

## 'London Calling' - A Spatial Decision Support System for inward investors

Patrick Weber<sup>1</sup>, Dave Chapman<sup>2</sup>, Marc Hardwick<sup>3</sup>

<sup>1</sup>Centre for Advanced Spatial Analysis, University College London, 1-19 Torrington Place,  
Gower Street London, WC1E 6BT

Tel: +44 (0)20 7718 5430 | Email: p.weber@ucl.ac.uk | Fax: +44 (0) 20 7813 2843

<sup>2</sup>Centre for Enterprise and the Management of Innovation, University College London, Gower  
Street, London, WC1E 6BT

Tel: +44 (0)20 7679 0441 | Email: d.chapman@ucl.ac.uk | Fax: +44 (0)20 7679 3209

<sup>3</sup>Think London, Level 35, 25 Canada Square, Canary Wharf, London E14 5LB

Tel: +44 (0)20 7718 5412 | Email: mhardwick@thinklondon.com | Fax: +44 (0)20 7718 5454

**SUMMARY:** Foreign direct investment makes a major contribution to London's position as a world city within our increasingly globalised economy. For the last 11 years Think London has acted as London's official inward-investment agency helping over 800 companies from 35 different countries set up operations in London. The promotion of London as an enterprising and creative location for business requires the collation and presentation of a wide range of data to inform inbound companies of the disposition of essential resources such as labour, facilities and business support infrastructures alongside more subjective factors relating to the 'liveability' of the City. Many of these diverse data are best integrated and communicated within a geographic framework. Thus, since the end of 2004, UCL has collaborated with Think London to develop a GIS component for a Spatial Decision Support System (SDSS) that will improve and expand their services to clients. This paper draws upon the work of Kitson (2005) and Florida (2003), building upon their theoretical frameworks to provide new GIS-based products in response to client enquiries. It is intended to show how Think London is developing a GIS based strategy in support of the London Development Agency's priorities for regional development (LDA, 2005).

**KEYWORDS:** *Inward Investment, Business GIS, SDSS, Regional Development*

### INTRODUCTION: FRAMEWORKS FOR ASSESSING REGIONAL COMPETITIVE ADVANTAGES

The competitiveness of regions (the ability to attract investment and retain firms) is one of the main factors contributing to the standard of living of local populations, and thus also one of the main means by which to achieve sustainable economic development.

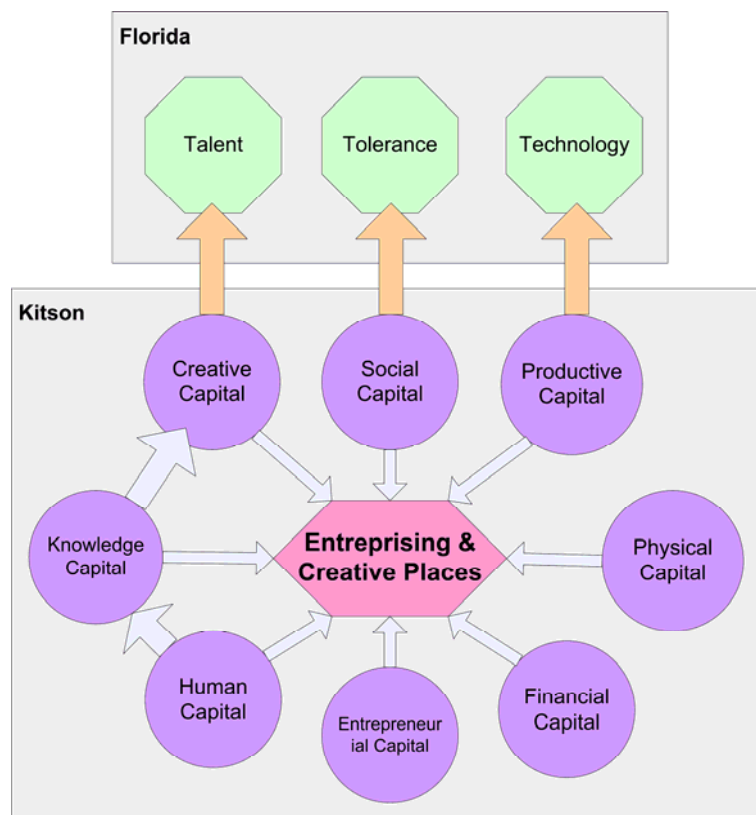
One of the most popular theories to explain differences in the economic performance of regions was formulated by Porter (2003) who argues that the strength of regional economies is strongly correlated to the strength of local clusters (a geographically proximate group of interconnected companies in a particular field). Porter argues that these cluster effects can have a significant impact on the vitality and plurality of innovation. Porter's work has been widely adopted by UK regional development agencies (Porter and Ketels, 2003) however many academics have questioned whether the current emphasis on clusters as foci for growth represent only a partial and incomplete view of regional development (Martin and Sunley, 2003).

