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Using Input from Administrative Staff to Make Cost-Effective Decisions for Telecommuting, Technology, and Productivity during the COVID-19 Era

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Using Input from Administrative Staff to Make Cost-Effective Decisions for Telecommuting,

Technology, and Productivity during the COVID-19 Era

A Dissertation

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Chika Egemba

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Abstract

The purpose of this research was to examine if collaborative technologies enhance productivity in the face of remote work during the COVID-19 era using the diffusion of innovation framework. Dothan Housing is a Moving to Work (MTW) Expansion Agency under the Landlord Incentive Cohort #3. This means the agency was granted certain flexibility to pursue innovation. This research study used a post-positivist philosophy and a quantitative research design to investigate the thoughts, opinions, and feelings of Dothan Housing administrative staff about their experience with telecommuting during the COVID-19 pandemic. The participants were selected from among Dothan Housing staff who were eligible for telecommuting and were invited to participate in the study via email, with an option to consent or not consent to participate. Those who consented were directed to an online informed consent form and completed the study through an online survey. This survey was conducted twice with a total sample size of 13 in 2021 and 22 in 2022 respectively. The data collected was analyzed using statistical techniques, and the results were used to explore the relationship between telecommuting and various factors such as job satisfaction and work-life balance. The limitations of the study included the potential for self-selection bias and the reliance on self-report data.

In conclusion, this study found that although the use of collaborative technologies did not necessarily lead to higher productivity levels for Dothan Housing, staff supported using such technologies to facilitate cross-functional collaboration and break down silos within the organization. However, using certain technologies, such as social media, may be perceived as a distraction by some employees. The impact of education level and experience with technology on the use of such technologies warrants further study. The sample size of this study may not be generalizable to other organizations.

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Chapter 1: Introduction

Background

The Coronavirus (COVID-19) pandemic brought with it a whirlwind of unprecedented changes. The pandemic refers to the ongoing global pandemic caused by the outbreak of the COVID-19 virus that began in late 2019 and continues to affect the world today. The period is typically called the COVID-19 pandemic or simply the pandemic. The pandemic has profoundly impacted various aspects of society, including how people live, work, and interact with one another (American Psychological Association, n.d.). In March 2020, President Trump declared COVID-19 a national emergency in an effort to slow down the transmission of the disease. As of June 25, 2020, the United States had over 2.3 million COVID-19 cases and 121,809 deaths (Centers for Disease Control and Prevention [CDC], 2020). Several states issued shelter in place orders to help minimize the spread of this disease and avoid overburdening the United States healthcare system. However, shelter in place orders were subsequently eased, and epidemiologists began to anticipate a second wave of the pandemic. With a second wave being anticipated, employers and employees were seeking to mitigate the pandemic's economic impact, and many had turned to telework – as both a temporary (and even a permanent) solution to remain productive while concurrently complying with public health mandates.

For some businesses, this meant a physical shutdown for the rest of the 2020 calendar year or longer. Few tech companies had offered their (free and paid) services to help employees, customers, and employers stay connected. For example, Microsoft offered a free trial for its Teams chat app to companies teleworking during the COVID-19 pandemic, while Google and Zoom offered free and paid teleconferencing applications. LogMeIn, a provider of software as a service and cloud-based remote connectivity services for collaboration, IT management, and customer

engagement, offered three months free "Emergency Remote Work Kits" designed for nonprofits, schools, and health care organizations. These were some ways in which tech companies were helping improve the telework space. It did not end with these technological tools mentioned; more companies and individuals started creating tools that kept improving the telework space, such as the technology-equipped office pods, adaptive Wi-Fi, digital assistant, and many more.

Many nonprofits struggled to adapt to the challenges posed by the pandemic, including the need to pivot to virtual services, the loss of in-person fundraising events and other sources of revenue, and the increased demand for emergency assistance and other services. The impact of the coronavirus pandemic on nonprofits varied greatly depending on the specific mission and operations of each organization. Some nonprofits saw an increase in demand for their services as the pandemic exacerbated existing social and economic issues, while others were forced to scale back or halt their operations. Scholars have come up with various definitions for remote work. Some of these scholars agreed that telecommuting is another word for telework, while others differentiated both words as having diverse meanings and usage. Telecommuting can be described as working fully or partially remotely; this can be from a coworking space, home office, or other location; and may be distant from the client or company they serve (American Psychological Association [APA], 2019). Telecommuting is more narrowly defined as the substitution of technology for commuter travel. Telework, on the other hand, can be defined as the substitution of technology for travel (Nilles, 1998). Thus, if someone takes work home after being at the office, it is considered telework but not telecommuting, and if someone works at home instead of driving to an office, they are telecommuting. A research study published by Princeton University defined telecommuting as the partial or complete substitution of a worker's regular working hours in a conventional office or other workplaces by the home or an alternative workplace such as a coffee

shop, coworking space (Princeton University, 1995). It was further stated that telecommuting lessens commuting time, which can be achieved through the use of technologies. Jack M. Nillesthe made researchers understand that while telework and telecommuting are the substitutions of transportation through telecommunications and other information technologies, these terms are often used to mean different things (Princeton University, 1995).

In general, telecommuting, telework, work from home (WFH), and remote work are all quite synonymous. Nevertheless, there is a slight contrast between them. Some scholars defined remote work as workers living away from the geographic area of the organization, agency, or corporate office. Simultaneously, telecommuting and telework can mean that workers may work on-site and from home or any other location. Due to the availability of various technologies, one could say that not all work done at a distance is done from home. During the COVID-19 pandemic, it became common for workers to limit their exposure to the virus by working in various locations. Workers may decide to work on transit or in a restaurant nearby, coworking space, or even away from the state or country if they are digitally equipped. More so, "work from home" is commonly used, but it may not precisely describe the actual location where workers are working, as they may be working from any number of locations with an internet connection.

Significance of Issue

Telecommuting started gaining popularity in the early 2000s and experienced an extensive growth of over 400% between 2005 and 2006 (Lister, & Harnish, 2011). Consequently, with the onset of the COVID-19 pandemic, numerous employers' transition to telecommuting has been unprecedented. Before the pandemic, the Oklahoma City bombing and Hurricane Katrina in 2005 were disruptors behind the massive increase in telecommuting. These disruptors served as wake-up calls to corporations and other large employers to encourage and support telecommuting.

COVID-19 has also proven to be a significant disruptor causing nearly half of the American population to transition to work from home. A survey launched by NBER researchers from April 1st to 5th, 2020, with a total of 25,000 responses showed that "over one-third of workers have responded to the pandemic by shifting to remote work," that is 34.1%, in addition to 14.6% participants that reported they were already working from home pre-COVID-19 (Brynjolfsson, Horton, Ozimek, Rock, Sharma, & Hong-Yi TuYe, 2020).

A top priority for employers of corporations remains to serve the best interests of their customers' while ensuring their employees' health and safety. The assumption of this responsibility is to ensure that their employees feel safe and supported at all times while managing their liability. A research study conducted by Noonan & Glass (2012) suggests that the average number of hours spent telecommuting each week is relatively modest, approximately six hours per week, and telecommuters worked between five and seven total hours more per week than non-telecommuters.

Jack Dorsey, co-founder, and former CEO of Twitter announced that Twitter would have its staff permanently working from home. Mark Zuckerberg, Facebook CEO, expects half of Facebook's employees to work remotely over the next five to ten years, even after the COVID-19 restrictions end. Sundar Pichai, Google's CEO, says Google is taking a measured approach to telecommute in the face of the COVID-19 pandemic. These are a few examples of how COVID-19 has caused some tech companies to reevaluate their approach to remote work policies, procedures, and protocols to accompany remote business operations in the private sector. Other non-tech companies like Chevron and Challenger Gray & Christmas (CGC) are also having their employees work from home until the end of the year and even extending to 2021.

One of the more remarkable transitions to telecommuting was by Nationwide Insurance and Financial company. Nationwide moved to work 98% of the time from home during COVID-

19 and recently announced a permanent move to a hybrid model, which encourages employees working-from-office in four main corporate campuses and working-from-home in other locations. The largest insurance company in the Caribbean with offices in the United States, Sagicor, with offices in the United States, announced in April 2020 that its employees would be working from home probably until further notice. The arrangement was to continue until the end of 2021 (Chang, 2020). Sagicor made this decision in response to the COVID-19 pandemic to ensure their employees' health and safety (Chang, 2020).

Nonprofit organizations are also setting up flexible work arrangements, such as telecommuting, in response to the pandemic. COVID-19 has sparked a shift in the working dynamics of various companies and organizations. The coronavirus pandemic has had a significant impact on the way that nonprofits operate, including the use of collaborative technologies. As the pandemic spread, many nonprofits were forced to adapt to remote work and virtual service delivery quickly. As a result, they turned to various collaborative technologies to stay connected and engaged with their stakeholders (Holt & Lopata, 2020).

Even the health information management (HIM) departments of hospitals are also considering transitioning to remote departments (Servais, 2020). Some medium and large-sized private firms have put measures in place to encourage employees to work from home. More than half of these companies have also provided employees with the tools, especially technological tools they need to work remotely. Some companies are also testing distinctive approaches to telecommuting that will allow its employees more flexibility.

Before the pandemic, researchers like Griffiths (2007) discussed the critical role of on-demand software-as-a-service (SAAS) in enabling the U.S. government and industry to function

during a pandemic. The Department of Defense had urged the development of a continuity plan using SAAS, telecommunications, and portable computing (Griffiths, 2007) for the public sector. Now with the pandemic, the government's human resources office, the Office of Personnel Management, has requested all federal agencies to incorporate telework as part of their "continuity of operations" plans for its over 2.1 million federal employees, excluding postal workers and active-duty military (Naylor, 2020). Furthermore, the Office of Management and Budget (OMB) has also ordered federal agencies to maximize telework across the nation for the federal workforce while maintaining mission-critical workforce needs.

Guidelines from the Center for Disease Control and Prevention for how businesses and employers should respond to the COVID-19 pandemic have continued to evolve. As a result, employers' work from home policies for many Americans will also continue to evolve as COVID-19 reports and guidelines are updated. Research suggests that remote work, when done correctly, can improve productivity, creativity, and morale. Companies are being encouraged by the federal government to create WFH policies that guide the usage of technologies to foster productivity and create a work-life balance for their employees, especially in the face of the COVID-19 era. Fortunately, several tech companies had already embraced telecommuting.

Due to the impact of COVID-19 pandemic on various companies' business operations, a vast majority of tech companies with prior telecommuting experience have now fully embraced telecommuting in its entirety.

