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A hybrid approach for modeling alternatives of flexible working

Patrícia Vasconcelos[a,b,*], Elizabeth Furtado[a], Plácido Pinheiro[a]

[a]University of Fortaleza, Av. Washington Soares, 1321 - Bl J Sl 30, Fortaleza, 60.811-905, Brazil
[b]Estacio University of Ceará, Av. Senador Fernandes Távora, 137-A, Fortaleza, 60.510-111, Brazil

Abstract

The concept of telework is related to the accomplishment of distance work with the support of technology. It requires an execution model of labor activity in regimen of Flexible Work distance (FW), workers and rules for conducting this execution. This research was applied in a company that implanted an FW project. For evaluation of the alternatives of FW models we apply two methods of Verbal Decision Analysis (VDA). The first method was used to classify the criteria and the second to ordain them with the objective of find a ranking of the alternatives according to the preferences of involved.

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Keywords: Telework, Flexible Work (FW), Verbal Decision Analysis (VDA), Users' Preferences, Multi-criteria approach.

1. Introduction

The concept of telework is related to the accomplishment of distance work, with the technical support of computer science and/or telecommunication, software and access to the Internet. Technological advancements allow collaborators to perform their activities in different ways, environments, schedules, etc., thus requiring a flexible model of execution of activities by workers, which is also long distance (in this text, called collaborators and their managers). This work model must be centered around the performance and life quality of collaborators, as well as the interaction and sharing of experiences among them in order to solve conflicts that may affect the completion of their activities.

The ecosystem of definition, execution and evaluation of an FW model must be specified in advance and some uncertainties must be agreed upon so companies can adhere to such model in its amplitude. This ecosystem includes the following steps: i) To chose collaborators; such choice encloses the characteristics of the collaborator and the nature of his/her activities; ii) to execute the performed activities; which depends on the legal aspects,

* Corresponding author. Tel.:+55-085-3194-9618; fax: +55-085-3194-9600.
E-mail address: patricia.campos@estacio.br.

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the solutions found for management of activities, as well as the technical solutions for the execution of activities with social interactions; and iii) To evaluate results; which include the way in which the work is carried by collaborators. Several professionals (managers, lawyers, technicians, psychologists) must work together to establish an FW model, considering the important elements of their field to this ecosystem. Some elements are the following: those related to the legal aspect (does the model guarantee the human right to disconnection of work, even being flexible?); those related to the management aspect (does the model guarantee the quality of the work? Can an activity be carried through despite some environmental interruptions throughout its execution?); those related to the human aspect (does the model guarantee the increase of productivity of a collaborator and her/his quality of life?); those related to social interaction (does the model guarantee better collaborative work?).

It is understood that an FW model should be defined from an integrated view of criteria studied in various fields. It is also believed that alternatives of FW model should be explored and chosen in collaboration with the workers. Evaluating the preferences of those involved on the characteristics of an FW model may help to define a model adapted to the needs of those involved. However, opinions may be conflicting, thus generating uncertainties related to subjective criteria, which must compose the model.

Moreover, [1], [2], [3] and [4] have showed that problems of conflicting opinions can be solved by methods belonging to Multi Criteria Decision Analysis (MCDA) [5]. In these studies, alternative models of interaction were identified and assessed in order to choose either the best solution or which features could generate another alternative. The criteria, which characterized each solution, were defined and presented to users so that evaluators could obtain the users' preferences. The analysis of alternative solutions based on users' preferences is the unstructured problem, i.e., a complex problem, where most of its variables are qualitative.

The purpose of this article is to describe a process of definition of an FW model suitable to the involved workers' preferences, which were investigated through two MCDA methods: ORCLASS e ZAPROS III. The result was the identification of an FW model based on the preferences of collaborators and of the managers involved in the case study. The contribution of this work is the description of a collaborative process to support the existence of the ecosystem mentioned above. The structure of this article is as follows: Section 2 illustrates the related work. Section 3 presents the research questions of this survey. Section 4 describes the methodology for defining a model of FW and the MCDA process used in this study. Section 5 describe the resources used for the analysis of alternatives of FW developed, and if followed by analysis of results, discussion and conclusion.

2. Related Work

An FW model adopted by a company is driven by requirements - which are the requirements of the company for the establishment and management of an FW regimen. These requirements are derived from organizational regulations, laws and strategies adopted for improving the quality of work and well-being of collaborators. They cover many kinds of criteria, as outlined in the introduction.

The authors of this study conducted a literature review to identify which criteria have been studied in FW models. This systematic mapping is an empirical methodology that provides an overview of a research area to determine if there is evidence of research on a particular topic [6].

We consider the following databases for research IEEE and ACM. The criteria for inclusion of literature in the systematic review were: articles, journals and magazines published since 1995 for analysis of the last 20 years. Exclusion criteria were: articles in languages other than Portuguese and English, and document type consisting of technical reports. The search string used was: ("Telework" OR "Telecommuting") AND ("Teletrabalho" OR "Trabalho Remoto"). At the end, we found 222 publications: 64 from the IEEE source and 158 from the ACM source. After reading all the abstracts, we selected 13 articles that discussed different criteria for FW. In addition, we also considered 7 frameworks (which originated from previous searches), which related to this subject. Table 1 shows 10 main criteria for FW found in the 20 works.