Digital Archaeological Archiving in Baden-Württemberg, Germany

An Evolving System

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From the mid 1990s the Landesamt für Denkmalpflege Baden-Württemberg (State Heritage Department) has been collecting digital excavation and other project data. At first this sort of data—from the beginning of the "first" recording revolution was very much a novelty and in the minority. Most of the excavation data was still analogue and there was no awareness that the digital data might have to be archived differently from the paper record, which was simply put into a drawer and left to its own devices. Also, there was no "data discipline". No thought was given to formats. The approach was pragmatic: "Will this piece of software do the job? Yes? Then I'll use it". Only when data that had been "archived" on floppy discs or, later, CDs and the like began to degrade and/or no longer remain readable did it become apparent that steps had to be taken to prevent wholesale loss of irreplaceable data. The processed described below has been "learning by doing".

Stage	Maturity Level	Description
Awareness	0 – No awareness	The organisation has no awareness of either the need for the process or the basic principles for applying it.
	1 – Awareness	The organisation is aware of the need to develop the process, and has an understanding of basic principles.
	2 – Roadmap	The organisation has a defined roadmap for developing the process.
Capability	3 – Basic process	The organisation has implemented a basic process.
	4 – Managed process	The organisation has implemented a comprehensive, managed process, which reacts to changing circumstances.
	5 – Optimised process	The organisation undertakes continuous process improvement, with proactive management.

Fig. 1. Archiving maturity Matrix after Adrian Brown, 2011

After around 10 years of digital data collection a small project with limited resources and perhaps even less expertise was created to take stock of and deal with this dismal situation. This was the point of transition from “level 0” to “level 1” of Adrian Browns now famous archiving “Maturity Levels Matrix” from 2011 (Fig. 1). In the absence of access to dedicated archiving hard and software and knowledge a simple digital folder-structure with unique identifiers was planned and quickly implemented – “Maturity level 2”. This scheme became known as the “Rottweil Structure” (Fig. 2). Not because it worked like a guard dog, but because it was designed and agreed upon by a committee of archaeologists and technicians meeting in 2007 in the ancient Baden-Württemberg city of Rottweil. It has served as the basis for all further archaeological archiving work in Baden-Württemberg so far. Rather surprisingly the “Rottweil Structure” quickly received a wide acceptance—perhaps because it reminded fieldworkers of their own system of folders on shelves and they could relate to it. First thoughts were also had about data formats and the actual meaning of “long term digital archiving”. The Landesamt für Denkmalpflege’s definition of “long term” quickly became “forever”, bringing with it all the consequences of eternal readability, access and functionality of the data—through… Emulation? Migration? Or what?

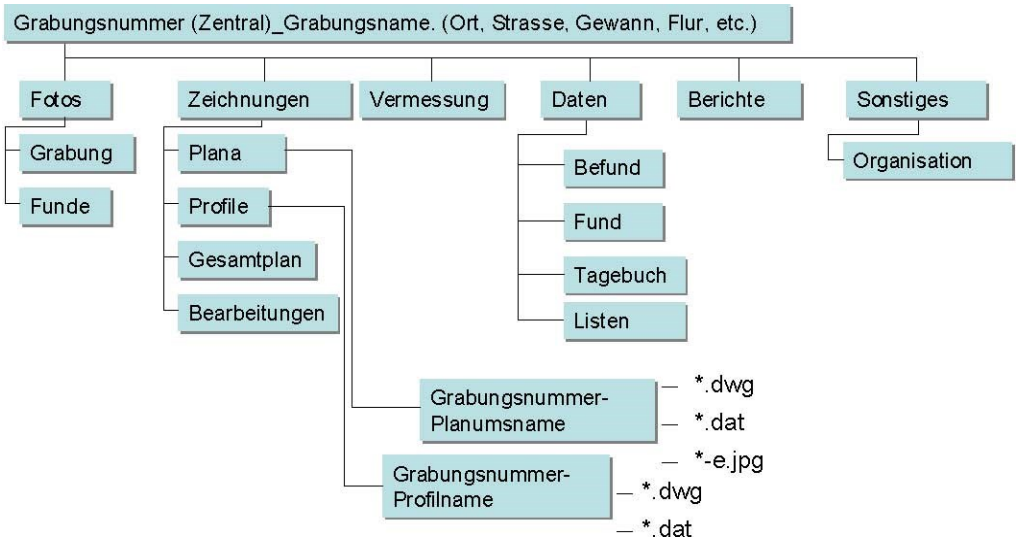

Fig. 2. The “Rottweil Structure”

