Journal of Cleaner Production 123 (2016) 113–123

Contents lists available at ScienceDirect

Journal of Cleaner Production

journal homepage: www.elsevier.com/locate/jclepro

Organisational effects of virtual meetings

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ARTICLE INFO

Article history:
Received 2 March 2015
Received in revised form
26 June 2015
Accepted 13 August 2015
Available online 24 August 2015

Keywords:
Virtual meeting
Unified communications and collaboration
Green ICT
Substitution
Rebound effects
Meeting efficiency

ABSTRACT

Virtual meetings (VMs), i.e. audio-, video- and web-conferencing, could be used to decrease the environmental impact of business activities, reduce travel costs, increase business mobility and collaboration, and improve flexibility and productivity of the employees. Swedish national policy supports the implementation of VMs as one of the solutions towards low carbon infrastructure and sustainable transportation. There are, however, uncertainties and disagreements about the organisational effects of the increased VM use. This article explores the potential effects that VMs may have on an organisation. It does so by examining the presence and strength of these effects in a number of public and private organisations in Sweden. Data has been collected through a literature review and 23 in-depth interviews complemented by a survey in three organisations. The results are analysed with a special focus on seeking explanations for diverging opinions among the respondents and in the literature. The findings indicate that organisational effects of VMs depend on the following factors: organisational perception of the virtual toolbox, behaviour and rebound effects, and the organisation's virtual maturity. The later refers to the penetration and diversity of the collaborative tools used in the organisation and is divided into three stages: substitution, diffusion and integration. As the use of VMs grows in the organisation, different effects will emerge and eventually subside.

1. Introduction

Professional communication between participants dispersed geographically, temporally and sometimes organisationally has become wide-spread in the last decades due to the rapid development of information and communication technologies (ICT) (Bryant et al. 2009; Bierly et al. 2009; Bosch-Sijtsema, 2007; Van Luxemburg et al., 2002; Carlson Wagonlit Travel, 2010; Kirkman et al. 2002). Virtual workplaces take a form of virtual offices, laboratories and classrooms (Baskerville and Nandhakumar 2007), in which virtual teams of participants perform interdependent tasks distantly, but with a common goal (Bosch-Sijtsema, 2007). One specific ICT-related area to which significant attention has been paid recently encompasses virtual meeting technologies. A virtual meeting (VM) is "a synchronous communication mediated by ICT, making it possible for two or more geographically remote people to interact" (Arnfalk, 2002), and employs audio- or videoconferencing technologies, or computer-mediated web-conferencing. Through the implementation and integration of these solutions into the organisation's processes, both organisations seek to achieve positive effects: cost efficiency, increased collaboration between peers and partners, business mobility, improved flexibility for the employees and increased productivity to name a few.

Furthermore, potential environmental benefits of extended VM use have been recognised. For instance, the Swedish government has adopted a strategy "ICT for a greener administration – ICT agenda for the environment 2010–2015", which calls for a wider adoption of ICT in the public administration in 2010–2015 (Näringsdepartementet, 2010). It identifies and outlines a number of action areas, one of which is to reduce environmental impacts by the use of VMs. The vision is that VMs will contribute to a reduction of greenhouse gas (GHG) emissions by substituting business travelling. The Swedish Government employs more than 230 000 people in over 400 public agencies. There is therefore a significant potential for Sweden to find the ways to green government activities, and reduce the environmental impact of its own work.

The gradual implementation of VM technologies allows organisations to retire aged, expensive and obsolete circuit-switched

Abbreviations: EUR, Euro; GHG, greenhouse gas; ICT, information and communication technologies; SEA, Swedish Energy Agency; SEPA, Swedish Environmental Protection Agency; STA, Swedish Transport Administration; VMs, virtual meetings.

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http://dx.doi.org/10.1016/j.jclepro.2015.08.058
0959-6526/

technology, such as private branch exchanges (i.e. classic telephone switches). Cost-savings from these activities are immediate and often suffice to make rapid return on investments. However, the understanding of the non-economic and long-term effects of VM use on organisations is deficient. The real effects of VMs have not been evaluated systematically. Moreover, the arguments of VM proponents are seldom scientifically grounded, but often resonate with the vested interests of companies seeking to sell their VM solutions (e.g. Cisco, 2008a; Cisco, 2008b). It is also necessary to enhance our knowledge about how these effects relate to the organisation's objectives to improve their performance in terms of efficiency, productivity and sustainability. No documentation of a practical attempt to measure VM effects on organisations has been found in the literature.

