

Designing flexible work practices for job satisfaction: the relation between job characteristics and work disaggregation in different types of work arrangements

Original

Designing flexible work practices for job satisfaction: the relation between job characteristics and work disaggregation in different types of work arrangements / Neirotti, P.; Raguseo, E.; Gastaldi, L.. - In: NEW TECHNOLOGY, WORK AND EMPLOYMENT. - ISSN 1468-005X. - (2019). [10.1111/ntwe.12141]

Availability:

This version is available at: 11583/2736272 since: 2019-10-10T10:33:54Z

Publisher:

Brian Towers (BRITOW) and John Wiley & Sons Ltd

Published

DOI:10.1111/ntwe.12141

Terms of use:

This article is made available under terms and conditions as specified in the corresponding bibliographic description in the repository

Publisher copyright

Wiley postprint/Author's Accepted Manuscript

This is the peer reviewed version of the above quoted article, which has been published in final form at <http://dx.doi.org/10.1111/ntwe.12141>. This article may be used for non-commercial purposes in accordance with Wiley Terms and Conditions for Use of Self-Archived Versions.

(Article begins on next page)

Designing flexible work practices for job satisfaction: evaluating how job characteristics can support work disaggregation for different types of work arrangements

ACCEPTED ARTICLE

This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the Version of Record.

Please cite as follows:

Neirotti, P., Raguseo, E., & Gastaldi, L. (2019). Designing flexible work practices for job satisfaction: the relation between job characteristics and work disaggregation in different types of work arrangements. New Technology, Work and Employment, In press.

Abstract

The literature on flexible work practices has not yet evaluated in detail how the characteristics of a job affect job satisfaction. This study makes a distinction between two types of flexible work practices according to their aims: the accommodation of employees' personal lives (employment practice) and the operational reasons of a firm (work practice). Based on this distinction, we studied how the characteristics of a job, which reflect the use of ICT to support the spatial disaggregation of business processes, influence the relationship between the two types of flexible work practices and job satisfaction. We show, through a survey conducted on 987 workers, that the characteristics of a job that favour work disaggregation positively moderate the influence of flexible work as a work practice on job satisfaction, but they do not moderate the influence of flexible work as an employment practice. The implications for managers, workers and scholars are discussed.

Keywords: Flexible work practice, employment practice, work practice, job satisfaction, job characteristics, technology support, smart work.

1. Introduction

Among the most pervasive effects on the organization of work, as a result of advances in Information and Communication Technologies (ICT), the possibility of disaggregating jobs from a firm's premises is one of the most remarkable and frequently studied changes. This phenomenon is broad in nature and can apply to several types of firms' and workers' needs, such as the necessity of dealing with a geographically-dispersed base of customers or physical assets, or an individual's needs related to the improvement of his/her work-life balance. One sign of such conceptual breadth is the fact that work that is conducted outside a firm's premises has been labelled in several different ways, such as telework or telecommuting (Martinez-Sanchez et al., 2008), flexible work (Leslie et al., 2012), remote and mobile work (Stieglitz and Brockmann, 2012) and, more recently, smart work (Kim and Oh, 2015). It is not clear the extent to which such a variety of labels actually corresponds to the different types of work arrangements. Already in 1997 Lindstrom and others (1997) claimed that the concept of telework had been defined in so many different ways that such ways had lost their specificity so that in each instance (e.g. paper, practitioner's report) the concept needed to be further defined to clarify exactly what was being studied. To avoid confusion in terminology, in this article the various situations related to performing work outside a firm's premises are referred as flexible work, due to the commonality these situations share: the latitude the worker is given in the time or modalities in which work is performed due to the lack of direct supervision and control.

Given the variety of situations available in these practices, our interest lies in shedding light on the different type of support that is needed to workers in the presence of different modalities of work conducted outside a firm's premises. In this regard, it is useful to start from the consideration that flexible work can respond to the logics embedded in two types of practices conceptualized by Human Resource Management (HRM) studies: employment practices and work practices (Boxall and Macky, 2009; Whitfield and Poole, 1997). Employment practices include all the practices used to recruit, deploy, motivate, consult, negotiate with, develop and retain employees. Flexible work arrangements that formally provide employees with latitude on where and when they work outside a firm's premises, according to their personal needs, fall into this category. These arrangements require special permission and represent a radical departure from the standard work model. As such, these work arrangements have recently been popularised in the practitioners' debate through the "smart work" term. Work practices are instead to do with the way work itself is organised, and they include its normal structure, the places where it is conducted, and the mechanisms through which coordination and control with peers and supervisors are ensured. This typology of practices includes the work that is performed remotely for the pure operational needs of a firm rather than for a worker's choice. Flexible work, as an operational work practice, therefore is associated to the deployment of field or mobile workers. This need of mobility occur in domains, such as sales and customer assistance, or in sectors where operational activities entail a spatially-dispersed field force, such as sales and machinery assistance, emergency services as well as asset maintenance in industries like power generation, utilities, telecommunication, oil and gas (Corso et al., 2006).

Despite the existence of these two types of flexible work, which represent different types of practices, the extant literature has not made any clear distinction between the technological support that can affect the most individual performance, according to the nature of the considered flexible work practice. In this paper, our aim has been to contribute towards bridging this gap focusing on the type of technology support offered to those employees who work remotely. We have done so by assessing how the support of technology impacts job satisfaction, depending on whether the flexible work responds to an employment or a work practice requirement. Since we are deeply engaged in the soul-searching of the different types of flexible work, technology support is not analysed in terms of the number of systems

and technology devices given to workers, as was prevalently done in past research (D'Urso and Pierce, 2009). In fact, this way of considering ICT support may be the same for each worker engaged in working outside his/her firm's premises for a certain period of time, irrespective of the type of practice and the need to explain its use. We have instead focused on the way ICT allows organizations to formalize and disaggregate business processes geographically so that workers in different sites can perform certain tasks of a process. This logic can offer a contribution to the unsolved question of which jobs are more suitable for flexible work arrangements. In this logic, we have reframed certain theoretical contributions on business process organization (Crowston, 1997; Malone et al., 1999) and their disaggregation potential (Mithas and Whitaker, 2007) to examine how firms deploy ICT to design their jobs and business processes in order to ensure coordination and ongoing access to information systems and the information needed to accomplish employees' tasks. Our focus on the process is reflected in the three key parameters that describe how process formalization is accomplished and the related jobs have been designed: the degree of codifiability, standardizability, and modularizability of a job (Mithas and Whitaker, 2007).

In order to understand the differences between the types of flexible work that have been analysed, we have made a distinction between the time spent working remotely as a result of operational needs (flexible work as a work practice) and the workers' use of a firm-level policy that allows them to occasionally work where they want to (flexible work as an employment practice). We have tested our hypotheses on data gathered through a survey conducted in 2014 on 987 Italian workers employed full-time in manufacturing and service sectors.

The study contributes to previous research on flexible work in several ways. First, this is the first attempt to disentangle the salient characteristics of flexible work, with reference to its nature as an employment or a work practice. Second, we shed light on the implications that these different types of flexible work have on the technology support that is needed to benefit workers. In so doing, we offer some practical insights that may be useful to design jobs and the related processes, through the support of technological solutions, which depend on whether flexible work is decided on for individual benefit reasons or to satisfy the operational needs of a company. Third, we offer a novel perspective on the way ICT support to flexible work can be theorized, moving the attention from the availability of devices and systems to the way ICT allows business processes to be run in a spatially-disaggregated context.

The article is structured as follows. First, we have reviewed the literature on flexible work, identifying the traits that characterize flexible work as a special work arrangement or as a standard way of working in a spatial dispersion context. The gap that emerges in the way technology ensure benefits for the worker and for a firm has then been outlined. A set of hypotheses that account for the different nature of flexible work has been proposed positing that the need for a technology support on the design and the execution of business processes is more salient in a context of flexible work as work practice rather than an employment practice. The research methodology used to validate the hypotheses has been described and our empirical findings have been illustrated. In the discussion section, our findings have been related to current themes in the debate on work arrangements, suggesting areas for further research.

