Chapter 2

Literature Review

The researcher has studied concepts, theories and related research used to determine the research guidelines as follows:

1. Core Concepts & Theories
2. The Pros and Cons of Telecommuting in the Information Industry
3. Teleworker Characteristics
4. Job Characteristics
5. Communication
6. Management
7. Organizational Culture
8. Environment
9. Asynchronous work
10. Technology
11. Job Effectiveness
12. Work-life balances
13. Well-being
14. Relationship between Variables
15. Conclusion

Core Concepts & Theories

The researcher has studied concepts, theories, and related research used to determine the research guidelines, including concepts such as efficiency, production efficiency, economic efficiency, X-efficiency theories, Scientific Management theories, and Lean production theories.

Efficiency refers to the ability to accomplish a task or goal using the least amount of resources possible, such as time, money, or energy. According to the International Energy Agency (IEA), efficiency is defined as "the ratio of output to input, in which output is the useful energy, and input is the total energy used" (IEA, 2007, p. 569). In other words, efficiency is a measure of how well a system or process can convert inputs into outputs while minimizing waste. The concept of efficiency is widely used

in various fields, including engineering, economics, and management, to improve performance and reduce costs.

Production efficiency is the ability of a firm to produce maximum output using minimum inputs, taking into account technological and other operational constraints. It is an important concept in the field of operations management and is widely used in the analysis and measurement of productivity in manufacturing and other production-related industries. One notable study on production efficiency is "Measuring Efficiency of Decision-Making Units" by Charnes, Cooper, and Rhodes, published in 1978, which introduced the Data Envelopment Analysis (DEA) method for measuring production efficiency.

Economic efficiency was first systematically studied by Farrell (1957, pp. 253-290). He pointed out that the efficiency of an enterprise or department consists of two parts, namely, technical efficiency and allocator efficiency. The former reflects the maximum output capacity obtained by the enterprise or department under the given input level; The latter reflects the ability of a firm or department to use the optimal proportion of inputs at a given price and production technology. The sum of these two kinds of Efficiency reflects the Overall Efficiency of an enterprise or a department. Kalirajan (1990, pp. 75-85) et al. described the thought of Efficiency as basically similar to Farrell's (1957, pp. 253-290). Economic Efficiency refers to the production capacity of an economy under a given production target, that is, the appropriate point on the appropriate production possibility curve. It can be divided into Technical Efficiency and Allocation Efficiency. Technical efficiency refers to the comparison between actual output and potential output given technology and input factors. Allocative efficiency means that the combination of input factors is carried out in the way of minimum cost, that is, in the way that marginal factor substitution rates of factors are equal under different modes of use.

X-efficiency theory, developed by Leibenstein, proposes that the performance of individuals, firms, or industries varies with the efficiency of their efforts, which is not fully explained by conventional economic theories based solely on profit maximization. X-efficiency is the degree to which an organization can minimize the waste of resources and use them most productively, given its technology and preferences (Leibenstein, 1966, pp. 392-415). It is often used to explain why some organizations are more productive than others, despite having similar inputs and outputs. For example, a study by Mazzucato and Penna (2016, pp. 305-326) found that X-efficiency can explain the differences in performance between public and private organizations in the delivery of pharmaceuticals in Italy.

"The Principles of Scientific Management" is a seminal work in the field of management written by Frederick Winslow Taylor and first published in 1911. Taylor argued that the central issue of scientific management is to improve labor productivity and stressed the importance and possibility of achieving this goal. He believed that to increase labor productivity, it is necessary to have "first-class workers" in every job. According to Taylor, those who can work but lack the desire to do so cannot be first-class workers, but anyone can become a first-class worker if the work is suitable. He also emphasized that it is the responsibility of managers to train workers to become first-class workers by standardizing operating methods, tools, machines, materials, and working conditions (Taylor, 1911, pp. 1-77).

Lean production, first introduced by the Japanese Toyota company, revolutionized production organization and management by achieving more with less. Lean production is characterized by two features: on-time production and active participation of all employees in improvement efforts. The just-in-time system, developed by Toyota under the leadership of Daiichi Ohno, is an integral part of lean production. The aim of just-in-time is to eliminate all forms of waste and achieve a production system that is flexible and responsive to changes in customer orders (Ohno, 1988, Abstract).