At the same time, considering the growing importance and use of computer-mediated communication tools, managing, measuring and monitoring the effects of VMs will be increasingly determinative for the organisation's ability to achieve its goals. A better understanding of what constitutes actual organisational effects of VMs, and explaining the underlying reasons for potential disagreements about these effects will help map the prerequisites necessary to maximise positive and minimise negative implications from VM use. This information will be also vital when developing organisational strategies for the implementation of VM technologies. Through a better understanding of the effects that the VM use can have on an organisation and its employees, and by identifying factors that may influence the outcome, organisations have a better chance to reap the potential gains of this technology and avoid its pitfalls.

Therefore the general purpose of this article is to explore the effects of VMs on organisations focussing on the Swedish public authorities and private companies as a case study. The justification for case study selection is provided in sub-section 2.2. Specific objectives of this article are to investigate:

- potential organisational effects from the increased VM use;
- factors influencing the presence and magnitude of these effects; and
- the extent to which the opinions about organisational effects converge or diverge.

As it is commonplace to link VM use with the level of business travelling, it is important to clarify that within the scope of this article we only investigate this relationship from the cost perspective. The topic of VMs in relation to business travelling level – i.e. volumes, lengths and distribution between travelling modes – deserves separate research.

This article is a part of a research project Implications and Reporting of Virtual Meetings[1] at Lund University, Sweden, the goals of which are to develop a methodology to assess the effects from VMs in Swedish public agencies, and to perform an impact analysis based on the developed evaluation parameters and indicators. The ultimate outcome of the project is a user-friendly assessment methodology, which can be independently applied primarily by Swedish public agencies as well as other organisations interested to follow up the effects from VMs on their employees. Since a comprehensive understanding of the effects of VM use is still under development, it is not possible to recommend any universally applicable best practices to design and measure an organisational VM setup. However, as one outcome of the mentioned research project, the guidelines to evaluate the use and effects of VMs have been developed and are ready to use (see Lindeblad et al. 2014).

2. Methods

2.1. Data collection and analysis

Primary data was mainly collected through 23 in-depth interviews, whereof 18 over telephone and five in person. Employees from six Swedish public agencies, one public authority on supranational level, and one industry trade group have been interviewed. In addition, representatives from five different private companies and private persons were interviewed. The interviewees typically have roles such as project, environmental, sales, ICT or travel managers.

The interviews lasted 45–60 min, and aimed to investigate the level of VM use in the interviewee's organisation, discuss potential and actual effects of VMs, collect reflections on implications not mentioned by the interviewee, and understand the interviewee's view on factors that may influence the effects discussed. In many cases the discussion about VM effects has been adapted to the role of the interviewee. For example, a project manager has potentially better insights in the effects related to work processes than a staff manager, who in turn might have better knowledge about the effects on employees.

Immediate notes during all interviews were taken and later transcribed. The data collected was then organised into categories using a procedure based on the inductive coding process, as described by Thomas (2006). However, unlike the inductive coding process where categories or themes are developed as the work progresses, the categories used in this process have been retrieved from the selected conceptual framework (Arnfalk, 2012).

The main focus in this article is on the analysis of empirical data from interviews. When relevant, additional primary data has been used from a survey performed within the framework of the project Implications and Reporting of Virtual Meetings in three Swedish public agencies: the Swedish Energy Agency, the Swedish Transport Administration and the Swedish Environmental Protection Agency. In total, this survey had 576 respondents, and the aim was to investigate both individual and organisational effects of VMs. The data from the survey has mainly been used to support the analysis of the information collected through interviews. Moreover, further additional data has been retrieved from Resvaneundersökningen,[2] a Swedish national travel survey questionnaire.

Secondary data has been collected through a literature review of books, articles and public reports. This material originates from research institutions, public agencies and private industrial organisations. Main sources for secondary data include online databases: LUBSearch, EBSCOhost and SciVerse. For printed material, the online catalogue Lovisa was used. Searches were also performed using external search engines.

The findings presented in this article are based on a deductive approach to research, where primary and secondary data have been analysed with the help of a conceptual framework (Fig. 1).

2.2. Justification of the Swedish case study

The organisations in focus of this article are Swedish public agencies at the national level ("statliga verk" in Swedish) and other organisations in Sweden. Swedish public agencies are subordinate

[1] http://www.iiiee.lu.se/research/projects/implications-and-reporting-virtual-meetings.

[2] The National Travel Survey is performed by Trafikanalys, an agency charged with providing decision-makers in the area of transport policy with knowledge and advice.