2. Theoretical background

In a task environment where employees are spatially disaggregated from their organizational unit, how technology and organizational norms facilitate their coordination and integration with peers, supervisors and subordinates assumes crucial importance. This point has led the majority of earlier studies to be concerned with dimensions of support related to work climate (Weisberg and Buckler, 1994), or to the

number and types of communication technologies used by workers (D'Urso and Pierce, 2009). Such studies have tended to conceptualize the concept of technological and organizational support without taking into account explicitly the nature of the work arrangement regulating flexible work. There has been little analysis aimed to compare and contrast a company's use of flexible work as an employment or as a work practice. This gap is articulated in the next sections. Specifically, we first illustrate that these two practices of flexible work responds to different organizing principles. Then, we argument that the type of technology support may vary according to whether the adopted flexible work is an occasional state that leave workers the latitude to work from home or it occurs in specified standard operational procedures when workers have to work outside their offices.

Differences in flexible work practices

According to HRM literature, employment and work practices have different impact on employee-level outcome. The former is aimed at building organizational commitment, which is defined as attachment and identification with the firm (Boxall and Macky, 2009). The latter is addressed to increase the involvement of employees in decision-making processes and improvement activities of the processes in which they are immersed, by deploying and increasing their abilities and skills, by enlarging their responsibilities and by empowering their role (Wood and Wall, 2007).

Previous literature tend to focus on different determinants of employee-level outcome in context of spatial detachment of the work from the firm's premise. Studies that focus on flexible work as an employment practice tend to focus their attention on employee-level outcome of organizational commitment and on managerial factors aimed at acknowledging, appraising and incentivising arrangements that leave latitude to workers on where and when to work (Gajendran and Harrison, 2007; Liao et al., 2016). Studies that focus on flexible work as a work practice tend to emphasize elements of employee involvement and organizational design factors that ensure employees working remotely an effective coordination, control and cooperation with colleagues through the access to relevant information (e.g., Corso et al. 2006; Hoeven and Van Zoonen, 2015). Therefore, in keeping with extant literature, the key assumption underlying this article is that the corporate policy of flexible work is aimed at increasing employee organizational commitment, whereas work practices built to support work that takes place outside a firm's premises for operational reasons and are aimed at sustaining the full involvement of remote workers in the business processes where their work takes place.

HRM literature has showed that both employee involvement and their organizational commitment are expected to impact job satisfaction. Job satisfaction reflects the employees' overall attitude towards a firm, on the basis of their appraisal of the extent of congruence of their job with their individual values and needs, and the supporting modalities through which the job is conducted (Janssen, 2001). Workers that are beneficiary of a formal employment practice aimed at giving them occasionally the latitude of where to work might see satisfaction from the consistency between these work modalities and the high extent of importance of flexibility in their values and needs. Instead, workers that are involved in the operational work practice can be satisfied to the extent to which the company provides them with support for accessing or entering data and information, especially when work performed outside the firm's premise occupies a large part of the normal workweek schedule.

The fact that job satisfaction can be driven by different factors can be explained by the different organizational principles that motivate the two types of flexible work under analysis. The employment practice of flexible work is as an option offered to employees in response to personal work or non-work requirements (Ashforth et al., 2000). It may be part of idiosyncratic employment arrangements

bargained individually with the employee (Anand et al., 2010), in the frame provided by a corporate policy that regulates its implementation (Myers et al., 2013). Such type of policies may allow employees to work from home or from satellite offices to avoid long commuting time. The extant literature explains that the use of this type of practice can depend on various reasons, with a prevalence towards motives related to an egoistic intention of accommodating personal non-work needs, such as structuring the work schedule and workplace around the care of children or the elderly. Apart from increasing the organizational commitment of workers that are beneficiary of such employment practice, companies may see an interest for some side-effects. Such benefits include saving in operational expenses due to real estate and facility management, or higher individual productivity and higher employee retention, especially in contexts in which employees have to travel for long periods of time to arrive at work (Helminen and Ristimäki, 2007; Moeckel, 2017). Earlier studies also stated that the employment practice of flexible work stems from certain employees asking for latitude on where and when to work following business needs and their willingness to take additional steps to maximize their contribution to the organization (Leslie et al., 2012). This may be the case of a restricted tier of workers in a company (Myers et al., 2013). For example, such tier may include high-level employees who ask permission to make international calls during non-standard work hours, or who work at the times of the day when they are more productive (Gajendran and Harrison, 2007), or who work extra hours from home or at the office with the support of technology under task contingencies (like peaks in the workload or deadlines). In a similar vein, Bal and De Lange (2015) showed that flexible work, as an employment practice, is more important for younger workers to ensure their engagement, whereas the same practice for older workers is a compensatory mechanism that ensure their productivity, since it can help counteract age-related losses in their efficiency. Among the organizational aspects analysed when flexible work has been studied under the context of an employment practice, attention has been mainly given to job autonomy and task interdependence. Job autonomy increases the job satisfaction that employees achieve through flexible work (e.g., Gajendran and Harrison, 2007) since it reduces the frequency of interaction between an employee and his/her supervisor (or his/her peers or subordinates), and the cost of accessing information which goes beyond his/her scope of action and intervention. Task interdependence reduces the satisfaction of spatially disaggregated workers since jobs that require a higher level of task interdependence cannot be separated (Golden and Veiga, 2005), being mutual adjustment the main coordination mechanism between employees who need frequent interactions. However, job autonomy and task interdependence depict contextual conditions that are inherent to the nature of jobs rather than being the outcome of how technology and work have been designed to ensure effective employee outcome in a context of spatial dispersion.

As far as the case of flexible work as a work practice is concerned, the way work and the support is given to these workers should be aimed at ensuring that these employees are fully productive, are integrated in the organizational dynamics and the operational processes of their companies, including the improvement activities and the decision-making cycles that relate the business processes where they work. These aspects respond to the fact that flexible work in response to operational needs can involve a longer portion of time and a broader percentage of the workforce, compared to its use as an employment practice (Corso et al., 2006). Most of this literature refers to the concept of mobile or dispersed work, which is a label coined for describing field workers' reality. For example, employees in an electrical utility firm that have to manage installation and maintenance activities on the grid may require full access, through their mobile devices, to the technical information available in the information systems that record the maintenance status of the grid. In the same way, the firm can allow these employees to "slide the badge" remotely. Performing these tasks remotely, and with the support

of ICT, minimizes the employees' travel times towards the office and eliminates non-value added activities related to information retrieval or uploading.

Coherently with the fact that the work practice of flexible work follows certain operational reasons, studies that have focused on this type of practice have often used a task-technology fit perspective to define the tasks to understand how technology should support the tasks that occur away from the firm's premises. Technology support should be designed to facilitate the modalities through which employees access or update information when they are away from their offices (Makinen, 2012; Yuan et al., 2010; Gebauer, 2010). In this vein, also formalization favours flexible work (Neirotti et al., 2013), as it reduces the informational need of workers, since rules are attached to job description and can be particularly effective in supporting the work practice of flexible work in situations of limited task variety and high task analysability (Corso et al., 2006). Studies have also analysed the topic of workers' connectedness (Cousins and Robey, 2015), inclusions in community (Kietzmann et al., 2013) and identity construction (Gluesing, 2009) as key organizational mechanisms that prevent workers involved in the flexible work practice spend from social isolation. The attention on such mechanisms can be explained by the high time intensity that characterize the workweek of mobile workers.

The technology support to the different practices of flexible work

Variables describing information access and the lack of social or professional isolation are not enough to catch the complexity of the system-level architecture of the way business processes should be designed when a spatially dispersed unit of employees participate in a process. The lack of attention on the business process architecture becomes critical in the moment the work practice of flexible work mainly involves operational tasks (Corso et al., 2006; Yuan et al., 2010). A contribution towards bridging this gap can be obtained from the recent literature on global value chains that has analysed the role that business process maturity plays in its disaggregation potential through offshoring initiatives (Malone et al., 1999; Ramasubbu et al., 2008). These studies have entered the black-box of how ICT facilitates the creation of digitized work processes that enable firms to tie information flows across different units (Sambamurthy et al., 2003). Mithas and Whitaker (2007) studied the global disaggregation potential of service jobs and found that such a potential depends on the capability of ICT to assure the codifiability, standardizability and modularizability of jobs characterized by high information intensity. If jobs can be codified, standardized and modularized through ICT, then the amount of coordination is reduced significantly. We have hypothesised that the effect of these three variables on determining job satisfaction, derived from flexible work, is higher the more employees conduct their work outside their offices, since these job characteristics reduce the amount of coordination and control of work (Figure 1). This seems in line with previous studies that show a curvilinear, inverted, U-shaped relationship between the hours spent teleworking and job satisfaction (Golden and Veiga, 2005), the explanation for which lies in the social and professional isolation of the employees from the rest of the organization. Thus, the more employees work in a context of spatial isolation, the more important it becomes for the organization to envisage appropriate ways of organizing and running business processes. However, if flexible work is a benefit that is offered to employees occasionally, the need to codify, standardize and modularize jobs will be less stringent.

