Between Public History and Academic Research

Towards a digital Historical Town Atlas

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Introduction

In recent years multiple projects have been started to digitally reconstruct the cultural heritage of European Cities, most of which have registered themselves under the umbrella of the "Time Machine" network. The corresponding map[1] illustrates the diversity in both aims and technical infrastructure of the respective projects. At the same time first steps have been taken by some institutions preparing Historical Town Atlases (HTA) to provide their publications partially or entirely digitally[2]. This transformation is posing challenges not only on a merely technical but also on a conceptual level: Before one begins to provide a digital HTA, one should answer the question: to what end is an HTA provided?

Traditionally, the aim of an HTA is to facilitate comparative academic research. From its inception comparability has been a central issue in coordinating the national efforts[3]. A digital HTA needs even more coordination as its preparation not only involves harmonizing cartographic conventions, but also the development of interoperable data structures. Building upon a common data model enables truly comparative analysis using a methodology based on geoinformatics.

While this focus of the HTA is still valid for the digital age, the ongoing incorporation of digital products in museums and other cultural institutions has significantly widened the scope as regards possible target groups. The HTA becomes part of what is known under the term public history. This has implications for the design of the user experience (UX), the user interface (UI) and the data curation. While the presentation could be separated into different platforms depending on the target group, the underlying data structures should be reliant on a single source of truth.

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[1] https://www.timemachine.eu/ltms/

[2] The HTA of Luxembourg has been conceptualized as a purely digital one from its beginning see Uhrmacher (2021).

[3] For an introduction to the concept see Simms (2015).

Technical Prerequisites

From a technical point of view the tools needed for building appealing, flexible and open historical urban geographical information systems (GIS) are more than sufficient. Open source software projects established have gained substantial maturity within the last decade including Desktop-GIS (QGIS), powerful and flexible spatial databases (PostGIS), high-performance mapping libraries (OpenLayers), and frameworks for data curation (Geonode). Additionally, the availability of vector tiles enables developers to provide instantaneous interactivity while ensuring performant behaviour of the application. In addition to the spatial web technologies on hand modern javascript frameworks such as React, Angular and VueJS provide developers with the means to build highly flexible, scalable and reusable web applications.

Benefits of a Digital edition

Leveraging this advanced ecosystem of available building blocks enables data curators to take advantage of the benefits of a digital HTA. Moving away from a print-only approach, it is possible to publish the original cadastral maps, which are crucial to most HTA projects together with the produced vectorized ("redrawn") maps. Figure 1 shows the georeferenced, original cadastral maps from the 19th century (1841) for the city of Fulda[4] overlaid with the reconstructed vector layer used for the redrawn cadastral map at the scale of 1:2.500. Publishing the original cartographic source enables researchers to comprehend and verify the genesis of this central methodological aspect of the HTA.

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[4]   Braasch-Schwersmann and Gräf (2019).

Fig. 1. Original cadastral map of Fulda (1841) overlaid with reconstructed vector layer

Data curators can include additional cartographic sources, such as cadastral maps from later periods, maps originated from topographical surveys, street-maps and historical orthographic imagery. Another benefit arises from the possibility of linking historical imagery (photographies, plans, drawings), written sources and biographical information within the map. In addition, thematic maps derived from historical evidence and enriched with spatial context also could be included in a digital HTA. Again, one has to define to what end an HTA is published as not to overload the resulting digital product.

Challenges

Keeping a clean and easy to use user interface (UI) is not only challenging due to the sheer magnitude of potentially relevant historical imagery and documents, but also with regard to the dual nature of a modern HTA: catering for the needs of academic researchers and the general public alike. To meet this challenge, developers can either build one application capable of switching from regular to expert mode or use common building blocks to build two or more separate applications using the same data source.

Probably one of the greatest challenges and temptations is the expansion of the temporal aim of a digital HTA. While a traditional HTA is focussed on the topographic state of the town prior to the major changes within the industrial era, digital urban GIS projects aim to reconstruct the town in its entire development from medieval times to the present. In many instances using a temporal slider

suggesting a level of certainty for the spatial reconstruction that is not justified by the evidence of the historical sources. A digital HTA would have to find a middle ground between the expansion of the temporal focus and the modelling based on historical cartographic evidence. Expanding the focus beyond the pre-industrial European city of the 19th century results in new challenges, such as the mapping of spatial and temporal uncertainty.

For the majority of institutions, moving to a digital format will mean to develop workflows to prepare a printed as well as a digital edition of their HTA. Both should draw from the same single source of truth, whereby the digital edition would of course benefit from updates in the aftermath of the publication.

A crucial challenge for the prevailing relevance of the HTA projects in the 21st century is the need to harmonize the underlying data models. Doing so will not only enable the reuse of open source software solutions and thus reduce the cost for single institutions but also to meet the promise of the HTA endeavour: making the history of European towns comparable by using methodologies based on geoinformatics. Finding a common ground is challenging in respect to established workflows within the institutions as well as different primary sources used for the reconstruction of the preindustrial city. While the respective process has only just begun, its benefits for the necessary transformation of the HTA are already evident.

Conclusion

The future of the HTA in the digital era depends upon the cooperation and exchange of its member institutions. Common data structures ensure comparability and facilitate the reuse of software solutions, both for academic researchers and the general public. Ideally, the underlying spatial databases will be published on a common data platform building a common geodata infrastructure (GDI). Using a harmonized data model, the individual HTA projects could become a reference point for extensive research on the history of the respective towns and thus further our historical understanding.

Author Contributions

Writing – original draft: Niklas Alt
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