Czech University of Life Sciences Prague

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Diploma Thesis

Evaluating Productivity of Remote Workers

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DIPLOMA THESIS ASSIGNMENT

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Thesis title

Evaluating Productivity of Remote Workers

Objectives of thesis

The main objectives of this thesis are to identify the productivity level of workers who worked from home during the covid outbreak, and how project managers can track and evaluate the practice of working from home (WFH), from the success point of view.

Partial objectives include analysing apparently contradictory findings regarding employees' productivity [Monteiro et al (2019) vs Shafizadeh et al (2000)], and identifying the advantages and disadvantages of WFH.

Methodology

This thesis will be in two main parts: theoretical and practical.

The theoretical part will be a thorough review of relevant academic and other reliable literature on this and related topics.

The practical part will partly be based on secondary data – especially in analysing the enigma of the afore-mentioned contradictory findings. Primary data taken from a survey of employees of a specific company will also be used for hypothesis-testing regarding productivity and stress during WFH.

The proposed extent of the thesis
approx 60-80 pages

Keywords
Working from home, WFH, productivity, efficiency,

Recommended information sources

Allen, T. D., Golden, T. D., & Shockley, K. M. (2015). How effective is telecommuting? Assessing the status of our scientific findings. Psychological science in the public interest, 16(2), 40-68.

Mangia K., (2020), Working From Home: Making the New Normal Work for You, Wiley, 192pp, ISBN: 978-1119758921

Monteiro, NP, Straume, OR and Valente, M (2019): 'Does remote work improve or impair firm labour productivity? Longitudinal evidence from Portugal', NIPE Working Papers 14/2019, NIPE – Universidade do Minho.

Shafizadeh, KR, Mokhtarian, PL, Niemeier, DA and Salomon, I (2000): 'The Costs and Benefits of Home-Based Telecommuting', UC Berkeley: California Partners for Advanced Transportation Technology.

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Declaration

I declare that I have worked on my master thesis titled "**Evaluating Productivity of Remote Workers**" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the master thesis, I declare that the thesis does not break any copyrights.

In Prague on date of submission   _____

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I would like to thank Ing. Richard Selby, Ph.D for the constant support and advices that I received whilst writing the thesis. I also want to thank my family for believing in me and motivating me for the past 2 years. This master's degree is devoted to my family.

Evaluating Productivity of Remote Workers

Abstract

The pandemic caused by the Covid-19 virus has significantly altered the lives of a great number of people, particularly the working world. It came as a surprise at the time and was much more labor-intensive than it had ever been before, but one of the most remarkable reasons was the shift toward working from home that many office employees made. The work for the thesis was intended to investigate the influence of the pandemic on the common idea of working remotely, as well as the recommendations and best practices that flow from that idea. An assortment of work-related results from before and during the epidemic were investigated and put to the test through study based on empirical evidence. The author gathers the data with the help of questionary that was distributed among workers of a selected company. The discussion of remote labour in this context is relevant due to the fact that the voluntary aspect of it has, to a large extent, been lost as a result of the epidemic. According to the findings of the study, the consequences continue to be very idiosyncratic and contingent on a wide range of external and internal elements, such as: stress Level, motivation and distraction level, and how those factors impact on a working productivity.

Keywords: Working from home, WFH, productivity, efficiency.

Hodnocení produktivity vzdálených pracovníků

Abstrakt

Pandemie způsobená virem Covid-19 výrazně změnila životy velkého počtu lidí, zejména pracovního světa. V té době to bylo překvapením a bylo to mnohem pracnější než kdykoli předtím, ale jedním z nejpozoruhodnějších důvodů byl posun k práci z domova, ke kterému došlo u mnoha zaměstnanců kanceláře. Práce pro diplomovou práci měla za cíl prozkoumat vliv pandemie na běžnou myšlenku práce na dálku, stejně jako doporučení a osvědčené postupy, které z této myšlenky plynou. Sortiment pracovních výsledků z doby před a během epidemie byl zkoumán a testován prostřednictvím studie založené na empirických důkazech. Autor sbírá data pomocí dotazníku, který byl distribuován mezi pracovníky vybrané společnosti. Diskuse o práci na dálku je v tomto kontextu relevantní vzhledem k tomu, že její dobrovolný aspekt se v důsledku epidemie do značné míry vytratil. Podle zjištění studie jsou důsledky i nadále velmi výstřední a závislé na široké škále vnějších a vnitřních prvků, jako jsou: úroveň stresu, úroveň motivace a rozptýlení a jak tyto faktory ovlivňují produktivitu práce.

Klíčová slova: Práce z domova, WFH, produktivita, efektivita.

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1 Introduction

The recent pandemic situation has changed the way people live and obviously it has changed the way we work. In March 2020, many governments, globally, have decided to announce the lockdown in order to stop spreading the virus globally. One of the key factors, while ongoing pandemic was the switch, from the office work to the home office work, which at the beginning seemed to have a shock on all employees and employers because some workers lost their jobs and some managed to switch to the WFH.

However, remote work has been around for the past 50 years. In fact, the first major research study was conducted by (Nilles, 1998). The research studied the advantages of so called "telecommuting". However, with Colley & Williamson (2020) a lot has changed, technology development and generally, the way people work.

The pandemic started a revolution of working from home and probably will change the way we work sustainably. Thus, companies had to ensure that all employees exploit all the necessary measures and implement accordingly, while employers had to keep the track of productivity, from the distance. WFH has become something that has a relevance to a majority of employees. Some employees have experienced mental health problems such as (loneliness, depression, burnout, distractions, and lack of good working environment) which eventually impacted their productivity.

Based on the governmental decisions, some companies and organizations have been obliged to work from home, either as their company policy requires so or their government decided a national lockdown (Sandford, 2020). Some other employees have had the opportunity to choose whether to work from home, office, or hybrid working. (Ford et. al., 2020). He also concluded pros and cons, working from home, and working in the office. However, everyone is different, and based on personal factors, some people got affected the most, when they switched to WFH environment, and some didn't feel any difference.

Although, the recognitions of different benefits of telecommuting have been stated by many companies, thus, they adopted new policies to improve the productivity. Managers of some companies have revealed the resistance, in particular, lack of trust regarding employees and their performance, which has been mentioned in the work of (Richter, 2020).

2 Objectives and Methodology

2.1 Objectives

Before everyone was forced to shift to remote work, companies that were against working from home were worried about productivity of workers who work remotely. Because of the sudden shift caused by the pandemic, stress levels were on the rise, which, unsurprisingly, reduces productivity and motivation, the thing employers were afraid of in the first place.

Aims of the research:

- Identify the challenges of working from home and how it effects the productivity level during COVID – 19.

- Identify the advantages and disadvantages of working from home. Shafizadeh (2000) claims that working from home boosts productivity and Monteniero (2019) claimed the opposite.

- Identify how managing directors keep a track of productivity of their employees while working from home, in recent pandemic of COVID-19.

2.2 Methodology

The author conducts a survey among employees of TBM Evolution group company, the planned amount of responses N – 80. The planned time to conduct a survey is December 10th.

The author applies a Multiple Linear Regression Model to see the correlation analysis between variables of Productivity (DV), Stress level (IV), Distraction (IV) and Motivation (IV). The author applies the Cronbach's alpha test, to see the internal reliability of respondents, within the dimension of B, C and D, See **Appendix – 1**.

Table 1: Measures of the Likert - Scale

Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
5	4	3	2	1

Hypothesis:

1) If the stress level is high, it negatively impacts the level of productivity. – Own proposal of hypothesis.

2) When workers are distracted by their chores and family members when working from home, it negatively impacts the productivity level (Mangia, 2020)

3) Bonuses, promotions and KPI's positively impact the level of productivity. (Deborah, 2001).

Cronbach's alpha – is the test which indicates **an internal consistency**. "Reliability" is another name for consistency. Cronbach's alpha tests to see if multiple-question Likert scale surveys are reliable. The author plans to test the following dimensions of 2nd – **"Stress Level"** ,3d – **"Distraction level"** and 4th - **"Motivation level",** to assess how well the questions have been structured.

Table 2: Explanation of Cronbach's alpha

Cronbach's alpha	Internal Consistency
$\alpha > 0,9$	Excellent
$0,9 > \alpha > 0,8$	Good
$0,8 > \alpha > 0,7$	Acceptable
$0,7 > \alpha > 0,6$	Questionable
$0,6 > \alpha > 0,5$	Poor
$0,5 > \alpha > 0,4; 0,3; 0,2; 0,1.$	Unacceptable

Source: et. el Zealure (2017).

3   Literature Review

The development of technology enabled companies to introduce different options to work for the last decades. There are multiple terminologies used in the literature that describes the work forms differently, however, the meaning is the same. Thus, it is very important to acknowledge the terminology of remote work.

3.1   Terminology of remote working forms

Bell & Kozlowski (2017) stated that traditional and conventional work considers a close proximity between employees, and they work under the same roof, having face-to-face interactions. The statement cannot be applied to the teams who work remotely.

Generally speaking, there is another term for those decentral work arrangements that gives a chance to employees to work away from the desk-office, which is called "distributed work", (Gajendran & Harrison, 2017). Similarly, remote work is defined as work that can be performed at any place and any time (Kaczmarek, 2020). The term "telecommuting" was mentioned above, and (Gajendran & Harrison, 2017) define it as following:

Telecommuting is an alternative work arrangement in which employees perform tasks elsewhere that are normally done in a primary or central workplace, for at least some portion of their work schedule, using electronic media to interact with others inside and outside the organization.

However, it doesn't cover the workers who are independent contractors as the y are not the members of any organization and tasks that are usually executed at the company's offices such as trips, HR hiring processes, IT tasks and etc. However, the telecommuters can perform the part-time job as well as the full-time job.

In the research of Gajendran & Harrison (2017), found that both groups have their own reasons to either work remotely or in the office. Those, who work remotely are called "high intensity telecommuters" and aimed for work family balance while the other group is focused on lowering the causes of interruptions. The study however is old, but in fact it should be considered that the finding is still applicable. up to date. Nevertheless, this issue is that low-intensity and high-intensity workers have different experience with remote work.

