BUSINESS RESEARCH PROPOSAL

A study on remote work and its impact on employee productivity

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1. Introduction

Traditionally, handling of working tasks has been tightly intertwined with the centralized place of execution, typically the office. However, today, as a result of recent years’ informational and technological evolution working tasks have become more and more liberated from the centralized working place. This is partly because the job itself has changed and partly because the tools needed to perform the job have developed and become more flexible. As a result, new working arrangements have arisen, such as the concept of “remote work” – also referred to as “telework”, “telecommuting” or “working from home” – which over the past decades has become a working practice implemented by many firms all over the world (Baruch, 2000). Unlike the term “working from home”, which explicitly refers to one location (home), the term “remote work” refers to all sorts of situations involving working outside of the employer’s premises. For the purpose of this research proposal, the broad term for working away from the employer’s premises (“remote work”) is used (Beno, 2018).

As a consequence of the ongoing corona pandemic the concept of remote work has become more relevant than ever as a tool to ensure the social distancing necessary to prevent spread of the corona virus while working. According to a study conducted by Brookings, about half of all employed adults in America are now working from home due to the pandemic (Guyot & Sawhill, 2020). But much suggests that remote work has come to stay.

The purpose of this research proposal is to gain a broader understanding of the connection between remote work and productivity. To the author’s best knowledge, no preceding study on this topic has concentrated its research on Danish employees. Findings of this paper will provide institutions and firms that are considering adopting remote work as a part-time or full-time practice, with more knowledge on the subject. Thus, providing management with a better basis for making decisions in this regard.

It is expected that this study will demonstrate that remote work may have both a positive and a negative impact on employee productivity. It is, however, anticipated that the positive impact on employee productivity will be most prevalent.
2. Research objective

The research question that this study aims to answer is the following:

*How does remote work affect employee productivity?*

First, the research will look at the potential change in employee productivity after the implementation of remote work arrangements in three given companies. Thereafter, the research will look into what aspects of remote work that are the most prevalent in influencing productivity.

3. Empirical Background

3.1 Definition of remote work

In this paper “remote work” is defined using the following description proposed by the International Labor Organization: “A form of work in which (a) work is performed in a location remote from a central office or production facilities, thus separating the worker from personal contact with co-workers there; and (b) new technology enables this separation by facilitating communication” (Beno, 2018).

3.2 The development of remote work

The concept of remote work was first introduced in 1972 by the scientist Jack Nilles in his book “The Telecommunications-Transportation Tradeoff”. As a former NASA engineer, Nilles suggested that remote work was used as “an alternative to transportation” – an innovative answer to traffic congestion (Pasini, 2018).

Throughout the 1980’s, development of telecommunication such as online chat and file sharing systems made working from different locations other than the employer’s premises possible. With the invention of the computer and the internet in the 1990’s the possibilities for remote work increased significantly, and – helped along with an increased environmental awareness – remote work became an expedient alternative to working at the employer’s premises (Pasini, 2018). In the 2000’s, new technology such as social media, third generation mobile devices and streaming technology made communication even faster and easier, and during this period remote work really took off. From 2005 and to 2015, the number of U.S. employees who practiced remote work increased by 115% (Abrams, 2019).
The graph below illustrates the use of remote work in several European countries in 2019.

Source: European Commission (2020), Eurostat, LFS.

At that time, especially the Northern European countries were using remote work to a relatively high extent. According to a 2020 report by the European Commission’s Joint Research Centre for Science and Knowledge Services, which focuses on “Telework in the EU before and after the COVID-19”, the varying degree of use of remote work among the European countries is linked up with their industrial structure. The larger the degree of employment in knowledge and ICT-intensive services, the more widespread the use of remote work (Milasi et al. 2020).

With the outbreak of the corona crisis remote work has reached an all-time high. According to estimates from the European Commission nearly 40% of all EU employees are now as a result of the corona virus outbreak working remotely on a full-time basis (Milasi et al. 2020).

3.3 Economic and environmental benefits of remote work
Remote work is not only a working method allowing employees more flexibility regarding place of work. Remote work also generates economic savings and time-savings, and it has a positive impact on the climate.

When employees to a lesser or greater extent work outside of the employer’s premises, there is no longer the same need for a centralized employer space that can hold all employees at the same time enabling the employer to reduce the size of the centralized space which will lower expenses for rent, maintenance, parking spaces etc.
But remote work is also financially beneficial for employees as they save money on motorized transportation – provided remote work is performed at home or closer to home than the centralized office space. This benefit is in addition to the time the employees save not having to go to the centralized employer premises.

