AI POWERED, EMPLOYEE DRIVEN NEWSLETTER

REMOTE WORK ARRANGEMENTS AND PRODUCTIVITY

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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Introduction

The boom of the internet changed life more than anyone could have imagined a mere 30 years ago. Relatives thousands of miles away now available at the click of a button, purchases can be made across oceans and arrive in days; however, in recent years as a side effect of the COVID-19 pandemic, the internet and the technological advancements in society have given way to a new supposed benefit of these modern luxuries: remote working arrangements. In the United States – where I will be focusing my research for this portfolio – internet usage across the country has risen from around half of the population being connected to the internet back in 2000 to nearly 95% of Americans utilizing the internet today (*Internet/Broadband Fact Sheet*, 2021). As the country continues to become more and more interconnected and online, viewing remote working arrangements as a technology and understanding the implications associated with the societal movement towards adopting the technology is becoming extremely relevant. In the STS project, I will be investigating relationships between productivity and remote working arrangements, both full time remote as well as hybrid arrangements. In the technical report, I will be reflecting on the development of an AI Powered, Employee Driver Newsletter application that I developed in my experience as an intern.

AI Powered, Employee Driven Newsletter

The ability to work from home is treated as a luxury in our society, as it allows employees to put aside all of the hassle of leaving their home and worrying about commuting. Following the COVID-19 pandemic and all of the societal changes that have come and gone or stuck around, remote work seems to be one of the changes that is here to stay; however, with the

increased prevalence of remote work, there are many factors of working in an office that are lost, most noticeably the face-to-face interaction with coworkers on a daily basis.

During my time interning with a small technology consulting firm, my team was tasked with developing an internal application that could provide value to the company along with the other work that was assigned. The company – which prior to COVID boasted a strong sense of community between coworkers – was supporting remote work for all employees and had no plans to bring employees back to the office. In deliberating over what application would benefit the company, our team elected to develop a platform that would enable employees to bond with their coworkers and strengthen the relationships that were so clearly valuable to the company and a cornerstone of how the organization was built.

The project – a web application hosted locally on company machines – had a very short development lifecycle which led to many difficult decisions regarding features. After much deliberation and consulting with employees, our team opted to design an AI Powered, Employee Driven Newsletter. Essentially, employees would submit their updates to the application, and those posts would be available for all others to see and comment on. The motivation behind this feature is that it would encourage employees to share what is happening in their life without having to be at the watercooler.

In addition to being able to view all of the information shared by coworkers, an AI summarization of all of the content that had been submitted in the past week would be created and made available automatically by the app. This feature was chosen due to the value added to the application in making the information shared by coworkers even more accessible.
Ease-of-use was central to the development of the application, leading to the inclusion of integrated Microsoft login and other features that would make the application as accessible as

possible to employees visiting the application. The technical stack used in the application – which was influenced by numerous circumstances surrounding the project– included technologies such as Node, Angular, and MySQL. Additionally, an agile scrum methodology was implemented for project management and company best practices were followed and were central to many design decisions made throughout development.

Remote Work Arrangements and Productivity

Work is the biggest and most time consuming factor in almost everybody's life and affects numerous aspects of day to day life. I will set out to investigate the productivity implications of workers and companies as a result of the adoption of remote working arrangements. It is extremely important to look into this topic as the technology has become much more prominent in the past couple of years; currently, around 13% of workers are engaged in a fully remote working arrangement, while an additional 28% are engaged in a hybrid arrangement of work (Haan, 2023). In regards to the importance of the research question, with 40% of the American population being involved in the technology of remote work arrangements, it is clear that the topic is so widespread that it is surely worth analyzing the effects that the arrangement has on the working world. Researching this topic will provide valuable insight into whether or not the arrangement is viable for the future.

Remote working arrangements may be more relevant than ever as a result of the recent pandemic, but the topic – and the questions regarding the effectiveness of the arrangement – has been present since the early days of the internet. Back in 1999, three Canadian business scholars explored the effectiveness of remote working for what they called "virtual organizations", and took an approach toward the topic that was anchored in self-efficacy theory, identifying factors

of an employee and how their characteristics and aptitude affected their capability to perform effectively in a remote work environment (Staples et al., 1999). The researchers' approach toward the topic differs from my research in that they sought to identify specific factors that would indicate success, while I am looking to take more of an approach that focuses less on trying to discover what success factors are and instead what the transition to the arrangement has directly done to productivity within the United States.