--- Figure 1 around here ---

3. Hypotheses

Job codifiability and flexible work as a work practice

Codifiability refers to the “extent to which activities in an occupation can be described completely in a set of written instructions” (Mithas and Whitaker, 2007, p. 240). ICT tools make it possible to represent and reconfigure business processes, and make process formalization more viable (Huber, 2000). ICT has also enabled process mapping approaches, such as flow charts, data flow diagrams, state transition diagrams and goal-based models, to facilitate the development of a process grammar that is necessary to describe complex processes (Malone et al., 1999). Codifiability is applicable to activities with a limited proportion of tacit knowledge (Nonaka and Konno, 1998). As such, codifiability affects the spatial organization and the division of labour, since it enables knowledge to be captured in ICT tools and distributed across spatially-dispersed units (Cohendet et al., 2000). In a codified process, workers are trained to know what to expect from each other. Work is coordinated by virtue of the training received, or the data collected about the process instances, and through loosely-coupled contacts between the actors involved in the different activities of the process. The use of codification tools, such as data flow diagrams, flow charts and goal-based models, enables the decomposition and the rapid configuration of business processes (Malone et al., 1999). Process codification has also been shown to be aimed at creating information interpretation and organizational memory (Ramasubbu et al., 2008). Information interpretation is the process by which a common meaning is attached to the distributed information, whereas organizational memory refers to the formal mechanisms through which interpreted information is stored for reference. When process codification supports information interpretation and the organizational memory, learning and reconfiguration of the processes occur more effectively (Ramasubbu et al., 2008).

According to the aforementioned papers, codifiability may have an impact on the effectiveness of the work done by employees that are “de-touched” from a firms’ premises, since it reduces the cost of accessing relevant information and the cost of coordination related to the tasks that have to be done at various process instances. According to the same principle, access to codified instruction reduces the amount of vertical communication with supervisors, as well as the effort needed to interpret a written test about a particular process status. In this vein, process codification can facilitate the creation of mutual knowledge and communication among a spatially-dispersed team through the availability of a shared common language (Suchan and Hayzak, 2001). In a similar vein, the codification of activities can favour the integration of business processes and coordination among spatially-dispersed workers involved in different processes. For example, in product development processes, PLM systems or Computer Aided Software Engineering have made such a type of coordination possible. Moreover, codifiability provides a shared vocabulary between workers (even from different functional domains) on operational processes (Van Alstyne and Brynjolfsson, 2005). This is a crucial condition for a wide involvement of workers in improvement and innovation activities, and can thus favourably affect employee satisfaction, even in cases where their work is prevalently conducted in a context of spatial isolation.

In short, we expect that the more employees spend time working outside their offices, the greater the importance that the degree of codifiability of their jobs has on favouring their job satisfaction will be. This occurs as a result of the possibility of decomposing work activities into a set of instructions, and of supporting employees through data pertaining to past instances of the process. This reduces the time spent on coordination or on waiting for permission from supervisors.

H1: The codifiability of a job positively moderates the relationship between the extent of time spent by an employee working off-site and his/her job satisfaction.

Job standardizability and flexible work as a work practice

The standardizability of a job refers to the “possibility of translating a series of tasks into a common framework and vocabulary that define business processes” (Mithas and Whitaker, 2007, p. 241). ICT that supports flexible workers facilitates process standardization by providing the tools necessary to store the information and knowledge that allow remote access (Malone et al., 1999). For instance, CRM systems are used to standardise sales processes and to coordinate and control a sales force distributed over different locations. By standardising tasks and business processes, ICT allows firms to decentralise some decision-making activities by reducing the discretionary power of the empowered employees at the source. Therefore, employees have the freedom to make decisions, but only over a limited range, which is established by the business rules embedded in the information system. Process standardization works effectively in situations of limited uncertainty and of frequent changes in technology and market variables.

Standardization also reduces process variance and produces several benefits. It facilitates the integration of inter-organizational processes that cut across spatially-dispersed units, thereby reducing the amount of investments in firm-specific assets of the involved parties and the time spent on mutual control (Williamson, 1981). Moreover, it also reduces the time employees spend on communication with their supervisors concerning handling exceptions, clients’ changes and customization requests, and it reduces the need for ongoing managerial control of the process. Furthermore, when the standardization of work practices is coupled with the use of knowledge sharing tools, it also facilitates handing-off work across spatially-dispersed workers (Briscoe, 2007). These elements, along with a reduced variance in process performance, make managerial control of the process easier and reduce agency costs (Gurbaxani and Whang, 1991), including the bonding cost directly sustained by employees (Gurbaxani and Whang, 1991), due to the time spent filling in reports about the compliance of their work to given process standards. In short, the standardizability of a job reduces the time spent by employees working outside their offices on coordination and control activities related to their individual work, such as filling in reports, and the vertical communication needed with their supervisors to handle exceptions. Hence, the extent to which tasks can be standardized can moderate the relationship between the time spent by employees working outside a firm’s premises and their job satisfaction.

H2: The standardizability of a job positively moderates the relationship between the extent of time in which employees work off-site and their job satisfaction.

Job modularizability and flexible work as a work practice

Modularizability refers to “the extent to which tasks can be separated into component parts that, in turn, can be performed by different people working independently and can then become integrated” (Mithas and Whitaker, 2007, p. 242). ICT tools facilitate the creation of atomized and modular business processes, by easing remote monitoring and communication (Sambamurthy et al., 2003). This implies that the modularization of business processes enables spatially dispersed groups to receive the inputs of incoming business processes and to feed the outputs into outgoing business processes in a seamless manner. Mithas and Whitaker (2007) described how software development configuration management systems allow widely dispersed software teams to access the current version of an artefact, thus enabling parallel work by different team members while maintaining version control. The evolution of ICT systems is currently going in a direction that facilitates business process modularization.

Another benefit of modularizability is its positive effect on the system-level understanding of an employee of the business processes in which he/she is immersed. Such a level of understanding has a positive impact on their involvement opportunities and thus their job satisfaction, even in a context of the spatial dispersion of work.

The properties of modularized business processes imply that workers involved in this process experience smoothed coordination and a reduction in dead-times in the hand-offs of tasks along the business process. This can increase their job satisfaction, especially when most of their work is conducted outside the firm's premises.

H3: The modularizability of a job positively moderates the relationship between the extent of time in which employees work off-site and their job satisfaction.

The use of an employment practice of flexible work

The three job characteristics under analysis can also have an impact on job satisfaction when workers benefit from an employment practice that allows them latitude of where to work and can have an impact on their job satisfaction. However, there are no clear-cut arguments in favour of this type of hypothesis.

Previous studies indicated that such types of practices are limited to only a part of the working time, and they do not represent the normal work structure of employees (Hardill and Green, 2003; Kietzmann et al., 2013). Moreover, the use of an employment practice is seen as less appropriate for lower-level employees, who tend to be closely supervised, in comparison to professional and managerial staff (Hill et al., 2008), who tend to do a job that is hard to codify, standardise or modularise. Under these circumstances, there might be at least two reasons why the support of technology in designing tasks and processes that can be performed remotely may not be decisive for an employee's job satisfaction. The first reason is the occasional nature of the flexible employment practice in the standard work structure of the employee. The second explanation is since workers that benefit of the employment practice are likely to be managers and specialists, their work involves more cognitive than manual and operational tasks. As such, their operational integration in the business process can be a less important determinant of their job performance. Hence, job satisfaction for employees in this situation might be driven more by the fact that the firm has created workplace modalities, rather than business processes, that are compatible with the pursuit of their individual non-work needs.