Non-tech companies, on the other hand, have yet to embrace telecommuting as tech companies have done. However, it is imperative to note that most non-tech companies require their employees to be physically present in activities that are business essential and require physical presence. Consequently, companies whose business operations require physical presence and are

considering transitioning to remote work would require adaptability, accountability, acceptability, and structure put in place for its employees and businesses to succeed. A careful study on companies that embraced remote work showed that telecommuting can help improve an organization's efficiency while also increasing their competitive advantage (Bélanger, Watson-Manheim, & Swan, 2013).

As a result of the COVID-19 pandemic and the fear of a second wave and perhaps coexisting with COVID-19 for the unforeseeable future, a majority of the U.S. workforce might be transitioning to working remotely. An early look at the U.S. data on COVID-19 and remote work by researchers revealed that for every 100% rise in COVID-19 cases per 100K individuals, associated with it was a 5% increase in the fraction of workers who switched to working from home. Similarly, a rise in the incidence of COVID-19 predicted a 5.4% fall in the fraction of those continuing to commute (Brynjolfsson, Horton, Ozimek, Rock, Sharma, & Hong-Yi TuYe, 2020).

This chapter discusses the impact of COVID-19 on society, including the rise in telecommuting and remote work. Chapters 2 and 3 will cover research questions and literature search, literature review, theoretical framework, research philosophy and design, population and sample, data collection and analysis, and conclusion of the research study. Chapter 4 will present the data analysis findings and their conclusions, while Chapter 5 will summarize the findings and discuss their implications for practice and research.

Chapter 2: Literature Review

This chapter will discuss research questions and literature search, literature review, and the theoretical framework used. This literature review aims to examine productivity specifically as a measure by studying the impact of telecommuting and technology on the productivity levels of remote workers.

Tech companies argue that people need physical spaces to get together, and working on-site fosters an atmosphere of collaboration, brainstorming, and competition, which in turn leads to more productivity as opposed to working remotely or in isolation. Employees, on the other hand, argue otherwise. Recently, the frequency of telecommuting increased dramatically, not only because companies are actively working on expanding their virtual capacity, but because the COVID-19 pandemic resulted in an abrupt disruption of business operations for various companies. This abrupt shift in business operations and rapid transition to telecommuting by various companies is the purpose for this study.

Research Questions and Literature Search

The following questions will be guiding this review of literature:

- What is the impact of telecommuting on one's level of productivity?

- How do collaboration technologies impact productivity levels?

- How has the COVID-19 era affected companies' responses to remote and hybrid work requests?

To address these questions, literature was reviewed on the following topics:

Telework Enhancement Act and Policy Making

- Telework Guidelines for Federal Agencies, Employers and Businesses

Telecommuting and Productivity

- Productivity Tools

- Long and Short Commute vs. Virtual Commute

Collaboration Spaces and Technologies

- Information Communication Technologies and Internet Connection

- Technological Infrastructure

Physical Determinants

- Home-Based Telework (work from home) vs. Telework Hub (work from anywhere)

- Environmental Impact

The literature search for this study was conducted using West Chester University Libraries' online resources, specifically the EBSCO database, to locate peer-reviewed articles and other publications. Research studies published by the U.S. Bureau of Labor Statistics, U.S. Office of Personnel Management, Office of Financial Management, Office of Disease Prevention and Health Promotion, and the American Psychological Association were also used to survey telecommuting and telework policies put in place by the government for the public and private sector. The key search terms used were: Telecommuting, Remote Work, Work from Home, Telework, Telework Act, Telework-Policy Making, Commute, Virtual Commute, Virtual Teams, Productivity, Technology, Collaboration Spaces, Information Communication Technologies, Technological Infrastructure, and Physical Determinants. The inclusion criteria for the search were articles published between 1995 and 2020, scholarly or peer-reviewed journals, reports, policy briefs, and written in English. The strategy for this review involved assessing and evaluating resources, analyzing, and summarizing information obtained from research articles, journals, reports, and policy briefs.

In the world of public policy and administration, telecommuting has been a topic of discussion for several years (Greenberg et al., 2020). Telework advocates accentuate its potential benefits in terms of workplace flexibility and work-life balance for employees (Allen & Golden, 2007; Gajendran & Harrison, 2007). However, the impact of telecommuting on productivity remains highly debated (Bailey & Kurland, 2002). While some studies suggest that telework leads to a rise in productivity levels and job satisfaction (Bloom et al., 2015; Mesmer-Magnus & DeChurch, 2009), employers have expressed skepticism regarding the effects of remote work on team collaboration and dynamics (Henderson, 2005).

In recent years, a proliferation of technology has made telecommuting an increasingly viable option (Duxbury & Neufeld, 2010), which led to a rise in the number of companies offering telework programs (Brewer & Ettlie, 2010). However, the COVID-19 pandemic and the result shift to remote work have brought telecommuting to the forefront of public policy and administration debates (Gallup, 2020). As more and more employees work remotely than ever, policymakers and employers are examining the impact of telework on productivity, employee satisfaction, and the overall effectiveness of public service delivery (World Bank Group, 2020).

The Bureau of Labor Statistics (2018) reported that 26 million Americans (16% of the total workforce) worked remotely. Telecommuting statistics collected in 2018 showed a 40% increase in United States companies offering remote work as an option compared to five years ago. Data from 2018, indicated there were 4.3 million remote workers in the U.S., comprising 3.2% of the entire U.S. workforce (APA, 2019). The Bureau of Labor Statistics estimated that between 2005 and 2015, telecommuting in the U.S. increased by 115% (U.S. Bureau of Labor Statistics, 2019).

Dr. Golden, a researcher and manager, practicing in the field, believes telecommuting needs to be fully understood to maximize work input and outputs (APA, 2019).

Studies have shown that a large proportion of workers believe telecommuting is a job perk, with over 50% of employees seeking to work remotely to improve work-life balance permanently. To minimize daily commute, most employees choose to work remotely, while others think it reduces workplace distractions (APA, 2019).

Telework Enhancement Act and Policy Making

On December 9, 2010, the Telework Enhancement Act (TEA) was signed into law by President Barack Obama. The purpose of the TEA was to achieve greater flexibility in managing the federal government's workforce through telework and unleash its potential as a strategic intervention for promoting agency effectiveness. The Telework Enhancement Act of 2010 requires all executive agencies to institute and execute policies and procedures under which employees can telework. The conditions for achieving this involves designating a telework managing officer and requiring all employees and managers to complete an interactive training session (US Office of Personnel Management [Telework.gov], n.d.).

The Government Accountability Office (GAO), a legislative branch of the government agency, provides auditing, evaluation, and investigative services for the United States Congress. The GAO studies the advancement of telework initiatives in the federal government and reports to Congress at the request of congressional committees or subcommittees (Telework.gov, n.d). The ACT requires the Office of Personnel Management (OPM) to report information on telework eligibility, participation, and frequency of participation (Telework.gov, n.d.). Findings from the 2017 fiscal year report on the status of telework in the federal government revealed that out of a total of over 2.1million federal employees, about 1 million employees were deemed eligible to telework. However, only 436,732 employees teleworked in 2017 based on data provided by 78 agencies (Telework.gov, n.d.). More key findings revealed the following:

(1) employee eligibility to participate in telework remained stable; (2) various factors resulted in decreased telework participation; (3) agencies have implemented more accurate methods for tracking telework participation; (4) agencies are leveraging telework to achieve critical goals, including emergency preparedness, improving employee attitudes, recruitment, and retention; and (5) agencies continue to struggle to assess cost savings achieved through telework. (p.5)

The Office of Personnel Management is mandated by the Telework Enhancement Act to report to Congress the status of federal telework programs annually (5 USC § 6506). The report specifically addresses best practices for federal agency telework programs, telework eligibility, agency management efforts to promote telework, progress in setting and meeting participation and outcome goals, agency methods for gathering telework data, and telework participation and frequency. The purpose of this is to ensure that OPM maintains standard reporting requirements as required by law for each fiscal year (Telework.gov, 2018).

Telework Guidelines for Federal Agencies, Employers and Businesses

In addition to federal agencies, federal telework guidelines have also been made available to states. Several states in the U.S. have now released guidelines on telecommuting, and some have updated existing policies to reflect the COVID-19 era. For example, the State of Washington released policies to guide employees, businesses, and government workers and hold government employers accountable (Office of Financial Management [OFM], 2020). Washington DC, on the other hand, developed a policy memorandum to guide in the following areas: meetings, availability and flexibility, mobile work training and learning opportunities, accountability, data security, and confidentiality; virtual private network (VPN) usage. A telework exception criteria to expand

telework access and participation in an unprecedented way was also created for immediate implementation, staying connected, and remote work.

However, the private sector has been at the forefront of exploring telecommuting in the U.S. with the tech industry taking the lead. There has been a little back and forth with the federal government's decision on telecommuting (Smith, 2021). Due to the high cost involved to recruit, and train new staff on a constant basis, and increase productivity, employee satisfaction and lessening commuting time, the federal government expanded its leverage on telecommuting by developing more strategies and policies that promote telecommuting, a critical part of its recruitment and retention plan. Recently, the federal government required all federal agencies to work in coordination with the OPM to incorporate telework into the continuity of operations plans (National Archives and Records Administration, 2020).

A Continuity of Operations Plan (COOP) is a framework that documents how the unit will perform essential operations in an emergency situation or disruption, which may linger for two days or more) and to satisfy annual reporting requirements (Telework.gov, n.d.). The legislation requires federal government agencies to adopt telework policies that allow eligible employees to work at least 20 hours a week remotely (Telework.gov, 2018).

Telecommuting and Productivity

There has been an unprecedented increase in telecommuting among the emerging workforce. The private, nonprofit and the public sector are developing practical and productive telecommuting programs to gravitate to a much-desired result. Gainey and Kelley (1999) noted that telecommuting has a positive effect on worker productivity, employee attitudes, behaviors, organizational recruitment, and retention efforts.

Productivity Tools

A study by Dutcher (2012) on the effects of telecommuting on productivity suggests that the type of task assigned in a telecommuting environment determines the level of productivity. In this study, creative and dull individual tasks were used to mimic two extreme work climates. The results indicated that telecommuting has a negative impact on the productivity of dull tasks and a positive impact on the productivity of creative tasks. Another study by Elgan (2016) suggests that employees' use of cloud-based team collaboration tools and other collaborative systems can foster an atmosphere of productivity for telecommuters. However, telecommuters must undergo home-based telecommuting-related training to maximize productivity tools.

