

Using digital to understand the Physical Environment in the Digital Economy

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A map provides a spatiotemporal representation of a given area typically for a specific purpose. The area could be indoors (e.g., shopping malls or large convention centres), outdoors (e.g., a park, town or city) or a combination of the two. The purpose that it is designed for (e.g., hiking, vehicular traffic, tourists) will determine what level of detail that it contains and the information that should be represented.

Existing methods must find more efficient ways of collecting the information to build true representations of ever changing regions. The environments that we live in are very dynamic. Recent events have seen areas: destroyed due to extreme weather and natural disasters, investment leading to the development of existing areas and buildings and building usage change as consumers make more use of online facilities instead of high street stores. Traditionally a map would require the use of surveyors and cartographers to collect the necessary data and produce a suitable representation of it. However, this can be a costly process and, in some remote areas, too logistically challenging. It is also difficult to keep up with the dynamic nature of the environment. After natural disasters aid agencies and emergency workers need to quickly establish how the environment and accessibility to that area has changed. In usage cases, the dynamic nature is unlikely to be known by anyone other than the community that uses it.

The use of tracking technology and location data can provide the much-needed data collection method. Movement analysis tools can then process the data to dynamically generate an up-to-date representation of the area. When combined with AI, data analytics provide a much richer understanding of the data allowing spatiotemporal representations to be produced that can be personalized to the level of the individual or the community. This presentation will present a proposed method that allows 'personalized dynamic mapping' by allowing individuals to provide their location data. A discussion of the implications of the proposed method on individuals, communities and the wider economy will also be given. The presentation will conclude with future developments of the method including how it might be used to facilitate more integrated communities.