Under the Urban Microscope

Linz Changes

The Ars Electronica Futurelab has been collaborating with Linz's Department of Geodata Management to gather information about the city contained in many different databases and bring it together in a single interactive information platform. This project will make its public debut at the 2008 Ars Electronica Festival. At the installation in the Lobby of the Altes Rathaus on Linz's Main Square, visitors can take the plunge into this massive data pool that presents not only a snapshot of a geographical location at a particular moment in time but also records the process of development that has occurred here over time. Three modes of depiction—city maps, orthographic imagery and a textured 3D model—are linked up with functions that enable users to navigate through space and time. The aim has been to prepare and make available a multi-layered, multi-faceted depiction of Linz's past, present and future urban development—a description that would hardly emerge from the accumulated data and individual historical portrayals alone—and to do so in the form of a mobile installation that constitutes an exploratory and analytical tool at the disposal of local government agencies and citizens. To accomplish this, Ars Electronica engineers developed an interface that combines elements of a touchscreen, a navigator and haptic objects representing available topics. Just a few navigational steps make it possible for users to access highly descriptive views of developmental processes or to conduct very efficient searches for particular pieces of information.

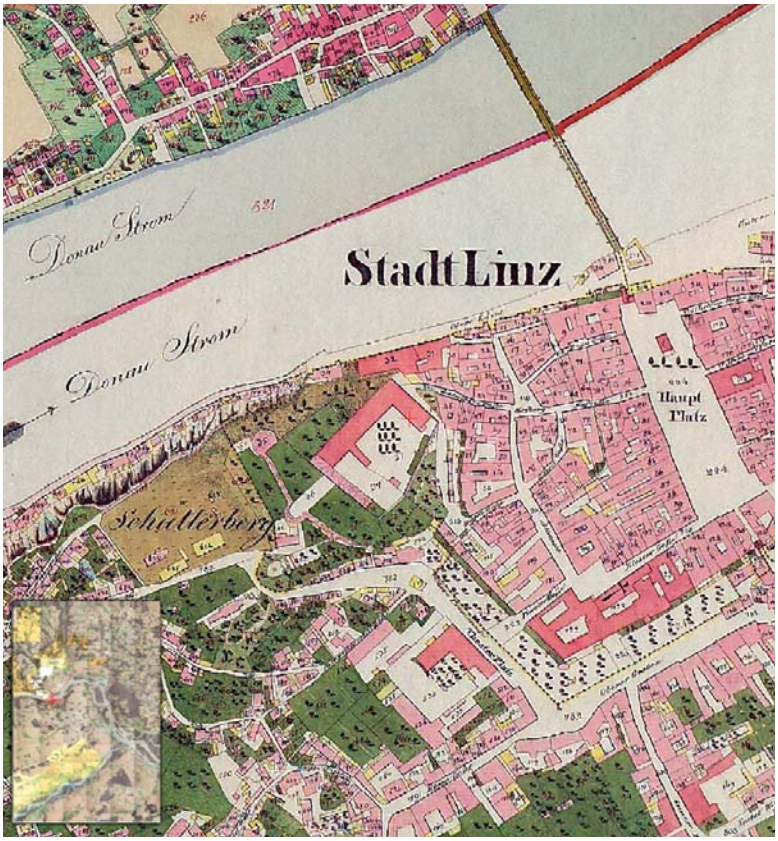
An image of the city is displayed on a 30-centimeter-high horizontal projection surface. Directly adjacent to it is a vertically-oriented screen for the display of information, explanations and facts. This dialogic juxtaposition of projection surfaces facilitates the user's efforts to grasp the connection between the cartographic material and the selected content describing the City of Linz. That content is structured according to topics and various different approaches. Specific elements can be accessed via the haptic objects, and the stylized logos of the touchscreen function make it possible to go more deeply into a subject. For example, each of the four core topics implemented thus far—city, population, leisure and social services—has four sublevels in which more detailed information can be accessed.

This thematic pattern and the data visualizations featuring varying levels of resolution on which it's based enable users to retrieve concrete geo-referenced information and to follow its process of historical development via a time-manipulation feature, as well as to explore an overall, "wide-angle" view and to compare details of this big picture over time. The information landscapes transform the city as a geographical entity depending on the choice of topic: for instance, into a demographically, culturally or socially structured space. In this way, all of the multifarious layers of these developmental processes can be experienced visually.

The city map as a formal repository of the data on hand makes available cartographic information since the so-called ur-map (prior to 1824) and orthographic images as additional formal repositories for the period since 1980. The textured 3D model—the latest collection of data on the City of Linz—displays a virtual replica of the inner city. Models of the city's architectural stock are augmented by photographs of their façades taken since 2007 and then further enhanced with imagery of the trees and other plants growing amongst them; the end result is a detailed and constantly updated representation of the city and its metropolitan area. All three types of representation come with a zoom function that captures objects as small as 25x25 cm.

The 3D navigation function lets users cruise above the virtual city and view the cityscape from totally novel perspectives.
Data sources for the information landscapes are: Statistik Austria, the Statistical Yearbooks of the City of Linz, the city's Departments of Research, Communications and Geodata Management, the Linz City Archive, and statistical literature from the early 20th century. Available data include election results, population density and job distribution. There are detailed rundowns of specific locations such as sports facilities, cultural venues, museums, and social infrastructure. In addition to the approximately 10,000 statistics on a total of 260 time periods that went into the preparation and design of the information landscape, there are (currently) 2,400 points of interest that offer in-depth information in the form of micro-narratives. The sum of this is a highly multifaceted picture of the city and its past. Throughout, the focus remains on change and urban development. The evolution of Linz is put under an urban microscope that enables users

Screenshot, Flug durch das texturierte 3D-Modell des Linzer Stadtzentrums



Screenshot, historischer Kartenausschnitt von 1824

to observe as well as analyze what's transpired and, as an upshot of scrutiny conducted from a wide variety of perspectives, to discover and reflect on possible paths of development in the years to come. In addition to approximately 150 years of urban history as the basis for interactive exploration of Linz, users can also access sketches of future urban planning measures and key architectural project proposals, and discuss them before the background of Linz's past development. This installation is thus above all a tool for the present and the future, a fact that's underscored by the integration of the "Linz Termine" online event calendar.

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