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Investigating the place of theoretical geography in British SDS (spatial data science) research institutions: some draft typologies

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The availability of new techniques and datasets for the analysis of geographical information needs to be taken into account if we want to describe and explain the restructuring of geography as an academic field in the UK since the 1960s – as well as its links with related scientific and professional fields over that period of time (see Openshaw, 1991; Barnes, 2013). The rise and fall of FORTRAN in British geography departments (Unwin, 1978), the massive emergence of GIS as a ‘research pipeline’ in the 1990s (Johnston, 2006), the programming languages and packages mobilized today (Arribas-Bel and Reades, 2018), but also the mobilized data sources in connection with the ways of thinking eventual purposes of geographic modelling are all part of that story.

It is a story that requires us to investigate the theoretical and methodological references on which GIScientists and spatial analysts rely, but also their past and present working conditions in a particular context: neoliberalising United Kingdom and its teaching and research systems (Shattock and Horvath, 2019). My work stems from a set of traditions in science studies that attempt to move away from internalist perspectives on the production and circulation of geographic information by adopting a commodity-based perspective on these elements, which can be achieved by asking the following: which funding? which instruments? what institutional support? (Keim *et al*, 2016; Armatte and Dahan Dalmedico, 2004, within the history of models and modelisation).

In accordance with the research protocol I developed, my doctoral research revolves around the subuniversity scale (which, in plain language, amounts to departments, research centres and laboratories within larger research institutions). Since my work focuses on the United Kingdom, I decided to carry out extensive fieldwork in research centres whose scientific activity centres on the massive processing of geographical information.

The three months I have had the privilege to spend at the Centre for Advanced Spatial Analysis, London, over Spring 2023, were very much central to scientific aims of my doctoral thesis. The Bartlett Centre for Advanced Spatial Analysis (CASA), University College London, was founded in 1995, with the arrival of Prof. Michael Batty as Chair of Planning and Spatial Analysis in UCL. One of the first British research centres dedicated to Geographic Information Science, it since then has become an international hub in the production and diffusion of knowledge about spatial data, models, simulations and prospective. In its 30-year history, it has created three different masters’ degrees which today welcome more than 125 students per year, has grown to around 50 staff, research and PhD members, have collaborated with local government and urban industries (engineering, architecture, urban planning offices).

Over this period of time, I conducted semi-structured interviews (n=34) with current and former members of CASA as well as senior researchers that have witnessed in a significant way the evolution of the Centre since 1995. I also had the opportunity to attend a various panel of lectures and seminars taught in CASA, as well as a variety of internal research and administrative activities (PhD public upgrades, research seminars, a staff-only research awayday, careers events...). This interview-based and observational work was complemented by archival work conducted at the UCL Special Collections (University records) and the Royal Geographical Society - the goal of the latter being to seize in a more thorough way the theoretical and methodological reconfiguration of geography, when affected by the massive diffusion of novel quantitative methods.

During this fieldwork segment, several hypotheses about the reception and the diffusion of spatial data science in the United Kingdom were developed:

- Firstly, that the rhythm and the places of diffusion of these sets of methods was dependent on infrastructural, political and economic factors in the academic field - which would explain the centralities and peripheries of knowledge production in the field of spatial analysis and spatial data science in the UK. Discoveries about the financial state of UCL, conflictual power relations between close departments, and investments in processing units partly supports this hypothesis.

- Secondly, that the organisational structure of research centres and labs is part of the reason why spatial analysis became more central in these rather than in 'classic' research departments. Findings about epistemic values, exchanges with the industry, and the effect of 'hype cycles' on the epistemic structure of CASA also supports this hypothesis, which nevertheless needs to be tested in other environments.

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