According to Kitson (2005, Kitson et al., 2004), regional competitive advantage is not solely dependant on the emergence of strong industry clusters and emphasis needs to be given to local knowledge, learning and creativity as supplemental factors to productivity. These externalities are classified using different capitals: Quality and skills of the labour force (*human capital*), which in turn can vindicate the presence of a highly skilled, creative and innovative/entrepreneurial class (*creative,*

*knowledge and entrepreneurial capital*), development and vitality of social networks (*social capital*) and a adequately developed infrastructure to support all activities (*physical capital*). *Productive capital* in turn goes back to Porter’s notion of local industry clusters and the presence of a strong regional economy.

Kitson’s framework is supported by (Cooke and Leydesdorff, 2006), who coin the term of *Constructed Advantage* taking into account economy, governance, knowledge infrastructure, community and culture.

Comparing Kitson’s framework for regional competitiveness with the model Richard Florida (2003) developed, we find significant overlaps with Florida placing greater emphasis on the notions of creative, social and productive capital. Both models offer common factors to describe regional competitiveness and these connections have been summarized in *Figure* .



**Figure 1:** Framework for regional development combining Kitson (2005) and Florida (2003) model for Creative Cities.

Florida argues that companies cluster to take advantage of local knowledge pools, to rapidly mobilize talent to fuel innovation and competitiveness. Thus the focus shifts from the companies to the capabilities and qualities of the local community.

He goes on to suggest that a combination of three fundamental factors enable a successful regional development (or 3T's):

- **Talent:** “*Human capital*” and more specifically the development of an educated creative class enables the creation of “*Creative Capital*”, the driving force behind the now dominant knowledge economy.
- **Tolerance:** “*Social Capital*”, the creation of local communities that embrace openness, inclusiveness and diversity for all ethnicities, races and walks of life.
- **Technology:** “*Productive Capital*”, a function of the concentration of high-technology and innovative companies in the region, i.e. the presence of strong local industry clusters.

Both Kitson's and Florida's framework have common factors that can be used to investigate the development of regional competitiveness. Kitson's framework offers the more detailed conceptual guidance for our analysis and also includes Florida's framework. We can contrast this framework which essentially was devised as a top down approach versus the user requirements analysis carried out at Think London to inform foreign direct investment.

#### **A GEOSPATIAL FRAMEWORK FOR COMPETITIVE ADVANTAGES**

This paper reports on the ongoing Think London GIS project designed to deliver key information required by its Business Development Managers (BDMs) in support of inward-investment clients.

A series of structured BDM interviews were conducted to capture their experiences in dealing with clients, their data requirements (*see Table 1*) and hence inform the design and implementation of the finished GIS.

