# "Together" : interdisciplinarity, collaboration and participation in digital cultural heritage research. The case of the Congruence Engine project

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Interdisciplinarity and collaboration have been embedded in the history and practice of digital scholarship, Digital Humanities (DH) and, recently, digital cultural heritage. Interdisciplinary collaboration among people from different educational backgrounds, professional sectors, technological expertise, often results in influential, transformative, and innovative digital projects and outputs. However interdisciplinary collaboration in DH has an 'in-between' (Klein 2015, 29) or hybrid status and this is why is not always an easy journey: it might include developing new skills, negotiating new languages and technologies, and confronting the gaps in their own knowledge, resulting to often uncomfortable or challenging workflows, including aspects of career development and recognition.

On the other hand, DH projects are also encouraging different modes of people's participation and engagement with the digital data: from consumers to producers and collaborators. Enabling participation and co-creation is also a key trend in the cultural sector, where experimental digital projects offered museums and heritage institutions new possibilities not only to engage audiences in more collaborative ways with the collections, but also to involve a diverse range of community groups - citizens, amateurs, curators, academics, historians - in the creation of their own narratives and digital born resources (Duffy and Popple, 2017). In these participatory projects, new forms of knowledge and expertise are shared and created alongside the more institutionalized forms of knowledge generation, adding new challenges to interdisciplinary collaboration.

This paper will discuss how interdisciplinarity, collaboration and participation have been re-imagined in large-scale digital cultural heritage projects, taking the Congruence Engine project as a case study. We will focus on how collaboration in a project like this will, in general, seek 'congruence', but also acknowledges and enables a certain amount of 'incongruence'. We suggest that the interplay between the inherently collaborative nature of DH, and Systemic Action Research can offer useful insights not only into technological innovations but also into organizational and social models that can bring together the human and computationa l.

Congruence Engine is one of five multi-partner Discovery projects supported by the Towards a National Collection (TaNC) programme, which is described as a major five-year £18.9 million investment in the UK's world-renowned museums, archives, libraries, and galleries, all of which foreground Digital Humanities methods and computational access to national cultural heritage. Among the many research questions addressed by the project, it is exploring how digital humanities can offer a space within which to critically rethink and employ computational technology for historical inquiries and through which to enable creative collaboration as part of a large-scale interdisciplinary digital cultural heritage project.

The project unites in close collaboration a new constellation of researchers and professionals who would not normally work together: academic, GLAM and community historians, curators, digital humanities professionals, documentation specialists, information architects and software engineers. The project includes a focus on three industrial sectors – textiles, energy, and communications – and has, so far, orchestrated a number of iterative explorative investigations around these sectors/strands by developing experimenting with tools and techniques, developing routes to digitisation, machine-readability and connectivity from disparate collections. The representatives of the partner institutions will be invited to actively participate in the investigations by contributing their expertise and insights while benefiting from applying the project's digital methods and techniques to their own collections and practice. By welcoming from the outset various levels of engagement with the project among partners, collaborators and users, the project is designed in such a way that collections, organisations, and people can move between more and less active roles in association with, and within, the Congruence Engine. This open, flexible, collaborative ethos of the project has been aptly described by Tim Boon from the Science Museum and PI of the project: "we are *not* building a congruence engine, we, the project participants, *are* the congruence engine" (Boon, 2022).

Interdisciplinary, collaborative work in the Congruence Engine is enabled by Systemic Action Research (SAR), which aims to design processes that actively engage with the complexity of social and political systems (Burns, 2007). SAR offers an orientation towards the world that accepts that there is no real objective truth, but rather, multiple perspectives and ways of knowing. It is here where action researchers seek to better understand the systems that operate in the world through undertaking actions, observing them, reflecting on what happened and learning from it (Reason and Bradbury, 2008). It is a research method that flexes based on where the energy and dynamism is in projects and holds improvisation as a key mode of enacting action (Burns, 2007).

SAR, alongside DH, offers a particularly interesting approach to collaborating to deliver inter- and multi-disciplinary investigation of complexity. Within SAR, a key concept is that of an expanded epistemology; an active attempt to open up different ways of seeing and knowing the world, often overlooked in academia. John Heron and Peter Reason refer to an expanded epistemology as four ways of knowing; experiential, presentational, propositional, and practical (Heron and Reason, 2008). Integrated respect for, and celebration of, this multiplicity of ways of knowing, of being, and of knowledge formation offers, in theory, collaborative inter- and multi-disciplinary projects a grounding in being open to doing things differently, sharing, and mutual forms of learning. The interplay between DH's open, exploratory, and collaborative

nature, and SAR's orientation towards improvisation - following where the action leads - and its expanded epistemology offers beautiful moments of congruence, as well as moments of incongruence - whereby conversations about workflows and pipelines do not instantly harmonise with SAR's preference for a plurality of way of doing and knowing about things. However, it is in these moments that collaborations in inter- and multidisciplinary work can get to the heart of matters, problems, issues, and assumptions.

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