The Pros and Cons of Telecommuting in The Information Industry

Previous research has shown that remote work has brought benefits to some companies in the information technology industry:

Flexibility and Autonomy: Remote work allows information technology professionals to have greater freedom in arranging their work schedule and location, providing them with increased flexibility and autonomy (Mulki, et al., 2009, pp. 63-69).

Improved Efficiency: Remote work eliminates commuting time and distractions in the office environment, leading to improved work efficiency. Employees can focus more on tasks and projects while reducing social interactions with colleagues (Saurombe, et al., 2022, p. a2033).

Cost Savings: Remote work reduces the demand for office space, resulting in savings on rent and equipment costs. Employees can also save on commuting expenses and other related costs (PEARCE II, 2009, pp. 16-25).

Talent Recruitment and Retention: By offering remote work options, information technology companies can expand their recruitment scope and attract outstanding talents from a global pool. Additionally, remote work can contribute to a better work-life balance, enhancing job satisfaction and talent retention (Bloom, et al., 2015, pp. 165-218).

At the same time, remote work in the information technology industry also presents certain disadvantages:

Communication and Collaboration Challenges: Remote work can lead to difficulties in communication and collaboration. Face-to-face communication and teamwork are crucial for the success of information technology projects, and remote work may limit opportunities for such interactions and collaboration (Golden, Veiga, & Dino, 2008, pp. 1412-1421).

Social Isolation and Decreased Team Cohesion: Lack of face-to-face communication and real-time interaction can result in feelings of social isolation among employees and decreased team cohesion. This can have a negative impact on team collaboration and employee morale (Lazarova, 2020, pp. 30-41).

Technological and Security Challenges: Remote work requires appropriate technological infrastructure and security measures to ensure data integrity and confidentiality. Additionally, employees need to possess the necessary technical skills and problem-solving abilities to address potential technological challenges (Nwankpa & Datta, 2023).

Blurring of Work-Life Boundaries: In remote work, employees may struggle to differentiate between work and personal life, leading to longer working hours and issues with work-life balance (Gajendran, & Harrison, 2007, pp. 1524-1541).

Teleworker Characteristics

Demographic characteristics of remote workers include age, gender, education, and work experience. According to research by Parra, et al. (2022, pp. 653-662), remote workers tend to be older, more educated and have more work experience compared to traditional office workers. The authors also found that remote workers are more likely to be male, although this gender gap has decreased in recent years. Another study by Grant, et al. (2013, pp. 527-546) found that remote workers tend to have higher job tenure and more autonomy in their work.

Personality traits are another factor that has been examined in relation to remote work. According to a study by Parra, et al. (2022, pp. 653-662), remote workers

tend to have higher levels of extraversion, emotional stability, and self-esteem. They also have higher levels of work engagement and job satisfaction compared to traditional office workers. Another study by Tramontano, et al. (2021, pp. 1-10) found that remote workers tend to be more proactive and have higher levels of self-efficacy, which are both important factors for job performance.

Work-related factors are also important characteristics of remote workers. One of the most significant work-related factors is the nature of the job itself. According to research by Lange and Kayser (2022, p. 4955), jobs that require high levels of autonomy, task variety, and task significance are more suitable for remote work. These jobs tend to be more knowledge-based and require higher levels of cognitive skills. Another study by Le, Nguyen, & Ha (2022, pp. 97-116) found that the level of technology readiness and knowledge of technology also play a significant role in the adoption of remote work.

In addition to these factors, several other characteristics have been identified in previous research. For example, remote workers tend to have a high need for achievement and enjoy working independently. They also tend to be more adaptable and resilient to change (MacRae & Sawatzky, 2020, pp. 3-28). Furthermore, remote workers are more likely to have a positive attitude towards work-life balance and flexibility (Grant, et al., 2013, pp. 527-546).

Job Characteristics

One of the most important job characteristics in remote work is autonomy. Autonomy refers to the level of control and independence the worker has in their work. Remote workers tend to have higher levels of autonomy compared to traditional office workers (Ewers & Kangmennaang, 2023, pp. 1-11). This autonomy can lead to increased motivation, job satisfaction, and creativity (Davidescu, et al., 2020, p. 6086).

