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# Storytelling in Interactive Atlases – Following the Intrinsic Map-Centered Approach

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## Abstract:

Atlases are certainly an attractive way not only to present maps, but also to reveal and explain relationships between elements on a single map or between themes of different map layers.

Thus, because of the complexity of many map designs and of the often overwhelming thematic content, the visual graphics have to be supported by some kind of explanation. During the last decade, more and more terms such as “spatial narratives”, “story maps” or “visual storytelling” emerged in the field of cartography (Roth, 2020). Often the map becomes a media element among many others. In this contribution we will explore how the idea of storytelling can be implemented in a way where the story is told through the map and therefore the geographic context will be aligned with the story at all times.

Storytelling should guide the user to discover, learn and understand the content and background information of a map (series). To implement this, we propose making use of an intrinsic, map-centered approach, where the story takes place mainly on the map(s) and the map serves not only as illustration of the story, which would be the extrinsic approach (Thöny et al., 2018). By using the intrinsic approach, we can create stories that focus on geographic issues (where?), on cause and effect (why?), on time and procedures (when?), on thematic content (what?), or on personal stories (who?) within the map environment and therefore embedded into a geographic context.

In intrinsic map-centered storytelling we can rely on narrative tactics and techniques like visual structuring, highlighting, and transition, as well as ordering, interactivity, and messaging (Segel and Heer, 2010). From a structural point of view, intrinsic stories can be told in three ways: 1) on a separate map layer (e.g., charts, picking box), 2) by using integral map elements (e.g., cities, castles, mountains, regions), and 3) overlays that are loosely connected with the map (e.g., general information). It also allows adapting the map according to the story by changing the map style, the location and map extent, or the map content. Multimedia elements and interactive charts can be added, and external maps and data sources (e.g. real-time data) can be linked. With intrinsic map-centered storytelling, we enable a user-driven concept: storylines are perceived as an inherent component of the atlas maps, but at the same time, the users can switch between the story and the mere map use at every time, or jump to any point in the storyline (Schalcher, 2021). This user-driven concept can be applied by the user in a bi-directional way: a) following the storyline causes a change of the geographic context, and b) following a thematic, space- or time-based narrative (i.e., what happens at a specific place or time stamp?), the story will change.

To summarize, the intrinsic approach has two main advantages: firstly, the user can determine the flow, order, and duration of the story freely (no fixed direction), and secondly, there is always a direct connection between the story and the map, since storytelling in atlases should always have a strong cartographic component.

In our contribution, we will show the general components of this concept, but also a proof of concept by addressing specific examples of intrinsic storytelling from the national Atlas of Switzerland – online, a 3D application.

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