Given these mixed arguments, we postulate that there is no moderating effect of job characteristics on the relationship between an employee's use of an employment practice of flexible work and his/her job satisfaction.

4. Methodology

Sample and data collection

The study was based on a survey conducted in 2014 on a random sample of full-time workers from medium-sized and large firms in the service and manufacturing industries. White-collar workers, middle managers and technical specialists were included in the population frame. The survey was based on a phone-based data collection and was conducted over three weeks. The sample analysed in the paper included 987 workers (Table 1).

--- Table 1 around here ---

The sample was composed of a majority of workers with a high school educational level (58.91%). The 33.30% of the interviewed workers had a university degree, 4.48% attended the secondary school and 3.31% a post-graduate education qualification. Men surveyed were 54.63% of the sample. The sample showed a prevalence of younger people, with only a third aged over 45 years. About 16% of the respondents had a job position of middle or executive managers, whereas the remaining part were blue or white-collar workers. White collars included technical specialist roles.

Measures

Independent variables

Apart from dummy variables and the variables that refer to the percentage of work spent remotely, all the other variables were expressed by using items based on scales expressed in a 4 Likert level scale (completely disagree, somewhat disagree, somewhat agree, definitely agree).

Flexible work as an employment practice. This variable is dichotomic and it measures whether the worker used a formal flexible work policy in the year before the telephone interview. Because in the majority of the firms this type of benefit is usually done on an occasional base, we did not ask respondents to estimate the percentage of time spent working home in the average work week, since this amount of time may vary considerably depending on contingent issues and it has a low overall rate of utilization, as documented by earlier studies (e.g. MacDermid et al., 1999).

Flexible work as a work practice (extent of flexible work). This variable considers the normal structure of the working week. It measures the percentage of time spent by workers away from their offices on an average workweek (Golden and Veiga, 2005). Coherently with the categorization of telework proposed by Lindstrom (1997), this time may be spent in satellite units, or in customers', suppliers' and/or partners' premises or simply on the move. This operationalization is consistent with the intention of analysing the normal structure of work and thus the type of work practice where employees "are immersed". Time spent working home is not included in the percentage of working time spent outside the firm's premise coherently with the intention of not confounding the work practice of flexible work with the condition of working home as an occasional beneficiary status.

Job characteristics. These variables were measured using Mithas and Whitaker's (2007) theorization of the job characteristics that have an impact on process disaggregation. *Codifiability* was operationalized by asking respondents about the extent to which their normal work activities could be described completely by a set of written instructions and rules embedded in a software or in the firm's information system. With reference to *standardizability*, the respondents expressed the extent to which their normal work activities could be performed successfully using a set of consistent and repeatable processes formalized in the corporate information system. As far as *modularizability* is concerned, the respondents expressed the extent to which their normal work activities could be separated into components, so that the components could be performed independently by different people and then be integrated through ICT systems, such as workflow systems or collaboration tools.

Dependent variable

Job satisfaction. A four item scale of overall job satisfaction (Cronbach alpha = 0.872) was used to operationalize this variable by readapting to our case the scale used by previous studies (Morris and Venkatesh, 2010). The items included are the following: "I would choose my current job again"; "I would recommend my organization as a good place to work"; "I am satisfied about the modality through

which I conduct my job”; “My current job modalities allow me to valorise my points of strength/weakness”.

Control variables

Control variables included size of the firm (in logarithmic form) where workers are employed, gender (dummy variable equal to 1 in case the respondent is a man), age, and educational attainment, task interdependence, job autonomy and perceived ICT support. We also included dummy variables that refer to the 2-digit NACE code sectors where the employees work to control for possible industry-related effects.

Specifically, educational attainment was operationalized as a four level variables to take into account the following educational levels: secondary school, high school university degree, and post-graduate specialised Master/ Doctorate.

Task interdependence was operationalized by asking the respondents to estimate the percentage of time dedicated to teamwork activities over the normal working week.

Job autonomy was operationalized through a five-item measure (Cronbach alpha = 0.874) adapted from Beehr (1976). The items included are the following: “My supervisor gives me complete autonomy in defining the activities I need to do to reach an objective”, “My supervisor gives me complete autonomy in deciding on the instruments I need to use to conduct a certain activity”; “My supervisor gives me complete autonomy in deciding when to conduct a certain activity”; “My activities can be conducted autonomously without any operative control, supervision or continuous monitoring”; “I am able to plan and manage my job activities autonomously”.

Perceived ICT support refers to the extent to which workers perceive that the existing ICT infrastructure (i.e., the internal telecommunication network, the hardware devices, including the mobile ones, available for work), the related software applications and ICT services like help-desk effectively support the workers in handling their tasks.

5. Findings

Descriptive statistics

Descriptive statistics (Table 2) show that only 10.84% of the employees in the sample used a formal corporate policy of flexible work responding to the logic of an employment practice. Instead, a considerable percentage of the employees (53.45%) works at least 1% of their working time outside their offices without being beneficiary of a formal employment practice. This confirms the difference between flexible work in its use as an employment practice or as a work practice. Among the employees that are involved in the work practice of flexible work, they typically spend an average 29.21% of their working time away from their offices (about 12 hours per week). This value is comparable with the ones documented by earlier seminal studies on the extent of flexible work: for example, in Golden and Veiga’ study (2005) flexible work intensity has a mean value of 11.5 hours per week.

--- Table 2 around here ---

None of the three job characteristics under analysis shows a positive and significant correlation with the intensity of time spent by employees working away from the office (Table 3). Both the use of the employment practice of flexible work and the work practice are correlated positively with the

educational attainment and with the job-level position. Correlations highlight also that employees in large enterprises spend a larger amount of their working time away from their offices. Not surprisingly, managerial positions were found to be correlated negatively with job standardizability, but not with codifiability and modularizability.

--- Table 3 around here ---

Regression model specification

To test the three research hypotheses, we ran three sets of three regression models (Table 4). In the first set of models, we tested the direct effect of the extent of the usage of flexible work as a work practice (percentage of time) (Model M1), the flexible work as an employment practice (Model M2) and the use of flexible work as a work practice (dummy variable) (Model M3). In the second set of models, we included each of the three interaction effects between the extent of flexible work and the three job attributes separately in Models M4, M6 and M8. Instead, in the third set we conducted three additional regression models in order to understand the existence of a moderating effect of job characteristics on the relationship between employee's use of an employment practice of flexible work and his/her job satisfaction. We conducted these analyses since we did not have any a priori hypotheses, but wanted to understand the contribution of job characteristics in the case of employment practice. The results are reported in Models M5, M7 and M9 of Table 4.

--- Table 4 around here ---

First-order effects on job satisfaction

Variance Inflated Factors (VIFs) did not indicate multicollinearity problems, with all the scores between 1.027 and 1.394. Models M1, M2 and M3 estimate the first-order effect that the use of the two types of flexible work have on job satisfaction. Such models outline that the use of flexible work as an employment practice has a positive impact on job satisfaction (model M2), whereas both the use of the work practice of flexible work and the extent of its use during the normal work week have no significant impact on job satisfaction (models M3 and M1, respectively). This further confirms our key assumption on the differences in the principles and the outcome of flexible work when employees use it as a corporate benefit policy (employment practice) and when it follows operational reasons that lead employees to work away from their office (work practice). The three job characteristics under analysis have no impact on job satisfaction.

Hypothesis Validation

In the three hypotheses, we posited that the three job characteristics under analysis positively moderate the relationship between the extent of time spent by employees using the operational practice of flexible work and their job satisfaction. Models M4, M6 and M8 show a positive and significant interaction term between each job characteristic and the extent of use flexible work. Figure 2 complements these results by reporting the estimated marginal effects of each job characteristic on job satisfaction at different percentages of the time spent by employees working away from their firm's premise in the normal work week. It clearly emerges that each job characteristic analysed has a positive marginal effect on job satisfaction the more the time spent away from the office increases in the normal work schedule of an employee. Interestingly, when workers typically do not spend working time away from the firm's premise, codifiability and modularizability have a zero marginal effect on job satisfaction, whereas

standardizability has a negative effect. The effect of standardizability on job satisfaction starts to be positive when employees spend away from firm's premise a percentage of time higher than 20% of their work week (one day). This result is in line with past research reporting the fact that a standardized job decreases the interest in the work due to its repetitive nature (Mithas and Whitaker, 2007). In sum, this evidence supports hypotheses H1, H2 and H3.