Another essential job characteristic is task variety. Task variety refers to the range and diversity of tasks the worker performs in their job. Remote workers tend to have more task variety compared to traditional office workers (Fuchs & Reichel, 2023, pp. 511-528). This variety can lead to increased engagement, learning, and job satisfaction (Davidescu, et al., 2020, p. 6086).

Task significance is another important job characteristic for remote work. Task significance refers to the impact and importance of the worker's job on others or society. Remote workers tend to have a higher level of task significance compared to traditional office workers (Xu, et al., 2023). This significance can lead to increased motivation

and job satisfaction, as the worker feels their work is meaningful and valuable (Davidescu, et al., 2020, p. 6086).

The level of feedback and communication is also a significant job characteristic in remote work. Remote workers may experience less feedback and communication from their colleagues and supervisors compared to traditional office workers. This lack of communication can lead to increased feelings of isolation, job dissatisfaction, and decreased motivation (Gajendran & Harrison, 2007, pp. 1524-1541). Therefore, it is essential to ensure that remote workers receive regular feedback and communication to maintain their motivation and job satisfaction.

The level of skill variety is another important job characteristic in remote work. Skill variety refers to the range and diversity of skills required in the job. Remote work tends to require higher levels of cognitive skills compared to traditional office work (Ha, 2021, pp. 97-113). These cognitive skills may include problem-solving, decision-making, and critical thinking. Remote workers may also require higher levels of technological skills and knowledge to work effectively.

Communication

According to a study by Gajendran and Harrison (2007, pp. 1524-1541), remote workers experience less communication and feedback compared to traditional office workers. This lack of communication can lead to increased feelings of isolation, job dissatisfaction, and decreased motivation. The study also found that communication is critical for remote workers to maintain social relationships and support, which are essential for their well-being and job performance.

Another study by Chatterjee, et al. (2022, pp. 1501-1512) found that communication technology plays a significant role in remote work. The authors found that technology-mediated communication, such as video conferencing and instant messaging, can facilitate communication and collaboration among remote workers. The study also highlighted the importance of adapting communication technology to the specific needs and preferences of remote workers.

In addition to technology, communication style is another crucial factor in remote work. A study by Iwashita (2021, pp. 7-18) found that remote workers tend to prefer more frequent and formal communication compared to traditional office workers. Remote workers also tend to prefer communication that is task-focused and goal-oriented. The study highlights the importance of understanding communication preferences and adapting communication styles to the needs of remote workers.

The level of communication is also a critical factor in remote work. According to a study by Staples (1997, pp. 82-91), remote workers tend to have higher levels of communication with their supervisors compared to traditional office workers. This communication may include regular check-ins, progress updates, and feedback on their work. The study emphasizes the importance of maintaining regular and consistent communication to ensure that remote workers feel supported and valued.

Moreover, cultural differences can also play a role in communication in remote work. A study by Grawitch, et al. (2023) found that cultural differences can lead to misunderstandings and communication challenges among remote workers from different cultural backgrounds. The study highlights the importance of cultural awareness and sensitivity in remote work to ensure effective communication and collaboration.

Management

Trust is a critical factor in remote work, and it plays a significant role in effective management. According to a study by Stavrova, et al. (2020, pp. 1-9), trust between remote workers and their managers can lead to increased job satisfaction and performance. The study found that trust is built through regular communication, feedback, and support from managers.

Remote workers may experience more significant challenges in their work than traditional office workers, and they may require more support from their managers. A study by Gajendran and Harrison (2007, pp. 1501-1512) found that remote workers who receive more support from their managers have higher levels of job satisfaction and commitment. The study highlights the importance of managers providing regular feedback, coaching, and support to remote workers.

Setting clear goals and expectations is essential for effective management in remote work. A study by Allen, et al. (2015, pp. 40-68) found that remote workers tend to prefer goal-oriented communication and task-focused management. The study highlights the importance of managers setting clear goals and expectations, and providing regular feedback to ensure that remote workers feel supported and valued.