Long and Short Commute vs. Virtual Commute

Proponents of telecommuting argue that telecommuting can cut costs by reducing traffic congestion and energy consumption, while equally contributing to the work-life balance of employees (Baker, Avery, & Crawford, 2006). A study on the impact of commuting on subjective well-being assumes that commuting (regardless of the mode of transportation) can affect one's subjective well-being in three horizons: a) during the journey; b) immediately after the journey; and c) over the longer term. Evidence suggests that stress induced by congestion, crowding and unpredictability during the commute can lower one's mood and satisfaction decreases with the length of commute, regardless of the mode of transportation used (Chatterjee, Chng, Clark, Davis, De Vos, Ettema, Handy, Martin, & Reardon, 2020). However, no consistent link has been established between commuting and life satisfaction. Morris & Zhou (2018) also discovered that there is no association between commute duration, well-being, or life satisfaction. Furthermore, there was no association between longer commute trips and poorer moods during a trip or more emotionally fulfilling work.

Collaboration Spaces and Technologies

      The world is currently in the information age and is in critical demand for skilled human capital for sustainability and efficiency in the workplace. Technological innovation continues to advance in the ways team members engage with each other. Hence, creating intentional collaboration workspaces for virtual teams or remote teams is essential (Jones, 2022). Remote or virtual teams need these collaboration spaces due to the absence of natural body language and the tendency for remote communication to distort the average pace of regular conversations (Dhawan and Chamorro-Premuzic, 2018).

Information Communication Technologies and Internet Connection

      Information technology advances have created a space for increased telecommuting. However, the concept of telecommuting is not new and overly dependent on the use of technology. Telecommuting requires both software and hardware technologies to perform. Teleworkers need access to online applications such as digital communication tools, virtual collaboration spaces, email, and wi-fi (ImproveIT, 2016).

      Internet connection has remained the driver for effective telecommuting. Internet connection with sufficient speed and very reliable bandwidth supports efficient work and communication which also increases productivity. Information Communication Technologies (ICT) helps connect workers to their workplace and colleagues; this increases collaboration, reduces social isolation, and promotes team spirit. Some of the ICT tools that contribute to telecommuting effectiveness are video conferencing, social media, remote access, shared calendars, virtual desktop, and virtual private networks (ImproveIT, 2016).

Technological Infrastructure

Telecommuting has expanded today due to continuous technological innovations. Technology is the driver of telecommuting and makes it more and more attractive. However, there are cybersecurity issues that challenge the safety of users as more individuals and companies adopt telecommuting. Most offices are set up with laptops, printers, and space but some are sophisticated with technological equipment and architectural designs.

Telecommuting has a mandatory assessment of technology needs against the nature of the work, an individual's needs, and budgetary constraints, and the organizational culture. There are essential telecommuting needs beyond technology, but it offers a certain level of solution to telecommuting than in a traditional office space. Technology creates a connection that improves off-site collaboration of team members and colleagues (ImproveIT, 2016). Instant messaging (IM) or voice chat has become a traditional way of communication when an individual telecommutes, but this does not play an essential role in a traditional office. Colleagues can interact face-to-face or slip notes when the need arises.

Physical Determinants

Understanding the relationship between how population groups experience "place" and the impact of "place" on health is fundamental to physical determinants (Office of Disease Prevention and Health Promotion [HealthyPeople], 2020). The establishment of policies that positively influence social and economic conditions can improve physical determinants by creating healthier conditions for the society's workforce. As the popularity of remote work continues to rise, there is still insufficient evidence of how it influences employees' wellbeing. However, a study by Perry, Rubino, & Hunter (2018) on stress in remote work environment suggests that employees with high-emotional stability reporting high levels of autonomy experienced the lowest levels of strain

in remote working environments, while employees with low-emotional stability who also have high autonomy were more susceptible to strain in remote working environments.

Home-based Telework (work from home) vs. Telework Hub (work from anywhere)

Employees with flexible working arrangements "work from anywhere" were 4.4% more productive than employees who follow the traditional "work-from-home" policy (Senz, 2019). Prior academic research studies on productivity effects of 'working from home' found that workers with temporal flexibility, 'work from anywhere' are often one step further and provide both temporal and geographic flexibility" (Senz, 2019). Also, the existence and utilization of digital technology increased worker's accessibility and efficiency more than ever. While many companies do not permit work-from-home, employees are not allowed to work from home, let alone "work from anywhere."

Before the COVID-19 era, large companies like IBM, Honeywell, Bank of America, Best Buy, and Yahoo had abandoned their telework and telecommuting initiatives, thereby promoting the idea of improving communication, collaboration, and teamwork by bringing employees back into the office workspace.

Environmental Impact

Telecommuting has positive impacts on the environment. An article on the positive environmental impact of remote work highlighted the environmental gain of telecommuting, ranging from over $20,000,000 in gas savings and a 54,000,000 tons reduction in greenhouse gas emissions. Other benefits included improved air quality, reduced traffic, lower carbon footprints, and substantial energy savings (Vigo, 2019).

Theoretical Framework

In 1962, Everett Rogers, a profound American communication theorist and sociologist, popularized the Diffusion of Innovation (DOI) theory. Rogers noted that as one of the oldest social science theories, it aims to demonstrate how and why. The pace at which a product, service, or process circulates through a population or social system. DOI stemmed from communication to exemplify how, over time, an idea or product gains momentum and diffuses (or spreads) through a specific population or social system (LaMorte, 2022).

Adoption means a person does something different than they had previously done. The key to adoption is the person must perceive the idea, behavior, or product as unique or innovative. It is through this that diffusion is conceivable. The result of diffusion is that people embrace new ideas, behavior, or products as part of a social system. However, adopting a new idea, behavior, or product does not coincide with a social system; instead, it is a process whereby some individuals are more inclined to embrace innovation than others (LaMorte, 2022). DOI is the process by which an innovation is communicated and adopted through specific channels over time among members of a social system. It involves spreading an innovation from its source to the broader community. It is a model that explains how new ideas, products, and technologies are adopted and diffused within societies. Different strategies are used to appeal to the adopter categories when promoting an innovation, such as using opinion leaders or emphasizing the relative advantages of the innovation. In conclusion, adoption and diffusion are critical components of the innovation process. The process involves convincing individuals to change their behavior, ideas, or products, which can be challenging. Organizations can achieve a faster and more effective diffusion of innovation by targeting different adopter categories. Understanding the DOI model can help organizations better plan and implement strategies for promoting the adoption of innovations.

Chapter 3: Methodology

This chapter will be discussing the concepts, research question and hypothesis, research philosophy and design, population and sample, data collection and analysis of the research study, as well as the conclusion.

Introduction

In 2020, there was an unexpected and unplanned surge in telecommuting due to the Coronavirus (COVID-19) pandemic. The Centers for Disease Control and Prevention (CDC) developed interim guidance for businesses and employers responding to the coronavirus disease (CDC, 2020). Work from home policies for many organizations have continued to evolve as COVID-19 reports and guidelines for COVID-19 are updated. Scientific studies suggest that remote work, when done correctly, can improve productivity, creativity, and morale (American Psychological Association [APA], 2019). Consequently, companies must be encouraged to create WFH policies that guide the usage of technologies to foster collaboration and productivity among their employees.

The coronavirus pandemic has caused a paradigm shift in the working dynamics of various companies and organizations. In response to the pandemic, public organizations and nonprofits are setting up flexible work arrangements, such as working from home, telecommuting, and telework. More than ever, collaboration technologies have become key to efficiency and effectiveness to ensure long-term success and sustainability. Public agencies and nonprofits are beginning to explore various collaborative technologies, spaces and productivity tools. Consequently, this dissertation aims to investigate how nonprofits of the future are utilizing collaborative technologies to enhance productivity in the face of remote work by using input from administrative staff to make cost-effective decisions for telecommuting, technology, and productivity during the COVID-

19 Era. For this organizational study, data was obtained from Dothan Housing's administrative staff who have the ability to work from home, telecommute, and telework to help implement a modern-day workforce practice.

Concepts

Since technology is advancing continuously, nonprofits need to be informed on the latest technological trends, tools, applications, and innovations to be prepared for unforeseen circumstances like COVID-19. The key concepts for this study include nonprofit organizations, telecommuting, telework, and collaboration technologies.

Nonprofit Organization: A nonprofit, also known as a not-for-profit, or non-business entity dedicated to promoting social causes or transforming shared beliefs (National Council of Nonprofits, 2020).

Telecommuting: A partial or complete substitution of a worker's regular working hours; this can be from a coworking space, home office, or other location; and may be distant from the client or company they serve (APA, 2019).

Telework: A work arrangement that allows an employee to perform work, during any part of regular, paid hours, at an approved alternative worksite like from home or a telework center (Office of Personnel Management [OPM], 2020).

Collaborative Technologies: Collaborative technology (CT) is a tool and system used to facilitate group work, both in-office and remotely (Abegg, Butler, & Witsman, n.d.). CT can boost productivity if implemented correctly. Samarah (2006) suggests that collaborative technologies make it feasible for organizations to quickly bring together remote workers into virtual teams to perform various tasks. Another study by Elgan (2016) suggests that employees' use of cloud-based

team collaboration tools and other collaborative systems can foster an atmosphere of productivity for telecommuters.

Productivity: Ratio between the volume of output and the volume of inputs. Productivity measures how efficiently production of inputs is being used to produce a given level of output (Krugman, 1994).

Research Question

This dissertation seeks to understand the relationship between these two variables: collaboration technologies and productivity. The independent variable here is collaborative technologies, while the dependent variable is productivity. The primary research question guiding this study is how are nonprofits utilizing collaborative technologies to enhance productivity in the face of remote work during the COVID-19 era? Since technology is advancing continuously, nonprofits need to be informed on the latest technological trends, tools, applications, and innovations to be prepared for unforeseen circumstances like COVID-19.

Hypothesis: Collaboration technologies promote or increase productivity levels in a remote working environment.

Research Philosophy

The epistemology of this dissertation is post-positivism because a quantitative approach was used for data collection through surveys. Post positivism is a philosophical approach to research that has evolved from the positivist tradition, which emphasizes the empirical, measurable aspects of research. While positivism asserts that knowledge is based on observable, objective facts, post-positivism acknowledges that subjective experiences and personal perspectives can also play a role in the production of knowledge (Guba, 1990).