	<u>Data requirements identified by BDM's</u>
<b>Physical Capital</b>	<ul style="list-style-type: none"> <li>• <b>Infrastructures and facilities :</b></li> <li>• <b>Environmental Services &amp; Infrastructure:</b></li> <li>• <b>Commercial &amp; Residential Property</b></li> </ul>
<b>Social Capital</b>	<ul style="list-style-type: none"> <li>• <b>Public Services :</b></li> <li>• <b>Healthcare:</b></li> </ul>
<b>Human Capital</b>	<ul style="list-style-type: none"> <li>• <b>Socio-demographic data:</b></li> </ul>
<b>Knowledge Capital</b>	<ul style="list-style-type: none"> <li>• <b>Labour force data</b></li> </ul>
<b>Productive Capital</b>	<ul style="list-style-type: none"> <li>• <b>Company Data:</b></li> <li>• <b>Business Intelligence:</b></li> </ul>

**Table 1:** Initial data requirements gained from interviews.

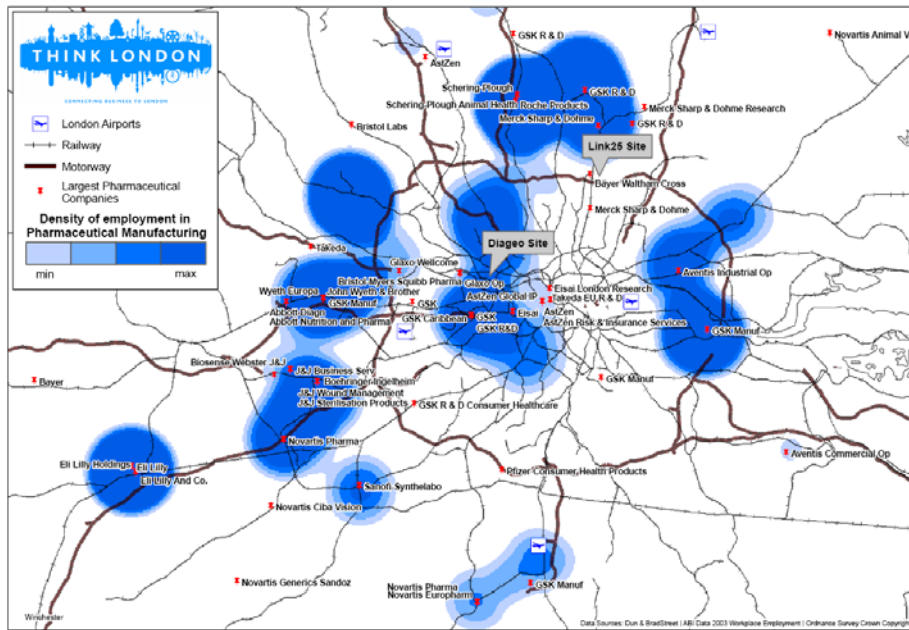
From this table it is clear that the data identified from the interviews cover a significant sub-set of the “*Capitals*” of the theoretical frameworks described in the previous section. Thus, having

populated our prototype GIS with data appropriate to the stated needs, a GIS prototype was deployed on “live” consultancy projects to give us a deeper insight into how GIS analyses might improve Think London’s services. The feedback received from the different clients helped us understand the key areas where geographical analysis can add value and refine our initial user requirements.

Linking our refined requirements to our theoretical framework, we then established four main mapping applications covering the most common Think London’s enquiries which, in turn, draw upon a broad range of data from each of Kitson’s Capital. In the remaining section of the paper we give one example of a typical analysis from each of these categories of:

- Business Sector Clusters;
- Delineation of labour force catchment areas;
- Characterisation of workforce demographics;
- London’s future infrastructure.