Remote work often requires a higher level of autonomy compared to traditional office work, and managers need to provide remote workers with the necessary tools and resources to work effectively. A study by Ewers and Kangmennaang (2023, pp. 1-11) found that remote workers tend to have higher levels of autonomy compared to traditional office workers.

Managing performance can be challenging in remote work, and managers need to have effective performance management systems in place. A study by Barsness, et al. (2005, pp. 401-419) found that remote workers tend to have higher levels of communication with their managers compared to traditional office workers. The study highlights the importance of regular performance evaluations, feedback, and recognition for remote workers.

Providing training and development opportunities for remote workers is critical for effective management. A study by Hajjami and Crocco (2023, pp. 2046-9012) found that remote work often requires a higher level of cognitive skills compared to traditional office work. The study highlights the importance of managers providing training and development opportunities to help remote workers acquire the necessary skills and knowledge to work effectively.

Organizational Culture

Research has shown that remote work can have a significant impact on organizational culture. One study by Golden, Veiga, & Dino (2008, pp. 1412-1421) found that remote workers tend to feel less connected to their organization and coworkers than traditional office workers. This lack of connection can lead to lower levels of organizational commitment and engagement among remote workers.

However, other research suggests that remote work can improve organizational culture in certain contexts. A study by Gajendran and Harrison (2007, pp. 1524-1541) found that remote workers who receive more support from their managers have higher levels of job satisfaction and commitment. This support can help remote workers feel more connected to their organization and coworkers.

Moreover, remote work can also facilitate the development of a strong organizational culture. A study by Harjanto, et al. (2023, Abstract) found that remote work can foster a culture of trust and accountability among remote workers and their managers. This culture is characterized by open communication, mutual respect, and a focus on results rather than time spent in the office.

However, creating and maintaining a strong organizational culture in a remote work environment requires intentional effort. A study by Stavrova, et al. (2020, pp. 1-9) found that trust between remote workers and their managers is critical for building a positive organizational culture in remote work settings. This trust is built through regular communication, feedback, and support from managers.

Another key factor in developing a strong organizational culture in remote work is effective communication. A study by Allen, et al. (2015, pp. 40-68) found that remote workers tend to prefer goal-oriented communication and task-focused management. This type of communication can help remote workers feel more connected to their organization and understand their role in achieving organizational goals.

In addition, providing remote workers with opportunities for social interaction and collaboration can also contribute to a strong organizational culture. A study by Sokolic (2022) found that remote workers tend to have lower levels of social interaction compared to traditional office workers. Providing opportunities for remote workers to interact with each other can help build a sense of community and connection.

Finally, an organizational culture that encourages employee input and the generation of new ideas can stimulate creative thinking and exploratory behavior, thereby driving continuous innovation in technology (Baer, et al., 2015, pp. 810-831). Additionally, some studies suggest that an organizational culture that supports innovation and learning can promote employee technical learning and career development, thereby enhancing technological competence and the competitiveness of the organization (Coun, et al., 2021, p. 4274).

Environment

Physical Environment: The physical environment refers to the space in which remote work is being conducted. This includes the home office or any other location where remote work is taking place. Research has shown that the physical environment can have a significant impact on remote workers' productivity and well-being. For example, a study by Mura, et al. (2023, p. 2858) found that working in a comfortable and well-lit space can increase remote workers' job satisfaction and reduce their stress levels.

Technological Environment: The technological environment refers to the tools and technology used by remote workers to perform their job duties. This includes hardware, software, and communication tools. Research has shown that the technological environment can have a significant impact on remote workers' ability to perform their job duties effectively. For example, a study by Donati, et al. (2021, p. 12095) found

that remote workers require higher levels of technological skills and knowledge to work effectively compared to traditional office workers.

Social Environment: The social environment refers to the interactions and relationships that remote workers have with their coworkers, managers, and other stakeholders. Research has shown that social interaction can have a significant impact on remote workers' job satisfaction, engagement, and well-being. For example, a study by Sokolic (2022) found that remote workers tend to have lower levels of social interaction compared to traditional office workers. Providing opportunities for remote workers to interact with each other can help build a sense of community and connection.

