DESIGN OF A COMPREHENSIVE METHOD OF STRATEGIC PLANNING AND DEPLOYMENT OF DIGITAL TRANSFORMATION INITIATIVES FOR NATURAL HISTORY MUSEUMS

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1. Research Purpose and Motivation

- Digitalisation has fundamentally changed organizations and challenged traditional IS/IT strategic wisdom, given rise to new terms such as digital transformation (DT)
- Museums have been no strangers to DT, but the pace of change has been slower than in other sectors, leaving most museums far from digital maturity. However, in order to **open up their biodiversity data** and increase the effectiveness of their service processes, Natural History Museums (NHMs) are faced with the need to integrate IS/IT and transform digitally . This is an implicit part of their nature, core activities and mission
- Museums require to remain relevant to 21st century society in order to justify their existence and receive the necessary funding from the public authorities that govern them. Therefore, strategic planning of DT has become crucial to provide both a clear strategic direction for NHMs to fulfil their mission and to maintain their relevance in the 21st century

**Research purpose** ➡ **Help NHMs to PLAN STRATEGICALLY their DT processes**

2. Theoretical Framework and Research Question

The museum and heritage sector has recently discussed the issue of DT as one of the main areas for its policy and research. There are topics that have attracted the attention of academics, such as the dissemination or didactics of cultural heritage. And there are other topics, such as digital networks between museums or strategic planning of DT, that have not generated as many references. Consequently, there is not much literature on DT within cultural heritage institutions, and even less on their strategic planning of DT. This rather lack of prior research can be alleviated by research from other classic disciplines such as business management and information systems.

RESEARCH QUESTION
How to design and describe a comprehensive strategic planning method for digital transformation initiatives and their deployment within natural history museums?

RESEARCH GOAL
To design, generate and describe a domain-specific and comprehensive strategic planning method for DT initiatives and their deployment, aimed at supporting the specific needs of Natural History Museums (NHMs).
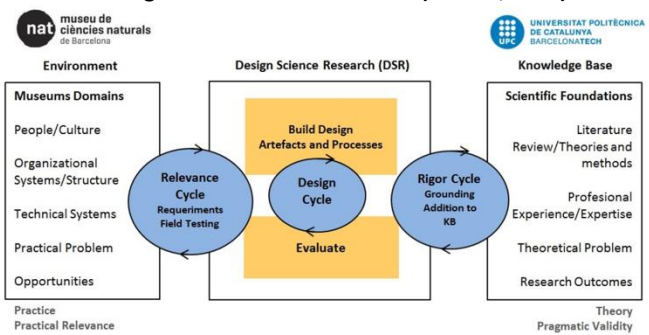
3. Methodology (Research Approach)

Design Science Research Approach

We chose to conduct a qualitative engineering study using a constructivist approach to design science research (DSR). We aims to produce a innovative construct (an artifact) that are designed to solve a real-world problem and, in doing so, make a theoretical contribution to the discipline in which it is applied.

Design Science Research Model (Hevner, 2007)


Research Design (Meta-design)

In research design, the main goal was divided into five objectives (steps) related to the methodology to construct the artefact proposed by Manson (O1 to O5). In the context of this research, the meta-design is represented by the research design, as define the roadmap for accomplish the main goal by achieving the 5 steps.

O1

With the aim of increasing our awareness of the problem (O1), to get more details on the context of NHMs (O1.1), a benchmarking study is being carried out on 16 reference NHMs, including Smithsonian National Museum of Natural History, Berlin Museum of Natural History, London Natural History Museum, Naturalis, etc.

O2

To prepare for a relevant solution (O2), a literature review to know the state of the problem and solutions about DT in NHMs was undertaken (O2.1).

We have participated in digital projects within the MCNB (O2.2) to get more knowledge about its context.

A taxonomic study (O2.3) on digital innovation in museums is being carried out by reviewing 1416 papers published at 'Museums and the Web', which is the main international conference on digital innovation in cultural heritage, to draw a taxonomy of digital innovations in museums. As a result, and based in prior more generic methods, a first version of the specific method will be proposed to start the development phase.
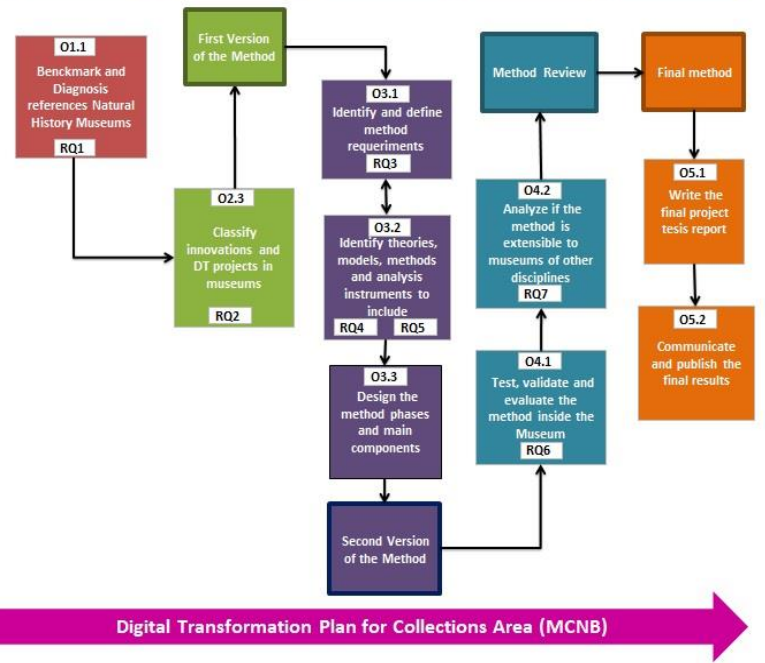
O3

To develop the method (O3), it is necessary to identify and define the method requirements (O3.1), the existing theories, models, methods and analysis tools to be included (O3.2), and to design the method phases and main components (O3.3). This will allow us to develop a second version of the method to for the evaluation phase.

O4

To evaluate the method (O4), we will test and validate the design within the MCNB by doing its instantiation (O4.1). Only after that, we will analyze if the method design could be adapted to museums of other disciplines (O4.2). An evaluation by expert groups will allow us to make the final review to initiate the conclusion state.

O5

To conclude (O5), the final method will be presented, the final report (O5.1) and its publications (O5.2). Nevertheless, (O5.1) and (O5.2) are at the end, as long as results have come to light, they will be reported and published through the best channel. In addition, it is important to mention that (O2.1), (O2.2) and the DT plan for the MCNB are transversal for the whole design research.

4. Analysis and Expected Findings

We expect to find little development in the NHMs studied in terms of strategic planning of their digital transformation initiatives. We expect to find slow digitisation processes, poor methodology and, where planning exists, workflows that focus on the digitisation task as such rather than on a holistic, institution-wide transformation process. Few museums are expected to have updated strategic plans.

5. Discussion of Expected Results

Response times in museums are generally much slower than in private organisations. The generation of museum knowledge, and therefore data, is a long time process. Change in the heritage sector tends to be gradual rather than abrupt. This means that innovation and the adoption of technology need to be approached differently.

6. Critical Issues and Weakness of the Research

The most critical factor in research is time. Most museums are public institutions, attached to the public authorities of the region in which they are located. This slows down the response time of the actors in several areas: technological updating, modification of processes to acquire organisational agility, complicated and limited recruitment of staff, etc. In addition, most of the museums studied so far do not have an IT department, so the target group of the method to be designed must be carefully considered in order to ensure its applicability and feasibility.