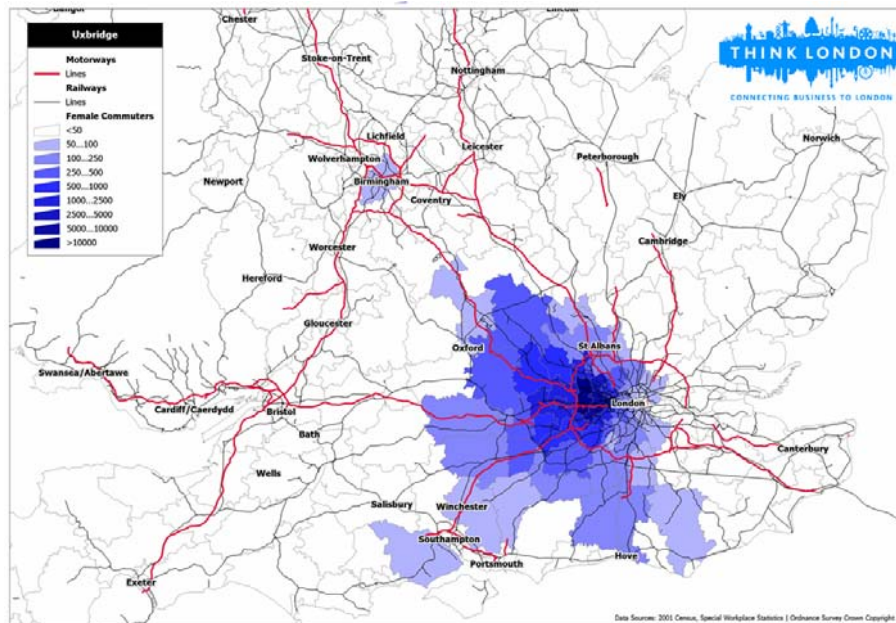
**Business Sector Clusters:** Most commonly, client enquiries were related to the location of potential competitors, partners and suppliers. Thus intelligence on the location of sector specific suppliers, partners and competition, as well as wider intelligence on the economic landscape were key elements of the response to client queries. *Figure 2* shows the results of a typical query showing the density of employment in the pharmaceutical industry overlaid with company locations to indicate the local *Productive Capital*.



**Figure 2:** Density surface for employment data for pharmaceutical manufacturing overlaid with key competitors in the sector.

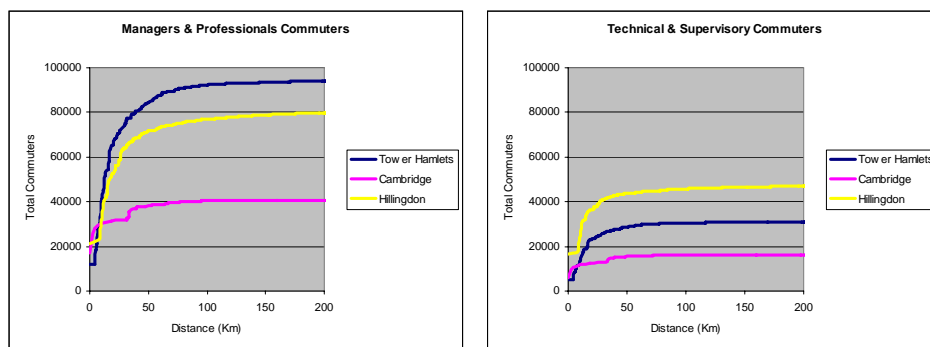
**Labour force catchment areas:** Many of the larger clients who were looking to relocate their activities were particularly keen to characterise the extensive and diverse distribution of London’s *Knowledge/Creative Capital*, e.g. public schools, universities and research institutions, as well as private R&D facilities taken from various data sources. The GIS also presented the distribution of *Human Capital* through the use of Census 2001 data. *Figure* shows a typical representation of the

local workforce distribution, showing its qualities as well as the catchment area. Thus, through the analysis of commuter flows larger employers can get better picture of potential recruitment issues.