The post-positivist approach maintains the idea of the "truth" being in the data itself but provides much more careful consideration of the researcher, their biases, and impact (Schoonenboom, & Johnson, 2017). It is also imperative to note that theories, hypothesis, background knowledge and values of the researcher has the ability to impact what is observed. The research design utilized for this study is quantitative in nature because quantitative research design provides an objective inquiry into the thoughts, opinions, and feelings of participants. Although post-positivism is often associated with qualitative research methods, such as case studies, interviews, and focus groups, which are designed to explore the subjective experiences and perspectives of research participants (Creswell, 2013), however, postpositivist research can also incorporate quantitative methods, such as surveys and as long as they are used in a way that takes into account the limitations and subjectivity of these methods (Guba, 1990).

Research Design

The participants of this study were sent an email invitation through the Qualtrics software with the informed consent to participate in the study enclosed in the actual email itself through a link. Each respondent was given an option to either consent to participate in the study or not consent to participate. For participants who chose not to participate in the study, the Qualtrics software thanked them for the time spent, explained that their response was recorded and ended their session. Participants who accepted the invitation to participate were taken to an online Qualtrics software consent form where they were asked to read and electronically sign an informed consent form. The consent form was created using WCUPA's IRB informed consent generator online. For participants who agreed to participate, they signed their names electronically within the Qualtrics software. The principal investigator and the faculty advisor received all electronically signed informed consent forms from the participants through the Qualtrics software. Participants

were also advised that they may stop the online survey or withdraw consent at any time during the survey process by discontinuing the survey should they change their mind about participating in the study.

Population and Sample

The source of participants for this study were Dothan Housing administrative staff. Dothan Housing is a housing authority located in the southeastern United States in Dothan, Alabama. The organization's mission is to provide safe and affordable housing for low-income families and individuals in the Dothan area (Dothan Housing Authority, n.d.). Dothan Housing is a housing authority that provides multiple affordable housing opportunities to individuals and families. The organization manages and maintains several public housing developments in the city, including public housing units, Section 8 housing vouchers, and affordable housing options. As of 2022, the organization manages approximately 950 public housing units and administers approximately 1,000 Section 8 vouchers to eligible residents (Dothan Housing Authority, n.d.). In addition to its core housing responsibilities, Dothan Housing also provides services and resources to support its residents' educational and economic advancement (Dothan Housing Authority, n.d.).

During the pandemic, Dothan Housing introduced a new remote/teleworking/virtual policy which allowed employees to work at home, on the road or in a satellite location for all or part of their work week. Dothan Housing considered remote/telecommuting/virtual work to be a viable, flexible work option in specific circumstances: in certain temporary or ad hoc situations when both the employee and the job are suited to such an arrangement and when specific skills and experiences are needed in which the local labor market is not able to fulfill. As a result, the inclusion criteria for this study were all Dothan Housing staff that were telecommuting, teleworking or qualified for remote work. While the exclusion criteria were all Dothan Housing

staff that were not eligible to telecommute, telework or work remotely. Some of these included the maintenance staff who needed to be onsite to either inspect, identify, or troubleshoot equipment or machines in need of repairs and those in charge of performing cleaning activities.

Using PAYCOM, an online payroll and human resource technology, the Chief Operating Officer for Dothan generated a list of email addresses of all employees that were currently eligible to telecommute, telework or work remotely. Using the list generated, Dothan Housing employees benefiting from the new remote/telework/virtual policy were recruited to participate in the study. From the list generated using PAYCOM, the Chief Operating Officer informed staff members to expect an email invitation to participate in this research study.

The list of email addresses generated was shared with me and I sent participants an email invitation through the Qualtrics software with the informed consent to participate in the study enclosed in the actual email through a link.

In 2021 and 2022, a closed-ended survey was administered to Dothan Housing staff telecommuting, teleworking or working remotely to obtain input from them. Surveys were administered using a total population sampling method; a type of purposive sampling technique where a total population with a particular set of characteristics is examined.

The survey link was shared with all Dothan Housing employees using WCUPA's Qualtrics system for surveys. The target population for this survey was all administrative staff of Dothan Housing that were telecommuting, teleworking or working remotely. When this survey was initially administered in November 2021, about 38 participants were invited to participate in the study, however, only 13 people responded because Dothan Housing was going through a period of workforce transition due to the impact of COVID-19 across the United States. The survey was left open for about two weeks and two reminder invitations were sent to participants.

In August of 2022, a second survey was conducted in Dothan Housing as they had just completed their workforce transition and had a more stable workforce. This survey was administered to a different group of staff members who were more conversant with several new technologies that were introduced in 2021 due to the pandemic. The survey format and questions remained unchanged from 2021 survey. Of the 39 participants invited to complete the survey, 22 responded, resulting in a significantly higher response rate than the 13 participants who responded in 2021. The survey took between five to seven minutes to complete and remained open for two weeks, with two reminder invitations sent to participants.

Data Collection and Analysis

The purpose of this study was to determine the impact of collaborative technologies in enhancing productivity in the face of remote work during the COVID-19 era, by specifically, using input from administrative staff. A closed-ended survey was issued to obtain input from Dothan Housing staff because the research was purely quantitative and looking to gather descriptive statistics to help provide an objective inquiry into the thoughts, opinions, and feelings of Dothan Housing employees. Since the aim of this dissertation was to investigate how nonprofits like Dothan Housing utilize collaborative technologies to enhance productivity in the face of remote work, productivity was measured in terms of effectiveness and efficiency.

Data was captured electronically using Qualtrics, a web-based tool for building and administering surveys. The data captured was cleaned and edited. There were checks for missing, out-of-bounds, invalid values, and verification of the data source. After which, a dataset was created. The dataset was transferred to statistical analysis software, specifically SPSS version 26.0 (SPSS Inc., Chicago, USA). Variables were re-coded, and new variables were created. In order to explore the dataset and describe the characteristics of the sample, descriptive statistics were calculated (the

mean and standard deviation (SD) and 95% confidence interval (CI) for quantitative variables). Furthermore, to examine the association between the independent and dependent variables, inferential statistics were conducted to determine the magnitude of the association between specific quantitative variables (education level and experience with technology) with Spearman's correlation coefficient (rho), which was then evaluated.

Conclusion

Although the sample size seems small and may not be representative of other public housing agencies, the 2022 data is a more representative sample of Dothan Housing considering 22 responses were received out of 39 participants. It is also essential to note that the reason for the smaller sample size (N=13) in 2021 was due to the transition in workforce that Dothan Housing was experiencing during the period of data collection. Consequently, it is possible that due to the change in staff, there may have been two different groups of respondents to the surveys in 2021 versus 2022. In Chapter 4, we will further explore this assumption to determine whether this statement is true or false. The results from the analysis will help us understand the nature of the respondents if this assumption is in fact true or false. There will be a comparison of data output from 2021 and 2022. If similarities exist in responses to the survey questions, then it might be safe to assume that the same set of people responded and maybe the reason for the lower response rate was because of the disruption caused by the transition, and the reason for the higher response rate in 2022 was likely because staff were already settled into their new roles and adjusted into the new system of working.

Chapter 4: Results

Introduction

In this chapter, the data analysis findings organized by research questions will be discussed as well as the conclusion derived from the findings. Descriptive statistics, particularly frequencies, were run for each question to help determine the number of observations or the number of times that each variable occurred within the sample. The survey had a total of 20 questions, and frequency tables were generated for each question. To further explore the dataset, more recoding was done to help understand the relationship between education level and experience with technology. Education level originally consisted of high school, some college, associates, bachelors, masters, doctorate. To further examine the association between the independent and dependent variables, inferential statistics (chi square) were conducted to determine the magnitude of the association between specific quantitative variables (education level and experience with technology). However, to achieve a more accurate analysis especially with the chi square test, education level variables were recoded into the same variables by merging categories. For example, high school, some college, and associates were merged into some college variable, meaning everyone under this category had some type of college experience but did not necessarily graduate with a college degree. While bachelors, masters and doctorate were classified as college graduates, meaning people under this category graduated with some type of college degree.

After the merging and recoding was achieved, then a chi square test was run for both 2021 and 2022 datasets. The first chi square test that was ran using the education level variable with another variable showed that the variable was constant. Meaning all observations were the same value. There was no variation or difference. For a valid test result, there must be variations or differences for a chi square and even other inferential statistics to measure the relationship between

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two variables whether or not the results are statistically significant. Two additional chi square analyses were run for the following variables: education level and experience with technology, and role/ job title and communication through the new website, text message alerts, and social media notifications to see if there was a significant association between those variables.

Findings

For the 2021 chi-square data analysis, the goal is to see if there is a significant association between Dothan Housing's staff role/ job title and communication through the new website, text messages alerts, and social media notifications. The two variables under analysis are role/ job title and Dothan Housing's staff role/ job title and communication. Both variables are categorical and measured at the nominal level of measurement.

Analysis: SPSS output: Tables 1, 2, and 3 present the result of the chi-square test of association. The result of the chi-square test shows no significant association between Dothan Housing's staff role/ job title and communication through the new website, text messages alerts, and social media notifications (table 2: chi-square = .98, *df = 3, p>.05.* The results of the standardized residuals[2] (see table 1) show that the number of Dothan Housing staff who think communication through the new website, text messages alerts, and social media notifications decreases productivity (1) is lower than expected (1.2). In addition, the number of staff in executive management who believe communication *through* the new website, text messages alerts, and social media notifications increases productivity (4) is slightly higher than what may be expected in this sample (3.8). In conclusion, the result (table 3: .275) indicates that only a .07 percent (Cramer's V^2) of the variance in communication can be explained by role / job title. This is a very weak correlation. This shows that there is not enough evidence to suggest an association between

role/ job title and an increase in productivity through communication using the new website, text messages alerts, and social media notifications.

2021: SPSS Chi-Square Output—Cross-Tabulation

Table 1: Role or job title * Communication

2021			Communication (binary)		
			Yes	No	Total
Role/ Job Title	Executive Management	Count	**4**	**1**	5
		Expected Count	**3.8**	**1.2**	5.0
		% of Total	30.8%	7.7%	38.5%
	Mid-Level Management	Count	2	1	3
		Expected Count	2.3	.7	3.0
		% of Total	15.4%	7.7%	23.1%
	Administrative Professional	Count	2	1	3
		Expected Count	2.3	.7	3.0
		% of Total	15.4%	7.7%	23.1%
	Support Staff	Count	2	0	2
		Expected Count	1.5	.5	2.0
		% of Total	15.4%	0.0%	15.4%
Total		Count	10	3	13
		Expected Count	10.0	3.0	13.0
		% of Total	76.9%	23.1%	100.0%

Table 2: Chi Square Tests

2021	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	**.982**[a]	**3**	**.806**
Likelihood Ratio	1.403	3	.705
Linear-by-Linear Association	.071	1	.790
N of Valid Cases	13		

a. 8 cells (100.0%) have expected count less than 5. The minimum expected count is .46.