Telework, remote work and telecommuting are all synonyms. Parris (2018) however, finds a small distinction between each term. While remote workers live in another geographical area than the company's location, telecommuters and teleworkers may possibly work at the office and other locations such as: cafés, airports or co-working spaces.

Danzinger & Garrett (2007) argues that the difference between telework, and telecommuting is that telework contains four different dimensions, which are: work location, information technology, distribution of time and employment diversity whereas telecommuting solely describes working at remote places to reduce time of commuting.

Further, a classification of teleworking can be divided into three different types such as: remote offices, mobile telework and home-based telework. The so called "satellite office" is the first to consider, whereas the second one describes the work of employees who work remotely on some occasion or while traveling, and the rest of work is done at home (Diab-Bahman & Al-Enzi, 2020). Lastly, the third term is commonly known as the home office, and it entails the work of employee from home. This type of work was performed by 74 percent of employees, globally, while ongoing pandemic, Bick, A. and c, A, & Mertens, K. (2020).

There is, however, a new upcoming trend which is called "co-working". The environment for such trend usually takes place in neutral office spaces which are shared by various types of workers, entrepreneurs, remote workers, freelances and etc. However, the trend also entails the sense of community, which are created by "co-working" spaces. Mehl (2018) distinguishes those spaces into two types, more corporate focused spaces, and more community focused spaces.

Lastly, there is another term, which is called "virtual teams". It is commonly known across the world and many companies, especially start-ups practice it from the scratch of its creation. The workers might even speak different languages; however, the mutual language is always one. The team members might even be located all over the world. Face-to-face meetings isn't run on a regular basis. It also considers different challenges of cultural background, time zones, Savu (2019). This type of remote work is also dependent on technologies, emails, smartphones, videoconferences, and other electronical devices (Bell &

Kozlowski, 2002). However, in this thesis, the author uses the term WFH, to describe primarily the situation from home due to lockdown and social distancing situations.

3.2 Working From Home or (WFH)

WFH has been a popular trend since 2000s, many companies have adopted the "WFH" due to the benefits it offers to the employees. However, it gained the most popularity with the announcement of COVID-19, in 2019. As Kniffin et al., (2020) stated that the was already a trend towards migration of work to online or virtual environment prior to the pandemic, the acceleration of a trend happened because of pandemic too fast and some companies which considered the shift, were obliged to WFH, as per his research , companies realized how cost efficient it is for some workers to work from home.

Before the pandemic, there were many studies conducted on "remote work" and "telecommuting" as these terms are broader than WFH and they consider the fact of work from any possible location, not necessarily from home.

Ford et. al., (2020) stated that there were restrictions and prohibitions due to pandemic such as: full or partial lockdown, stops in flights and in common supply chain and logistics, researchers focused on WFH topic, rather than "working from anywhere" , as it was not possible in 2019 to 2021. In the beginning of 2020, the GitLab (2020) conducted a survey with 3000 professionals who worked remotely, in IT sectors, assistance of accounting, directors and managers in sales. Based on Gitlab (2020) the survey data, more than half of the employees from different business departments believed that their productivity and efficiency have increased, because the travelling time has drastically decreased. Besides, most of the workers believed that the remote work is the future (GitLab, 2020).

Another survey of was conducted in 2020, with 229 professionals from the human resources departments reported about a substantial increase in the long-term for remote work which was caused by pandemic. Kniffin et al., (2020) claimed that WFH was facilitated by the technological development and its ability to connect people on a distance, such as :virtual private network, cloud computing and online software for meetings.

3.2.1   The impact of COVID – 19 on Employees

There are many conducted studies which analyzed the impact of COVID-19 pandemic on the employees from different points of view. While some researchers conducted their research based on gender of the professionals, some other researchers based their studies on the changes in productivity of those professionals and compare them before and after COVID – 19.

Alon et. al. (2020) provided data where he assumed that an economic downturn which is caused by pandemic might affect women and men differently and they claim that women will be negatively affected by the pandemic than man. He also discovered the effect of COVID – 19, on children care needs, workplace flexibility and norms of gender. Alon et. al, (2020) also concluded that "men are more easily adopted to the environment work change during the crisis ". The reason is that most of men are employed in highly critical and tele commutable occupations, which means that "women are more prone to lose their employment status than man". According to the results of ATUS survey (American Times Use Survey, 2017) "married women provide more childcare than married men on average", yet after the work, married women who work full-time, provide more childcare than man by 60 %. They provide even higher share if their children are young (Alon et al., 2020. Page. 14).

Alon (2020) concluded that "women will be vastly affected by the rise in childcare needs that follows from closures of schools and daycare centers during the crisis".

The research conducted by Staniscuaski et el., (2020) with the title of "Gender race and parenthood impact academic productivity during the COVID – 19 pandemics. Based on his research, he agrees with the study done by Alon et. al (2020). The research describes how remote work is affected by domestic environment and childcare, impact the productivity. Based on his findings, academic males who do not have any children, is the least affected group and their productivity is not affected during the pandemic at all whereas, females who are mothers are the most affected group.

3.3   Advantages and disadvantages of WFH

The chapter is focused on explaining the pros and cons of working from home. The author has focused on many studies, which analyzed the benefits, the major study which reviews an overall impact of WFH, is retrieved from Ford et al. (2020).

3.3.1   Advantages experienced while WFH

WFH has been studied many times and its challenges that professionals experience while working from home. Bao et al. (2020) run an online survey among office workers who were working from home, and asked them to share their experience and what impact they feel on their productivity, where majority of them responded, the feeling they had was energizing and exciting. They claimed that the focus of their work has improved, as they were not distracted by their colleagues. They also claimed that they spend less money on transportation, which saved them time for more work. Additionally, the work and life balance has improved while working from home.

Ford et al (2020) compiled a list of comprehensive benefits and challenges in 2020, after the COVID – 19 outbreaks, See Figure – 1, and 2.

Figure 1: Advantages of WFH

	Benefit	Distribution	Prevalence	Importance	Delta
B1	Less time on commute		96	82	0.31
B2	Spending less money		84	66	0.42 (*)
B3	Flexible work hours		81	82	0.40 (*)
B4	Closer to family		81	85	0.34 (*)
B5	More comfortable clothing		80	48	0.37 (*)
B6	Reduced health risks		72	88	0.24 (*)
B7	Better focus time		62	93	1.15 (*)
B8	Less distractions or interruptions		55	87	1.03 (*)
B9	More time to complete work		52	80	0.78 (*)
B10	More breaks		52	64	0.02
B11	Better work life balance		50	95	0.59 (*)
B12	Better work environment		48	81	1.06 (*)
B13	More efficient meetings		46	87	0.59 (*)
B14	More control over work		37	87	0.68 (*)
B15	More physical activity		34	91	0.54 (*)

Source: GitLab (2020, p.4).

Based on survey results, GitLab reported, that the top benefit is the lack of commute. Additionally, they also mentioned that employees were able to take care of their pets, aging relatives, reduced anxiety and stress, freedom to travel/relocate, being able to live where you

want to live and reduced office politics. The benefits obviously depend on individual preferences. Some professionals didn't actually experience any benefits which are listed above. Some professionals claimed that, more comfortable clothing have negatively impacted their productivity, as when you put comfortable clothes on, you feel like a leisure time, and it is very hard to concentrate on work. Another example which can be either a benefit or a challenge is flexible work times because some workers might benefit from working in flexible times and get more done, while others might find it stressful to complete their daily tasks. Moreover, the benefit of being closer to your family might actually motivate some workers, however it can also be challenging to focus on a work, because family members might be distractive. Ford et al., (2020) claimed that all the listed benefits positively influence a productivity, he concluded that the greatest influence on the productivity are: better focus time, better work environment, less distractions, or interruptions.

3.3.2   Challenges experienced while WFH

Kniffin et al. (2020) stated that the pandemic has complicated the WFH practices. Many employees had to switch to WFH mainly because of not working in a close environment and prevent spreading the disease. Moreover, they state that the balance of work-life is something hard to keep up with, and the term has worn-out.

Based on the research of Bao et al (2020) the survey data has demonstrated that house chores, such as: looking after kids or pets, cooking, interrupted their work and took their working time for house chores, which eventually decreased their productivity. Lack of discipline was another problem which was reported among the challenges while WFH (Bao et al., 2020). Based on the research of GitLab (2020) the greatest challenge of working from home is distraction at home. Another problem which was discovered is the collaboration with colleagues and clients, isolation, lack of motivation, taking adequate pauses when working, disconnection from work, fostering career development. The finding of Ford et al. (2020, p-17) is similar, however there are more challenges:

Figure 2: Disadvantages of WFH

	Challenge	Distribution	Prevalence	Impact	Delta
C1	Missing social interactions		83	49	-0.62 (*)
C2	Lack of work-life boundary		78	48	-0.52 (*)
C3	Poor ergonomics		70	52	-0.47 (*)
C4	Less awareness of colleagues work		65	36	-0.65 (*)
C5	Less physical activity		65	51	-0.40 (*)
C6	Difficult to communicate with colleagues		57	34	-0.67 (*)
C7	Insufficient hardware		57	40	-0.38 (*)
C8	Connectivity problems		54	35	-0.38 (*)
C9	Poor work life balance		51	45	-0.45 (*)
C10	Too many meetings		51	43	-0.09
C11	More distractions or interruptions		49	37	-0.99 (*)
C12	Lack of a routine		47	38	-0.67 (*)
C13	Fewer breaks		44	35	-0.09
C14	Friction with collaboration tools		44	22	-0.38 (*)
C15	Lack of motivation		42	36	-0.90 (*)
C16	Blocked waiting on others		40	28	-0.39 (*)
C17	Poor home work environment		40	34	-0.84 (*)
C18	Lack of dining options		33	24	-0.34 (*)
C19	Lack of childcare		27	58	-0.37 (*)
C20	Less time to complete work		24	36	-0.72 (*)

Source: GitLab (2020).