Other Environmental Factors: Other environmental factors that can affect remote work include the legal and regulatory environment, the economic environment, and the cultural environment. For example, a study by Lyutov (2018, pp. 30-39) found that the legal and regulatory environment can affect the extent to which remote work is supported and encouraged by employers. Similarly, the economic environment can affect the availability of remote work opportunities, while the cultural environment can influence attitudes towards remote work and the perceived legitimacy of remote work arrangements.

Asynchronous Work

Asynchronous work and remote work are two forms of flexible work arrangements that have become increasingly popular in recent years. Both of these approaches to work can have a positive impact on employee job satisfaction. Research has shown that when used in combination, asynchronous and remote work can lead to even higher levels of job satisfaction (van Zoonen, et al., 2021, p. 6966).

Asynchronous work allows employees to complete tasks at their own pace and on their schedule. This can be particularly helpful for employees who have caregiving responsibilities, as it provides a way to balance work and family commitments. In addition to providing work-life balance support, asynchronous work can also reduce turnover intentions and increase job satisfaction (Costin, et al., 2023, pp. 1-8).

Remote work, on the other hand, allows employees to work outside of the traditional office setting, often from home or another location of their choosing. This type of work arrangement can provide many benefits to employees, including increased flexibility, reduced commuting time and expenses, and a more comfortable and personalized work environment. Remote work has also been shown to have a positive impact on job satisfaction, as it allows employees to have greater control over their work and personal lives (Golden, Veiga, & Dino, 2008, pp. 1412-1421).

The use of asynchronous teaching methods in remote education has shown that asynchronous work can overcome time zone limitations and provide a more flexible schedule, such as online courses and learning management systems that allow students to access learning materials and tasks at any time and complete them on their schedule. (Vollbrecht, et al., 2020, pp. 722-725) Asynchronous work also involves personal time management and independent work, which has similarities with asynchronous teaching. Therefore, the proper application of asynchronous work mechanisms in remote work can have a positive impact.

Technology

With the widespread adoption of remote work, companies face increased security risks in their networks. Remote workers need to access confidential information and systems, which require protection. Therefore, network security is a critical issue. To ensure the security of remote work, companies need to invest a lot of time and money in establishing and maintaining network security infrastructure, as well as regularly updating and upgrading it (Hu, et al., 2020, pp. 273-288).

Remote workers need to use the software and hardware provided by the company, but due to distance limitations, they may not receive timely technical support. Therefore, companies need to establish a specialized technical support team to assist remote workers. This requires additional manpower and cost investment (Business News Daily, 2023).

Remote work relies on communication technology to achieve remote collaboration and communication. However, communication technology may be affected by factors such as unstable signals and limited bandwidth, leading to a decrease in communication quality. To address this issue, companies need to invest more funds to purchase better communication equipment and improve network bandwidth (Pokojski, et al., 2022, p. 4220).

Remote work allows employees to access company data and documents from anywhere, which places higher demands on data management. To ensure the security and accuracy of data, companies need to establish better data management systems and train employees to ensure the correct use and management of data (Limburg & Jackson, 2007, pp. 146-167).

Because the devices and software used by remote workers may not be compatible with the company's system, this may result in an inability to access company information and systems. To address this issue, companies need to establish better compatibility testing and support mechanisms to ensure that remote workers can collaborate seamlessly with the company's system (Toldy, et al., 2022, pp. 1-5).

Job Effectiveness

Remote work has been shown to have both positive and negative effects on work efficiency. On the one hand, remote work can increase productivity and reduce time spent commuting, leading to more efficient use of time (Retselis, et al., 2022, pp. 1-6). On the other hand, remote work can lead to distractions and interruptions, resulting in reduced efficiency and effectiveness (Nakayama, et al., 2022, p. 3).

Studies have suggested that work efficiency in remote work settings is influenced by several factors. One important factor is the use of technology and communication tools. Research has found that the use of digital communication tools, such as instant messaging and video conferencing, can improve collaboration and coordination among remote workers, leading to higher levels of work efficiency (Ilag, 2021, pp. 13-16).