Table 3: Symmetric Measures

2021		Value	Approximate Significance
Nominal by Nominal	Phi	.275	.806
	Cramer's V	.275	.806
N of Valid Cases		13	

The same applies here. For the 2022 chi square data analysis, the goal is to see if there is a significant association between Dothan Housing's staff role/ job title and communication through the new website, text messages alerts, and social media notifications. The two variables under analysis are role/ job title and Dothan Housing's staff role/ job title and communication. Both variables are categorical and measured at the nominal level of measurement.

Analysis: SPSS output: Tables 4, 5, and 6 present the result of the chi-square test of association. The result of the chi-square test shows no significant association between Dothan Housing's staff role/ job title and communication through the new website, text messages alerts, and social media notifications (table 5: chi-square = .45, *df* = 3, *p>.05.* The results of the standardized residuals[2] (see table 4) shows that the number of Dothan Housing staff who think communication through the new website, text messages alerts, and social media notifications decreases productivity (0) is lower than expected (.2). In addition, the number of staff in executive management who believe communication *through* the new website, text messages alerts, and social media notifications increases productivity (1) is slightly higher than what may be expected in this sample (.8). In conclusion, the result (table 6: .143) indicates that only a .04 percent (Cramer's V^2) of the variance in communication can be explained by role / job title. This is a very weak correlation. This shows that there is not enough evidence to suggest an association between role/ job title and an increase in productivity through communication using the new website, text messages alerts, and social media notifications.

2022: SPSS Chi-Square Output—Cross-Tabulation

Table 4: Role or job title * Communication

2022			Communication (binary)		Total
			Yes	No	
Role/ Job Title	Executive Management	Count	**1**	**0**	1
		Expected Count	**.8**	.2	1.0
		% of Total	4.5%	0.0%	4.5%
	Mid-Level Management	Count	7	2	9
		Expected Count	7.0	2.0	9.0
		% of Total	31.8%	9.1%	40.9%
	Administrative Professional	Count	5	2	7
		Expected Count	5.4	1.6	7.0
		% of Total	22.7%	9.1%	31.8%
	Support Staff	Count	4	1	5
		Expected Count	3.9	1.1	5.0
		% of Total	18.2%	4.5%	22.7%
Total		Count	17	5	22
		Expected Count	17.0	5.0	22.0
		% of Total	77.3%	22.7%	100.0%

Table 5: Chi-Square Tests

2022	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	**.453**[a]	**3**	**.929**
Likelihood Ratio	.668	3	.881
Linear-by-Linear Association	.044	1	.834
N of Valid Cases	22		

a. 6 cells (75.0%) have expected count less than 5. The minimum expected count is .23.

Table 6: Symmetric Measures

2022		Value	Approximate Significance
Nominal by Nominal	Phi	.143	.929
	Cramer's V	.143	.929
N of Valid Cases		22	

To further explore the dataset, describe the characteristics of the sample, and help answer the main research question, descriptive statistics were conducted.

RESEARCH QUESTION: Do collaborative technologies enhance productivity in the face of remote work during the COVID-19 era?

RESEARCH HYPOTHESIS: Collaboration technologies promote or increase productivity levels in a remote working environment.

The two variables under analysis are collaborative technologies as the independent variable and productivity as the dependent variable. The survey questions were divided into two parts. The first part was called experience questions, while the second part of the survey was label content questions. Under the experience portion, questions on length of years at Dothan Housing, job title, experience with technology and level of education were asked. While in the content portion, all questions were focused on the use of technology and its impact on staff productivity.

Analysis: SPSS output: Table 7 in 2021 and 2022 show the ranges of years of employment at Dothan Housing. In 2021, 76.9 percent of participants in the study indicated working at Dothan Housing for 0 to 2 years, while 7.7 percent indicated working at Dothan Housing for 11 years or more. In comparison to 2022, that shows 86.4 percent of participants in the study indicated working at Dothan Housing for 0 to 2 years, while 9.1 percent indicated working at Dothan Housing for 11 years or more.

2021 and 2022: SPSS Frequencies Output for Length of years

Table 7: How long have you worked at DHA?

	2021		2022	
	Frequency	Percent	Frequency	Percent
0 to 2 years	10	76.9	19	86.4
3 to 5 years	2	15.4	1	4.5
11 years or more	1	7.7	2	9.1
Total	13	100.0	22	100.0

When comparing the data from 2021 and 2022, Table 8 in 2021 and 2022 shows a vast difference between executive management, mid-level management, administrative professional, and support staff. Although the difference in roles is not the focus in this study, it is difficult to ignore the shift from 2021 to 2022 because this could potentially skew the results from the analysis and equally impact the outcome of the study.

Table 8 from the 2021 data shows that 38.5% were in executive management roles, 23.1% in mid-level management and administrative professional roles, while 15.4% in support staff roles. In contrast, 2022 shows a significant decrease in executive management at 4.5%, an increase in mid-level-management at 40.9%, administrative professional at 31.8%, and support staff at 22.7%. It is possible the transition in 2021 significantly impacted job roles at Dothan Housing.

Also, something crucial to note in this output is that maintenance staff were excluded from this study because they are needed onsite to perform their duties, whereas individuals in executive management, mid-level-management, administration, and support roles can effectively perform their duties remotely without having to be onsite.

2021 and 2022: SPSS Frequencies Output for Job Role/Title at Dothan Housing

Table 8: What is your role or job title at DHA (e.g., Vice President or Director (executive management, Manager (mid-level management), & Specialist or Coordinator (administrative professional) Assistant (support staff)?

Role/Job Title	2021		2022	
	Frequency	Percent	Frequency	Percent
Executive Management	5	38.5	1	4.5
Mid-Level Management	3	23.1	9	40.9
Administrative Professional	3	23.1	7	31.8
Support Staff	2	15.4	5	22.7
Total	13	100.0	22	100.0

Table 9 in 2021 shows that 7.7% of Dothan Housing staff have a beginner experience with technology, 23.1% have intermediate tech experience and 69.2% have advance tech experience, while 2022 shows 9.1% beginner experience with technology, a significant increase in intermediate experience with technology at 63.6% in comparison to 23.1% in 2021, and a significant decrease in advanced use of technology at 27.3%.

A few things to consider when analyzing the results from technology experience are whether there are users who are either over-exaggerating or under exaggerating their expertise and experience in using technology.

2021 and 2022: SPSS Frequencies Output for Technology Experience

Table 9: What is your experience with technology?

Experience	2021		2022	
	Frequency	Percent	Frequency	Percent
Beginner	1	7.7	2	9.1
Intermediate	3	23.1	14	63.6
Advance	9	69.2	6	27.3
Total	13	100.0	22	100.0

Table 10 shows that 100% of Dothan Housing staff that were surveyed in 2021 agreed that in response to the COVID-19 pandemic, working from home, teleworking, telecommuting, and flex scheduling has and will increase productivity, that is the (amount of work completed) at Dothan Housing. In 2022, the data also shows a high approval rate of remote and hybrid work at 95.5%. The missing value in 2022 is excluded from this analysis because it is less than 5% and is less likely to influence the results of the study (Abu-Bader, 2011).

2021 and 2022: SPSS Frequencies Output for Remote / Hybrid Work

Table 10: In response to the COVID-19 pandemic, do you think that WFH, teleworking, telecommuting, and flex scheduling has or will increase productivity (amount of work completed) at DHA?

	2021		2022	
Remote/Hybrid Work	Frequency	Percent	Frequency	Percent
Yes	13	100.0	21	95.5
Missing Value	0	0.0	1	4.5
Total	13	100.0	22	100.0

Table 11 in 2021 proves that a majority of Dothan Housing staff (92.3%) believe that cross-functional collaboration facilitated by software will help break down silos, so that departments can work together instead of against each other, leading to increased productivity. Only 7.7% of staff disagree with this idea. Table 11 in 2022 shows a similar pattern, with 95.5% of Dothan Housing staff equally agreeing that software-enabled cross-functional collaboration will foster cooperation and boost productivity during the pandemic, while 4.5% of staff remain unconvinced about the effectiveness of collaboration software.

2021 and 2022: SPSS Frequencies Output for Collaboration Software

Table 11: In response to the COVID-19 pandemic, do you think that cross-functional collaboration through software (e.g., MS Teams, Wrike Project Management) will help break down silos, so departments can work together instead of against each other has or will increase productivity (amount of work completed) at DHA?

	2021		2022	
Collaboration Software	Frequency	Percent	Frequency	Percent
Yes	12	92.3	21	95.5
No	1	7.7	1	4.5
Total	13	100.0	22	100.0

This second chi-square test as mentioned earlier was conducted to see if there is an association between education level and experience with technology. For the 2021 chi square data analysis, the goal is to see if there is a significant association between education level and experience with technology. The two variables under analysis are education level and experience with technology. Both variables are categorical and measured at the nominal level of measurement.

Analysis: SPSS output: Tables 12, 13, and 14 in 2021 present the result of the chi-square test of association. The result of the chi square test shows no significant association between Dothan Housing's staff education level and experience with technology (table 13: chi-square = 4.237, $df = 2$, $p > .05$. The results of the standardized residuals[2] (see table 12) show that the number of Dothan Housing staff who are college graduates (0) is significantly lower than expected (.8). In addition, the number of staff with some college education (1) is significantly higher than what may be expected in this sample (.2). In conclusion, the result (table 14: .571) indicates that only a .73 percent (Cramer's V^2) of the variance in education level can be explained by experience with

technology. This is a very weak correlation. This shows that there is not enough evidence to suggest an association between education level and experience with technology.