The CEO of Yahoo, Marissa Mayer, decided to end the company's policy of a remote work, so that, the workers had to work strictly from office, whether they were full – time or part – time employees. She stated that the main reason of such a decision is the importance of communication and collaboration among employees, she insisted on a work together, side by side, in the office. Fortunately, the Yahoo case has not been the only one to do so, other companies such as: Bank of America and Best Buy, have highlighted the significance of team – work (Gallup, 2021).

The biggest advantage as it has been mentioned above is the saving costs of commuting and office space, in case when the company rents the office, however, it must be mentioned that there might be an additional cost for technology, installation costs of hardware of maintenance of software (Savu, 2019). After all, the working from home is only possible when there is a technological availability, or a company can afford it.

3.4 Productivity and work performance

The biggest concern of top managers and executives is the performance of workers and how it might affect the team members. Because of this, managers and executives hesitate to introduce the policies of a remote work (Colley & Williamson, 2020). The main concern

about the remote work is a trouble in communication, lack of team atmosphere which significantly impacts the level of productivity (Savu, 2019).

Various studies concluded different results regarding performance in teams that apply remote work. In the meta-analysis of 46 studies, Gajendran & Harrison (2017) for example discovered that telecommuting was positively related to supervisor's ratings of their team performance, unfortunately, they were not able to find whether the telecommuting time influenced the self-related performance. Another study discovered the increase of employee's performance in China, they study lasted 2 consequent years (Sander, 2019).

In 2019, Golden & Gajendran (2019) conducted a comprehensive study of telecommuting. The study was applied on 273 remote workers and managers from different work fields, analyzed by several job characteristics. Overall, the found out that the extent of telecommuting is positively related to the job performance (Golden & Gajendran, 2019). They further explained the possible reasons for that, fewer interruptions in the office and less of office routine, which also takes time.

They also concluded that the job characteristic is also vital and might certainly affect the performance of a work in a different way.

There are several ways to measure the level of productivity, however, the most common way is to count inputs in relation to output:

Productivity = Output / Input

Hours of work are usually used as input and productivity could be categorized by two terms: Long – term and Short – term, whereas, short – term is used when measuring the productivity less than a year, and more than a year is applicable for measuring long – term productivity.

The method doesn't apply for every occupation, for example in sales and development, it is very hard to measure their productivity. Additionally, if the employees are productive, it doesn't mean that the organization is profitable. Organization and its employees can be

productive, sellers can work as fast as possible, however, if there is no demand for a product or service, the organization losses its growth. In such cases, the effectiveness of *"measure of productivity"* is used. (Haskell, 2015).

This method of productivity measure looks at output and compares it with the planned goals of exact position in any organization, such as sellers, accountant and etc. Organization sets goals, which are abbreviated for KPI's – Key performance Indicator. It helps to understand the employees, what are the things that they should focus on, and what managers expect from them. Eventually, managers compare the reality with the KPI's which were set at the beginning. Hance, organization can better see how employees were performing, measure their productivity in relation to their stated goals and objectives (Team, 2015).

The task of measuring the employee productivity is a difficult task to do and for some companies, it is barely doable. In these cases, companies use different methods such as addressing a questionnaire directly to employees, where they rate their performance, based on their opinion (Savu, 2019). Savu states that employees have more of realistic ideas and feedbacks of their own productivity at work. He also discusses that employees tend to adjust the workplace to improve their comfort, reduce irritation and distraction, boost their ability to perform their role. Hance, after summarizing these arguments, it is very complicated for managers and executives to make comparisons between workers because it is very hard to measure someone's capabilities and abilities, without actually working with him/her side-by-side. However, if an organization wants to grow constantly and bring their owners desired profits, they should look for the ways to increase it and make sure that the goals are achievable.

There are many factors that might influence the productivity. Some of them are easily changeable and some of them require time. However, personal factors of employees should be considered as well, such as: personal live and problems. Those things affect employee's productivity, energy and enthusiasm towards work and if the employee cannot deal with it, it can increase a negative attitude towards work, thus, spoiling the performance. There are however other factors that influence productivity:

- Management style
- Technology
- Education
- Mental condition

- Training
- Team building
- Culture
- Workplace

However, among all, the most important are:

- Job-satisfaction
- Motivation

There are many practical examples that concluded different outcomes regarding the productivity when working from home. However, evidence is mixed. For example, A Chinese travel business conducted a randomized control trial of its contact center staff and discovered that having employees work from home resulted in a 4% improvement in overall productivity. This was attributed to a more peaceful and pleasant working environment (Bloom et al. 2015). Further research that focused on the contact centers of an online retailer that is part of the Fortune 500 also revealed a performance boost of 7.5% (Emanuel and Harrington 2021). The conclusions of this study, which were focused on employees in call centers, may not necessarily apply to knowledge workers, whose professions require complicated tasks and teamwork.

According to study that measured the productivity of professional employees in difficult tasks employing people and analytics data from a big Asian IT business, working from home during the pandemic resulted in a productivity loss of between 8 and 19 percent (Gibbs, Mengel and Siemroth, 2021). The presence of children at home, a rise in the number of hours spent working (without a commensurate increase in production), an increase in the amount of time spent in meetings, coordinating, and talking with coworkers, all contributed to this result (for some workers). It's possible that missed chances to network had a role, as well. On the other hand, this took place at a time when COVID-19 rules required schools to be closed and children to remain at home, which is likely to have had a detrimental impact on the productivity of employees. Yet, productivity in this context is not a fixed quantity. Particularly at this preliminary phase of experimenting, there is an increased possibility that, as companies and employees evolve and adapt, they will become more productive while working from home. This is true even if the trial is still in its beginning (Davis, Ghent and Gregory, 2021). Long term, this would lead to an improvement in productivity while

working from home, which, in turn, might lead to an increase in employers' demand (or a reduction in their reluctance) for work that is performed from home.

3.4.1 Productivity concerns

Concerns have been raised concerning the consequences for worker productivity that a greater proportion of work being performed from home may have. Despite the fact that the majority of managers and staff hold the opinion that employees' productivity at home is roughly the same as that achieved in the office, both groups believe that there have been instances in which employees' productivity has been higher.

Even though several people may be less productive, there are reasons to be hopeful about the economic growth. As the examples in Table 2.3 show, companies choose a way for employees to work from home that makes the most commercial sensation for them. Those who think that working in the office is more productive than working from home are more likely to need a lot of face-to-face time, and vice versa.

Even though several people may be less productive, there are reasons to be hopeful about the economic growth. As the examples in Table 2.3 show, companies choose a way for employees to work from home that makes the most commercial sensation for them. Those who think that working in the office is more productive than working from home are more likely to need a lot of face-to-face time, and vice versa.

Also, the same logic would apply to each worker in the hybrid model. The ability to work from home is likely to be given to some workers but not to everyone else (Barrero, Bloom and Davis, 2021). Companies aren't likely to compromise on efficiency on purpose, so they have reasons to choose the most productive employees to work from home. This means that most of the initial growth in work-from-home jobs will be done by people and companies whose productivity is about the same as or higher than in the main office.

This may be a trend followed by some employees, but it is very unlikely to be the most prevalent occurrence. Those who value working from home the highest have a significant motivation to acquire employment and a company that can pair work from home with maximum production (and higher wages). Companies that can do work from home without

sacrificing effectiveness might outcompete others that cannot, putting increasing stress on salaries for labor performed from home. Therefore, the process of filtering, which results in better matches between enterprises and employees, may reduce the risk of reduced economic output.

Through time, the innovative process and training, facilitated by technology and corporate practices, is expected to shift the whole productivity distribution in the direction of making work from home simpler and more efficient, yet with highly unpredictable rate.

Although the impact of working from home on an individual worker's productivity is equivocal, it is likely that a sustained increase in working from home will not have a materially negative effect on productivity at the level of the whole economy, and that productivity may even grow.

Table 3: Work - from - home, arrangements, firm characteristics and examples

	Likely firm characteristics	Examples
Fully remote	High capital costs Access to talent is important Easy to overcome co-ordination and collaboration challenges Easy to monitor or measure productivity (outputs can be counted)	Gitlab Quora Basecamp Optus (call centre employees)
Fully centralised (office-based)	Face-to-face interaction essential Workers are less productive at home or managers cannot monitor productivity High co-ordination costs Inability to save on capital costs (such as office rent) by working remotely	JP Morgan Chase (USA) Goldman Sachs (USA)
Hybrid	Some work can be done effectively from home, but collaboration is also important Scope for some limited capital savings by working from home Firms face a tight labour market and workers want to work from home	ANZ Apple Googlea City of Sydney Herbert Smith Freehills Victorian Public Service
Work-from-anywhere	Similar to hybrid Access to talent is Willing to rely on output indicators (rather than inputs) to assess workers' performance	Atlassian Square Telstra Twitter

Source: Own processing, adopted from Atlassian (2021); Baird (2021), Verlaine and Benoit (2021).

According to Maslow's hierarchy of needs (1987), a person's motivating purpose is to achieve self-actualization by satisfying each need on the pyramid. For a person to achieve self-actualization, past wants must be partially met. The majority of a person's wants may be met by obtaining employment, which includes the opportunity to purchase groceries, clothing, and stability; belonging to a group, such as a teamwork; and having their reputation needs met by receiving respect and recognition from colleagues and/or management. Employees are motivated to work harder when their fundamental needs are met by the management. The research done by Bellmann and Hübler (2020) revealed that workers with a favorable working home atmosphere were more satisfied with their jobs compared to those who didn't. Those with more job satisfaction were also more likely to have a distinct working place, such as a home office.

According to Maslow (1987), people are motivated to ascend a hierarchy of needs. The pyramid comprises the following five needs, **See Figure -3**. As a person satisfies a need at a lower category of the hierarchy, he or she becomes driven to fulfill necessity at the following layer. This notion may be utilized in several contexts, including a person's private affairs, as well as in the profession.

