



The carbon footprint of business travel in the knowledge-intensive service sector



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ABSTRACT

We explore the travel needs and patterns, and the corresponding carbon footprint, of small service organizations during different phases of knowledge-intensive business processes, and compare the results with the priorities given to travel-related goals by staff. We apply a combination of focus group data, mobile positioning, and individual follow-up interviews as study methods. The need for physical travel is determined by a combination of the perceived potential for knowledge creation and transfer offered by each trip, the strength of interpersonal relationships in business networks, and the significance of the travel goal in terms of economic sustainability. The priorities given to travel goals reflect the environmental load of business travel only in domestic contexts, where executing core business processes accounted for the highest carbon footprint. We propose the ways in which the management of business interactions could take into account sociotechnical environment and social recognition of low-carbon communication and travel modes.

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1. Introduction

Global economies are increasingly reliant on knowledge-intensive business services (KIBS) (Eurostat, 2016; Harrington and Daniels, 2006). KIBS require a business community or network where knowledge can be created, accumulated, and disseminated (Miles et al., 1995). Face-to-face interactions are considered to be crucial for the creation and maintenance of such a network (Castells, 2010; Larsen, 2001; Urry, 2003). However, processes of globalization have resulted in hugely extended business networks, which make it more difficult to meet face-to-face. This has necessitated an exploration of alternative, often virtual, business interactions that can help to maintain close working relationships without placing unnecessary strain on the environment.

When decisions are made about business meetings, a wide range of issues are considered and often weighed against one another (Gustafson, 2012a; Lo et al., 2013; Roby, 2014). These issues include the need to maintain existing business contacts and ongoing projects, external objectives such as social and environmental responsibility, and the concerns and motivations of individual business travellers. During recent decades the environmental impact of travel has become an increasingly important consideration as a result of growing public awareness, and the impact of the environmental image of corporations on public opinion. Studies and programs from the Western Europe (European Commission, 2014; Faulconbridge et al., 2009; Gustafson, 2012a) demonstrate that the environmental cost of travel is a considerable concern for corporations and

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politicians. According to the Paris 2015 agreement, one of the 17 sustainable development goals of the United Nations is climate action, according to which companies are urged to decarbonize their operations and supply chains (United Nations, 2016). This has prompted the design of strategies for sustainable business travel, including ways in which sociotechnical space can be better managed to minimize travel (Faulconbridge et al., 2009). The motivations underlying business travel choices in specific sociotechnical, economic, and strategic settings is an under-explored study area. Little is known about the level of environmental concern of corporations in post-transitional contexts such as Eastern Europe. The study reported herein explores KIBS travel practices at the eastern edge of Europe, where consideration of the costs involved in the development and maintenance of business networks may become particularly salient due to the distance of this region from global business centres.

This paper aims to establish how the particular knowledge-managing goals, together with the requirement for interpersonal interaction between businesses, including travel, play out in the different phases of knowledge-intensive business processes, and further what the environmental load of these activities is. More specifically, we aim to explore (a) the motives for and drivers of business travel during different knowledge-intensive business phases; (b) the factors that influence the size of the environmental load imposed by business travel measured in terms of carbon footprint; (c) whether the trips that are assigned a higher priority by the staff are made more frequently or have a higher carbon footprint.

In this semi-qualitative study, we use a combination of research methods for in-depth exploration of the formation of the environmental load of travel in three businesses. We apply an innovative method of mobile positioning to establish travel routes and to account for the carbon footprint of travel in different business phases. We then use focus group and individual structured follow-up interview data to compare environmental load with the significance attributed by staff to travel for particular business phases and purposes.

2. Background

The environmental load of travel entails a wide range of impacts on ecosystems, climate, and human health. These impacts can be a result of fuel extraction, the life cycle of travel-related infrastructure, or a result of travel itself. In 2010 the combustion of fuel for transport accounted for 14% of global greenhouse gas (GHG) emissions, which was 11% higher than a decade ago (IPCC, 2014). In the EU, transport accounted for 21% of all GHG emissions in 2014, i.e. 890 Tg CO₂e (EEA, 2015). The environmental load of transport has grown as the increased demand for travel outweighs technological efficiency (Banister et al., 2012).

The growth in business travel and (knowledge-intensive) economic activities has attracted increasing scholarly attention (Aguilera, 2008; Aguilera and Proulhac, 2015; Beaverstock et al., 2009; Faulconbridge et al., 2009; Gustafson, 2012b; Høyer and Næss, 2001; Jones, 2013; Millar and Salt, 2008; Torre, 2008). The escalation of business travel during recent decades is considered to be a result of the growing importance of knowledge in production processes, as well as of the significance of face-to-face interactions for knowledge-intensive work processes (Jones, 2013). Face-to-face interaction is one of the key rationales for business travel, and can help to mediate the micro network of decision-making and generate initiatives, ideas and innovations (Castells, 2010). The connections that result produce “thick, embodied socialities of corporeal proximity where people are uniquely accessible, available and subject to one another” (Larsen et al., 2007: 7). Such physical co-presence is essential to build relationships of trust between network members (Castells, 2010; Faulconbridge et al., 2009; Lo et al., 2013).

The ultimate goal of the knowledge-intensive business sector is to tailor-make knowledge solutions. This relies on interaction between network members who are spatially distributed but who possess essential tacit knowledge. Faulconbridge (2006) delineates two different types of knowledge-leverage: first, knowledge transfer, which involves the adaptation of existing knowledge to local conditions where it will be reconstituted, and second, the social production of new knowledge through the synergistic effect of knowledge sharing and learning between spatially distributed network members. In the case of the production of new knowledge, physical proximity to a diversity of producers is a clear advantage (Castells, 2010). However, according to Torre (2008), permanent physical co-presence can partly be replaced by temporary geographical proximity in the processes of knowledge exchange.

Mobility may serve a range of business goals ranging from fulfilment of the individual needs of business travellers, operational processes in firms, and sales, to information or knowledge management (Jones, 2013). Millar and Salt (2008) distinguish between a number of rationales for mobility in the knowledge-intensive sector. These rationales include specific projects or clients that create a need to acquire or deploy knowledge through teamwork, the need to access the specific expertise of an individual employee, and staff development. Existing literature suggests that it is the business tasks at hand, along with the organizational politics and personal needs and preferences of individual employees (see, e.g. Gustafson, 2012a; Lo et al., 2013) that dictate what means of interaction are chosen in business networks. Thus, in knowledge management the costs and benefits of virtual communication through the use of ICT (phone, e-mail, social networks, voice and video-conferencing) versus physical mobility (meeting in person) are often weighed against each other. The use of ICT to facilitate meetings has been seen as a promising substitute for business travel but the evidence for the benefits (including environmental) of ICT does not all support the same conclusions (Borggren et al., 2013). For example, ICT can in fact stimulate further travel by increasing the size of one’s social network and the intensity of the communication between members of the network, thereby creating the need for additional face-to-face meetings (Aguilera et al., 2012; Choo and Mokhtarian,

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