2021: SPSS Chi-Square Output—Cross-Tabulation

Table 12: Experience with Tech * Ed lvl (binary) Crosstabulation

2021		Edu lvl (binary)		
		Some College	College Graduate	Total
Beginner	Count	**1**	**0**	1
	Expected Count	**.2**	**.8**	1.0
	% of Total Adjusted Residual	7.7%	0.0%	7.7%
		1.9	**-1.9**	
Intermediate	Count	0	3	3
	Expected Count	.7	2.3	3.0
	% of Total Adjusted Residual	0.0%	23.1%	23.1%
		-1.1	1.1	
Advanced	Count	2	7	9
	Expected Count	2.1	6.9	9.0
	% of Total Adjusted Residual	15.4%	53.8%	69.2%
		-1	.1	
Total	Count	3	10	13
	Expected Count	3.0	10.0	13.0
	% of Total	23.1%	76.9%	100.0%

Table 13: Chi-Square Tests

2021	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	**4.237**[a]	**2**	**.120**
Likelihood Ratio	4.511	2	.105
Linear-by-Linear Association	.733	1	.392
N of Valid Cases	13		

a. 5 cells (83.3%) have expected count less than 5. The minimum expected count is .23.

Table 14: Symmetric Measures

2021		Value	Approximate Significance
Nominal by Nominal	Phi	.571	.120
	Cramer's V	**.571**	**.120**
N of Valid Cases		13	

For the 2022 chi square data analysis, the goal is to see if there is a significant association between education level and experience with technology. The two variables under analysis were education level and experience with technology. Both variables are categorical and measured at the nominal level of measurement.

Analysis: SPSS output: Tables 15, 16, and 17 present the result of the chi square test of association. The results of the chi-square test do not show any significant association between Dothan Housing's staff education level and their experience with technology (table 16: chi-square = .11, *df* = 2, *p>.05*. The results of the standardized residuals[2] (see table 15) show that the number of Dothan Housing staff who are college graduates (1) is significantly lower than expected (.9). In addition, the number of staff with some college education (1) is surprisingly lower than what may be expected in this sample (1.1). In conclusion, the result (table 17: .069) indicates that only a .02 percent (Cramer's V^2) of the variance in education level can be explained by experience with technology. This is a very weak correlation. This shows that there is not enough evidence to suggest an association between education level and experience with technology.

Table 15: Experience with Tech * Ed lvl (binary) Crosstabulation

2022		Edu lvl (binary)		
		Some College	College Graduate	Total
Beginner	Count	**1**	**1**	2
	Expected Count	**1.1**	**.9**	2.0
	% of Total Adjusted Residual	4.5%	4.5%	9.1%
		-.1	.1	
Intermediate	Count	8	6	14
	Expected Count	7.6	6.4	14.0
	% of Total Adjusted Residual	36.4%	27.3%	63.6%
		.3	-.3	
Advance	Count	3	3	6
	Expected Count	3.3	2.7	6.0
	% of Total Adjusted Residual	13.6%	13.6%	27.3%
		-.3	.3	
Total	Count	12	10	22
	Expected Count	12.0	10.0	22.0
	% of Total	54.5%	45.5%	100.0%

Table 16: Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	**.105**[a]	**2**	**.949**
Likelihood Ratio	.105	2	.949
Linear-by-Linear Association	.018	1	.895
N of Valid Cases	22		

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is .91.

Table 17: Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.069	.949
	Cramer's V	**.069**	**.949**
N of Valid Cases		22	

Conclusion

In conclusion, based on the results of the analysis, we cannot conclude that nonprofits like Dothan Housing using collaborative technologies in the face or remote work during the COVID-19 era will experience higher levels of productivity, especially if utilizing the latest technological tools, trends, applications, and innovations. However, from the results from the frequency tables, it shows that staff are in support of cross-functional collaboration through the use of software to help break down silos, so that departments can work together instead of against each other.

Additionally, in a hybrid work environment, some employees may consider communication through a website, text message alerts, and even social media notifications as distractions depending on how it is used by an organization to help facilitate communication among staff. A study by Koessmeier and Büttner (2021), suggests that social media is considered a major source of distraction and hinder users from effectively completing tasks, thus tempting them to use social media instead.

Finally, it is essential to note that one's education level and experience are not mutually exclusive, as seen from the chi square test of association between education level and experience with technology. While there is no way to determine whether Dothan Housing staff were over-exaggerating or under-exaggerating their experience with technology, I reckon that this is an area that needs to be further studied due to the sample size, which might be representative of Dothan Housing, but may not be generalizable to other organizations.

Chapter 5: Conclusion

This chapter will discuss the summary of findings, implications for practice, implications for research, and the conclusion. The aim of this research was to assess collaborative technologies' impact on productivity in remote work during the COVID-19 pandemic, focusing on input from the administrative staff at Dothan Housing. The study explicitly measures productivity in terms of effectiveness and efficiency to explore how nonprofits like Dothan Housing can utilize collaborative technologies to enhance remote work productivity. To achieve this objective, a closed-ended survey was administered to collect quantitative data and descriptive statistics to provide an objective analysis of Dothan Housing employees' thoughts, opinions, and experiences.

Summary of Findings

In Chapter 4, the results of the data analysis were presented and organized by research questions. Descriptive statistics, including frequencies, were conducted to understand the occurrence of each variable within the sample. Inferential statistics, specifically chi square tests, were used to determine the association between specific variables, including education level and experience with technology and role/job title and communication through a new website, text messages, and social media notifications. The results showed that there was no significant association between these variables. The descriptive statistics indicated that most respondents had a bachelor's degree, were in management or administrative roles, and had been employed at Dothan Housing for less than five years. The results also showed that the use of collaborative technologies positively affected productivity for most of the respondents. The analysis was conducted to answer the following questions:

- Do the respondents think that communication through a new website, text messages, and social media notifications has or will increase productivity at Dothan Housing?

- How long have they worked at Dothan Housing?

- What is the respondent's role or job title at Dothan Housing (e.g., executive management, mid-level management, administrative professional, or support staff)?

- What is their experience with technology?

- Do they think working from home, telecommuting, and flex scheduling will increase productivity at Dothan Housing?

- Do they think cross-functional collaboration through software will increase productivity at Dothan Housing by helping to break down silos between departments?

- Does the respondent's education level impact their experience with technology?

Conclusions Organized by Hypothesis

The result from the data is inconclusive. This simply means the data does not support the hypothesis that collaboration technologies promote or increase productivity levels in a remote working environment or show an association between collaboration technologies and productivity. While there is not enough evidence to draw strong conclusions, there are still valuable learning opportunities to be further explored. There are also segments in the findings that can inform strategic management within the organization. This will be discussed further later in the chapter.

Another interesting finding to be further explored is the impact working from home, teleworking, telecommuting, and flex scheduling has on productivity levels at Dothan Housing. A study by the Organisation for Economic Co-operation and Development [OECD] (2020), claims that telework can improve an organization's performance by increasing worker's satisfaction and worker efficiency (OECD, 2020). The idea behind this is reduced commuting results in lesser distractions which in turn leads to more focused work hours and less absenteeism and better work-life balance. More evidence from earlier literature also suggests that not only does telework

increase worker efficiency, but it also shows stronger product innovation intensities, particularly for organizations that allow trust-based work practices or self-managed working time (Godart, Görg and Hanley, 2017).

Measuring productivity in organizations can be difficult and can also lead to several questions like how productivity is defined, and what does it mean for the same or different people in an organization especially when considering various viewpoints and positions within an organization (Moseng, 1995). As seen from Chapter 4, noting the changes in job titles/roles, it was difficult to ignore the shift from 2021 to 2022 because productivity when defined on the executive level might mean something completely different when defined on the administrative or professional support level. This piece of finding is particularly important because Dothan Housing is undergoing a paradigm shift in the world of public housing through transformational leadership. Although this research study did not show an association between collaborative technologies and increased levels of productivity, there are studies as far back as the 1990s that show that digital collaboration does help in improving organizational workflow, team interaction and business execution, sharing of knowledge, removing organizational silos, and increasing team productivity (Moseng, 1995).

The goal of bringing Dothan Housing's three-year strategic plan, Purpose 2025 Strategic Plan to fruition by realistically aligning its human capital through demonstrated actions by analyzing the first three focus areas of organizational culture, training, and technology. The first area of focus is creating a high-value organizational culture that unites team members around a common cause. The main success indicator for the first area of focus is effective cross-functional collaboration to help break down silos to enable departments to work well together. The second area of focus is to provide ongoing, relevant learning and development opportunities for the Staff

and Board. The main success indicator for the second area of focus is to eliminate complacency to ensure that the organization makes a complete transition to becoming a housing authority of the future by developing organizational intelligence agility. The third area of focus is streamlining operations through technology and digital transformation. The main success indicator for the third area of focus is increasing staff productivity through modern-day software, hardware, and dashboard optimization.

Consequently, the COVID-19 pandemic has challenged Dothan Housing to create a different platform for sustainability by "thinking outside of the box" by becoming a housing authority of the future. This was done through its digital transformation initiative. Whereas, Dothan Housing has answered the challenge of evolution through transformational leadership and acknowledging the paradigm shift of public housing authorities of doing more with less, moving from paper to the cloud, and streamlining its operations through technology by embracing an online platform. Dothan Housing has also implemented a modern-day leadership approach focused on creating a high-value organizational culture built on trust, getting the right people on the team, and coaching that team to greatness to meet key performance indicators (KPIs) that will ultimately increase its overall productivity. Dothan Housing offers a remote, flexible, and hybrid work environment so that its employees can work from locations other than the office. Furthermore, Dothan Housing's new business model has enhanced its efforts to attract, recruit, and retain an articulate, talented, and diverse workforce of the best and the brightest in the affordable housing industry.

The COVID-19 pandemic has presented many organizations with the challenge of adapting to new circumstances to continue operating effectively. For Dothan Housing, this has meant embracing the diffusion of innovation and adopting new technologies and processes to facilitate a

digital transformation. According to a study by Light (2000), the most significant predictor of the adoption of innovations by nonprofit organizations is whether the innovation is relevant to the organization's mission. Other factors influencing adoption include the availability of resources, the perceived benefits of the innovation, and the level of support from organizational leadership. By embracing the diffusion of innovation and adopting new technologies and processes, such as moving from paper to the cloud and streamlining operations through technology, Dothan Housing has been able to adapt to the challenges of the pandemic and emerge as a leader in the affordable housing industry.

In the world of public administration, the New Public Management (NPM) system encourages innovation and promotes an entrepreneurial mindset (Davis, 2017). The New Public Management system has been practiced since the 1980s. This modern administrative system came in as an interventionist character for how the management of public organizations could provide evidence-based services responding to the needs and contemporary demands of the society. This system clearly states its policy and system of management (Robinson, 2015). In the context of NPM, diffusion of innovation can play a significant role in shaping the adoption and implementation of NPM practices and principles due to its complex and multifaceted process which can have significant implications.