Figure 3: Hierarchy of need
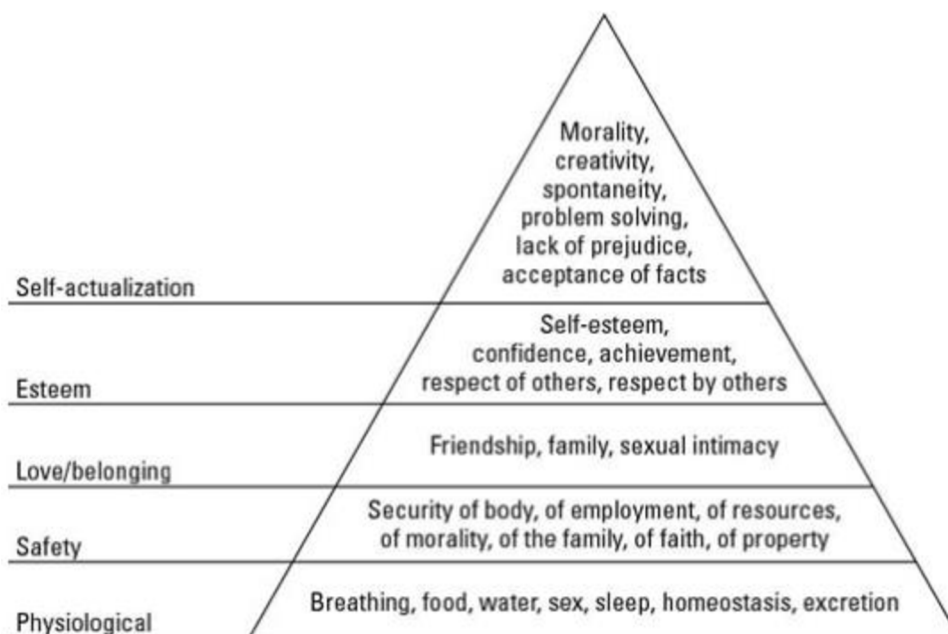
Source: Own processing, Maslow (2017)

That might be compared to the ladder of requirements in terms of meeting fundamental requirements. In an office, managers have more authority over the work atmosphere

compared to the employee's residence. Hence, workplace circumstances are typically improved and more inspiring, with all workers enjoying a pleasant working atmosphere. If the requirements for a positive workplace environment are satisfied, the employee may be more driven for fulfill the next demand in the hierarchy. According to the Y theory, the only way a person can be motivated is by himself, hence another factor to evaluate in this research is if the employer succeeds in creating a motivating atmosphere for the worker (McGregor 2006).

3.4.2   Stress and burnouts

When such requirements of a work exceed a worker's capacity to manage tasks, stress typically manifests itself as weariness and exhaustion (Toscano & Zappalà, 2020). Similarly, Janse (2019) describes this as the result of a mismatch between both overall needs of the work and the tools accessible to the individual to satisfy those objectives. Hence, stress is often associated with decreased productivity and performance (Toscano & Zappalà, 2020). Technostress is a kind of stress that is induced by either a technological overflow, invasion, complexity, insecurity, or uncertainty. The most obvious indications of this condition are the stress to be always ready and excessive workload. Technostress may also cause significant detrimental consequences on physiological, intellectual, and mental development. Typical consequences include burnout, anxiety, and sleeplessness. (Eap - Assist 2019; Molino et al. 2020.) Beginning to work from home or somewhere outside the office is a move that includes both advantages and difficulties. The accompanying physical and cognitive changes may have a negative impact on employee productivity and, in the worst situations, lead to tiredness and stress. Hence, tiredness is characterized by a lack of intellectual and psychological vitality. (Sardeshmukh et al. 2012.) There are now two perspectives on stress and weariness in the context of telework.

3.4.3   Job stress and employee productivity

The majority of research have been able to establish that workers' performance suffers dramatically when they are under stress on the job, particularly in the banking industry (Ahmed & Ramzan, 2013). They went on to say that there is an inverse relationship between stress in the workplace and the employment productivity.

According to Chathuni et al. (2017) "Stress" is an obvious reaction of any employee to unpredicted challenges that go beyond his day-to-day performance capabilities, which creates additional stress that leads to perform without any improvement.

Meneze (2005) introduced that working under stress might have a bigger influence on a person 's wellbeing, which also instantly influences his output. In addition, the occurrence of job stress is showing a growing tendency, which has been a main issue for businesses as it lowers quality productivity in the workplace and increases the number of situations of employee absenteeism. Meneze (2005) also stated that work-related stress might have a larger effect on a participant 's health that also directly affects his achievement. Et el Van Riet (2007) came to the conclusion in his investigation into the effect of pressure on job performance that there is a negative impact of job stress on worker efficiency if the stress is not handled effectively. He made this point by pointing out that there is a negative impact of job stress on employee productivity. An unhealthy amount of pressure has a detrimental effect on the job productivity of both the personnel as well as the business. According to Imtiaz and Ahmad (2009), a "greater level of tension occurred with little management concern for remedy," which led to a decrease in job performance, a risk to the firm's image, and a loss of competent workers.

The researchers Bakker et al. (2007) looked into the issue of excessive pressures as well as the job's demands. They came to the conclusion that "the demand cannot be met, relaxation turns into exhaustion, and a sense of satisfaction replaces with the feelings of stress; encouragement vanishes; employees simply lose enthusiasm for the work, resulted in the performance chart shows a negative trend." According to Ali et al (2019), who showed that pressure results in decreased efficiency, they asserted that "most of the employees in organizations feel that their job is stressful and that, in turn, reduces their efficiency." This indicates that numerous individuals think that strain is indeed the cause of poor effectiveness. They continued by arguing that stress is responsible for the decreased turnover of personnel, which may also have an impact on the success of the business (Ali et al, 2019). Because of the unique demands on various jobs, people are exposed to many kinds of pressure, and if they are unable to effectively manage that stress, it will have a detrimental effect on their productivity (Lavuri 2019). An absence of additional assistance from the supervisor, an excessive number of job-tasks, the riskiness of a job, poor relationships with clients and co-

workers, unbalanced time between work and family all contribute to emotional turmoil, which in turn reduces a performance of workers. This problem is particularly prevalent in the banking industry (Lavuri, 2019). According to Jalagat (2017), who "proved in his study that there is a link between job stress and employee performance between managers and staff," the factors occupational stress, achievement, and work engagement are used in the research. Jalagat discovered there is a detrimental effect among stress at work and productivity at work.

3.4.4 Distraction and productivity

Prior to COVID-19, companies typically applied WFH as a flexible agreement for the corporate strategy advantages it offers. These benefits include attracting and keeping highly skilled workers by allowing organizations to attract the best talent from outside the firm (Reuschke & Felstead, 2020).

WFH is beneficial not just to firms but also to their workers. For instance, since there is less time spent commuting each day, workers have more time to spend with their loved ones. (Tavares, 2017). On the other hand, full-time WFH arrangements, such as those that were experienced during the epidemic, are known to have adverse effects on workers. For instance, workers who often perform at home report greater work-life problems as the borders between work and non-work areas get much blurrier. This is because work and non-work areas become increasingly integrated into everyday life.

In addition, recent studies suggested that workers could be more easily distracted at home than they would be in the office. According to Lee and Brand (2005), the term "work distraction" describes the degree upon which workers feel disrupted or bothered by unfavourable or unwelcome stimulation in the job.

The Yerkes - Dodson Law posits that individuals would work better if they are stimulated, but only up to a certain extent (Cohen, 2018; Yerkes and Dodson 1908). Zajonc's theory (1965) is built on this theory. Yerkes and Dodson proposed this law in 1908. On the one hand, performance is hindered by reduced engagement levels, which are linked to boredom, a lack of motivation, and reduced levels of cognition ability. Moreover, a high degree of stimulation is linked to cognitive dysfunction in the short term, increased cognitive

burden, and decreased attentional control (Xu, Koh, & Chan, 2008). According to the Yerkes-Dodson Law, see **Figure – 4**, the optimal time to complete a small activity is when a person's level of motivation is considerably high, while the optimal time to complete a complicated work is when a person's level of motivation is very low.

Figure 4: The Yerkes - Dodson law
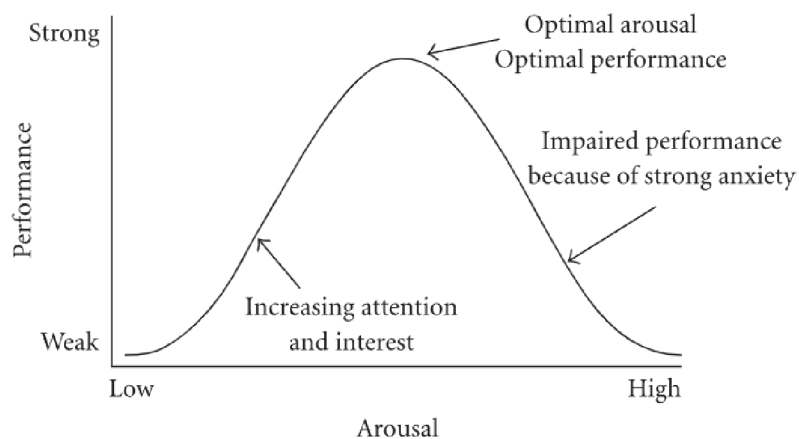
Source: The Yerkes - Dodson Law (1908)

Zojanc theory proposes additional distraction conflicts that are based on three aspects:

- Others and distracting

- Distraction would lead to attention conflicts.

- Attentional conflicts elevate drive.

According to Zojanc's research from 1965, see **Figure - 5**, when individuals work on easy tasks (such as those that are habitual or well-learned), their dominant answers are most of the time right; hence, an increase in arousal will result in improved performance. On the other hand, when individuals carry out a hard activity, the reactions that are likely to dominate are often erroneous, which means that the arousal that is created will have a detrimental influence on their performance.

