Fredrik Gunnarsson

Det digitala uppdraget:
Om uppdragsarkeologins möjligheter att skapa relevant kunskap i ett digitalt samhälle

Review by Daniel Löwenborg

Technological developments and the implementation of digital methods over the past few decades have changed how archaeological excavations in Sweden are documented. This ongoing process has profound implications for contract archaeology and the possibilities for generating relevant knowledge. This is the topic of Fredrik Gunnarsson's thesis '*Det digitala uppdraget: Om uppdragsarkeologins möjligheter att skapa relevant kunskap i ett digitalt samhälle*'. The thesis was preceded by a licentiate thesis that touches on similar topics, including how digital tools can aid the reflexive process in archaeological interpretation. Emphasis was also placed on public outreach and engagement, and new opportunities involving digital dissemination. Gunnarsson discusses different aspects of this, from quick and easy online access to information, to digital reconstructions and virtual reality. The PhD thesis goes more in-depth regarding the production of new knowledge as part of contract archaeology, and the role of digital approaches, or what they could have, in this.

Gunnarsson's thesis has nine chapters, and starts with a thorough overview of the technological development of Swedish archaeology and the organisational framework that has created the current situation. He also de-

scribes some of the theoretical tools, Science and Technology Studies, which he uses to analyse this. A major part of the study is based on a number of interviews with practitioners from excavation units, County Administrative Boards and the National Heritage Board (NHB). These represent what Gunnarsson identifies as the actors involved in knowledge production from contract archaeology. The interviews form a case study which, together with Gunnarsson's own reflections, are used for the analysis and conclusions. There is much frustration in the sector, where the extensive developments in excavation and documentation have not been matched by heritage managers to create systems to curate the information. Thus, the promises of improvements through the use of digital technology have not been met, and the archaeological system has not been updated so that the full benefits of a digital approach can be realized. Through the interviews, Gunnarsson identifies a number of sociotechnical gaps that hold the development back, including the lack of digital competence at different levels and, importantly, much uncertainty about roles and responsibilities. While the use of digital technology should have a great impact on improving the possibilities for knowledge production, there are several limitations within the current system.

One of the main limitations, as Gunnarsson concludes, is a lack of infrastructure aimed at supporting knowledge production, rather than the needs of the civil process. According to Gunnarsson, the NHB should develop an 'infrastructure for knowledge'. However, the preconditions for this are lacking, both in financial terms and in NHB's mission as stated in its regulating directives. While Gunnarsson mentions that universities could be part of such an infrastructure, he clearly points to the NHB for taking a leading role in this development. This is a drawback in the design of the study, where universities were not included among the actors producing knowledge from the results of contract archaeology. Instead, academic researchers are referred to as one group of end users, and the perspective of academic research is largely missing from the analysis. This is unfortunate for several reasons, especially since, as Gunnarsson notes, the NHB interprets their role and responsibilities as a government agency differently compared to the expectations of the archaeological community (p. 115). During the final year of Gunnarsson's research, the Swedish Research Council included 'digital archaeology' in the call for national research infrastructures, opening for an infrastructure that would be linked to academic research. Gunnarsson acknowledges that it might be good to have universities as part of such an infrastructure, but also points to the dangers of a focus on researchers, which might not include how government agencies and the general public can use the data to build relevant knowledge (p. 134).

'Relevant knowledge' is a key concept in the study, as this is what is stipulated by the regulations as the goal of contract archaeology. Gunnarsson

discusses this concept and concludes that, for him, relevant knowledge is 'useful knowledge', i.e. knowledge and information that can be put to use for different purposes by different actors. How to activate information would be different in a traditional analogue system, compared to a truly digital system, and Gunnarsson points to the need for guidelines, standards and controlled vocabularies as important steps towards making the data more useful. While Gunnarsson identifies a number of improvements that are needed, he does not go in-depth to explore how the digital turn changes how archaeology should be done, and what further fundamental adaptations might be required. Here, insights from academic research, and the needs that come from this perspective, would again be useful. Quantitative methods, building synthesis and the modelling of large volumes of aggregated data are only mentioned briefly, while this is a major topic in many fields of research today. How archaeologists can engage in the production of relevant knowledge depends on questions and methods. The role that digital technology can play in the future depends on the kind of research one envisions.

In my view, one of the most important opportunities that digital technology can bring to archaeology is how to integrate the results from contract archaeology into academic research. While all archaeology is research, and indeed many archaeologists are situated both in contract archaeology and academia, the perspectives, methods and needs will differ. With increasing emphasis on computer-based research, the methodological differences might indeed increase. At the same time, digital information can play an important role in bridging the current unfortunate divide that comes from old traditions of the discipline. The standardization of data that Gunnarsson points to is very true, but even more fundamental changes may well be needed. It would have been good for academic research to have been included in the analysis, and for this group to have been regarded as an actor in the production of archaeological knowledge from contract archaeology, to explore how an improved digital system might better facilitate this collaboration in the future.

Maximizing the benefits of digital methods in archaeology is one of the most important challenges for the Swedish archaeological community as a whole today. Just as the benefits of using information technology for improving research and knowledge production are apparent, it is equally evident that, to date, the organization of archaeological information work in Sweden has not been able to make use of this fully. Gunnarsson's overview of the current situation is an essential contribution for exposing these limitations and prepares the way for a renewed dialogue on how to improve the situation. Gunnarsson's book is an excellent starting point for these important discussions to come.