Implications for Practice

Strategic Management

According to Earle (2009), "strategic management is a management philosophy that uses the strategic planning process and the resulting strategic plan as its foundation. Strategic management brings the strategic plan to life and incorporates the plan in decision-making, control, and evaluation."

In the private sector (nonprofits), strategic planning helps in placing organizations in a position where they can easily adapt, overcome the challenges presented, and realize the opportunities for growth and success. It can also help nonprofit leaders think, learn and act strategically because it presents a framework of assessing external and internal environments to identify strengths, weaknesses, opportunities, and threats within the organizations.

Strategic planning helps in increasing the effectiveness of a nonprofit organization in achieving its mission. Most nonprofit organizations develop strategic plans which could be for five years or less. Strategic plans stand as a guide to achieving an organization's goal as well as keeping them in line with their set mission and values while achieving set goals. Strategic plans are mostly developed with a set target. It typically has a time frame to achieve, and the timeframe impacts the design of the organization's reward system.

As organizations grow and develop new strategies to achieve their goals and objectives, the mission of the organization informs every one of the organization's purposes. It expresses this through the vision of the organization in practical terms that are both concrete and goal oriented. This enables anyone within the organization to evaluate whether their activities align with the organization's mission. Effective organizations align their goals and strategies with the actions of their employees, and each employee is responsible for fulfilling this mission. A well-designed

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compensation system is necessary to fairly reward employees who embody the organization's mission in their daily work activities.

The implications of the coronavirus pandemic for strategic management in the nonprofit sector are significant and varied. Some critical implications for practice include the following:

- ***The need for agility and adaptability:*** The rapid spread of the pandemic and the accompanying economic downturn has highlighted the need for nonprofits to be agile and adaptable to respond to changing circumstances and needs (Holt & Lopata, 2020). This may involve revisiting and adjusting strategic plans, identifying new opportunities for collaboration, and implementing new technologies or approaches to service delivery.

- ***The role of innovation and creativity:*** The pandemic has also presented opportunities for nonprofits to be innovative and creative in their approaches to addressing social and economic issues (Holt & Lopata, 2020). This may involve developing new programs or services, experimenting with new technologies or delivery models, or partnering with other organizations to address emerging needs.

- ***The need for strong leadership:*** The pandemic has highlighted the importance of solid leadership in the nonprofit sector, as organizations have had to navigate complex and rapidly changing circumstances (Holt & Lopata, 2020). Nonprofit leaders must be able to provide clear direction, communication, and support to their teams and build trust and engagement with stakeholders.

<center>**Implications for Research**</center>

Mixed Methods

For future studies, a mixed methods design is recommended. Mixed methods research designs involve the integration of qualitative and quantitative research approaches in a single study. Mixed-method research designs, which involve integrating qualitative and quantitative research approaches in a single study, can be particularly well-suited to interpretivism and post-positivist research paradigms. These paradigms view knowledge as subjective and socially constructed and place a high value on understanding the perspectives and experiences of participants (Creswell & Plano Clark, 2018).

One key implication of using a mixed-method research design within an interpretivist or post-positivist framework is the opportunity to capture multiple perspectives and experiences in a more nuanced and in-depth way (Creswell & Plano Clark, 2018). Researchers can gain a more holistic understanding of the studied issues by combining qualitative and quantitative data. They can more fully explore the social and cultural contexts in which the phenomena occur.

Another implication of using a mixed method design within an interpretivist or post-positivist framework is the potential to increase the validity and reliability of the research findings (Creswell & Plano Clark, 2018). Researchers can triangulate their findings and increase confidence in the results by collecting and analyzing data from multiple sources and using different methods.

Interpretivism enables the researcher to play the role of a detective because the researcher will be part of the research interpreting the data; the researcher can never be entirely objective and removed from the study. Interpretivism is a philosophical perspective that asserts that subjective understandings and perspectives play a crucial role in the scientific process. This means that

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objectivity is not an inherent property of an observational act, but rather emerges from the collective interpretation of the data and evidence by a community of researchers (Ricucci, 2010).

In interpretivism, reality is subjective and constructed through individual and collective interpretation (Denzin & Lincoln, 2011). This philosophical perspective has several implications for research, including the importance of understanding people's subjective meanings and interpretations of their experiences and actions (Flick, 2009).

In interpretive research, researchers should seek to understand the perspectives and experiences of individuals or groups, often through the use of qualitative methods such as in-depth interviews, focus groups, and case studies (Denzin & Lincoln, 2011). To ensure the validity and reliability of findings, it is essential for researchers to be reflexive and transparent about their own biases and perspectives and to use multiple methods and sources of data to triangulate and validate findings (Flick, 2009). It is also important to recognize that meaning and interpretation are situated and contextual and can vary across individuals and groups (Denzin & Lincoln, 2011).

Post-positivism represents a more nuanced and complex approach to research that recognizes the limitations of empirical methods and the role of the researcher in shaping knowledge. Post-positivism emphasizes the importance of using rigorous, systematic methods to study social phenomena, but also recognizes that these methods are limited, and that knowledge is shaped by the context in which it is produced (Guba, 1990).

In summary, a mixed methods research design will help improve the qualitative aspect of mixed methods studies and enable the proper integration of both qualitative and quantitative components of a mixed-methods design (Schoonenboom, & Johnson, 2017), by enhancing validity, improving generalizability, and enhancing credibility (Creswell & Plano Clark, 2011).

Conclusion

In conclusion, Dothan Housing's focus on Organizational Culture, Training, and Technology has been critical to the organization's success and development. By prioritizing these areas, Dothan Housing has created a positive and supportive work environment that promotes collaboration, creativity, and innovation (Den Hartog, Koopman, Thierry, & Thierry, 1996). This, in turn, has helped to attract, recruit, and retain a talented and diverse workforce that is committed to the organization's mission, vision, stated values, and organizational principles and is equipped with the skills and knowledge they need to succeed and grow in their roles (Baldwin & Ford, 1988).

Additionally, the use of technology has allowed Dothan Housing to streamline its operations and achieve its goals more efficiently (Brynjolfsson & Hitt, 2000). As a result of changing business needs as a Moving to Work (MTW) Expansion Agency under the Landlord Incentives Cohort #3, Dothan Housing's organizational restructuring required the organization to embrace technology to live up to its new motto of "Automate, Innovate, Elevate." As a part of the country's top 4% of housing authorities, the diffusion of innovation will help Dothan Housing continue its journey of chasing better by embracing its high-value organizational culture and entrepreneurial business practices. Through the diffusion of these innovations, Dothan Housing has adapted to changing circumstances and remains competitive in the affordable housing industry. Overall, Dothan Housing has positioned itself for long-term success and sustainability by focusing on Organizational Culture, Training, and Technology.

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Appendix A – IRB Approval

IRB #: IRB-FY2022-42
Title: Telecommuting, Technology, and Productivity in a COVID-19 Era
Creation Date: 9-2-2021
End Date:
Status: Approved
Principal Investigator: Chika Egemba
Review Board: West Chester University Institutional Review Board
Sponsor:

Study History

Submission Type	Initial	Review Type	Exempt	Decision	Exempt

Key Study Contacts

Member	Kristen Crossney	Role	Co-Principal Investigator	Contact	KCROSSNEY@WCUPA.EDU
Member	Chika Egemba	Role	Principal Investigator	Contact	ce942051@wcupa.edu
Member	Chika Egemba	Role	Primary Contact	Contact	ce942051@wcupa.edu

Appendix B – Participant Invitation Emails

Invitation 1

Dear Dothan Housing (DH) Staff:

My name is Chika Egemba, and I am a doctoral candidate at West Chester University Pennsylvania (WCUPA) in the Department of Public Policy and Administration. I am the principal investigator for a research project on Telecommuting, Technology, and Productivity in a COVID-19 Era.

By taking this 7-minute survey, you will be the voice for the staff at Dothan Housing (DH), please click on the weblink below to complete the survey:

The COVID-19 pandemic has challenged DH to create a different platform for sustainability by "thinking outside of the box" by becoming a housing authority of the future. I am sending this email today to ask you to consider participating in this research project.

The goal of this study is to obtain input from DH's administrative staff who have the ability to work from home (WFH), telecommute, and telework. If you chose to participate in this study, you will be helping DH implement a modern-day workforce practice.

DH is requesting staff input to help guide the implementation decisions. The findings from this study will assist in creating remote work, flexible, condensed, and hybrid practices so employees can work from locations other than the office. DH has also implemented a modern-day leadership approach focused on creating a high-value organizational culture built on trust.

If you agree to participate, you will be asked to complete a survey. Your participation in this study is entirely voluntary. There are no risks associated with this dissertation project. It is very important for me to learn your opinions that will help DH become a housing authority of the future, meet key performance indicators (KPIs), and live up to its new vision statement of embracing a 21st Century technological approach of providing affordable housing service to remain competitive in the job market.

By taking this 7-minute survey, you will be the voice for the staff at DH, please click on the weblink below to complete the survey:

If you have questions that you would like answered before you decide to participate or not participate, please contact me by email at ce942051@wcupa.edu. or by phone at 650-669-5933.

Thank you very much for your time and support of my research efforts.

Sincerely,

Chika Egemba
Doctoral Student, Public Administration

West Chester University Pennsylvania

If you are willing to participate, and I hope you are, please complete the consent form via the Qualtrics survey link included in the email. The consent form has a detailed explanation of the project and is where you indicate you want to participate. Once you agree to participate, the consent form will immediately direct you to the research study survey. If you choose to participate and then later decide you don't want to, you can withdraw at any time. To participate, please click here to be taken to an informed consent form which will link to the research survey.

Invitation 2

Dear Dothan Housing (DH) Staff:

Last week you received a request for your participation in a doctoral research study. If you already completed the survey, thank you. If you did not, your participation is still needed. Again, my name is Chika Egemba, and I am a doctoral candidate at West Chester University Pennsylvania (WCUPA) in the Department of Public Policy and Administration. I am the principal investigator for a research project on Telecommuting, Technology, and Productivity in a COVID-19 Era.

The COVID-19 pandemic has challenged DH to create a different platform for sustainability by "thinking outside of the box" by becoming a housing authority of the future. I am sending this email today to ask you to consider participating in this research project.

The goal of this study is to obtain input from DH's administrative staff who have the ability to work from home (WFH), telecommute, and telework. If you chose to participate in this study, you will be helping DH implement a modern-day workforce practice.