Figure 5: Zojanc theory

Presence of others

↓

Increased activation

↓

Increased probability of dominant reaction

Facilitation of simple tasks   Inhibition of complex tasks
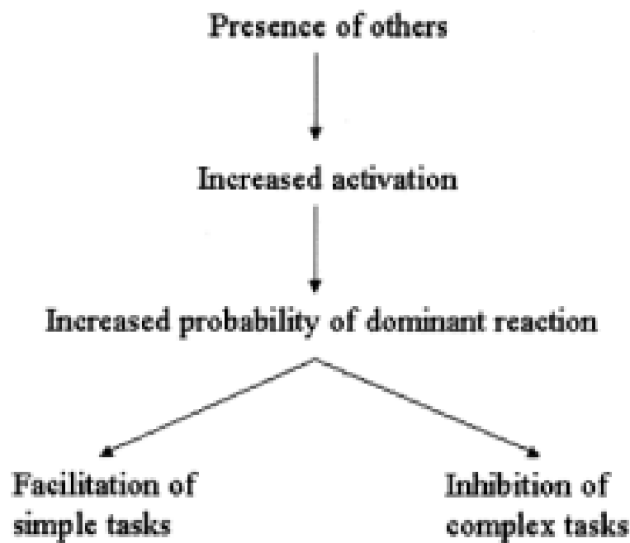
Source: Zajonc drive theory (1965)

3.4.4.1 Characteristics of the home workplace and possible distractions

The most prevalent method for categorizing work interruptions is based on if the cause of the interruption is external to an individual being interrupted or internal to that person. (Et el. Vough, 2020). Internal distractions are induced by thinking patterns and emotional reactions (such as daydreaming), while external interruptions are generated by external stimuli (such as, someone coming into the room). For example, daydreaming is an example of an internal distraction. In addition, a person might choose to be distracted by leaving their office for a brief break or they can be distracted involuntarily when someone walks up to them with a question (et el. Van Der Meulen, 2012). These are extrinsic factors that are difficult, if not impossible, to eliminate. Because of this, it is easier to see them as hurdles than it is to view self-initiated internal disruptions.

An external source, for example a phone ringing, the entrance of a person into the room, or the physical conditions of the workplace may all be examples of distractions that originate from the outside. The effects of one's surroundings on one's cognitive processes have been shown through studies conducted in office settings such as "concentration levels".

It is reasonable to presume that persons who work from home have different degrees of focus required for their jobs compared to those who operate inside of the office.

Recent research conducted by Burmeister, Moskaliuk, and Cress (2018) compared the concentration levels that people have in an office setting to the focus levels which individuals have in a leisure environment such as a home. They found that individuals have higher concentration levels in office environments. This may be understood by referring to past cognitive studies on behaviour, that found that intelligent conduct is the result of a collaborative effort including the body, the brain, and the surrounding environment. Adults had learnt that it's essential to display behaviour connected to work while they are in an office setting, but that they should express behaviour linked to resting when they are at home. This is an example of intelligent conduct. In addition, individuals are more likely to get distracted while working from home since they are surrounded by their families rather than by co-workers who are striving for the same objectives. This may make workers more easily distracted (Rudnicka et al., 2020).

Distractions make it more difficult to accomplish goals, which may raise the amount of emotional complex story. Secondly, when a distraction presents itself, an individual is forced to modify their existing behaviour as a reaction, which places a greater strain on their brain ability. As a direct result of this increased effort, one may experience feelings of worry, exhaustion, and irritability (annoyance, anxiety, frustration, irritation).

In addition, it has been suggested that being distracted might lead to feelings of despair as well as psychological issues such as having trouble sleeping. The amount of time that is allocated to finish daily operations may be cut down by distractions, that could result in a rise in stress (Baethge et al., 2015). As a direct consequence of this, stressed workers are more likely to commit errors and require additional time to do their work.

Finally, when workers are distracted, they are unable to complete jobs because the first task continues to be present in their working memory. This results in decreased employee productivity as well as decreased satisfaction of employees. As you shift your attention from one work to another, you run the risk of developing attention waste, which may lead to lower cognitive availability, limited job involvement, and poor job performance (Keller et el., 2020).

According to Runicka et al (2020) mentions the attributes of "home – workplace", those can influence the presence, nature, and frequency of distractions. Research on the office environment has shown that some workplace characteristics need to be sufficiently implemented for employees to be able to work properly.

- Temperature
- Noise level
- Amount of space
- Visual privacy
- Adjustability of furniture
- Colours
- Workspace cleanliness

3.4.5 Motivation and job productivity

Motivation could be divided into two parts, intrinsic and extrinsic. Amabile (1993) describes those two types as following:

- People are said to be intrinsically driven when they look for pleasure, interest, the gratification of their curiosity, opportunities for self-expression, or personal challenges in their job.
- People are said to be extrinsically motivated when they do the task in question with the intention of achieving a goal that is distinct from the labor itself.

Extrinsic motivation is defined by Deci (1972) as being money and development that are transmitted beyond the individual, while intrinsic motivation is defined as being that which is generated inside the person. And an individual is said to be intrinsically driven to undertake an action when there's no obvious benefit save for the activity itself or the sensations which emerge from the action, and yet the individual continues to execute the action, nevertheless Amabile (1993) believes that workers may be driven either by intrinsic factors or by extrinsic factors, or perhaps by both factors simultaneously.

It would seem that various individuals respond significantly to both intrinsic and external motivators. According to Vroom (1964), some workers are more concerned with the fundamental consequences of their work, while others are more concerned with the

extrinsic results. People who have a high level in intrinsic motivation appear to favor complex mental tasks and have the capacity to regulate their behaviors, as stated by Story et al. (2009). Because of this, providing rewards, establishing primary objectives, or imposing deadlines will have a minor effect on these individuals, unless they are also high in extrinsic motivation.

4 Practical Part

This part of the research is devoted to the empirical part, where the author managed to get a planned number of samplings within one company, to evaluate the effect of "Motivation", "Distraction" and "Stress" on a "Working productivity" while working from home. The research has secondary roots from the research of (Lurey and Raisinghani, 2001: et el. Ali , 2019: Lavuri, 2019, Mangia, 2020; Deborah, 2001). However, the data has its primary roots, collected by the author. The author applies a qualitative method mostly, with the help of statistical calculations and tests, to see the correlation between different variables. In addition, quantitative approach is the primary focus of the majority of this investigation. Statistical approach, on the other hand, is stated in numbers and lends itself especially well to the testing of hypotheses. Qualitative data, on the other hand, is expressed in words and offers a more in-depth understanding of a subject or phenomena. With the quantitative approach, the goal is to reach significantly higher sample sizes to reflect a broader representation and to investigate tendencies in individual experiences which might not be conceivable with a smaller number of participants as is normally required in qualitative studies. This is because the quantitative approach seeks to explore inclinations in personal perceptions that aren't entirely feasible with the qualitative approach. One further benefit of quantitative research is that the results may be immediately compared to one another, in an uncomplicated manner, and statistically.

4.1 Survey design

An online survey was used as the technique of data collecting for this project. Therefore, concerns were raised about the remote work and home office experiences in general, as well as questions regarding each individual employment outcome that was analyzed in the theoretical part of the study. These outcomes included job performance and productivity, stress and exhaustion, job engagement, work-life balance, job satisfaction, coworker relationships, and overall well-being. As was said before, the process of collecting the data is split into two phases, with each portion catering to a different research subject. The first step, which was also the most important, was to provide a solution to the first research topic. In order to accomplish this goal, each and every discovery that was found in the literature was collected, and the most important ones got removed to be tested in the survey. In order

to provide a concise and well-organized questionnaire, each result connected to work was given its own dedicated page and thematic treatment. Many of the questions asked respondents to indicate the degree to which they agreed or disagreed with certain assertions; however, a variety of additional question types were also included. Mostly regarded to (gender, occupation, number of years working in the company and age).

4.2   Model specification

The model below represents the potential model. Based on the gathered results, the author will depict the effect of each "independent variable" on the "dependent variable".
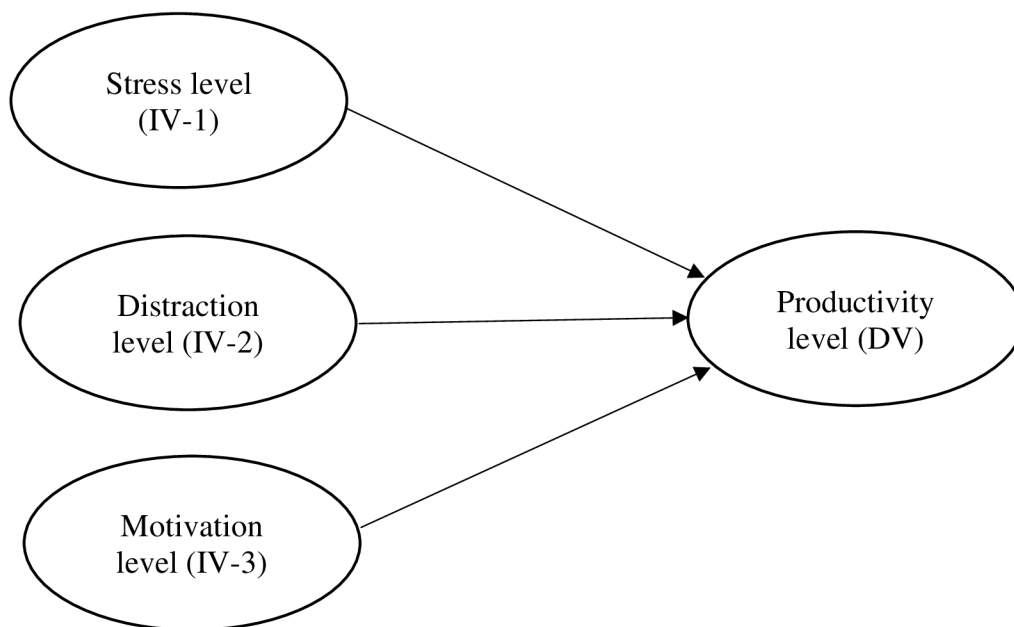
Source: Own proposal.