Stakeholders/Relevant Social Groups

In terms of relevant social groups, my topic does exclude a great deal of the American population, at least in terms of being able to use the technology. The primary relevant social group in regards to remote working arrangements is adults who have achieved higher levels of education. This is due to the fact that people who are more highly educated are more likely to hold jobs that would lend themselves to remote working environments. Individuals who have achieved lower levels of education are more likely to work jobs that rely more heavily on the physical contributions that workers are making and do not accommodate working off site. Early in the pandemic as the world was beginning to adjust to the rapidly changing ways of life, the U.S. Bureau of Labor Statistics released statistics that demonstrates the different levels of relevance of working from home regarding educational levels, with people who have earned a bachelor's degree or more boasting the ability to work from home in 65-70% of instances, while employees who have only achieved a high school diploma are only able to participate in remote work arrangements at rates in the 25-30% range (Sun et al., 2020)

In addition to only being relevant for social groups that subscribe to a certain work and lifestyle, the other social groups that are being left out are people who live outside of the United States. The scope of this project includes only the United States to keep consistent the impact of

the government response to the COVID-19 pandemic. Every government around the world responded differently to the pandemic, varying levels of "openness" of their country. To help keep the focus on the technology that is remote work arrangements themselves and to not have to take into account variable government regulations, groups outside of the United States will not be studied. Additionally, the United States is a very technologically developed country, meaning that there is no shortage of jobs that can be remote. In other, more agrarian countries, the concept of remote work arrangements would likely not apply to a large enough portion of the population to be worth investigating.

Understanding the social groups affected by this topic is crucial to understanding those who are actually participating in remote work arrangements. Those who are able to hold remote work arrangements tend to work in jobs that require higher levels of educational attainment, meaning that they are more likely to be able to find employment, and that remote work is more of a luxury than a necessity in order for them to survive.

Research Methodology

I will be utilizing the social construction of technology (SCOT) theory to approach the topic. SCOT is a valuable theory to apply to this topic because it provides an excellent lens through which to view the ways that technology – in this case remote work arrangements – and society shape and influence each other. Utilizing SCOT will help to better analyze the implications that the technology that is remote working arrangements has had on our society and the way that it operates, as well as the ways in which our society has molded the technology to fit our needs. This approach is particularly beneficial as SCOT not only considers how technologies emerge and evolve but also emphasizes the importance of social groups in influencing and interpreting these technologies. In regards to the methodology that will be used to conduct the

research, case studies will be central to the project, as I am setting out to understand the real effects that the movement towards remote work has had, and I believe that case studies will be complimentary to my approach in viewing the topic through the lens of SCOT.

Key Literature

The literature surrounding remote work productivity is extensive, having exploded in popularity in recent years; however, the conversation regarding the technology has existed for nearly as long as the computer has been a mainstream device. Questions regarding how the computer affects productivity – in perhaps a negative way – were brought up all the way back in 1993, with Erik Brynjolfsson discussing the "The Productivity Paradox of Information Technology", and exploring the trends regarding decreased productivity coinciding with the increased prevalence of computing power (Brynjolfsson, 1993). This source will be extremely valuable in my research in understanding remote work and how its place in society has developed.

Many other articles published in recent years directly related to the increase in remote work arrangements due to COVID-19 are critical to the research as well; however, when thinking of foundational documents for the topic, most would not fit the description. The more scientific findings regarding remote work have a wide range of results; a 2015 study conducted by Stanford yielded results that would suggest that remote work increased worker productivity (Bloom et al., 2015), while a more recent study conducted National Bureau of Economic Research found quite the opposite in that remote work led to workers taking more time to complete tasks (Atkin et al., 2023).

Beyond directly measuring productivity through more quantitative means, there is recent literature in the space that has found that more intangible factors such as coworker relationships

and collaboration has been negatively affected through the increasing adoption of remote work arrangements, which makes the topic even more complex and important to research (Yang et al., 2022).

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