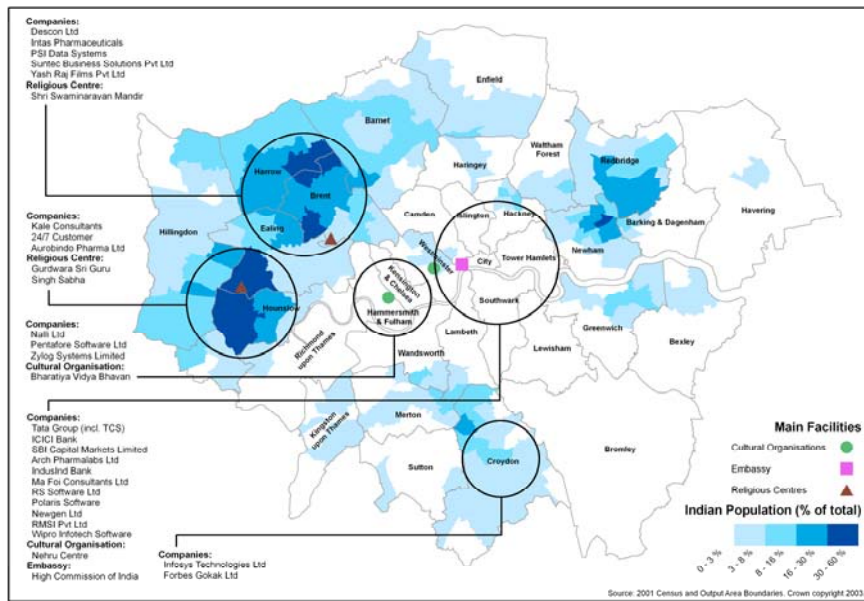
**Figure 3:** Commuter analysis for female commuters to an Uxbridge location.

Analysis of the characteristics of these labour catchment areas used the cumulative distance distribution of different workforce subsets for three locations (Cambridge, Hillingdon and Tower Hamlets which includes Canary Wharf) (see Figure ). Comparing Cambridge to Tower Hamlets and Hillingdon, we found that both London locations benefit from a labour pool potential that's twice the size of Cambridge. Commuting distances across all socio-economic groups are longer for both London locations. The results confirm the findings of Owen and Green (2005) that higher level non manual occupations have the longest average work journeys in contrast to lower technical and supervisory professions, i.e. a lower qualified workforce, who tend to be located closer to their workplace, thus serving the local employment market.



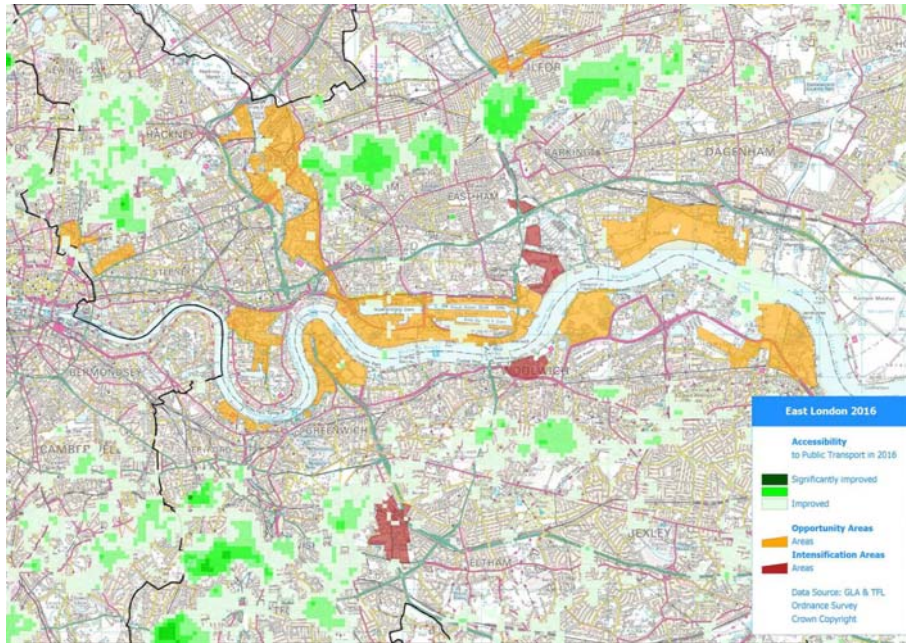
**Figure 4:** Cumulative distance distribution for highly qualified versus lower qualified commuters.