4.2.1   Hypothesis

The chapter is the replication of the Chapter – 2, that mentions the hypothesis stated by the author at the beginning of the work.

1) If the stress level is high, it negatively impacts the level of productivity. – Own proposal of hypothesis.

2) When workers are distracted by their chores and family members when working from home, it negatively impacts the productivity level (Mangia, 2020)

3) Bonuses, promotions and KPI's positively impact the level of productivity. (Deborah, 2001).

4.2.2 Limitations of the research and ethical considerations

The research doesn't disclose any personal data in terms of names and surname. The personal variables are only presented by (gender, age, occupation, origin of a country and years of working in the company).

Ethical consideration is shorthand for the ethics that were examined during the course of composing this degree assignment. The manipulation with gathered data, the falsification with the data, the duplication of response data, and even the inappropriate manipulation of data structures can all be considered examples of unethical behavior on the part of researchers. One unethical practice that researchers sometimes engage in is the falsification of data. This can take the form of researchers asking friends or relatives to act as interviewees for them. In addition, the author believes that the gathered data has not been manipulated in any way, nor has it been misrepresented in any way that could be considered as inappropriate. When it comes to the method in which the author carried out the research, the author would say that with her effort made, the data presents to be as truthful as possible, as open as possible, and as objective as possible.

4.3 The outcomes of the research

The chapter illustrates the distribution of (gender, age, occupation, country of origin, years of working in the company.

The **Table – 4** represents the outcomes of the research.

Table 4: Demographic data of the research

Demographic data of respondents	N – 80	Percentage
Gender		
Male	48	60
Female	32	40
Age		
15 - 25	45	56.25
26 – 35	21	26.25
36 – 45	6	7.50
46 – 55	5	6.25
55 +	3	3.75
Place of birth		
CIS[1]	39	48.75
EU	21	26.25
Middle East and Africa	20	25.00
Occupation		
Marketing	37	46.25
Sales	34	42.50
Production	9	11.25
Years of working for a company		
1 year	45	56.25
2 years	21	26.25
3 years	6	7.50
4 years	5	6.25
5 years and more	3	3.75

Source: Own processing.

---

[1] Commonwealth of Independent States

Based on the distribution of responses, there is a slight dominance of males with (60 %) overall participation, whereas females were 40 %, within a company.

Most of the worker were aged between 18 – 25 y.o (56.25 %) followed by 26 – 35 y.o (26.25 %), 35 – 45 y.o (7.5 %), 46 – 55 y.o (6.25 %) and 55 + (3.75 %).

Majority of participants came from CIS countries 39 participants (48.75 %), followed by European Union 21 participants (26.25 %) and Middle East and Africa, 20 participants (25 %).

Since the company operates in the conference business, it consist of 3 different departments as: Marketing, sales and production. Marketing department employees 37 people (46.25 %) followed by sales, 34 people (42.50) and production has 9 people, (11.25 %).

The next question related to the years[2] of working in the company, where, most of the participants worked for a company within a year, 45 participants (56.25), followed by 2 years, 21 participants (25.25 %), 6 participants (7.5 %) worked for a company for 3 years, 5 participants (6.25 %) worked for a company for 4 years and 3 participants (3.75 %) worked for a company for the period of 5 years and even more.

4.4   Internal reliability of the questionnaire

Internal reliability refers to the degree to which other researchers, when presented with a set of previously created concepts, would suit them with data in the same way that the first researchers conducted, whereas external reliability refers to the ease of which research could be copied within the context of quality research (Bryman & Bell, 2011).

Validity and reliability are intertwined ideas; for instance, in order for a measure of theory to be considered valid, it must be stable, which equates to being reliable. Furthermore, there are two distinct kinds of validity, namely internal and external validity. Validity and reliability are intertwined concepts. (Bryman & Bell, 2011).

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[2] In case if a person would work for a company 3.7 years, the researcher would ask the participant the round the number up, meaning, the participant would answer 4 years.

When assessing internal validity, the author looks at whether or not the findings fit the theory; when assessing something's external validity, the author evaluates the extent to which its findings may be applied. (Bryman & Bell, 2011).

As a concept of internal reliability, the author used a statistical tool of Cronbach's alpha, which is described in the Chapter – 2.2. Further, the author tests each dimension with the Cronbach's alpha test.

4.4.1 Cronbach's alpha testing across dimensions

The first dimension to be tested is "Working productivity".

Table 5: Reliability of "Working productivity."

Reliability Statistics

Cronbach's Alpha	N of Items
0.794	3

Source: Own processing, SPSS IBM.

The result of Cronbach's alpha demonstrates the result of 79 %, meaning that the data is reliable for a further processing.

The second dimension to be tested is "Stress Level".

Table 6: Reliability of "Stress level"

Reliability Statistics

Cronbach's Alpha	N of Items
.750	3

Source: Own processing, SPSS IBM.

The result of Cronbach's alpha demonstrates the result of 75 %, meaning that the data is reliable for a further processing.

The third dimension to be tested is "Distraction level".

Table 7: Reliability of "Distraction level"

Reliability Statistics

Cronbach's Alpha	N of Items
.851	3

Source: Own processing, SPSS IBM.

The result of Cronbach's alpha demonstrates the result of 85 %, meaning that the data is reliable for a further processing.

The fourth dimension to be tested is "Motivation level".

Table 8: Reliability for "Motivation level"

Reliability Statistics

Cronbach's Alpha	N of Items
.651	3

Source: Own processing, SPSS IBM.

The result of Cronbach's alpha demonstrates the result of 65 %, meaning that the data is reliable, however, the structure of the questions within the dimension are either were confusing for the participants, or someone randomly selected the answers. In the study of Deborah (2001), the reliability level was 83 %. Even though, the author might carry on with the testing.

Since, the reliability level across dimension varies from 65 % up to 85 %. It demonstrates relatively high reliability.

4.5 Descriptive statistics of the variables

The **Table – 9**, represents the descriptive statistics of all variables, dependent and independent.

Table 9: Descriptive statistics of variables

Descriptive Statistics

	N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Statistic	Skewness Std. Error	Kurtosis Statistic	Kurtosis Std. Error
Productivity	80	1.00	3.00	1.8292	.44372	.721	.269	.325	.532
Stress	80	1.00	3.33	2.1500	.61142	-.114	.269	-1.084	.532
Distraction	80	1.00	4.33	2.3708	.79731	.661	.269	.091	.532
Motivation	80	1.00	4.00	2.4167	.51284	.701	.269	1.409	.532
Valid N (listwise)	80								

Source: Own processing, SPSS IBM.

From the descriptive statistics table, the author could see that there was no missing data. All 80 participants answered the questions. The Mean column represents the level of agreeableness, across dimensions, mostly prone to "Agree and completely agree", especially the dimension of "Productivity level" and "Stress level".

Further, the author needs to check whether the residuals of the model are normally distributed.

4.6 Normality test for residuals

First of all, residuals demonstrate the normality distribution. Table – N, demonstrates the results of the "Normality test" for all variables.

Table 10: Normality distribution of variables

Normally distributed Likert Scale Data (Parametric Method)	Not Normally distributed Likert Scale Data (Non – Parametric Method).
Linear Regression	Ordinal Regression
Pearson Correlation	Spearman Ran Correlation.

Source: Patel, K. (1996).

Table 11: Test of Normality

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Produc	.255	80	.000	.898	80	.000
Stress	.143	80	.000	.937	80	.001
Distrac.	.144	80	.000	.944	80	.002
Motivat.	.202	80	.000	.918	80	.000

a. Lilliefors Significance Correction

Source: Own processing, SPSS IBM.

Based on the test of normality, the significance of all residuals are less than .05 significance level, by looking at the **Shapiro – Wilk** tests, due to a small sampling size, it indicates that residuals are not normally distributed among dimensions, thus the author should apply the Non – Parametric method to carry – on with the testing. However, before that, the author logs in all the variables to double check whether the variables of Log, are normally distributed.

The **Table – 12**, represents the transformed variables into the log variables, to double – check whether the variables are normally distributed.

Table 12: Logarithms of estimated variables "Normality distribution of residuals".

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Log_PROD	.220	80	.000	.922	80	.000
LOG_stress	.183	80	.000	.917	80	.000
LOG_Dist	.109	80	.019	.969	80	.051
LOG_Motiv	.162	80	.000	.920	80	.000

a. Lilliefors Significance Correction

Source: Own processing, SPSS IBM.

By looking at the Significance of the *"Shapiro – Wilk"* test, the residuals are not normally distributed. Thus, the author applies "Ordinal Regression Analysis". Further, the Table – 13, demonstrates the model fitting, to see, whether the whole model is statistically significant or not.

4.7 Model of Fit

Table 13: Model fitting

Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	245.734			
Final	232.618	13.117	3	.004

Link function: Logit.

Source: Own processing, SPSS IBM.

The results demonstrate that the data fits the model well. By looking at the significance level of .004, which is lower than .05 significance level, the author concludes, that the model is significant. The **Table – 14**, demonstrates the goodness of fit. By looking at the Pearson and Deviance results, those indicators are not statistically significant, which indicates that the data fits the model well.

Table 14: Goodness of fit

Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	391.955	423	.858
Deviance	224.064	423	1.000

Link function: Logit.

Source: Own processing, SPSS IBM.

The additional test of "Parallel lines" should not be violated as parallel lines hypothesis indicates that the correlation between the dependent variable and the independent variable does not change for the categories of the dependent variable, and thus, to evaluate the unchangeability of the parameter estimates at cut-off points (Ar & Yldz, 2014). The **Table – 15**, demonstrates the "Test of parallel lines".

Table 15: Parallel lines

Test of Parallel Lines[a]

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	232.618			
General	204.995[b]	27.623[c]	15	.124

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a. Link function: Logit.

b. The log-likelihood value cannot be further increased after maximum number of step-halving.

c. The Chi-Square statistic is computed based on the log-likelihood value of the last iteration of the general model. Validity of the test is uncertain.

Source: Own processing, SPSS IBM.

