

Karl McCool  
Kara Van Malssen  
Digital Preservation  
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## Review of 4C: Collaboration to Clarify the Costs of Curation

The 4C Project takes its name from the four elements (all beginning with “c”) laid out in its full name: 4C is a “Collaboration to Clarify the Costs of Curation.” It is immediately clear from its name both what 4C is setting out to do as a project and how it intends to accomplish its goals. Focused on Europe, its mission is to help European organizations invest more effectively in digital preservation. Indeed, 4C is partly funded by the European Union. Its listed participants are a mix of cultural memory institutions, digital preservation service providers, and one charity, including: Jisc (a charity championing the use of digital technologies in the UK), the Royal Library (National Library of Denmark), INESC-ID (Institute for System and Computer Engineering), the Danish National Archives, the German National Library, the University of Glasgow, the University of Essex, KEEP SOLUTIONS, Digital Preservation Coalition, SBA Research, The University of Edinburgh, Data Archiving and Networked Services, and the National Library of Estonia.

4C seeks to do this not only by describing the costs of digital preservation, but also by *clarifying* those costs. As 4C claims in its mission, previous research into digital preservation “has tended to emphasize the cost and complexity” of such work. 4C seeks to clarify these costs by looking at these costs as an investment and therefore putting them in terms of the potential benefit on investment. Viewed as any investment would be, these costs are considered in terms of “risk,” “value,” “quality,” and “sustainability.”

Sustainability is a major consideration, if not necessity, for 4C. A major feature of their website and their press statements is their “Roadmap,” titled, “Investing in Curation: A Shared Path to Sustainability.” The Roadmap attempts to set out steps to be taken by a wide variety of different organizations over the next five years, with the goal of more cost effective and efficient digital curation practices and services by the year 2020. The Roadmap is made up of six steps: 1) Identify the value of digital assets and make choices; 2) Demand and choose more efficient systems; 3) Develop scalable services and infrastructure; 4) Design digital curation as a sustainable service; 5) Make funding dependent on costing digital assets across the whole lifecycle; and 6) Be collaborative and transparent to drive down costs.

The first step deals with the fact that attempting to preserve all digital assets, including those with no real value, is a liability in the long term. Decisions must be made about what is worth preserving if digital preservation is to be sustainable over time. It recommends clear policies regarding the scope of collections, the types of assets to be sought or preserved in those collections, and even the preferred file formats. This also requires an understanding of the users of these assets.

The second step assumes that standardization (to the extent it is possible among a wide variety of collections) will make digital curation more efficient. Furthermore, it requires participating organizations to be knowledgeable and share knowledge about what standards to require from vendors and digital preservation services.

The third step, asking for scalable services and infrastructure, continues the stress on the need for collaboration. It suggests that collaborating on and sharing infrastructure and resources will drive down costs and make for more efficient digital curation.

The fourth step again stresses sustainability, making it clear that organizations have to plan for the fact that the amount of digital assets in need of curating will almost assuredly increase steadily over time, requiring long term planning for an increase in scale of assets to be preserved.

The fifth step follows on this stress on sustainability by suggesting that funding be dependent on costing digital assets across a whole lifecycle. As the Roadmap states, some assets may have to be preserved in perpetuity. Therefore this step seems difficult for many cultural memory institutions. Yet it does make good sense for those assets with a limited life span, such as research data.

Lastly, the sixth step follows on the collaborative mission of 4C. It argues that collaboration among different organizations involved in digital preservation will serve to drive down costs. For 4C, a working example of how such collaboration could work is its Curation Costs Exchange (CCEX).

Developed by 4C, CCEX emphasizes the usefulness of sharing information about the costs of digital preservation for different public and private sector organizations for the benefit of all. CCEX is open to any cultural memory institution, commercial operation, digital preservation service provider, or research funder. Participating organizations can share information about what digital preservation costs them. The data an organization provides is used to create aggregate data sets for the purposes of comparison and can remain anonymous. Any information can be edited by a user of CCEX at any time and no information that could identify them will be published by CCEX without their approval. This way, participating organizations can compare their digital preservation costs with similar organizations and see how they measure up, without revealing confidential information.

As 4C argues, “until now, there have been no mechanisms to help stakeholders find out what their peers are spending” and to share cost data. Decisions about investing time, resources, and money into digital preservation are difficult to make in a vacuum. The benefits of being able to compare costs and methods with other organizations seems like an obvious benefit to any organization grappling with these questions. Furthermore, the argument that this sharing of cost data and knowledge will lead, overall, to more efficient and cost-effective digital preservation among all organizations seems credible. It is easy to imagine that many organizations currently running in very inefficient or costly ways would benefit from comparison with other organizations, particularly similar ones. Overall, new standards or at least guidelines might develop from different organizations talking to each other and revealing this sensitive information.

The sensitive nature of this kind of information, dealing with the spending and resources of different organizations, would be the one potential stumbling block for a project like 4C and CCEX. Perhaps its assurances that information may remain anonymous or confidential will be trusted by organizations engaged in digital preservation, however, as 4C is co-funded by the European Union and presumably must follow strict guidelines and be subject to a great deal of oversight.

4C and its service CCEX seem to be very promising developments for organizations engaged in digital preservation in Europe. It would be interesting to know

how their project compares to any similar projects in the United States or elsewhere. Its overall philosophy of encouraging collaboration and transparency among the different organizations in the field seems likely to improve efficiency for digital preservation in Europe on the whole.

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