**Workforce demographics:** Attempts to characterise the *Social Capital* of local communities was the main driver of a range of *community maps* to showcase the socio demographic diversity of London’s population, as well as the identification of different ethnic communities. Using Census and commercial company data, we tried to discover the main hubs of concentration and economic activity for the Indian and Korean community. These maps (*see Figure* ) were used as marketing material to raise awareness of London’s thriving ethnic communities.



**Figure 5:** Local Community Map for the Indian population of London.

**London’s Future Infrastructure:** The market research department were particularly interested to portray potential London futures and the opportunities that might arise from the London Plan (the GLA’s planning and development strategy for the next ten years).. A typical mapping product drawn from such data (*see Figure* ) visualises *Intensification* and *Opportunity* Areas in London, with job and home creation numbers in 2016. When combined with data on improved public transport accessibility, these maps allowed Think London to understand how infrastructure improvements (*Physical Capital*) will potentially influence regional economic development.



**Figure 6:** East London Public 2016: Planned improvements in public accessibility and target areas for regeneration and urban development.

## CONCLUSIONS

We have found the work of Kitson and Florida useful - providing a framework within which to arrange the findings of our interviews with BDMs and allowing us to gain a better understanding of the geographic data needs of Think London. This paper also allowed us to use our framework to link the GIS to key areas of Think London's activities, and augment its services to enable a better understanding of geographic factors influencing FDI.

To date there has been little attempt to present aspects of London's *Financial and Entrepreneurial Capital*. However these are currently being considered in support of this component of Think London's services to business. Thus, whilst we are able to now routinely present a portfolio of very useful visualisations to inward investors, we are still developing approaches to integrate these data to deliver robust geographic indicators in support of locational decisions. For most of the "harder" capita, we already possess appropriate datasets to effectively quantify these factors. However some of the "softer" capita such as social and financial/entrepreneurial capital remain more difficult to capture and quantify. As Godin (2006) points out: "*there are no purpose designed and sound indicators, nor methodologies for the measurement of the new knowledge economy and innovation systems. To date the concept of a knowledge based economy has had a very limited impact on statistics*".

Thus in the short-term we are seeking to develop surrogate measures from existing datasets that are not necessarily adapted to measure these factors, and devise methodologies that will be able to fill any gaps we currently have in data provision or analysis.

**BIBLIOGRAPHY**

- COOKE, P. & LEYDESDORFF, L. (2006) Regional Development in the Knowledge-Based Economy: The Construction of Advantage. *The Journal of Technology Transfer*, 31, 5-15.
- FLORIDA, R. (2003) Cities and the Creative Class. *City and Community*, 2, 3-19.
- GODIN, B. T. (2006) The Knowledge-Based Economy: Conceptual Framework or Buzzword? *The Journal of Technology Transfer*, 31, 17-30.
- KITSON, M. (2005) Entreprising and Creative Places. *National Competitiveness Summit*. Manchester, Cambridge-MIT Institute.
- KITSON, M., MARTIN, R. & TYLER, P. (2004) Regional Competitiveness: An Elusive yet Key Concept? *Regional Studies: The Journal of the Regional Studies Association*, 38, 991-999.
- LDA (2005) Sustaining Success - Economic Development Strategy. London, Greater London Authority.
- MARTIN, R. & SUNLEY, P. (2003) Deconstructing clusters: chaotic concept or policy panacea? *Journal of Economic Geography*, 3, 30.
- OWEN, D. & GREEN, A. (2005) Factors associated with commuting behaviour in England and Wales. *British Society for Population Studies Annual Conference*. University of Kent.
- PORTER, M. (2003) The Economic Performance of Regions. *Regional Studies*, 37, 549-578.
- PORTER, M. & KETELS, C. (2003) UK Competitiveness: moving to the next stage. IN DTI (Ed.) *ECONOMICS PAPER NO. 3*. London, Institute of Strategy and Competitiveness, Harvard Business School.