

Digital economy, geoweb, cities and urban networks

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The digital revolution has clearly created a type of less visible digital infrastructure that is difficult to understand and imagine in terms of its impacts on cities and regions. On the one hand, the digital infrastructure, which includes hardware elements such as hubs and fibre optic links, is the backbone of the digital economy. Despite the common perception of a black box and a unified system, the digital infrastructure is embedded in places. It is unequally distributed across cities, it reflects both past and current spatial development patterns, but it might also affect economic development. On the other hand, the digital revolution supports human communication and interaction with numerous innovative virtual and digital tools. The nature of these tools enables the effortless sensing of human activity and therefore social science has nowadays the luxury of accessing a wealth of data that reflect human behaviour and interactions at very precise spatial and temporal scales. The breadth of such sources, which include anything from online social networks (geoweb) to passive and active crowd sourcing data (e.g. mobile phones), has the potential to assist researchers in better understanding spatial phenomena: from commuting to migration and from transportation to tourism and spatial structure. In addition, such data sources have the potential to unlock the black box of the spatiality of the digital economy as the different layers of the network society have noteworthy spatial reflections.

Despite the dramatic innovations related with the digital revolution, it is safe nowadays to (re)confirm that geography still matters! Cities are strategic nodal centres in a complex spatial network. The linkage structure in such networks may be both physical and virtual. Despite the 'death of cities' hypothesis, cities have turned out to strengthen their position in a digital world. In most cases, information and communication technologies (ICTs) have not led to a flat landscape, but even more to a 'spiky' landscape. Geography still matters apparently, while ICTs add only another complicating factor for the locational analysis of people and firms. Clearly, distance may lose part of its importance as a major impediment, but agglomeration benefits may grow even faster. Under such circumstances, ICTs may help to reduce the cost of physical movement and hence stimulate more real transport flows. At a different scale, it is noteworthy that the virtual world has opened up a complex ramification of global linkages between cities, with a surprising variety in intensity and complexity.

This PhD project will aim to create new knowledge on how cities, urban systems and regions function, utilizing the pool of big, digital data enabled by the digital revolution. Having an economic geography starting point, this PhD will result in new empirical knowledge on the spatial structure of human activity using quantitative methods. Related research questions include, but are not limited to, the effects of ICTs on cities, spatial economy and structure, the interrelation between ICTs, transport infrastructure and mobility patterns. Empirical modelling using methods and techniques from geography, but also from other cognate fields such as economics or complexity science, will result in new insights in urban and regional analysis. These insights will be then filtered and channelled appropriately in order to inform spatial policy. More specifically, urban planning and local and regional development domains will directly benefit by the new insights on the function of cities and urban systems and the spatiality of the digital economy.

Entry requirements

Applicants are normally required to have a bachelors degree in a relevant discipline at upper second class or above (or equivalent), and a masters in a relevant discipline (or equivalent experience).

Funding

This project is eligible for the competition for ESRC scholarships at the University of Birmingham: see

<http://www.birmingham.ac.uk/postgraduate/dr-fees/ESRC-research-council.aspx>

These scholarships are available for UK and EU applicants only. Applicants wishing to apply for this funding should contact the School or supervisor by January 5th 2015 at the latest.