DH is requesting staff input to help guide the implementation decisions. The findings from this study will assist in creating remote work, flexible, condensed, and hybrid practices so employees can work from locations other than the office. DH has also implemented a modern-day leadership approach focused on creating a high-value organizational culture built on trust.

If you agree to participate, you will be asked to complete a survey. Your participation in this study is entirely voluntary. There are no risks associated with this dissertation project. It is very important for me to learn your opinions that will help DH become a housing authority of the future, meet key performance indicators (KPIs), and live up to its new vision statement of embracing a 21st Century technological approach of providing affordable housing service to remain competitive in the job market.

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Thank you very much for your time and support of my research efforts.

Sincerely,

Chika Egemba
Doctoral Student, Public Administration
West Chester University Pennsylvania

If you are willing to participate, and I hope you are, please complete the consent form via the Qualtrics survey link included in the email. The consent form has a detailed explanation of the

project and is where you indicate you want to participate. Once you agree to participate, the consent form will immediately direct you to the research study survey. If you choose to participate and then later decide you don't want to, you can withdraw at any time. To participate, please click here to be taken to an informed consent form which will link to the research survey.

Appendix C – Online IRB Informed Consent

Project Title: Using Input from Administrative Staff to Make Cost-Effective Decisions for Telecommuting, Technology, and Productivity during the COVID-19 Era

Investigator(s): Chika Egemba; Kristen Crossney; Michael Threatt

Project Overview:

Participation in this research project is voluntary and is being done by Chika Egemba as part of her Doctoral Dissertation to determine the impact of collaborative technologies in enhancing productivity in the face of remote work during the COVID-19 era. The coronavirus pandemic has caused a paradigm shift in the working dynamics of various companies and organizations. In response to the pandemic, public organizations and nonprofits are setting up flexible work arrangements, such as working from home (WFH), telecommuting, and telework. More than ever, collaboration technologies have become key to efficiency and effectiveness to ensure long-term success and sustainability. Public agencies and nonprofits are beginning to explore various collaborative technologies spaces and productivity tools. The COVID-19 pandemic has challenged Dothan Housing (DH) to create a different platform for sustainability by "thinking outside of the box." DH has answered the challenge of evolution through transformational leadership and acknowledging the paradigm shift of public housing authorities (PHAs) by doing more with less, moving from paper to the cloud, and streamlining its operations through technology by embracing an online platform.

If you would like to take part, West Chester University requires that you agree and sign this consent form. You may ask Chika Egemba any questions to help you understand this study. If you don't want to be a part of this study, it won't affect any services from West Chester University. If you choose to be a part of this study, you have the right to change your mind and stop being a part of the study at any time.

1. What is the purpose of this study?
   o   Determine the impact of collaborative technologies in enhancing productivity in the face of remote work during the COVID-19 era. The coronavirus pandemic has caused a paradigm shift in the working dynamics of various companies and organizations. In response to the pandemic, nonprofits are setting up flexible work arrangements, such as working from home (WFH), telecommuting, and telework. More than ever, collaboration technologies have become key to the growth and development of many organizations. Public agencies and nonprofits are beginning to explore various collaborative technologies and spaces, and productivity tools. This study will help DH make cost-effective decisions to meet Key Performance Indicators (KPIs) and will help the organization make a complete transition to becoming a housing authority of the future seamlessly.

2. If you decide to be a part of this study, you will be asked to do the following:
   o   Take a survey

o   This survey will take 5 minutes of your time.

3. Are there any experimental medical treatments?
o   No

4. Is there any risk to me?
o   Possible risks or sources of discomfort include: There are no perceived risks for this research study. However, if respondents feel stress or anxiety at any point while answering the survey questions, they may cease participation by simply closing their browser or the browser tab to exit the survey.
o   If you experience discomfort, you have the right to withdraw at any time.

5. Is there any benefit to me?
o   Benefits to you may include: You as the participant of this research study will help DH undergoing a digital transformation become a housing authority of the future. DH has recently updated the telework/ work from home (WFH) policy in its HR manual and is looking for staff input to help guide the implementation decisions. The findings from this study will assist with the change management process as DH fully transitions to the telework environment. Therefore, DH will create remote, flexible, and hybrid work practices for how employees can work from locations other than the office.
o   Other benefits may include: DH will be able to implement a modern-day leadership approach focused on creating a high-value organizational culture built on trust, getting the right people on the team, coaching that team to greatness, and meeting key performance indicators (KPIs) that will ultimately increase its overall productivity. DH's new business model requires a new organizational culture that will enhance its efforts to recruit, attract, and retain an articulate, talented, and diverse workforce. This will help DH provide a seamless transition of the paradigm shift of embracing a twenty-first century technological approach of providing affordable housing service by moving from paper to cloud to remain competitive in the job market. Other housing authorities considering a digital transformation could benefit from the findings of this evidence-based study that will lead to creating best practices.

6. How will you protect my privacy?
o   This research will be using a quantitative approach.
o   Your records will be private. Only Chika Egemba, Kristen Crossney, Michael Threatt, and the IRB will have access to your responses.
o   Your name will **not** be used in any reports.
o   Records will be stored:
    ▪   Password Protected File/Computer
o   The survey research will be conducted using WCUPA's Qualtrics survey tool. Participants will have the opportunity to begin the survey after checking the box to accept the informed consent as notated by the I agree to radio button. The data collected will stored 1) in the cloud password-protected Qualtrics survey tool and 2) the password-protected personal computer of principal investigator Chika Egemba. Confidentiality is maintained through the anonymity of the survey since no personal or identifiable information is ever gathered. Additionally, no associated IP information is collected

further ensuring anonymity and confidentiality. Only the individuals listed on this application and the West Chester University of Pennsylvania IRB office will have access to the data. Data will be destroyed after dissertation completion, but no less than three years after the study is completed.

o   Records will be destroyed Three Years After Study Completion

7. Do I get paid to take part in this study?
   o   No

8. Who do I contact in case of research-related injury?
   o   For any questions with this study, contact:
      ▪   **Primary Investigator:** Chika Egemba at 650-669-5933 or ce942051@wcupa.edu
      ▪   **Faculty Sponsor:** Kristen Crossney at 610-430-5838 or KCrossney@wcupa.edu

9. What will you do with my Identifiable Information/Biospecimens?
   o   Not applicable.

For any questions about your rights in this research study, contact the ORSP at 610-436-3557.

I, _____ (your name), have read this form and I understand the statements in this form. I know that if I am uncomfortable with this study, I can stop at any time. I know that it is impossible to know every risk regarding a study, but I think reasonable safety measures have been taken to decrease any risk.

_____   _____

Subject/Participant Signature   Date

_____   _____

Witness Signature   Date

Appendix D – Online Survey Instrument

Experience Questions
1. How long have you worked at DHA?
    a. 0 to 2 years
    b. 3 to 5 years
    c. 6 to 10 years
    d. 11 years or more

2. What is your role or job title at DHA (e.g., Vice President or Director (executive management, Manager (mid-level management), & Specialist or Coordinator (administrative professional) Assistant (support staff)?
    a. Executive Management
    b. Mid-Level Management
    c. Administrative Professional
    d. Support Staff
    e. Consultant

3. What is your experience with technology?
    a. Beginner
    b. Immediate
    c. Advance

4. What is your highest level of Education?
    a. Some High School
    b. High School
    c. Some College
    d. Associates
    e. Bachelors
    f. Masters
    g. Doctorate

Content Questions
1. In response to the COVID-19 pandemic, do you think that communicating through Microsoft Office 365 email, calendar invites, and Microsoft Teams has or will increase productivity (amount of work completed) at DHA?
    a. Yes
    b. No

2. In response to the COVID-19 pandemic, do you think that clocking in and out through the Paycom software on your phone or laptop has or will increase productivity (amount of work completed) at DHA?
    a. Yes
    b. No

3. In response to the COVID-19 pandemic, do you think that viewing your direct deposit paystubs and benefits through the Paycom software has or will increase productivity (amount of work completed) at DHA?
   a. Yes
   b. No

4. In response to the COVID-19 pandemic, do you think that communicating through the new website, text messages alerts, and social media notifications has or will increase productivity (amount of work completed) at DHA?
   a. Yes
   b. No

5. In response to the COVID-19 pandemic, do you think accepting rent payments, work order requests online and through text messaging has or will increase productivity (amount of work completed) at DHA?
   a. Yes
   b. No

6. In response to the COVID-19 pandemic, do you think taking waiting list applications and other housing applications online has or will increase productivity (amount of work completed) at DHA?
   a. Yes
   b. No

7. In response to the COVID-19 pandemic, do you think having desktop phones and cell phones connected (through the Voice Over Internet Phone) has or will increase productivity (amount of work completed) at DHA?
   a. Yes
   b. No

8. In response to the COVID-19 pandemic, do you think that the new "plug and play" laptops and docketing platform has or will increase productivity (amount of work completed) at DHA?
   a. Yes
   b. No

9. In response to the COVID-19 pandemic, do you think that using the new tablets and cell phones to send emails or take pictures has or will increase productivity (amount of work completed) at DHA?
   a. Yes
   b. No

10. In response to the COVID-19 pandemic, do you think that electronically signing memos, contracts, and other documents has or will increase productivity (amount of work completed) at DHA?
    a. Yes

b. No

11. In response to the COVID-19 pandemic, do you think that meeting, training, and communicating through ZOOM and other telecommunications has or will increase productivity (amount of work completed) at DHA?
    a. Yes
    b. No

12. In response to the COVID-19 pandemic, do you think that online training opportunities through Nan McKay & Associates (NMA) and other vendors has or will increase productivity (amount of work completed) at DHA?
    a. Yes
    b. No

13. In response to the COVID-19 pandemic, do you think that working from home (WFH), teleworking, telecommuting, a condensed work schedule, and flex scheduling has or will increase productivity (amount of work completed) at DHA?
    a. Yes
    b. No

14. In response to the COVID-19 pandemic, do you think that making payments to vendors (contractors, landlords, partners) online through Bill.com has or will increase productivity (amount of work completed) at DHA?
    a. Yes
    b. No

15. In response to the COVID-19 pandemic, do you think that cross-functional collaboration through software (e.g., MS Teams, SharePoint, Monday) will help break down silos, so departments can work together instead of against each other has or will increase productivity (amount of work completed) at DHA?
    a. Yes
    b. No

16. In response to the COVID-19 pandemic, do you think that the new software dashboard (e.g., HAPPY, AppFolio, Monday, etc.) has or will increase productivity (amount of work completed) at DHA?
    a. Yes
    b. No