

Chapter 67

City Networks in Cyberspace and Time: Using Google Hyperlinks to Measure Global Economic and Environmental Crises

Andrew Boulton
University of Kentucky, USA

Stanley Brunn
University of Kentucky, USA

Lomme Devriendt
Ghent University, Belgium

Ben Derudder
Ghent University, Belgium

Frank Witlox
Ghent University, Belgium

ABSTRACT

Geographers and social scientists have long been interested in ranking and classifying the cities of the world. The cutting edge of this research is characterized by a recognition of the crucial importance of information and, specifically, ICTs to cities' positions in the current Knowledge Economy. This chapter builds on recent "cyberspace" analyses of the global urban system by arguing for, and demonstrating empirically, the value of Web search engine data as a means of understanding cities as situated within, and constituted by, flows of digital information. To this end, the authors show how the Google search engine can be used to specify a dynamic, informational classification of North American cities based on both the production and the consumption of Web information about two prominent current issues global in scope: the global financial crisis, and global climate change.

INTRODUCTION

The lexicon surrounding cyberspace, the Internet and "new" technologies is replete with spatial metaphors and analogies (Adams, 1997): e.g., online *community*, web *site*, information *gateway*,

portal site, chat *room*. At one level, the reading of this spatial language is straightforward. Spatial/territorial analogy superimposes upon the otherwise intangible (and unintelligible) sphere of bits and bytes a determinate and visible/visualizable *representational surface*. Cyberspace, so imagined, becomes knowable; written in "geographical language" (Kellerman, 2002, p. 31) it becomes

DOI: 10.4018/978-1-4666-4707-7.ch067

definable, mappable and understandable in terms of standard spatial rubrics of distance and proximity, connection and flow (see, in relation to virtual worlds, Hudson-Smith et al. 2007). But an alternative reading of this spatial language suggests a problematization of the supposed separation between underlying reality (intangible/unintelligible) and overlaid representation (tangible/visible) (see Cicognani, 1998). This second reading recognizes that the “virtual” world of cyberspace is already fundamentally imbricated with the “real”, material life of the contemporary city (Crutcher & Zook, 2009). It is this more nuanced conceptualization of the relationship between the “virtuality” of cyberspace and the “reality” of cities that we seek to build on in this chapter.

Hyperbolic claims that distance—and with it, place, city, and geography—is, or soon will be, “dead” (e.g., O’Brien, 1992; Negroponte, 1995; Kaba, 1996) belie an important paradox of the contemporary information-based economy: even as ICTs become accessible “everywhere”, demand for the physical, corporeal transportation between places, and for prime, proximate real estate within “core” urban locations continues to grow (Densstadli & Gripsrond, 2010). The vision of so-called “post-industrial” theorists of a world without distance, where “everyplace is everyplace” (Abler, 1974), remains entirely unmet in several key respects. Society and technology shape each other in complex ways. While, at the most basic level, ICT implies a decoupling of simultaneity in time from contiguity in space (Castells, 1996), informational flows—the informational “cloud” of ubiquitous communications—are in fact, underpinned and enabled by a vast, *physical* (placed) ICT infrastructure. Thus, rather than rendering place irrelevant, cities’ economic performance and their prominence within the global urban network becomes, increasingly, a product of their positions vis-à-vis all other places in relation to ICT networks. Electronic communication has not and cannot be substituted for the social, cultural and economic advantages of urban agglomeration.

Or, as Goldsmith and Wu (2006, p. 56) put it, very simply: “[f]ar from destroying cities by making place irrelevant, the production and consumption of Internet content, and the infrastructure to support it, are concentrated in cities.”

This chapter seeks to unpack this question of the positions cities occupy in relation to ICT networks, meaning that we seek to understand “cyberspace” as an *object* of study in the context of global urban networks. In contrast to earlier ICT-based urban research in which analyses tend to trace out a *cyber* geography via *physical* infrastructure and *material* connection, we suggest two ways cyberspace can be incorporated into global urban network research. First, we consider cities as lived places with attributes—experiential, economic, representational, infrastructural—which are represented in and produced by their cyberspaces. And, second, we consider cities as nodes in transnational networks of capital, ideas, representations, and information. Our focus on cyberspace offers a new take on the methodological question of how to study cities’ positions within urban networks, especially, in the context and under the aegis of the information-based Knowledge Economy.

The remainder of this chapter proceeds as follows. We first turn to debates within the literature on the conceptualization of “hierarchies” vs. “networks”, “world cities”, and “cyberspace”. We examine the nature of the global urban network in order to problematize the ontological assumption of horizontality and mutuality between cities. We argue that the world city network of information flows/exchanges presents itself as an altogether messier and dynamic amalgam of hierarchical and networked characteristics wherein cities position themselves simultaneously in terms of both. Given this understanding, we put forward the thinking that the use of “cyberspace” (i.e. placed and georeferenced informational data) is essential in producing meaningful characterizations of the dynamism of cities and their connections. We examine the relationship between “cyberspace” and world cities¹ literature in more detail and

19 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:
www.igi-global.com/chapter/city-networks-in-cyberspace-and-time/90780

Related Content

The Local Command Structure and How the Library Fits In

(2017). *The Developing Role of Public Libraries in Emergency Management: Emerging Research and Opportunities* (pp. 44-60).

www.irma-international.org/chapter/the-local-command-structure-and-how-the-library-fits-in/178780

Adapting to Online Learning: A Pioneering Journey in Technological Transformation

Shahnaz Hamid (2024). *Building Resiliency in Higher Education: Globalization, Digital Skills, and Student Wellness* (pp. 21-37).

www.irma-international.org/chapter/adapting-to-online-learning/345215

Fortifying Large Scale, Geospatial Networks: Implications for Supervisory Control and Data Acquisition Systems

Alan T. Murray and Tony H. Grubestic (2014). *Crisis Management: Concepts, Methodologies, Tools, and Applications* (pp. 224-246).

www.irma-international.org/chapter/fortifying-large-scale-geospatial-networks/90718

Impact of Sea Level Rise on Coastal Regions and Strategic Responses

Pedro Miguel Gomes and Francisco Sacramento Gutierrez (2018). *Handbook of Research on Environmental Policies for Emergency Management and Public Safety* (pp. 239-255).

www.irma-international.org/chapter/impact-of-sea-level-rise-on-coastal-regions-and-strategic-responses/195199

Sharing Radiation Measurements Through Social Media: A Methodological User-Oriented Proposal Set of Guidelines

Antonin Segault, Federico Tajariol, Yang Ishigaki and Ioan Roxin (2016). *International Journal of Information Systems for Crisis Response and Management* (pp. 17-30).

www.irma-international.org/article/sharing-radiation-measurements-through-social-media/178582