--- Figure 2 around here ---

In contrast with these findings, models M5, M7 and M9 outlined that the codifiability, standardizability and modularizability of a job do not have any moderating effect on explaining the relationship between the employee's use of a flexible employment practice and his/her job satisfaction.

We conducted some post hoc analyses with the intention of confuting alternative explanations for the moderation effect found for the three job characteristics under analysis. Specifically, since high-level and high-skilled jobs can be in general less subject to codification, standardization and modularization, we assessed whether the moderation we found could be due to elements that are inherent in the type of job assigned to employees rather than to the way the business processes have been designed. To do so, we assessed the moderation effect due to educational attainment and job position. We found no moderating effect played by these variables on the relationship linking the intensity in the use of the work practice of flexible work and job satisfaction. A similar result was found when the independent variable was the use of the flexible employment practice. For the sake of space, these results are not reported in the article. These results imply that more skilled and higher-level employees do not draw more satisfaction than their counterparts do from the involvement in these practices. In sum, our overall evidence highlights that superior job satisfaction occurs for employees that spend increasing extent of time away from their office when their job is designed accordingly, and not because of the level of their skills or of their job position.

6. Discussion and conclusions

Flexible work is quickly becoming a characteristic of the modern workplace, yet the extant literature paints an incomplete picture regarding how its use should be supported by technology and work organization. The lack of a definitive picture on this topic is made difficult by the wide variety of forms of flexible work documented in literature and by the wide array of topics analysed by researchers on workplace flexibility. We have here sought to shed new light on this point by looking at how technology support on the business process impacts on job satisfaction. Specifically, this study has investigated how job characteristics that enable the spatial disaggregation of work and which reflect how ICT systems are used to support processes and jobs, have an impact on job satisfaction for workers when they are involved in two different types of flexible work practices. In this regard, we have distinguished between flexible work, when its use responds to the logic of an employment practice that allows latitude on where to work, and when it is formalized as a work practice that reflects the standard structure of certain roles. HRM literature has theorized how employment and work practices have different objectives, with the first being aimed at building organizational commitment and the second at facilitating employee involvement (Boxall and Macky, 2009). Our results contribute to the literature on flexible work with three aspects.

The first contribution stems from our finding that the employee's use of a flexible work corporate policy positively affects job satisfaction, whereas the use of flexible work as a work practice and its time

intensity do not affect job satisfaction. This difference in effects confirms the principle that employees' work away from their offices, and the use of a formal policy that gives them the latitude to choose where to work on some occasions, are two variables that concern different organizing principles. The lack of a direct impact of the flexible work intensity on job satisfaction is consistent with the weak effects shown in previous studies pertaining to this topic (e.g. Golden and Veiga, 2005). Such effect is due to the isolation that workers experience when they pass a long part of their workweek away from their offices (Holland and Bardoel, 2016). By contrast, as our evidence suggests, the use an employment practice of flexible work positively impacts job satisfaction since the risk of isolation seems not to involve employees that use this type of practice due to fact that its use is driven by employee's choice and not by a firm's operational need.

The second contribution concerns the salient role, in the job satisfaction of employees using a practice of flexible work, of the extent to which their job can be codified, standardized and modularized through ICT systems. We found that this effect varies, depending on whether working remotely is a work practice adopted by the employee or it is an occasional status offered to workers in response to a corporate policy and/or an individually-bargained employment arrangement. Specifically, the extents of codifiability, standardizability and modularizability in a job have no effect on favouring the job satisfaction of employees in the companies where formal employment policies offer them the latitude to decide where to work. On the other hand, these characteristics are decisive in increasing the job satisfaction of workers who spend increasing amounts of their working time away from their offices due to operational reasons. There are several possible reasons for this result that are not mutually exclusive of each other. A first reason can be that many companies may limit the employment practice to an occasional frequency that do not occur every week, and there is no particular need for technologies and work organization schemes that favour process disaggregation to support the needs of workers using flexible work as an employment practice. Instead, for the employees that work away from a firm's premises for operational reasons, the quality of the process and of the related information exchanges are crucial conditions for their job satisfaction and, plausibly, of their job performance since working away from the firm's premise is a recurrent state of the employee's task environment. In our sample, this condition occurred on average for 29% of the working time. A second explanation could be due to the fact documented in past literature (Hill et al., 2008) whereby the recipients of a formal policy of flexible work are usually high-level employees, and therefore have professional or managerial responsibilities. In this case, their work can simply be less codifiable, modularized and standardisable than that of lower-level employees and any attempt to redesign their job in order to augment these characteristics could have detrimental effects on their performance. Lastly, a further explanation could be that the recipients of a flexible work policy, as illustrated in above-mentioned literature, are driven more by egoistic, personal, non-work needs, rather than by their intent to maximize their contribution to the organization. In this vein, the way a job design supports their work when it is conducted in a context of spatial isolation might not be a relevant variable in driving their job satisfaction, and thus may not augment their satisfaction about how the modality of work supports their values and needs (Janssen, 2001). By drawing on the concept advanced in HRM literature, that is, that employment practices are mainly aimed at building employee commitment to the organization, rather than a more active involvement in decision-making and improvement activities (Boxall and Macky, 2009), we are the first to suggest that the implementation of a flexible work policy does not require considerable changes in the organizational design of the jobs that can be conducted remotely. The nature of work arrangements should thus be taken into consideration in the debate of how jobs, for the way they are designed, are suitable to be detached from the firm's premise.

Our third contribution is related to our attempt to broaden the concept of organizational and technology support of flexible work, which has been achieved by analysing how ICT systems should be deployed to make business processes and jobs more amenable to spatial disaggregation. In this regard, our view of technology support departs from the concepts related to the number and the characteristics of the devices and ICT-systems that recipients of flexible work practices can use during their work away from the firm's premise (D'Urso and Pierce, 2009). Our theoretical argumentations suggest that technology plays a crucial role in ensuring the involvement of flexible workers in business processes, especially as far as their decision-making and improvement activities are concerned. In this vein, our study contributes to the debate about the dual role that ICT has in structuring organizations by giving rather opposite alternatives to HRM choices (Orlikowski and Scott, 2008). On the one hand, our evidence shows that by designing jobs in such a way that they are prone to codification, standardization and modularizability, ICT represents a "glue" that keeps employees connected and fully involved in operational processes, including decision-making and continuous improvement activities. On the other hand, the way ICT affects such process characteristics can also favour the decomposition of tasks into relatively simple online piecework. Such tasks can be thus outsourced to specialized firms or even allocated flexibly based on the availability of independent, self-employed workers (Lehdonvirta, 2018). Thus, even if ICT can keep workers connected to operational processes that have been codified, standardized and modularized, it may not necessary support the professional and organizational integration that workers need for the ongoing development of their skills and of their careers. Also, it can contribute to make their job less meaningful, with a detriment of their perception of empowerment and involvement. Hence, future studies should examine the theme of isolation in flexible work, by distinguishing between an operational and a professional dimension of isolation and by discerning their effect on involvement. While our empirical evidence highlights that the first risk of isolation can be mitigated by designing business processes in certain ways, the second risk remains and technology, apart from being the communication media for community-based mechanisms (Kietzmann et al. 2013), can play a less salient role in determining employee involvement and opportunities for human capital development. There might be some variables moderating the extent to which jobs are designed to be spatially disaggregated and employee involvement. The capability of the company to draw on the location-specific knowledge spatially-dispersed workers can be one of these moderators. In this vein, knowledge management studies can further improve our understanding of the relationship between job design and employee involvement in a context of recurrent spatial dispersion of the workers.

These results raise several implications. The possible reasons why job characteristics do not influence the job satisfaction of the recipients of a formal flexible work policy calls for further studies that could expand the theory concerning the reasons and expectations these workers have for the fruition of these arrangements (Leslie et al, 2012; Liao et al., 2016; Anand et al. 2010). Leveraging on the reasons advocated by previous literature when flexible work is used as an employment practice, managerial attention is more focused on creating appropriate workplace rather than business process conditions. This could be a restriction for organizational performance when a large extent of workers are beneficiaries of such practices, since the lack of the three process conditions analysed in the paper could make coordination particularly difficult.