By 2011 the problems had become further compounded by questions as to the archivability of CAD-data, which had up to that point been a mainstay of excavation documentation. Two further factors made the situation even more acute: The change of licensing terms by large proprietary software firms and the shift from 32 bit to 64 bit computer systems. The price of updating the software in use at that time was prohibitive. This challenge was, however, also an opportunity, an opportunity for a number of paradigm-shifts: Away from software limited research to research driven software, away from expensive proprietary software to real open source solutions and (more) open data formats. In a process lasting more than half a decade the transition was made away from CAD to GIS as the mainstay of project recording in Baden-Württemberg. The development of the Software Survey2GIS (GNU GPL) facilitated on the one hand an easy to use transition of field data into GIS and on the other better control of data formats. The addition of increasingly more laser scan, LIDAR and sfm data and the advent of commercial archaeology in Baden-Württemberg made it necessary to revise the Rottweil Structure to firstly, cope with the ever increasingly complicated data-world and secondly,

to standardise the data sets produced by commercial archaeological companies in the State (Fig. 3). Thus also enabling the State to define acceptable and archivable data formats.

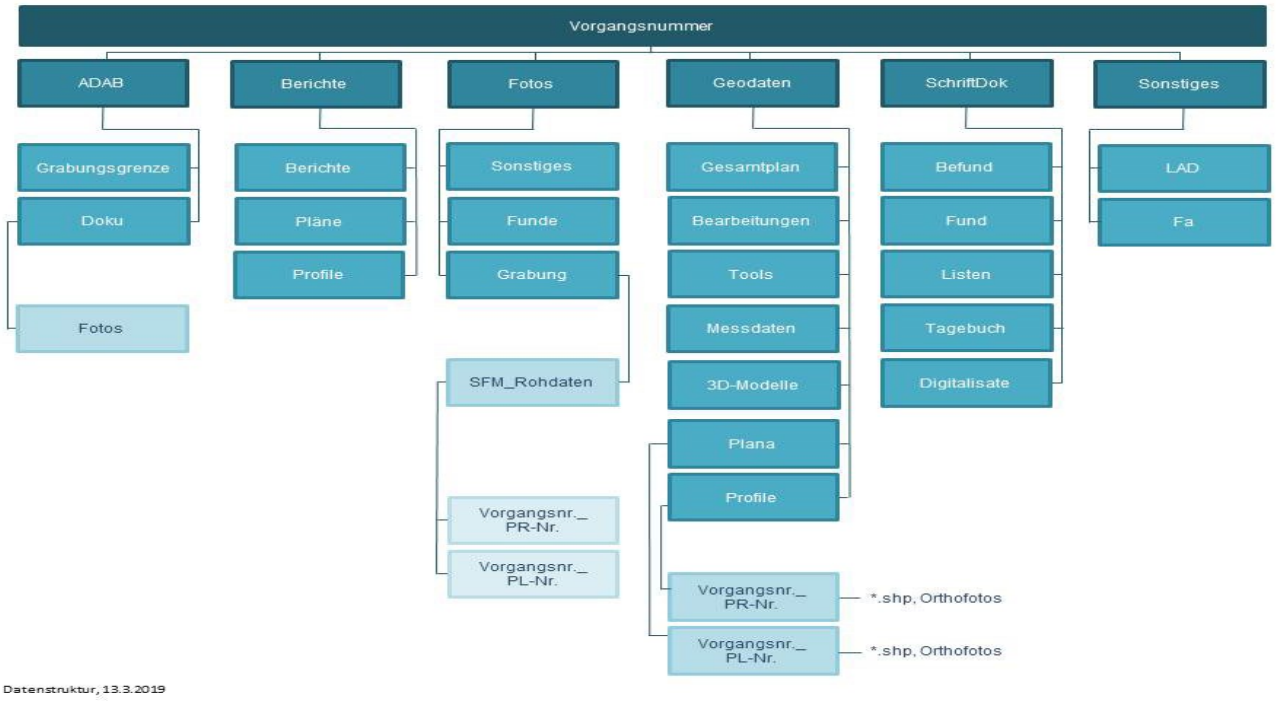

Fig. 3. The present Data Structure