Task interdependence is another important factor that can influence work efficiency in remote work settings. Research has found that remote workers who are highly interdependent on their colleagues are more likely to experience reduced efficiency due to communication barriers and coordination challenges (Hertel, et al., 2004, pp. 1-28). However, when communication is effective and there is a high level of trust among team members, remote workers can achieve high levels of efficiency even when working on complex, interdependent tasks (Hinds & Bailey, 2003, pp. 615-632).

One study by Costin, et al. (2023, pp. 1-8) found that asynchronous work can have a positive effect on work efficiency. The study examined the effects of asynchronous communication on project collaboration in a software development firm. The results showed that asynchronous communication, in the form of email and instant messaging, led to more effective collaboration and higher project success rates. The authors suggested that asynchronous communication allowed team members to work at their own pace and provided more time for reflection and consideration of ideas.

However, other research has found mixed results regarding the impact of asynchronous work on work efficiency. A study by Vollbrecht, et al. (2020, pp. 722-725)

examined the effects of asynchronous work on teamwork and performance in a virtual team setting. The results showed that while asynchronous communication provided flexibility and reduced interruptions, it also led to lower levels of team cohesion and decreased task completion rates. The authors suggested that asynchronous work can lead to miscommunication and delays in decision-making, which can negatively impact work efficiency.

Another study by van Zoonen, et al. (2021, p. 6966) found that the use of asynchronous communication in virtual teams can have a positive effect on work efficiency, but only when certain conditions are met. The study examined the effects of asynchronous communication in a virtual team setting and found that it led to higher levels of task completion and better team performance when team members had high levels of task interdependence and a shared understanding of their roles and responsibilities.

Work-life Balance

One study by Golden, et al. (2006, pp. 1340-1350) found that remote workers reported greater levels of work-life balance compared to office workers. The authors suggested that remote work allowed workers to have more control over their work schedules and to better manage their work and personal responsibilities. However, other studies have found mixed results regarding the relationship between remote work and work-life balance.

A study by Ten Brummelhuis, et al. (2014, pp. 186-193) examined the effects of telecommuting on work-family conflict and work-related exhaustion. The results showed that telecommuting led to reduced work-family conflict but increased work-related exhaustion, suggesting that while remote work can provide greater flexibility and control over work schedules, it can also lead to increased workload and blurred boundaries between work and personal life.

The use of communication technology can also impact work-life balance in remote work settings. A study by Gajendran and Harrison (2007, pp. 1524-1541) found that the use of communication technology, such as email and instant messaging, can increase work-family conflict for remote workers. The authors suggested that the constant availability and pressure to respond to work-related messages can blur the boundaries between work and personal life, leading to increased stress and reduced work-life balance.

Task demands and job characteristics can also play a role in work-life balance in remote work settings. A study by Jamal, et al., (2021, pp. 293-319) found that remote workers who reported higher levels of task interdependence with their colleagues had lower levels of work-life balance. The authors suggested that the need for constant communication and coordination with colleagues can lead to increased workload and reduced time for personal activities, which can negatively impact work-life balance.

However, other studies have found that remote work can lead to greater work-life balance when certain conditions are met. A study by Ng, et al. (2022, pp. 1-8) examined the effects of communication quality on work-life balance in remote work settings. The results showed that high-quality communication, in the form of regular and effective communication with supervisors and colleagues, led to higher levels of work-life balance for remote workers.

Well-being

One study by Gajendran and Harrison (2007, pp. 1524-1541) found that remote work can hurt well-being, particularly when communication technology is overused. The authors suggested that the constant pressure to be available and respond to work-related messages can lead to increased stress and reduced well-being. Similarly, a study by Fadzilah, et al. (2021, pp. 388-398) found that telecommuting can lead to increased work-related exhaustion, suggesting that remote work can lead to greater workload and blurred boundaries between work and personal life.

However, other studies have found that remote work can have positive effects on employee well-being. A study by Yang, et al. (2023, pp. 504-531) found that remote workers reported higher levels of job satisfaction and less work-family conflict compared to office workers. The authors suggested that remote work allows for greater flexibility and control over work schedules, which can lead to increased job satisfaction and better management of work and personal responsibilities.