As a positive side effect of the drop in motorized transportation, traffic congestion and air pollution will decrease as well making remote work also a sustainable alternative to working at the centralized employer premises (Belzunegui-Eraso and Erro-Garcés, 2020).

4. Theoretical background

The following section contains a literature review outlining some of the results of prior foreign studies regarding remote work and its impact on productivity. As highlighted in the table below, there are various consequences of remote work impacting the productivity of the employees either positively or negatively.

<table>
<thead>
<tr>
<th>Positive impact on productivity</th>
<th>Negative impact on productivity</th>
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<tr>
<td>- Increased flexibility</td>
<td>- Personal and professional isolation</td>
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<tr>
<td>- Enhanced autonomy</td>
<td>- Weakening of co-worker relationships and employer-employee relationship</td>
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<td>- Increased motivation</td>
<td>- Decrease in organizational commitment</td>
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<td>- Increased job satisfaction</td>
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<td>- Improved work-life balance</td>
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4.1 Remote work and its positive impact on employee productivity

To many employees a big motivation for engaging in remote work is the flexibility it offers. When not being tied to the employer’s centralized premises, the individual has a larger degree of autonomy and control of how to organize his/her working day/working time making it easier for the individual to plan work around his/her private life/private obligations (Duxbury et al., 1998).

According to Lupu (2017) a high degree of autonomy has a positive influence on job performance and motivation. This is supported by Hackman and Oldham (1976) who state that “flexibility enhances an employee’s perception of autonomy, and increased autonomy boosts intrinsic motivation and thus induces greater work effort”. According to Bailey and Kurland (2002) employees who have many responsibilities at home benefit the most from the flexible scheduling which remote work offers since it – in most cases – significantly improves their work-life balance.
According to Trivett (2019) a stable work-life balance can be described as another driver for productivity.

As stated by Fehr and Gächter (2000) and Dahlstrom (2013), simply the possibility of being able to use remote work as a working method is perceived by many employees as a willingness of the employer to take the individual employee’s needs into account and thus as a symbol of appreciation of, and trust in, the employee. When an employee feels that the employer is “going that extra mile” for the employee, the employee typically wishes to do the same vis-à-vis the employer which typically will have a positive effect on productivity. This is supported by results obtained in a study by Kazekami (2020) who found that remote work has a positive influence on both life satisfaction and job satisfaction. According to Kazekami’s study an increase in both measures of satisfaction lead to an increase in work effort. It is, however, important to stress that this is only the case if remote work is voluntary and for the employee to decide whether to make use of. Mandatory remote work may generate dissatisfaction (Bélanger 1999).

Moreover, the positive impact of remote work on work effort is supported by results from an experiment conducted in 2015 and published in The Quarterly Journal of Economics. The experiment involving 249 participants was conducted at a Chinese call center in Shanghai. The employees were split into two groups with the location of work being the only difference between the groups. The researchers found that for the group working at home “the performance of the workers went up dramatically, increasing by 13% over the nine months of the experiment” (Bloom, 2015). Since the results are only valid for a small subgroup of employees in a specific industry they must, however, only be accepted with caution.

When assessing the impact of remote work on productivity it is, however, also relevant to look at the industry as well as the tasks performed by the individual and his/her family situation.

According to a report from CEPR Press (2020), remote work has the largest positive effect on productivity in case of knowledge-based work. Likewise, research done by Dutcher (2012) using experimental data to estimate causal effects distinguishing between creative and boring tasks indicates that while remote work increases productivity when dealing with creative tasks, the opposite is the case when dealing with boring tasks.
4.2 Remote work and its negative impact on employee productivity

According to Bono and Yoon (2012) high-quality relationships between supervisors and employees “create physical, cognitive, social and psychological resources. They nurture reciprocity and help satisfy the basic need to belong”. According to Barry & Crant (2000) frequent face-to-face interactions are necessary for the facilitation of such relationships. Thus, a potential drawback of remote work is the negative impact it may have on co-worker and employee-employer relationships.