4.8 Correlation analysis and multicollinearity

The following **Table – 16**, represents the "Correlation Analysis" between all variables across the model.

Table 16: Correlation analysis

Correlations

		Prodlog	StressLog	Distrac.Log	Motivat.Log
Productivity	Pearson Correlation	1	-.215	-.184	.150
	Sig. (2-tailed)		.055	.102	.185
	N	80	80	80	80
Stress	Pearson Correlation	-.215	1	-.219	-.027
	Sig. (2-tailed)	.055		.051	.813
	N	80	80	80	80
Distraction.	Pearson Correlation	-.184	-.219	1	.336**
	Sig. (2-tailed)	.102	.051		.002
	N	80	80	80	80
Motivation	Pearson Correlation	.150	-.027	.336**	1
	Sig. (2-tailed)	.185	.813	.002	
	N	80	80	80	80

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Own processing, SPSS IBM.

Based on the correlation analysis, the highest correlation analysis based on the "Pearson correlation" is the .150, which is between the variables "Motivation" and "Productivity". This also indicates that the model lacks a high multicollinearity between independent variable, which is a good sign.

4.9 Parameters of the model

After processing all the analysis. The "Model of Fit" is statistically significant, meaning that the author able to create a final model with the coefficients for each independent variables and its impact on the dependent variable. By doing this, the author is able to build a final model with the correlation of all variables.

Table 17: Coefficients of the model

Parameter		B	Std. Error	95% Wald Confidence Interval		Wald Chi-Square	Sig.
				Lower	Upper		
Threshold	[Prodlog =1.00]	-5,7951	1,6506	-9,0303	-2,5599	12,3258	0,0004
	[Prodlog =1.33]	-3,8868	1,5285	-6,8826	-0,8910	6,4664	0,0110
	[Prodlog =1.67]	-1,7605	1,4626	-4,6272	1,1062	1,4488	0,2287
	[Prodlog =2.00]	-0,6587	1,4470	-3,4948	2,1775	0,2072	0,6490
	[Prodlog =2.33]	-0,0067	1,4598	-2,8679	2,8545	0,0000	0,9963
	[Prodlog =2.67]	1,6832	1,6056	-1,4636	4,8301	1,0991	0,2945
Stress		-1,034	0,3695	-1,7605	-0,3122	7,8674	0,0050
Distraction		-0,881	0,3087	-1,4867	-0,2765	8,1549	0,0043
Motivation		0,8483	0,4748	-0,0822	1,7788	3,1929	0,0740
(Scale)		1[a]					

Source: Own processing, SPSS IBM.

Based on the model, the coefficients are highlighted in red. The signs indicate the relationship between the independent variable and dependent variable. The final model is the following, see **Figure – 6**.

Figure 6: Regression and its coefficients
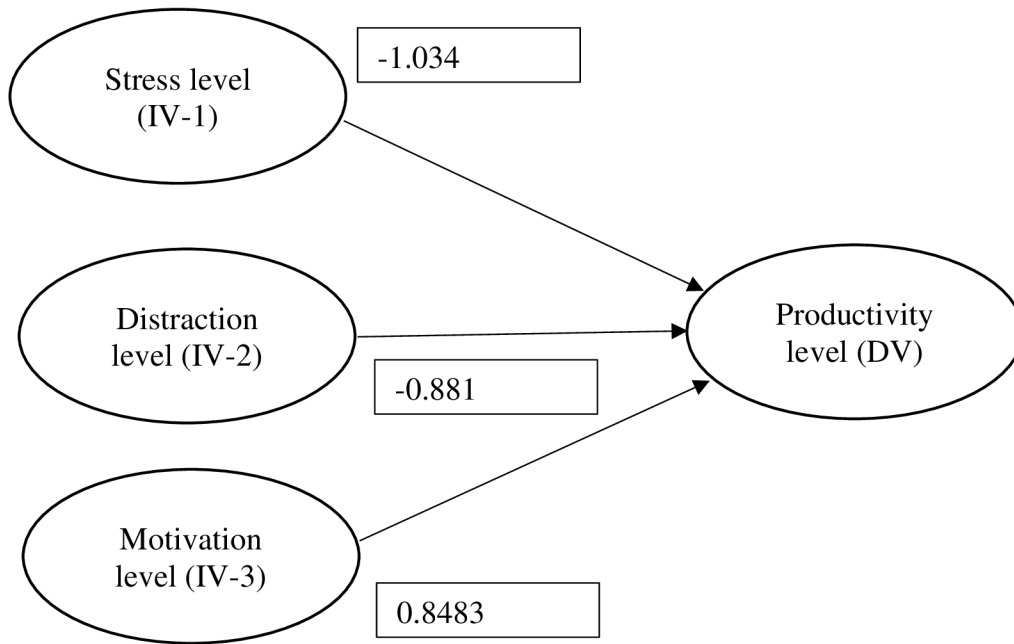
Source: Own proposal.

Based on the results of the sampling (80) across 4 dimensions. The author found a negative impact of "Stress Level" on the "Productivity level", together with the "Distraction level". However, the dimension of "Motivation level" demonstrated the positive impact on the "Productivity". The overall fitting model demonstrated that all data fit the model well, however, the variable of "Motivation" if considered individually, demonstrated its insignificance towards the dependent variable "Productivity level". The rest of "Stress level" and "Distraction level" have demonstrated its significance with .0050 and .0043 significance level.

Table 18: Results of hypothesis.

Hypothesis	Accepted / Rejected
If the stress level is high, it negatively impacts the level of productivity	Accept
When workers are distracted by their chores and family members when working from home, it negatively impacts the productivity level	Accept
Bonuses, promotions and KPI's positively impact the level of productivity	Accept

Source: Own proposal.

5 Results and Discussion

The chapter is devoted to explain the results of the build model and discussions and how its results could potentially help the company to observe a "Productivity level" in the future. Based on the findings and theoretical framework, the author is able to answer the research questions that have been posted. The author will compare the data with the research of Ilgen & Schneider (2011), who questioned whether *"stress affects their productivity in a positive or negative way?"*. Ali et al, (2019) said that work stress has a negative impact on the performance of the individual in their job.

The author's model supports the theory and the effect of stress on the productivity level, which is seen in the **Figure – 6**. The effect of "Stress" on productivity is -1.034, meaning if among the sampling, the 1 % increase in "Stress level" will decrease the "Productivity" with by -1.034.

Another variable of that demonstrated a negative impact was the "Distraction level" Lee and Brand (2005) claimed that person's work performance (e.g., a decrease in productivity), conduct (e.g., acting out against others out of irritation), and health may all be adversely impacted by distractions (e.g., unexpected hospital visits due to stress build-up).

According to this notion, distractions could improve performance on simple jobs but have the opposite effect on performance on more difficult ones. Those who are doing high levels of knowledge work may have lower levels of productivity as a result of distractions due to the fact that knowledge work is characterized by high levels of complexity and non-routine activities (Jacobs, 2017). Stress levels rise as a result of distractions, which leads to one's attention being focused on a limited number of information signals.

Based on the model, the author concludes and supports the results of Jacobs (2017) as well as Mangia (2020).

However, "Motivation" level doesn't contribute to the model alone. Moreover, its "reliability level" turned out to be less reliable comparing with the other variables. Meaning the weak structure of the questions with the dimension.

However, the author accepted the all the mentioned hypothesis that eventually was stated. Hence, the research has a replication results of (Jacobs, 2017; Deborah, 2001; Lurey and Raisinghani, 2001; Ali, 2019; Lavuri, 2019; Mangia, 2020). Who demonstrated how the variables are correlated among each other.

5.1 Limitations of the study

The first limitations that could be mentioned is the number of sampling. The more samples would be gathered, the more reliable the data would be. The author also excluded the other factors within the research such as: "Managing control", "Team Collaboration", "Conflicts in teams and etc".

Results couldn't be generalized to the whole target population in Czech Republic since the sample size was so small, and because the sampling method utilized was one of convenience. Although descriptive statistics showed an adequate gender balance (60 % women and 40 % males) and a wide representation of the range of roles and sectors, the fact that 52 % of the population surveyed was comprised of individuals between the ages of 18 and 25 and that could slightly undermine the results of a survey.

The author was agreed to take not more than 1 hour of the employee's time, which was another limitation in the research. The more time would be beneficial to the results and overall conclusion. The author was limited with the time constraints. Another limitation is the result of "Motivation" as a dimension. Even though KPI's is a factor that helps managers track the productivity of the employees, this particular attribute could be falsified. Employees might report a high level of KPI's, however, their productivity might not correspond to the reported KPI's. Thus, the limitation of the data, in regards of KPI's is an essential aspect to look for.

5.2 Implications of the study

Based on the results, the company where the research was conducted might use the data fore reviewing. A closer attention should be paid to its "Stress level" due to a higher degree of contribution, See **Figure – 6**. The company shouldn't overload its employees with a lot of work. Although, the level "of a lot of work" is a term which could not be measured, however,

based on reported "working hours" the management could follow whether workers are overworking or not.

Another useful finding of the research indicated within a "Productivity dimension". Its mean is almost equal to 1.82, which means, that participants prefer having 2 monitors and sufficient trainings that could potentially impact the "Productivity level". From the theoretical perspective the model looks sufficient and could be re-applied in further researches.

5.3 Further research

In spite of the limitations of the study, the findings are encouraging, and they point to a number of potentially fascinating directions for the direction of future research: It is necessary to conduct additional research in order to analyse the particular teleworking policies, methodologies, software, and strategies that are used in organizations while working remotely, as well as to investigate how these factors relate to job productivity and the perception of organizational support. It is advised that a qualitative technique be used, which includes interviews with both firms and teleworkers, in order to get in-depth insights and investigate complementary study fields.

As a second step, it is recommended to carry out longitudinal study after COVID-19 in order to investigate the progression of variables throughout the course of the recovery period. It might be useful to identify the causes of the crisis in employee wellbeing and investigate employees' perceptions of the support they receive from their employer, supervisors, and colleagues across a variety of work models (in-office, home-based, and hybrid), as well as different categories of remote workers regarding the amount of time they spend teleworking (full-time or part-time). In conclusion, further research is needed to broaden the geographical scope of the study.