Moreover, a study by Sjöblom, et al. (2022, p. 14) found that remote work can have positive effects on well-being when employees have control over their work tasks and work autonomously. The authors suggested that greater control over work can lead to increased job satisfaction and improved well-being. Additionally, a study by Shockley, et al. (2021, p. 1466) found that high-quality communication, in the form of regular and effective communication with supervisors and colleagues, can lead to higher levels of well-being for remote workers.

It is important to note that the relationship between remote work and well-being is not always clear-cut. A study by Sardeshmukh, et al. (2012, pp. 193-207) found that the relationship between telecommuting and well-being was moderated by the level of social support received by remote workers. The authors suggested that social support can buffer the negative effects of remote work on well-being, highlighting the importance of social support in remote work settings.

Relationship Between Variables

Based on the literature reviewed, several factors are related to Telecommuting outcomes.

Remote work can reduce the costs of office space and equipment, such as rent, equipment maintenance, and updates. In addition, remote work can improve employee job satisfaction and productivity, thereby increasing the efficiency and profitability of the enterprise. However, remote work also has some potential costs, such as communication and coordination costs, team collaboration costs, etc. (Bailey & Kurland, 1999, pp. 53-68).

Teleworker Characteristics have the most widespread and direct impact on other factors. This is just like whether a person can do a job well or not is positively related to whether he is fit to do the job. It has a critical impact on communication, management, organizational culture, and productivity in remote work. For example, people with withdrawn characteristics can hurt communication and management in remote work. Those who are outgoing and good communicators have positive effects on communication, management, and corporate culture. It also indirectly affects work efficiency and Well-being.

Job Characteristics of Telecommuting requires autonomy and multitasking and can help employees improve these skills over the long term. At the same time, it has a higher demand for feedback and communication in the work, which determines the efficiency level of remote work and the satisfaction of all parties. Moreover, it also has higher requirements and a positive influence on the technical and knowledge levels of managers.

Communication: Effective communication is crucial for remote workers, and factors such as communication frequency and technology use can impact job effectiveness and well-being.

Management: Effective management practices, such as clear expectations and support from supervisors, can contribute to positive Telecommuting outcomes.

Organizational culture determines many characteristics in the whole work, from employee characteristics, and communication methods to employee welfare. Different organizational culture makes the characteristics and communication methods of organization members different. There is also a wide gap in attitudes towards employee Well-being. At the same time, organizational culture determines the speed and acceptance of new technology upgrading and iteration. The organizational culture of development is also more conducive to technological development and advancement.

Environment plays a role in the work-life balance of remote workers, such as noise at home or noise at work affecting family members. The environment has a strong interdependence between technology and asynchronous work. Network instability, for example, will drive software to optimize network bandwidth usage and its stability. The relevant legal and supervisory environment will guide the development of the team culture.

Asynchronous work has long been widely used in efficient teams in traditional offices. It's even a must, because asynchronous work reduces the individual's time alignment requirements, so there are fewer interruptions to individual work tasks. From this point on, it has a positive effect on work efficiency, work-life balance, and Well-being. But from a management point of view, he makes it harder to manage. Asynchronous work can be difficult and out of control for those with less self-control and ability to execute plans.

Technology is the foundation of telecommuting. From the point of view of technology use. It requires people who use the new technology to have a higher ability to learn and be willing to change things accordingly. Every upgrade and iteration of a new technology is a major challenge for organizations that are staid or extremely disciplined. At the same time, the application of new technology is a new challenge for the management or managers. Even if the new technology is not the technology that managers need to master, they still need to understand as much as possible, so that they can carry out real management. Moreover, technology also has a direct or indirect impact on the environment. For example, the requirements of the network environment, such as the ability to deal with the noise of the surrounding physical environment, will limit the choice of remote workers for the environment.

Job effectiveness: Telecommuting can positively impact job effectiveness, but this is dependent on factors such as job design, technology use, and management practices.

Work-life balance: Telecommuting can improve work-life balance, but this is dependent on individual and organizational factors, including workload, communication, and organizational culture.

Well-being: Telecommuting can have positive or negative impacts on well-being, depending on factors such as workload, social isolation, and access to resources.