Working from home or at another location separated from colleagues reduces social interaction between colleagues which for some may lead to personal and professional isolation (Hill et al. 2003). The lack of face-to-face interactions with colleagues and supervisors which is also vital to establish informal communication networks can cause employees to feel less integrated in the team and decrease their organizational commitment all of which often results in decreased work motivation (Bailyn 1988). Likewise, Ford and Butts (1991) states that when face-to-face interactions are limited, employees are more likely to feel alienated from their co-workers and the goals and values of the organization. This may lead to “lack of identity with the company’s culture and the absence of team spirit” which has a negative impact on productivity.

These claims are supported by an on-line poll conducted in 2012 with the participation of 11,383 workers across 24 countries which showed that 62% of the respondents “found remote work socially isolating, and 50% feared that remote work could harm their chances of a promotion” (Reaney, 2012). The latter is supported by Cooper & Kurland (2002) who claim that the physical distance between the employee and employer, when working at a location away from the employer’s premises may make the employee think that when he/she is “out of sight” he/she is also “out of mind” which may limit his/her opportunities for promotion and organizational rewards. Such feelings have a negative influence on the organizational commitment level of an employee which can lead to a decrease in work effort (Cooper & Kurland, 2002).

According to Greer et al. (2014) many supervisors also report “distractions in the home environment of the employees” as negatively impacting productivity and thus a drawback of remote work. This probably holds true in many cases in the current situation where many employees work side by side with their kids who are subject to remote learning due to corona virus caused school closures. Another drawback of remote work seen from the perspective of managers – and many employees – is the inability to closely monitor their employees and provide them with immediate feedback (Cooper & Kurland, 2002).
4.3 The extent of remote work is of importance for productivity

When assessing the impact of remote work on employee productivity, it is necessary to look at the extent of remote work. Bailey and Kurland (2002) argue that the more frequent the employee works remotely the better output of remote work in terms of work effort and performance.

Additionally, according to a study of 28 students carried out by Gajendran and Harrison (2007) the influence of remote work on job satisfaction depends on the extent of remote work, as a higher extent of remote work is linked with a higher level of job satisfaction. Also Golden and Veiga (2005) found a curvilinear relationship between job satisfaction and the frequency of remote work suggesting that job satisfaction is highest at moderate levels of remote work, around 15 hours per week, and that job satisfaction is negatively impacted if the frequency of remote work is either very low or very high. According to Golden & Veiga this is – in case of high frequency of remote work – due to the personal and professional isolation the individual experiences and – in case of low frequency of remote work – due to the limited effect remote work has when it is practiced at a very low extent. Due to the limited time and resources of this study it is, however, not achievable to investigate the extent of remote work and its impact on productivity in this study.

5. Proposed Research Design

5.1 Population

This research paper will take an exploratory approach with the main purpose of identifying causality between remote work and employee productivity. The target group (population) of this study will be top management of Danish companies that offer remote work as an optional working method to their employees. As the causality that we want to explore might vary depending on tasks, company and sector, our research will be limited to focus on the ICT-intensive field, more specifically the consultancy segment, where remote work is prevalent (Milasi et al. 2020).

5.2 Unit of observation

The unit of observation in this study will be employee productivity which will be measured using primarily a qualitative approach although a quantitative approach will also be touched upon. In accordance with prior foreign research conducted on the topic (Messenger et al. 2017) productivity will be measured based on the employees’ own perception of their productivity. As the quality of work is not measured it is, however, difficult to assess whether the employees’ perception of performance and productivity is in alignment with reality. This is a limitation of this study.
The main tool for our analysis will be a questionnaire, cf. paragraph 5.4 below. Furthermore, we will conduct semi-structured interviews with part of the sample group in order to get a deeper understanding of which aspects of remote work that are perceived to have the largest influence on productivity.

5.3 Sample selection
The data will be obtained from three Danish consultant houses with offices in Copenhagen: Bain & Company; KPMG; and Deloitte. Currently, these three companies are all operating with most of their work force working away from the centralized premises, thus providing us with many possible test subjects. The author has privileged access to one of the partners of Bain & Company who has agreed to make sure that the questionnaire reaches a minimum of 100 respondents. This number will ensure validity and generalizability of the results. Prior discussions with this contact person have resulted in assurance that at least 20 of these respondents are willing to also engage in semi-structured interviews. Given the current circumstances, these interviews will of course be conducted virtually, using zoom or another form of video-sharing platform.

