

Chapter 18

Teleworking and a Green Computing Environment: A Conceptual Model

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ABSTRACT

This paper considers strategic green issues of teleworking in terms of the environment, transport, location, office space and resource use for modern organisations and business sectors and formulates a conceptual model of the processes involved. Teleworking technologies are variously implemented for green computing initiatives and many advantages include lower greenhouse gas emissions related to travel, greater worker satisfaction and, as a result of lower overhead office costs, increased profit margins. The paper initially investigates the appropriateness of a working definition of teleworking with regard to green computing and explores the benefits, and barriers, of teleworking in a green computing environment. Theoretical frameworks and models of teleworking are considered and a conceptual model of the contribution of teleworking to green computing is formulated. The application of the model is considered in terms of teleworking concepts, the organisational environment and driving forces. It is the intention of the paper to identify, and articulate, those teleworking concepts that will be useful to academicians, scientists, business entrepreneurs, practitioners, managers and policy makers, and to indicate future directions for research scholars and students with similar interests.

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INTRODUCTION

The aim of the paper is to consider the strategic green issues of teleworking in terms of the environment, transport, location, office space and resource use (Goodman et al., 2004) for modern organisations and business sectors. The research has attempted to understand factors and processes through which organisations have adopted teleworking in relation to green computing. The study has surveyed and built upon the body of knowledge concerning teleworking and green computing, including applications and practice in the business research literature. In these terms the key benefits and barriers of “green teleworking” in contemporary organisations have been considered and the definitions and models of teleworking and green computing have been analysed. A review of the processes and dynamics of green teleworking as an innovative practice in modern organisations has been undertaken. Preliminary research questions for this study which arise out of the literature include:

- How do organisations overcome the barriers to adopting green teleworking?
- To what extent does teleworking, and specifically green telework, contribute towards a green computing environment?

In many respects, green teleworking is emblematic of recent changes in our ideas of work and the workplace (Bailey & Kurland, 2002). Information technology has facilitated the rapid growth of teleworking in recent times because modern telecommunication and computer technology allows workers to perform their duties at home or in remote locations instead of requiring them to travel to and from far-away workplaces (Ndubisi, 2003).

Most studies have attempted to reveal why the practice and application of telework has been slow among organisations and the main finding is that the interests among managers is low. According to Huws et al. (1990) in their survey of a poll of 4,000 European managers, reached the conclusion that telework ‘is still very much a minority interest’ among European managers. The research results showed that managers gave two major reasons for their disinterest in telework and these are: the lack of interest in the need for change, and the organisation and secondly, that the implementation of such programmes is difficult. The managers in large firms expressed concerns about controlling staff who work away from the conventional office environment. The smaller firms anticipated costs of managing and implementing telework programmes as a greater managerial issue (Bailey and Kurland, 2002).

Changes in order to organise work from different and remote locations with the use of hardware such as home and mobile computer, mobile phones and fax machines and software technologies such as the use of e-mails and group ware is what teleworking is about (Perez et al., 2004). Perez et al. (2004) believe that teleworking is not an all or nothing activity because only a small percentage of employees may be involved in teleworking. In addition, it can be viewed as a work pattern that can be imbibed in degrees ranging from less than one work day per week to all five work days per week.

Following identification of contemporary benefits and barriers of the adoption of green teleworking (Matthews & Williams, 2012), a model that highlights the importance of the factors for organisations has been developed to highlight the processes involved. Teleworking technologies are variously implemented for green computing initiatives and the many advantages include lower greenhouse gas emissions related to travel, greater worker satisfaction and, as a result of lower overhead office costs, increased profit margins. The paper initially investigates the appropriateness of a working definition of teleworking (USOPM, 2013) with regard to green computing and explores the benefits, and barriers,

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