In summary, Telecommuting outcomes are influenced by multiple factors, including individual characteristics, job characteristics, communication, management, organizational culture, environment, job effectiveness, work-life balance, and well-being. These factors interact with each other and can have positive or negative impacts on Telecommuting outcomes, depending on individual and organizational contexts.

The physical workspace of remote workers is also an important factor to consider. A study by Franken, et al., (2021, pp. 1131-1149) found that remote workers often face challenges in finding suitable workspaces that are conducive to productivity and well-being. The authors suggested that employers can provide support to remote workers by offering resources and guidance on setting up an effective home office.

The nature of work tasks and the level of task complexity can also impact remote work success. A study by Turetken, et al. (2010, pp. 56-67) found that remote work was more successful when tasks were well-defined and routine, rather than complex and requiring frequent interaction with colleagues. The authors suggested that the ability to work independently and the availability of resources and support were important factors in completing complex tasks remotely. The role of family and social support in remote work success should not be overlooked. A study by Wang, et al. (2021, pp. 16-59) found that remote workers who received support from their families and social networks experienced higher levels of job satisfaction and well-being. The authors suggested that employers can provide support to remote workers by encouraging a healthy work-life balance and offering resources and support to help remote workers manage their personal and professional responsibilities.

Conclusion

New ways of working and living are closely related to cost. With the development of digital technology and the Internet, more and more people choose to work from home, remotely, or in different places. This new way of working and living can reduce costs in some aspects, such as reducing transportation, catering and accommodation costs, office space rental and maintenance costs, etc. (Gajendran & Harrison, 2007, pp. 1524-1541). However, the new working lifestyle also brings some new costs. For example,

companies need to buy and maintain technical equipment so that employees can work remotely. These include computers, telephones, video conferencing equipment, etc., which can cost more than office equipment costs. In addition, employees are expected to pay for their equipment and services, such as Internet, electricity, and furniture. (Bailey & Kurland, 1999, pp. 53-68). In addition to hardware and equipment costs, the new working lifestyle may also increase the administrative costs of the organization. Since remote workers are out of the office, they need more supervision and management to ensure work efficiency and quality. In addition, since remote workers tend to require more communication and coordination, organizations need to devote more time and resources to managing and coordinating work. (Gajendran & Harrison, 2007, pp. 1524-1541)

When the automobile first appeared to replace the horse-drawn carriage, the early automobiles faced many challenges and obstacles. The manufacturing process is complex and requires many different skills and tools, and the use of the car requires skilled driving skills. Cars require special roads and infrastructure to support their operation, which requires a lot of investment and construction. In addition, the introduction of the automobile has brought some social and cultural challenges. People used horse-drawn carriages as a means of transportation and as part of social activities. The advent of the automobile has disrupted this traditional way of socializing, making some people feel out of place. Cars also bring problems of urban planning and environmental pollution. Although the automobile as a technology faced many problems at that time, people gradually adapted to this new mode of transportation, and the automobile became one of the most common means of transportation in the world in the 20th century (Dennis & Urry, 2008, 1-180). At present, new energy vehicles are also facing similar challenges. The growth of telecommuting faces many similar challenges.

Reviewing the development of the transistor and electron tube in the last century, the electron tube is one of the earliest electronic components. Because of its large size, high power consumption, short life, and other shortcomings, transistors have the advantages of small size, low power consumption, and long life. The electron tube was gradually replaced by the transistor. Transistors, cars, and telecommuting are all emerging technologies or methods that are gradually replacing traditional technologies or methods, providing more efficient, convenient, cost-saving, and other advantages.

After we have learned about synchronous and asynchronous teaching in distance education, we can compare the children's current education with distance education. What if all primary and secondary schools switched to distance learning? If you and your family had jobs that supported remote working, what would our new lives be

like? What changes will take place in today's society and what changes will take place in human economic development?

Those seemingly still existing huge problems, or cultural differences, will be driven by the progress of science and technology, the change of upstream and downstream industries, and the huge economic benefits, and at some point will have a fundamental change. The process is likely to be tortuous and spiraling.

Therefore, analyzing the comprehensive impact of the relationship between various factors on telecommuting from a dynamic perspective may have a positive impact on the development of telecommuting. This paper will analyze the relationship between these factors.