The sampling of respondents will consist of a portion of the employees that work from home. Due to the corona restrictions this is currently the case for approximately 90% of Bain & Company’s 275 Copenhagen based employees. This number might decrease to 60% once the corona restrictions are lifted. Ideally, we would have had all remote working employees to participate in the questionnaire. However, a minimum of 100 respondents will suffice. Likewise, at least 100 respondents from KPMG and Deloitte respectively are expected to participate in the questionnaire.

5.4 Data collection
The means of data collection for this research proposal consists primarily of a questionnaire. A questionnaire is a fast, inexpensive and relatively easy way of gathering information from a large sample crowd. Moreover, the data from a questionnaire is easily quantifiable which allows for a quick statistical analysis making it ideal for this study where one is operating under time and monetary limitations. The questionnaire will be sent out and answered by e-mail – the most appropriate and safe way given the current circumstances.
The questionnaire will consist of a series of questions regarding the individual employee’s perception of productivity when working away from the employer’s premises, including which aspects of remote work have a respectively positive and a negative impact on their work effort.

The format of the questionnaire will be based on the approach used in a research report by the Eurofound and the International Labor office (2017). Most questions are to be answered on a 7-point Likert-scale response format measuring statements of agreeability, importance and quality.

When sending out the questionnaire the respondents will be provided with a description of the study and assurances of full anonymity of their answers. As suggested by Dillman (2007), we will also inform the respondents that they will be provided with the final report of the study with a view to strengthening their motivation for participating in the survey.

It is, however, important to also acknowledge the potential limitations of a questionnaire. Questionnaires lack flexibility and preclude more elaborate and nuanced answers (which for instance interviews can provide). Nevertheless, due to time constraints and in order to have a relatively large sample group a questionnaire combined with a limited number of semi-structured interviews seems to be the most expedient way of collecting data.

5.5 Methods of data analysis
Data from the questionnaire will be analyzed using statistical software such as JMP or SAS/STATA. The mode, median and frequency of responses to each individual question will be examined in order to observe potential trends. This will offer an overall idea of the average opinion of the respondents on remote work. It is expected that this will enable us to come to a conclusion containing a positive correlation between remote work and productivity. The analysis of the interviews is expected to support the results of the questionnaire providing us with confirmation of which aspects of remote work have a respectively positive and negative impact on productivity. The combination of the questionnaire and the interviews will bring us closer to generating an all-rounded theory of the relationship between remote work and employee productivity.

5.6 Limitations
There are several limitations of this study. First of all, it is important to note that the external validity of our results is questionable as the expected conclusions are not generalizable to the entire
population since the impact of remote work on productivity, to a certain extent, depends on the task, company and sector. Moreover, our tool of assessment of productivity poses as a limitation since we cannot be certain that the individual employee’s own perception of productivity is fully in alignment with reality. In addition, productivity can be measured based on many different parameters. Thus, the results obtained in this study can only serve as a partial representation for the assessment of productivity. Also, as stated by Tan & Igbaria’s (1998) one must acknowledge the shortcoming of questionnaires that do not have control variables, such as age, gender and family status. As stated by (Beauregard et al. 2019) such personal and circumstantial characteristics have a significant influence on the impact on productivity of remote work. These variables are not taken into consideration in our questionnaire; hence this should be regarded as another limitation of our study.

Finally, it should be kept in mind that the corona pandemic may also constitute a limitation in this study as it may in itself have a negative impact on employees’ mental health and daily life which may have a negative spill over on productivity (Kazekami, 2020).

5.7 Time schedule

MONTH 1: Conduct further research and update literature review, if necessary.

MONTH 2: Finish the questionnaire and pre-test it on a small sample group. Modify the questionnaire, if needed. Distribute the questionnaire digitally and begin collecting data.

MONTH 3: Conduct interviews and start grouping the achieved data while waiting for the respondents to complete the questionnaire.

MONTH 4: Complete the statistical analysis. Start writing on the results and observations

MONTH 5: Complete thesis and start proofreading and revising the report. Two weeks should be set aside for flexibility and potential delays.

MONTH 6: Finalize thesis completely and hand-in of report.
6. References


Dahlstrom, T (2013), ‘Telecommuting and leadership style’, SAGE journals


Milasi, Gonzáles-vázquez and Fernández-Macias (2020), ‘Telework in the EU before and after the COVID-19: Where we were, where we head to’, The European Commission’s science and knowledge service


