Production Plan for AnthroGraph

Development of a Minimum Viable Product

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17th August 2018

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Nomenclature

AR   Anthropological Researcher

MVP   Minimum Viable Product

SDR   Software Development Researcher

1 Aim and Scope of this Document

This document is an attachment to a project proposal within the DFG funding scheme "e-Research Technologies" and needs to be understood in the context of this application.

The objective of this document is to set up the production plan for an initial realisation of AnthroGraph as a minimum viable product (MVP). It will list the planned milestones for the software production process. As the software is to be built by modifying the existing ResearchSpace software, its in-depth assessment and evaluation regarding the scope of the application is required. Each milestone will list the tasks that have to be completed to reach

the milestones. This document will only list the tasks – for more detailed information on the concepts, the reader is referred to attachment 5 of the proposal defining the Scope of Anthro-Graph (cf. section 6 of the project description). Attachment 8 describes the ResearchSpace framework and explains related terms.

2 Evaluation and Assessment

Before starting the development of the software, it is essential to assess the existing Research-Space software and determine which features are necessary for the envisioned project goal and which can be discarded. This is a crucial step for focussed production planning without wasting effort on unnecessary features. The evaluation will be done by the Software Development Researcher (SDR) and Anthropological Researcher (AR; cf. work programme in section 2.3 of the project description) to ensure feasibility both from the software developer's perspective as well as from the data modelling side. Ideally, the SDR is experienced in developing web applications and has profound programming skills in typescript and java. The AR needs to have a background in anthropology and a thorough understanding of data modelling in RDF.

3 Implementation of Collection Structures (M1)

This first milestone will deal with setting up the core structures necessary to model the most essential data: the collection data which consists of information on presence and preservation status of the skeletal material, its organisation and the digital assets containing necessary information about this material.

- **Implementation of Primary Skeletal Inventories**

  Primary skeletal inventories are the generic way to register collection material with the database. Implementation of the RDFBones ontology by means of creating suitable template pages needs to develop a workflow for entering and retrieving information about the skeletal data. The most crucial implementations will be:

- **Digital Assets**

In this sub-milestone, the existing feature of uploading and maintaining image data will be extended to cater to other files, such as PDF-documents or 3D image data.

- **Curation History**

  Information on the curation of collection material includes restrictions of usage, care instructions, notes on samples taken for invasive analyses etc. Collection curators need to use the functionality to determine and set current status information of collection objects and to review past annotations related to them.

- **Centrally Registered Identifiers**

  Systems of ordering are needed to reference the collection's materials, series of analyses, contextual data and any other types of information. RDFBones describes such systems as registries containing series of structured identifiers. A central functionality is needed to manage such structures for several contexts.

4 Implementation of Anthropological Investigations (M2)

Milestone 2 will deal with generic template pages for viewing and editing anthropological investigations. This should enable the researcher to view any types of concrete anthropological research that has been modelled according to the specifications in the RDFBones ontology.

Implementation will follow the generic process chain of investigations defined in the RDFBones core ontology. For many investigation types, this might not always be the optimal way of presenting information or to model a specific workflow – those improvements will be implemented in the next step.

5 Implementation of Exemplary Extensions (M3)

One of the key features in AnthroGraph is its extensibility that allows all sorts of ontology extensions with classes derived from the overarching RDFBones core ontology. This feature is crucial for modelling scientific progress and to account for the constant change and improvement in research methods and material. At this point we will have created two extensions that

can serve as blue prints for additional extensions to be written by users of AnthroGraph. They will model a secondary skeletal inventory and an investigation for estimating the of biological age at death using the standards defined by Buikstra and Ubelaker [1994].

Most extensions implementing anthropological investigations can be viewed as a combination of two sub-parts:

1. an investigation, implementing the latest research methods and

2. the implementation of secondary skeletal inventories defining custom regions of interest on skeletal elements which comprise either multiple bones as functional units or minute sub-structures on specific skeletal elements. Each sub-part involves extending the core ontology with suitable sub-classes as well as creating template pages that structure the work flow of data entering/presentation.

6 Alpha Release (M4)

With the fourth milestone, the alpha release, we have successfully entered the (real-world) test data containing the skeletal inventory that has been provided by the Phaleron Bioarchaeological Project and ironed out bugs and flaws regarding the workflow. Additionally, the extensions completed upon M3 have been tested based on real world data and occurring software bugs will have been removed.

7 Beta Release (M5)

The beta version releases AnthroGraph MVP to the project partners and the interested public. With the accomplishment of this milestone, no new features will be added and until the next milestone only issues found by the beta testers will be tracked and solved. All extensions completed on reaching the previous milestone will have been thoroughly tested.

Furthermore, extensions for modelling archaeological context, conservation and curation and biological sex estimations will have been completed (but not yet tested).

8 Final Release of AnthroGraph MVP (M6)

Reaching this milestone means that AnthroGraph MVP is ready to use, as defined in the scope document, with all major issues identified and solved. At this point, all extensions defined in collaboration with our project partners have been implemented with the first three also properly tested for consistency, both on the ontological as well as on the software side. The final release can be viewed as a "glorified" beta version and still be "work-in-progress"

The following extensions, negotiated with our project partners, will have been completed, but not necessarily have reached production quality:

- Pathology/Trauma

- Taphonomy

- Osteometrics

- Tissue Sampling

References

Jane Buikstra and D. H. Ubelaker, editors. *Standards for data collection from human skeletal remains*, volume 44 of *Arkansas Archeological Survey research series*, 1994. URL `http://core.tdar.org/document/323332`.