Due to the fact that this crisis has brought the disparity in digital access that exists between developed economies and poor ones, another problem that is pertinent is the unequal distribution of teleworking opportunities between countries. It is possible that teleworkers located in economically developing countries with access to less strong technological infrastructure and different corporate cultures would have teleworking experiences that are

distinct to those that were inferred from this study. In order to bridge the digital gap, one of the most important lines of study that will need to be conducted in the near future is one that investigates how diverse communities might be affected by teleworking rules.

6 Conclusion

The research was focused on the topic of "Working from home" with the main objective to find out how "Productivity level" is influenced by "Stress", "Distraction" and "Motivation. The research revealed the impact of all independent variable to the dependent variable and confirmed the results of previous studies.

Results reveal that the strongest effect on "Productivity level" is 'Stress" which might arise due to "Distraction" thus, the "Stress" is influential factors out of all three which reduces "Productivity level". The author has covered the theoretical background which contributed to the empirical part of the research. The studies of (Ali, K., Obrenovic, B., Akhunjonov, U., 2019), the theories of (Yerkes, M., & Dodson, D., 1908) and others, which contributed to the work and helped the author with questions.

Overall, the empirical part is fully based on the quantitative data, of a primary source. The author conducted a questionnaire in a small company TBM Evolution group which is involved in the conference business.

Even though, the results show how employes were able to answer the questions and the responses of the participants were quite reliable. It is still under the question, whether a different age group would respond with the same reliability and consistency across dimensions. As a matter of fact, different age groups perceive, fell and understand information in a bit different way.

All in all, the aim of the thesis was fulfilled and proved from the theoretical points of view as well as practical point of view. All results were analyzed with the help of the statistical software, SPSS IBM Studio 64.

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8 Questionnaire

1) What is your gender?

    a) Male
    b) Female
    c) Other

2) Place of Birth
    a) EU
    b) CIS
    c) Middle East and North Africa

3) What is age?

    a) $18 - 25$
    b) $26 - 35$
    c) $36 - 45$
    d) $46 - 55$
    e) $56 +$

4) What is your department you work in?

    a) Sales
    b) Marketing
    c) Production

5) How long you have been working for the company?
    a) 1 year
    b) 2 years
    c) 3 years
    d) 4 years
    e) 5 years
    f) More than 6 years

Working Productivity Dimension

Statement	1	2	3	4	5	Source
I need to work strictly from the desk, not bed or kitchen.						Lurey and Raisinghani (2001)
My workplace, should have two monitors to perform better.						
I receive sufficient training from the organization to develop my core skills.						

Stress level (IV1)

| Statement	1	2	3	4	5	Source
When a task is very hard, I feel very stressful.						Own proposal, partly adopted from et el. Ali (2019) and Lavuri (2019).
I feel stressful when I am alone and do not have any surrounding.						
I should motivate my-self before starting the work.						

Distraction level

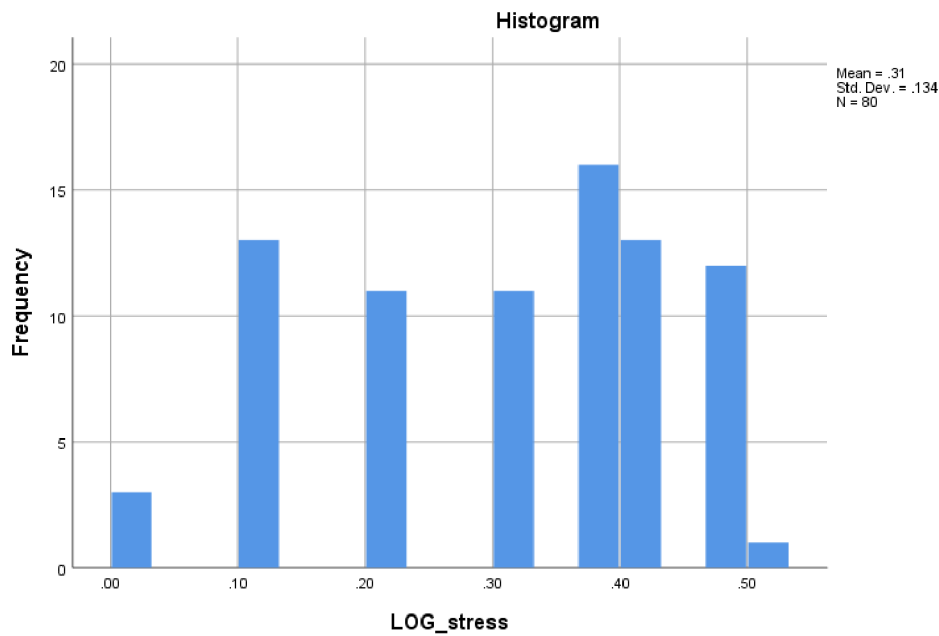| Statement	1	2	3	4	5	Source
I am usually distracted by my family members when WFH.						Mangia (2020)
Social media is a big distraction for me when I WFH						
My private telephone is always switched off, to keep me away from distraction.						

Motivation level

| Statement	1	2	3	4	5	Source
I am highly motivated by bonuses or promotions at the end of the project, task, quarter and etc.						(Deborah, 2001).
I feel motivated to complete the task when I feel needed by my team members.						
KPI's motivate me the most.						

9 Appendix

9.1 Normality distribution of residuals for "Productivity"
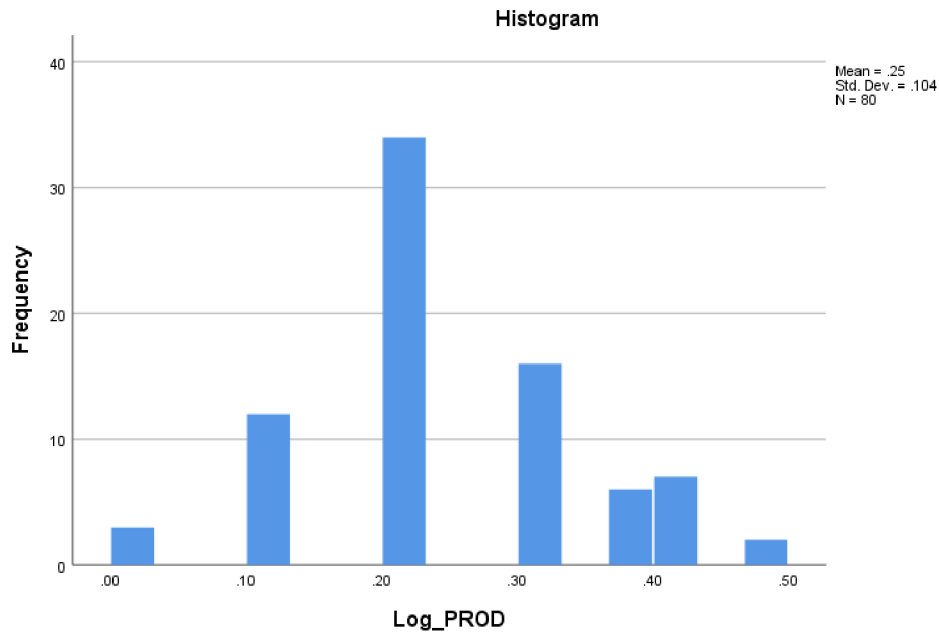
9.2 Normality distribution for "Stress"

9.3 Normality distribution for "Distraction"

Histogram

Mean = .35
Std. Dev. = .148
N = 80
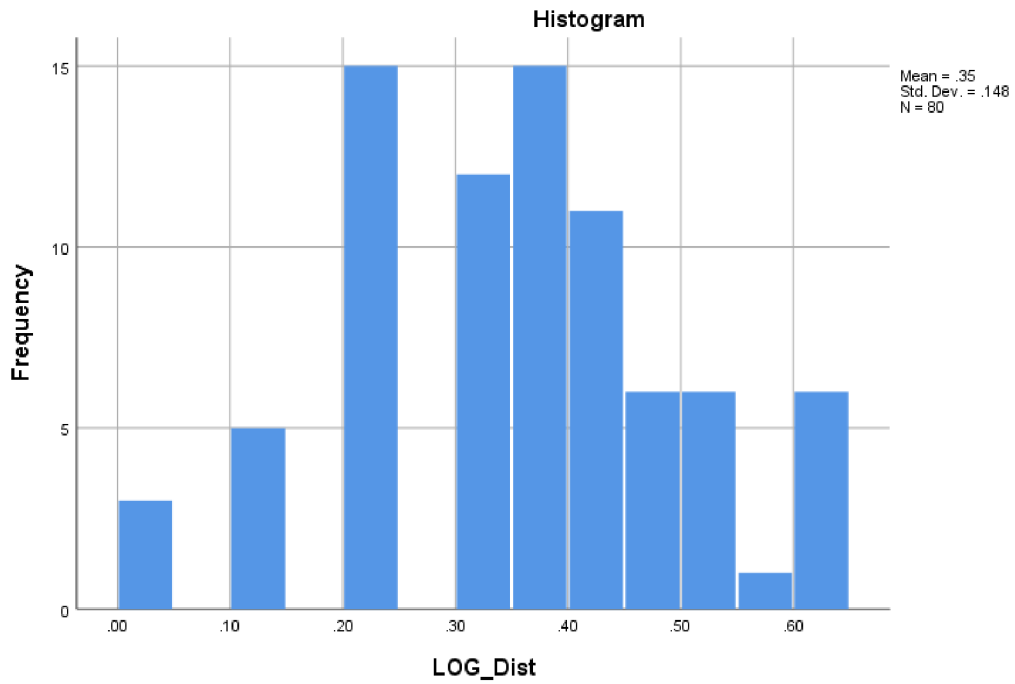
9.4 Normality distribution for "Motivation"

Histogram

Mean = .37
Std. Dev. = .093
N = 80