In raising these points, this article suffers from some limitations. We investigated job satisfaction as a dependent variable without considering organizational commitment (Golden and Veiga, 2008) and employee involvement (Boxall and Macky, 2009) as two factors mediating the link between the use of these practices and job satisfaction. In the future, the links between flexible work arrangements, employee involvement and organizational commitment should be object of a more structured

theorization, especially in relation to how technology supports the social and professional integration of employees working away from their offices. Second, the lack of a moderation effect of job characteristics in the relationship between the use of a formal flexible work policy and job satisfaction may also be the result of cultural factors. This research was conducted in Italy, a rather individualistic culture that emphasises individual achievement over collective achievement (Hofstede, 2001). Thus, the pursue of personal needs could also prevail in an employee's use of a flexible corporate work policy and could be sufficient to determine his/her job satisfaction, irrespective of how business processes are organized. In more collective cultures that emphasise the importance of the organization over the individual, the way business processes are organized to ensure the overall organizational effectiveness may play a more salient role in determining the job satisfaction of the recipients of flexible work policies.

References

- Anand, S., Vidyarthi, P.R., Liden, R.C. and D.M. Rousseau (2010), 'Good citizens in poor-quality relationships: Idiosyncratic deals as a substitute for relationship quality', *Academy of Management Journal*, 53, 5, 970-988.
- Ashforth, B.E., Kreiner, G.E. and M. Fugate (2000), 'All in a day's work: Boundaries and micro role transitions', *Academy of Management review*, 25, 3, 472-491.
- Bal, P.M. and A.H. De Lange (2015), 'From flexibility human resource management to employee engagement and perceived job performance across the lifespan: A multisample study', *Journal of Occupational and Organizational Psychology*, 88, 1, 126-154.
- Beehr T.A. (1976), 'Perceived situational moderators of the relationship between subjective role ambiguity and role strain', *Journal of Applied Psychology*, 61, 1, 35.
- Boxall, P. and K. Macky (2009), 'Research and theory on high-performance work systems: progressing the high-involvement stream', *Human Resource Management Journal*, 19, 1, 3-23.
- Briscoe F. (2007), 'From iron cage to iron shield? How bureaucracy enables temporal flexibility for professional service workers', *Organization Science*, 18, 2, 297-314.
- Cohendet, P. and W.E. Steinmueller (2000), 'The codification of knowledge: a conceptual and empirical exploration', *Industrial and Corporate Change*, 9, 2, 195-209.
- Corso, M., Martini, A., Pellegrini, L., Massa, S. and Testa, S. (2006), 'Managing dispersed workers: the new challenge in Knowledge Management', *Technovation*, 26, 5-6, 583-594.
- Cousins, K., and D. Robey (2015), 'Managing work-life boundaries with mobile technologies: An interpretive study of mobile work practices', *Information Technology & People*, 28,1, 34-71.
- Crowston K. (1997), 'A coordination theory approach to organizational process design', *Organization Science*, 8, 2, 157-175.
- D'Urso, S.C. and K.M. Pierce (2009), 'Connected to the organization: A survey of communication technologies in the modern organizational landscape', *Communication Research Reports*, 26, 1, 75-81.

Gajendran, R.S. and D.A. Harrison (2007), 'The good, the bad, and the unknown about telecommuting: Meta-analysis of psychological mediators and individual consequences', *Journal of Applied Psychology*, 92, 6, 1524-1541.

Gebauer, J., Shaw, M.J. and M.L. Gribbins (2010), 'Task-technology fit for mobile information systems', *Journal of Information Technology*, 25, 3, 259-272.

Gluesing, J.C. (2008), 'Identity in a virtual world: the coevolution of technology, work, and lifecycle', *NAPA Bulletin*, 30, 1, 70-88.

Golden, T.D. and J.F. Veiga (2005), 'The impact of extent of telecommuting on job satisfaction: Resolving inconsistent findings', *Journal of Management*, 31, 2, 301-318.

Gurbaxani, V. and S. Whang (1991), 'The impact of information systems on organizations and markets. Communications of the ACM', 34, 1, 59-73.

Hardill, I. and A. Green (2003), 'Remote working-altering the spatial contours of work and home in the new economy', *New Technology, Work and Employment*, 18, 3, 212-222.

Helminen, V. and M. Ristimäki (2007), 'Relationships between commuting distance, frequency and telework in Finland', *Journal of Transport Geography*, 15, 5, 331-342.

Hill, E.J., Grzywacz, J.G., Allen, S., Blanchard, V.L., Matz-Costa, C., Shulkin, S. and M. Pitt-Catsouphesc (2008), 'Defining and conceptualizing workplace flexibility', *Community, Work & Family*, 11, 2, 145-159.

Hoeven ter, C. L. and W. van Zoonen (2015), 'Flexible work designs and employee well-being: examining the effects of resources and demands', *New Technology, Work and Employment*, 30, 3, 237-255.

Hofstede G. (2001), 'Culture's consequences: Comparing values, behaviors, institutions and organizations across nations', Sage publications.

Holland, P. and A. Bardoel (2016), 'The impact of technology on work in the twenty-first century: exploring the smart and dark side', *The International Journal of Human Resource Management*, 21, 27, 2579-2581.

Huber G.P. (2000), 'A theory of the effects of advanced information technologies on organizational design, intelligence, and decision making', *The Academy of Management Review*, 15, 1, 47-71.

Janssen O. (2001), 'Fairness Perceptions as a Moderator in the Curvilinear Relationships between Job Demands, and Job Performance and Job Satisfaction', *Academy of Management Journal*, 44, 5, 1039-1050.

Kietzmann, J., Plangger, K., Eaton, B., Heilgenberg, K., Pitt, L. and P. Berthon (2013), 'Mobility at work: A typology of mobile communities of practice and contextual ambidexterity', *The Journal of Strategic Information Systems*, 22, 4, 282-297.

Kim, Y.Y. and S. Oh (2015), 'What Makes Smart Work Successful? Overcoming the Constraints of Time Geography', *HICSS, 48th Hawaii International Conference, IEEE*, 1038-1047.

Neirotti, P., Raguseo, E., & Gastaldi, L. (2019). Designing flexible work practices for job satisfaction: the relation between job characteristics and work disaggregation in different types of work arrangements. New Technology, Work and Employment, In press.

Lehdonvirta V. (2018), 'Flexibility in the gig economy: managing time on three online piecework platforms', *New Technology, Work and Employment*, 33, 1, 13-29.

Leslie, L.M., Manchester, C.F., Park, T.Y. and S.A. Mehng (2012), 'Flexible work practices: A source of career premiums or penalties?', *Academy of Management Journal*, 55, 6, 1407-1428.

Liao, C., Wayne, S. J. and D.M. Rousseau (2016), 'Idiosyncratic deals in contemporary organizations: A qualitative and meta-analytical review', *Journal of Organizational Behavior*, 37, S9-S29.

Lindström, J., Moberg, A. and B. Rapp (1997), 'On the classification of telework', *European Journal of Information Systems*, 6, 4, 243-255.

Malone, T.W., Crowston, K. and J.J. Lee (1999), 'Tools for inventing organizations: Toward a handbook of organizational processes', *Management Science*, 45, 3, 425-443.

Martinez-Sanchez, A., Perez-Perez, M. and M. Jose Vela-Jimenez (2008), 'Telework adoption, change management, and firm performance', *Journal of Organizational Change Management*, 21, 1, 7-31.

MacDermid, S.M., Litchfield, L. and Catsouphe, M. (1999), 'Organizational Size and Work-Family Issues.' *Annals of the American Academy of Political and Social Sciences* 562:111-26.).

Mäkinen, S. (2012), 'Mobile work and its challenges to personal and collective information management', *Information Research*, 17, 3.

Mithas, S. and J. Whitaker (2007), 'Is the world flat or spiky? Information intensity, skills, and global service disaggregation', *Information Systems Research*, 18, 3, 237-259.

Moeckel R. (2017), 'Working from Home: Modeling the Impact of Telework on Transportation and Land Use', *Transportation Research Procedia*, 26, 207-214.

