contributing partners - in these cases including university research groups from engineering and a diversity of humanities disciplines, SME's, large professional networks and non-profit/not-for-profit organisations, requires a rigorous development and implementation planning. It also requires a lot of fine tuning and the setup of a joint quality control and content "normalisation" procedures. For the MOOC student, the wording, style, formatting and presentation of the different content modules must be sufficiently aligned and of comparable accessibility level. This was a major undertaking requiring a quite elaborate editorial and reviewing protocol.

In the area of transformation and management in the cultural heritage sector, it is possible to find interesting examples of MOOCs - such as those gathered in the table below - which however, fail to focus really on the importance of the digital turn for sustainable heritage work.

Table 2: Examples of MOOC

MOOC Title	Platform	Institution	Objectives/Focus
<u>Digital Education with Cultural Heritage</u> ⁹	European Schoolnet Academy	EF - Europeana Foundation	Provide insights into educational potentials of digital cultural heritage

⁷https://www.kuleuven.be/onderwijs/werkvormen/activeren_studenten/ABCdesign/onderwijs-anders-bekeken

⁸ The MOOCs "Europeana Space: Creative with Digital Heritage" (EU CIP Funded), "Creating a Digital Cultural Heritage Community" (EU CEF Funded) and "Euro Noir: Cultural Identity in European Popular Crime Narratives" (Horizon 2020 Funded), all available on <https://www.edx.org/school/kuleuvenx>.

⁹ <https://www.europeana.eu/en/europeana-classroom/moocs>

MOOC Title	Platform	Institution	Obectives/Focus
			Guide the teachers to integrate digital cultural heritage in their classes
<u>Cultural Heritage in Transformation</u> ¹⁰	edX	RWTH Aachen University	Management of tangible Cultural Heritage Does not cover digital transformation in the institutional context
<u>Arts and Culture: Towards a New Management Paradigm</u> ¹¹	edX	IIMBx - Indian Institute of Management, Bangalore	Economics approach Not focused on the implications of digital transition.
<u>Arts and Heritage Management</u> ¹²	Coursera	Bocconi University, Milan	Focused on “art management”, and networking.
<u>Tourism Management at UNESCO World Heritage Sites</u> ¹³	FUN MOOC	Université Paris 1 Panthéon-Sorbonne	Focused on communication technologies, economy, management and planning

5. The InDICES MOOC

The MOOC “Developing Digital Transition Strategies for Cultural Heritage Institutions”, hosted on the KU Leuven’s edX platform - KULEuvenX¹⁴ brings together the main results of the research and analysis conducted in the past three years within the inDICES project.

Developed through a robust cooperation between inDICES partners and specialists as well as experts from the KU Leuven MOOC development team, the course aims to raise awareness of the potential of digital transformation strategies for cultural heritage institutions. Professionals from the cultural heritage sector and academics are guided in the discovery of methods and tools, which can help them better navigate the digital transformation realm.

The course revolves around six modules, each of them dedicated to relevant topics within the field of digital transformation for cultural heritage institutions. Each module represents a step towards a better understanding of the challenges as well as the possibilities that digital transition strategies can offer to cultural institutions. Participants are invited not only to build their comprehension of the concept of digital transformation and its potential for the cultural sector, but also - thanks to the implementation of dedicated discussion forums within the learning environment - they are encouraged to share their experiences and actively discuss with the other participants.

Thus, from an educational point of view, the MOOC is envisioned not only as a traditional learning environment that allows participants to expand their knowledge on the topic but also as a place of professional growth. Through focused exercises, readings, video conversations, practical examples and the presentation of currently relevant case studies, the learners are encouraged not only to immediately put into practice their newly acquired knowledge but also to question their previous habits and assumptions and understand how to face new challenges.

The course aims to exploit the many potentialities of a distance learning environment by creating a consistent learning experience but also encouraging engagement and participation. In this context, the following elements

¹⁰ <https://www.edx.org/course/cultural-heritage-in-transformation>

¹¹ <https://www.edx.org/course/arts-and-culture-towards-a-new-management-paradigm>

¹² <https://www.coursera.org/learn/arts-heritage>

¹³ <https://www.fun-mooc.fr/en/courses/?limit=21&offset=0&query=heritage>

¹⁴ <https://www.edx.org/school/kuleuvenx>

contributed to the design of a distance learning course that could support and enhance the above-mentioned educative structure at the basis of this MOOC:

- **Adoption of an instructor-paced learning environment.** Instructor-paced courses are generally offered in edX courses as an alternative to self-paced courses, which allows students to access immediately at the time of enrolment all the material offered in the MOOC and to work at their own pace until the end date. Differently, instructor-paced courses enable students to set a fixed learning schedule that learners need to follow systematically in order to complete the MOOC. The material contained in each module is released on a weekly basis. This method not only encourages students to follow the course methodically but also facilitates dialogue and discussion among the participants, reducing the risk of lack of participation.
- **Possibility to create a personalised trajectory.** Although the sequence of modules is harmoniously structured and the following of a certain order is suggested, each module is also designed to exist independently of one another. This enables MOOCs participants to create their own learning trajectory and to freely choose the modules to follow depending on their own needs and interests.
- **Use of external tools to expand users' learning experience.** Participants' learning experience is not confined within the edX environment -as it traditionally happens in the MOOCs developed on edX - but extended outside the learning platform by the inclusion of content and activities redirecting to external tools such as the inDICEs Self-Assessment-Tools, the Europeana Impact Playbook or the Visual Analytic Dashboard (VAD) developed in the context of the inDICEs project . The combination of different environments aims not only at supporting a diversity of activities but also at upgrading the learning experience with further interactive elements.
- **Blended-learning.** Besides being worldwide available on the edX platform for all the students interested in the topic, the course is also designed to be included within a blended learning environment in the context of dedicated digital cultural heritage courses offered at KU Leuven.
- **Conversations with the experts.** A further element that was used to support learners in their understanding of digital transitions strategies and challenges for the cultural heritage sector, is represented by the video interviews with professionals coming from various European cultural institutions available in each module of the MOOC. From an educational point of view it was essential that students would also learn directly from experience professional figures in the sector.

6. Conclusion

In this paper, we presented the choice for and the development of a research-project based MOOC on Digital Transformation for the Culture Heritage sector, in particular GLAM institutions. We argued the need for encompassing digital strategies for GLAM institutions, that also take an outside-in point of view, giving stakeholder communities a voice in inside digital processes. We detailed the actual research project in which this MOOC was developed, which focuses on the way heritage institutions should relate their activities to new modes of cultural production, redefine their mission to adapt to the possibilities of the digital and develop and monitor indicators in that regard. We discussed the reasons for academic institutions to develop such MOOCs, as well as the reasons for GLAM institutions to participate in such MOOC projects. We explained the previous experience that enabled us to do so, gave an overview of the MOOC that was produced, and attached some lessons learned. With this research project, we aimed to highlight on the one hand how the use of a MOOC format as a learning alternative can possibly strengthen the stakeholders relations and professional network embedding. On the other hand we expect to provide an example of how the integration of different MOOC approaches can work towards a participative learning formats.

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