



# A Novel Generation of Small-Scale Economic Maps for the Swiss World Atlas

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The previous generation of economic maps in the Swiss World Atlas has been in use for more than 20 years. Since its introduction to the atlas, only minor updates have been made because it would have been time-consuming and complex to perform a general update due to extremely heterogeneous data sources. Besides the need for updates there were other reasons that lead to a complete redesign of those maps for the new atlas edition. Up to now the main focus of the maps was mainly on the primary and secondary economic sector whereas in most countries of the world the tertiary sector of the economy has become by far the most important one regarding economic performance. The previous maps also followed a rather strict location principle according to which industrial sites as well as agricultural products were depicted. Additionally it was difficult or even impossible to extract quantitative information from those maps and to gain a broad and comparable overview over economic activities. These weaknesses lead to question how and which aspects of the economy on a sub-national level should be mapped in order to satisfy current educational needs on the secondary school level, which focus nowadays on a broader and preferably holistic overview, including all three sectors, which enables an interlaced thinking.

Hence new economic maps have been developed for the 2017 atlas edition which involve the following three elements.

1) A bivariate dasymetric map depicting the agricultural land-use has been generated by using spatial analysis on the basis of two raster datasets. It shows the shares of land used for arable farming and livestock farming in percentage of the total area.

2) A visualization of the economic power of cities shows the gross domestic product per city. Using categorized symbols, the economic power of a city is shown in monetary units, subsuming all economic activities. Although this approach still follows the location principle, it is based on a more aggregated level which takes into account increasing economic dynamism and decreasing site-dependency of enterprises. It also enables global comparisons on a quantitative level.

3) As energy supply and resources are an important location factor, the maps depict power plants above a certain installed capacity level by type in the form of qualitative symbols. Also the most important extraction sites of mineral and fossil resources are depicted with qualitative symbols. Finally, the main supply network for oil and gas is included in the map.

A simple base map including only the most important features for orientation (coastline, water network, national borders, and shaded relief) supports the economic map. As there is always a general topographic map of the same region, scale and extent placed just next to the economic map, it was possible to omit further base map elements.

During the perennial and iterative development process, these three fundamental elements have been identified as the most suitable ones to reach the current educational needs. Although heterogeneous data is still used, it is now much easier to update the new maps, thanks to the use of standardized and compatible data on a more aggregated level, particularly for the depiction of the economic power of cities. For the other elements, global datasets are available. Additionally, the necessary spatial analyses are reproducible due to well-known parameters.

The new generation of small-scale economic maps is probably the most profound of several innovations within the 2017 edition of the Swiss World Atlas which were implemented to fulfill changing educational and technical needs.

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