Morris, M. G. and V. Venkatesh (2010), 'Job characteristics and job satisfaction: understanding the role of enterprise resource planning system implementation', *MIS Quarterly*, 34, 1, 143-161.

Myers, K.K., Gailliard, B.M. and L.L. Putnam (2013), 'Reconsidering the concept of workplace flexibility: Is adaptability a better solution?', *Annals of the International Communication Association*, 36, 1, 195-230.

Neirotti, P., Paolucci, E. and E. Raguseo (2013), 'Mapping the antecedents of telework diffusion: firm-level evidence from Italy', *New Technology, Work and Employment*, 28, 1, 16-36.

Nonaka, I. and N. Konno (1998), 'The concept of "ba": Building a foundation for knowledge creation, *California Management Review*, 40, 3, 40-54.

Orlikowski, W.J. and S.V. Scott (2008), 'Sociomateriality: Challenging the Separation of Technology, Work and Organization. London: London School of Economics', *Department of Management Working Paper Series*.

Ramasubbu, N., Mithas, S. and M.S. Krishnan (2008), 'Work dispersion, process-based learning, and offshore software development performance', *MIS Quarterly*, 32, 2, 437-458.

Neirotti, P., Raguseo, E., & Gastaldi, L. (2019). Designing flexible work practices for job satisfaction: the relation between job characteristics and work disaggregation in different types of work arrangements. New Technology, Work and Employment, In press.

Sambamurthy, V., Bharadwaj, A. and V. Grover (2003), 'Shaping agility through digital options: Reconceptualizing the role of information technology in contemporary firms', *MIS Quarterly*, 27, 2, 237-263.

Stieglitz, S. and T. Brockmann (2012), 'Increasing organizational performance by transforming into a mobile enterprise', *MIS Quarterly Executive*, 11, 4, 189-204.

Suchan, J. and G. Hayzak (2001), 'The communication characteristics of virtual teams: A case study', *IEEE transactions on Professional Communication*, 44, 3, 174-186.

Van Alstyne, M. and E. Brynjolfsson (2005), 'Global village or cyber-balkans? Modeling and measuring the integration of electronic communities', *Management Science*, 51, 6, 851-868.

Weisberg, A. and C. Buckler (1994), 'Everything a Working Mother Needs to Know', Main Street Books.

Whitfield, K. and M. Poole (1997), 'Organizing employment for high performance: theories, evidence and policy', *Organization Studies*, 18, 5, 745-764.

Williamson O. (1981), 'The Economics of Organization: The Transaction Cost Approach', *American Journal of Sociology*, 87, 3, 548-577.

Wood, S.J. and T.D. Wall (2007), 'Work enrichment and employee voice in human resource management-performance studies', *The International Journal of Human Resource Management*, 18, 7, 1335-1372.

Yuan, Y., Archer, N., Connelly, C.E. and W. Zheng (2010), 'Identifying the ideal fit between mobile work and mobile work support', *Information & Management*, 47, 3, 125-137.

Tables

Table 1. Sample composition

Macro variable	Sub variables	% of respondents
Gender	Male	54.63%
	Female	45.37%
Age	18-24 (1)	3.80%
	25-34 (2)	25.61%
	35-44 (3)	37.29%
	45-55 (4)	22.20%
	Over-55 (5)	11.10%
Education attainment	Secondary school (1)	4.48%
	High school (2)	58.91%
	University degree (3)	33.30 %
	Post-graduate master/ doctorate (4)	3.31%
Job level position	Blue/white-collar (1)	82.48%
	Middle manager (2)	13.63%
	Executive manager (3)	3.89%
Business function	Logistics	9.83%
	Administration and finance	25.80%
	Sales and after-sales	11.30%
	ICT	10.71%
	Marketing	2.34%
	Manufacturing, Operations and Maintenance	9.44%
	Research & Development	4.19%
	Human Resource Management	8.08%
Industry	Other functions	18.31%
	Finance, insurance and banking	9.35%
	Manufacturing	26.58%
	ICT, Media and telecommunication	10.91%
	Retail	13.92%
	Other services	30.09%
	Public administration	9.15%
	Total	100.00%

Table 2. Descriptive statistics

No.	Variable	Min.	Max.	Mean	SD
1	Job satisfaction (Likert scale)	1	4	2.712	0.717
2	Flexible work as an employment practice (dummy variable)	0	1	0.108	0.311
3	Flexible work as a work practice (percentage of time)	0%	100%	0.191	0.239
4	Codifiability (Likert scale)	1	4	2.556	0.852
5	Standardizability (Likert scale)	1	4	2.718	0.867
6	Modularizability (Likert scale)	1	4	2.770	0.851
7	Gender (man)	0	1	0.546	0.498
8	Age (class of age)	1	5	3.112	1.031
9	Task interdependence (percentage of time)	0%	100%	0.134	0.181
10	Job autonomy (Likert scale)	1	4	3.031	0.681
11	Perceived ICT support (Likert scale)	1	4	2.637	0.755
12	Education attainment	1	4	2.354	0.620
13	Size (log)	3.912	9.210	6.083	1.596
14	Job level position	1	3	1.214	0.496

Table 3. Spearman correlation matrix

No.	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Job satisfaction	1.000													
2	Flexible work as an employment practice	0.185***	1.000												
3	Flexible work as a work practice	0.087**	0.244***	1.000											
4	Codifiability	0.089**	0.039	-0.059	1.000										
5	Standardizability	0.026	-0.087**	-0.182***	0.448***	1.000									
6	Modularizability	0.176***	0.137***	0.019	0.243***	0.224***	1.000								
7	Gender	0.046	0.057	0.237***	-0.113**	-0.171***	-0.031	1.000							
8	Age	0.016	0.047	-0.026	0.019	0.008	0.108***	0.119***	1.000						
9	Task interdependence	0.048	0.015	0.090**	-0.078*	-0.063*	-0.095**	0.091**	-0.084**	1.000					
10	Job autonomy	0.378***	0.130***	0.035	0.095**	0.042	0.270***	0.037	0.106***	-0.065*	1.000				
11	Perceived ICT support	0.363***	0.204***	0.028	0.042	-0.060	0.099**	0.064*	0.019	0.028	0.245***	1.000			
12	Education attainment	-0.035	0.070*	0.102**	0.006	-0.102**	0.063*	0.077*	-0.039	0.045	-0.006	0.019	1.000		
13	Size	0.060	0.035	0.101**	-0.015	-0.101**	-0.040	-0.240***	0.197***	0.138***	0.005	0.029	0.136**	1.000	
14	Job level position	0.099**	0.132***	0.210***	-0.057	-0.174***	0.052	0.174***	0.264***	0.037	0.114***	0.115***	0.231***	0.239***	1.000