One of the stiffer jobs over the last years has been convincing archaeologists, technicians and ancillary staff that it is necessary to securely save their data in a central repository. Now this concept has received wide acceptance—especially after workers have experienced the possibility to recover "broken" data from the archive! At present the excavation archive contains tens of terabytes of data appertaining to around 4000 projects in Baden Württemberg, hosted on secure State-owned servers. Content lists are published regularly. The acceptance of the system and cooperation from all sides has meant that it has now been possible to take a first step away from a simple data-hosting repository toward a usable and accessible archive. Limited excavation/project data can now be uploaded to the State's own cultural heritage GIS-Application—ADAB—where it can be accessed by researchers. Each polygon representing the extents of an excavation/a project is linked to metadata with a short report and a selection of informative photos so that pertinent information can be quickly gleaned on each project (Fig. 4).

The excavation archive in Baden-Württemberg is not yet a fully accessible, usable "real" digital archive. But it has succeeded in saving the data for the transition into that "real" archive The maturity level after Adrian Brown is just at the start of "level 3". Hopefully this short description of the progress of the digital excavation archive in Baden-Württemberg is of interest to others concerned with digital archaeological archiving. The archive managers from Baden-Württemberg would most certainly welcome an open and honest exchange of information and transfer of knowledge on this crucial issue.

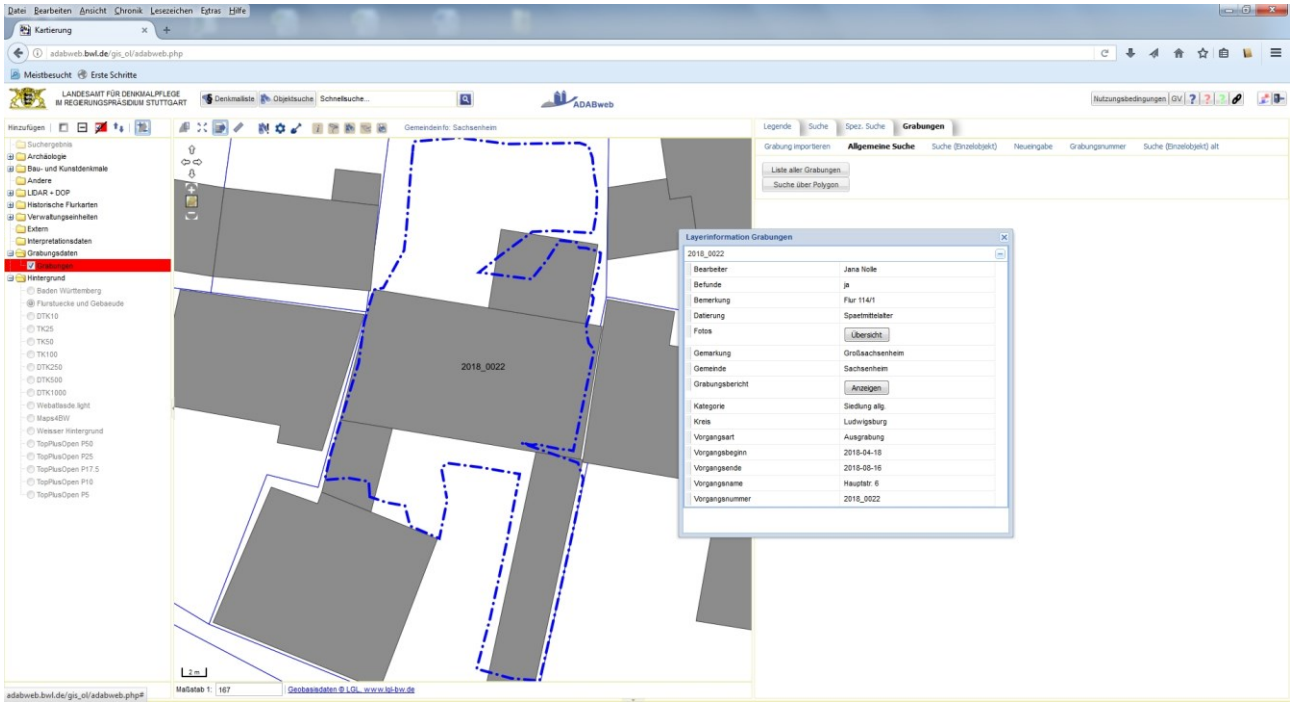

Fig. 4. Excavation extents in ADAB-GIS

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