

Esri Switzerland

Esri is the world's leading provider of geographic information systems and location intelligence as well as map-based digital solutions. Esri's ArcGIS geo-platform helps organizations in the private and public sectors transform big data, real-time data, and geodata into information that can generate added value. More than 300,000 customers around the world put their trust in the flexible solution and service portfolio offered by the GIS provider, which was established in 1969. Customers that use the ArcGIS geo-platform include 90 percent of Fortune 100 companies, numerous governments, 30,000 cities, and more than 12,000 universities.

Esri Switzerland is a distributor and part of this global network. With its approximately 50 employees and more than 800 customers, Esri Switzerland, which has locations in Zurich and Nyon, employs its complete ArcGIS expertise to provide GIS services throughout Switzerland.

Digital Twins driven by GIS

Digital twins have become crucial across industries, offering valuable insights into the systems and operations that sustain processes. Governments, at both local and national levels, recognize the benefits of accurate digital twins for their cities, states, and countries. They enable smarter planning, increased efficiency, and the advancement of sustainability initiatives. Businesses also rely on digital twins for enhanced understanding, which leads to informed decision-making.

The evolution of the concept of "digital twins" is intriguing. Originating from the aircraft and automotive manufacturing sector as a means to assess performance in specific scenarios, it has now been commercialized for use by architects and engineers in construction.

For digital twins to be effective, they rely on precise and up-to-date maps and 3D models derived from imagery. These requirements align with the crucial aspects of geographic information systems (GIS) technology.

Esri technology serves as a logical foundation for digital twins, offering rich data models and enabling data integration from various sources. It provides tools for exploring the digital twin and applying it to different missions, including critical

applications such as infrastructure projects, disaster response, and natural resource conservation.

A digital twin driven by GIS is a foundational element for diverse operational activities. It becomes an integral part of a city's infrastructure, offering a 3D representation that can be continuously updated in real time through GIS technology.



Figure 1: Digital Twins represent a replica of our real-world.

A geoinformation system transforms data from different systems into digital twins, which are continuously updated through various transactions. There is a growing trend of digital submissions, such as building information management (BIM) models for cities, and reality capture through imagery from drones, aircraft, or satellites.

In essence, GIS serves as the cornerstone for a dynamic digital twin, representing a replica of our real-world environment. The concept of GIS originally aimed to abstract and construct a "digital twin" containing geographic information about cities, landscapes, and environmental conditions.

This opens up fascinating possibilities

By using a GIS digital twin as a foundation, you can create visualizations, simulations, and physics models within an immersive, game-like environment. This allows for collaboration and sharing with both colleagues and the public.

This innovative approach gives rise to a new type of business system that requires immersive connectivity and offers an immersive view. By employing an open GIS approach, federating

datasets within a virtual environment, we can explore relationships, processes, and forecasting.

The concept of a digital twin extends beyond local geographies and the natural world. It also encompasses the entirety of social science, offering insights into interconnectedness and relationships. Esri technology itself has always served as a digital twin of our reality, integrating the natural and built environments.

As we continue to leverage GIS and digital twins, with each new generation of technology and leadership, we have the potential to achieve extraordinary outcomes.

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Figure 2: Digital Twins create visualizations and simulations – this allows to collaborate and share with stakeholders, colleagues, and the public.