***p-value < 0.1%; ** p < 1%; * p < 5%.

Table 4. Results

<i>Dependent variable</i>	Job satisfaction (JS)								
Model	M1	M2	M3	M4	M5	M6	M7	M8	M9
<i>Independent variables</i>									
Flexible work as a work practice (FWP) (percentage)	0.020 (0.020)	...	...	0.008 (0.021)	0.010 (0.021)	0.018 (0.021)	0.010 (0.021)	0.007 (0.021)	0.006 (0.021)
Flexible work as an employment practice (FEP) (dummy)	...	0.200** (0.067)	...	0.194** (0.068)	0.184** (0.069)	0.197** (0.068)	0.210** (0.069)	0.170* (0.068)	0.156* (0.072)
Flexible work as a work practice (FWP_D) (dummy)	...	...	0.030 (0.043)	...	...	...	...	...	...
Codifiability (COD)	0.027 (0.023)	0.026 (0.023)	0.027 (0.023)	0.025 (0.023)	0.016 (0.024)	0.026 (0.023)	0.028 (0.023)	0.024 (0.023)	0.024 (0.023)
Standardizability (ST)	-0.010 (0.023)	-0.006 (0.024)	-0.012 (0.023)	-0.004 (0.024)	-0.006 (0.024)	-0.005 (0.024)	-0.014 (0.025)	-0.004 (0.024)	-0.005 (0.024)
Modularizability (MOD)	0.060** (0.022)	0.053* (0.022)	0.061** (0.022)	0.051* (0.022)	0.051* (0.022)	0.053* (0.022)	0.052* (0.022)	0.056* (0.022)	0.041 [†] (0.023)
<i>Moderating effects</i>									
FWP x COD	...	...	...	0.042* (0.020)					
FEP x COD	...	...	...	...	0.091 (0.064)	...	...	...	...
FWP x ST	...	...	...	...	...	0.049* (0.020)	...	...	...
FEP x ST	...	...	...	...	...	...	0.079 (0.062)	...	...
FWP x MOD	...	...	...	...	...	...	...	0.058** (0.021)	...
FEP x MOD	...	...	...	...	...	...	...	...	0.117 (0.069)
<i>Control variables</i>									
Gender	0.025 (0.043)	0.039 (0.043)	0.027 (0.043)	0.037 (0.043)	0.037 (0.043)	0.035 (0.043)	0.036 (0.043)	0.041 (0.043)	0.040 (0.043)
Age	-0.022 (0.020)	-0.032 (0.021)	-0.024 (0.020)	-0.030 (0.021)	-0.031 (0.021)	-0.029 (0.021)	-0.031 (0.021)	-0.031 (0.021)	-0.031 (0.021)
Task interdependence	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)
Job autonomy	0.307*** (0.031)	0.314*** (0.031)	0.306*** (0.031)	0.316*** (0.031)	0.316*** (0.032)	0.311*** (0.031)	0.316*** (0.031)	0.311*** (0.031)	0.314*** (0.031)
Perceived ICT support	0.272*** (0.028)	0.268*** (0.028)	0.271*** (0.027)	0.268*** (0.028)	0.268** (0.028)	0.268*** (0.028)	0.270*** (0.028)	0.267*** (0.028)	0.265*** (0.028)
Educational attainment	-0.057 [†] (0.033)	-0.057 [†] (0.033)	-0.057 [†] (0.033)	-0.057 [†] (0.033)	-0.059 [†] (0.033)	-0.060 [†] (0.033)	-0.059 [†] (0.033)	-0.058 [†] (0.033)	-0.057 [†] (0.033)
Size	0.020* (0.009)	0.021* (0.009)	0.021* (0.009)	0.021* (0.009)	0.021* (0.009)	0.020* (0.009)	0.021* (0.009)	0.020* (0.009)	0.022* (0.009)
Industry (dummy variables)	Included	Included	Included	Included	Included	Included	Included	Included	Included
<i>Fit indexes</i>									
Constant	1.061*** (0.161)	1.041*** (0.164)	1.045*** (0.161)	1.036*** (0.164)	1.036*** (0.164)	1.064*** (0.164)	1.037*** (0.164)	1.067*** (0.164)	1.051*** (0.164)
R-squared adjusted	22.75%	24.50%	22.75%	24.53%	24.52%	24.84%	24.49%	24.97%	24.58%
F	19.92***	21.00***	19.88***	17.03***	18.79***	19.11***	18.76***	19.23***	18.85***

Note: dummy variables related to industries are omitted in the table; standard error in parenthesis; *** p -value $< 0.1\%$; ** $p < 1\%$; * $p < 5\%$; [†] $< 10\%$.

Figures

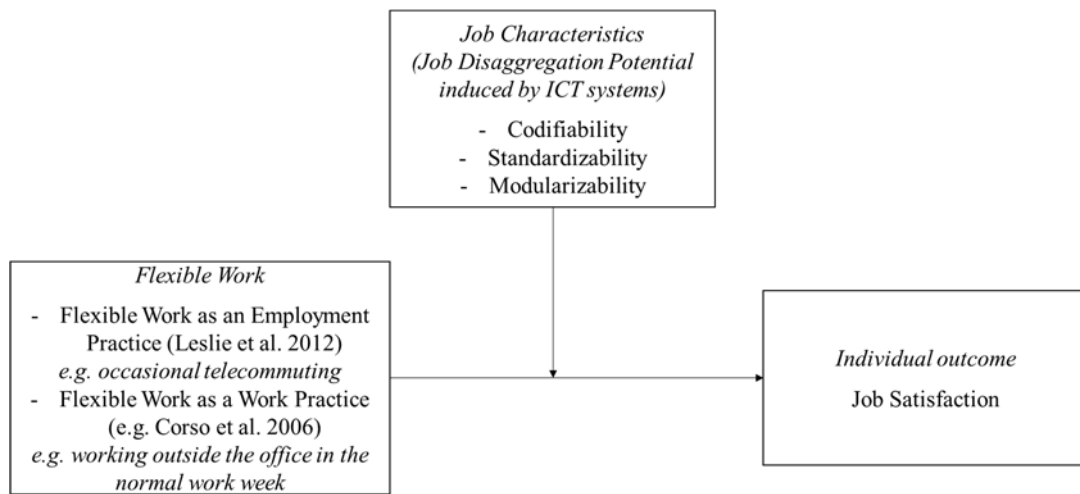


Figure 1. Conceptual framework

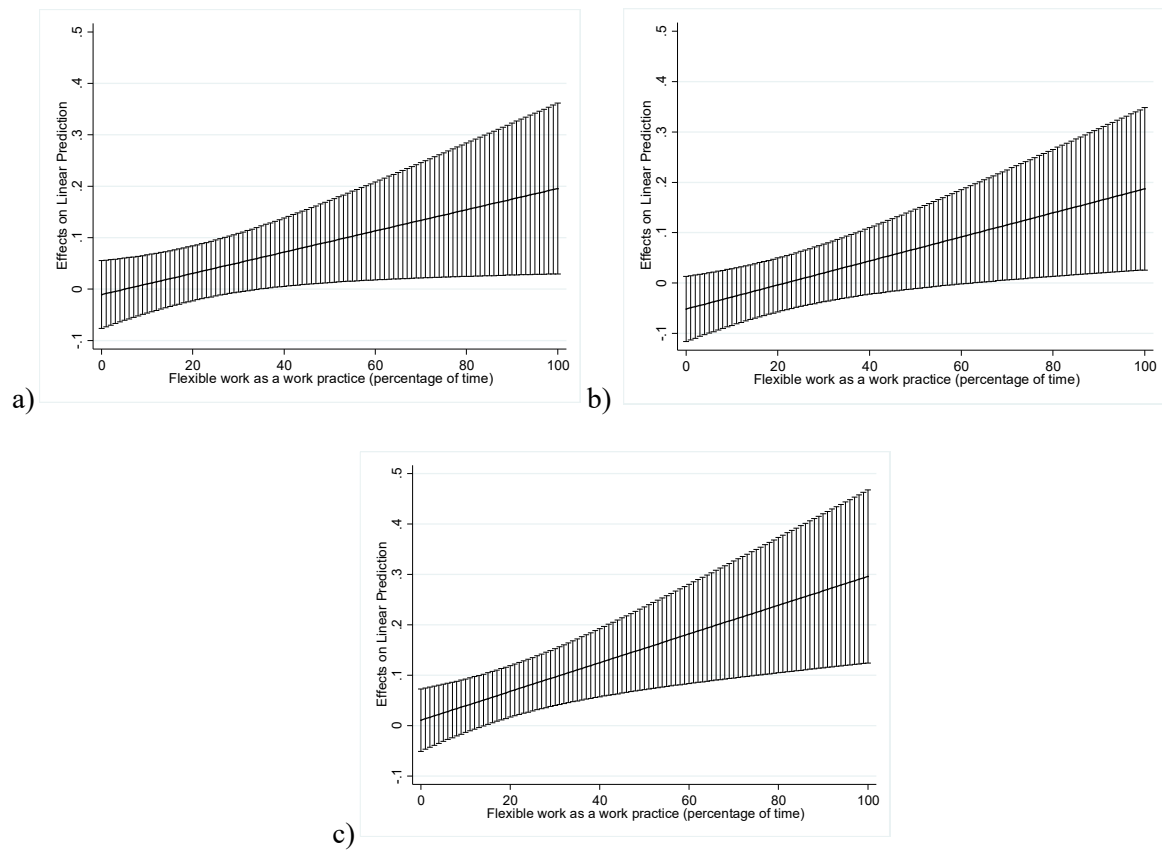


Figure 2. Average marginal effects of codifiability (a), standardizability (b) and modularizability (c) on job satisfaction with the 95% of confidence interval