Ramzan Hussain

ORGANIZATIONAL CHANGES AND THEIR IMPACT ON CORPORATE PRODUCTIVITY

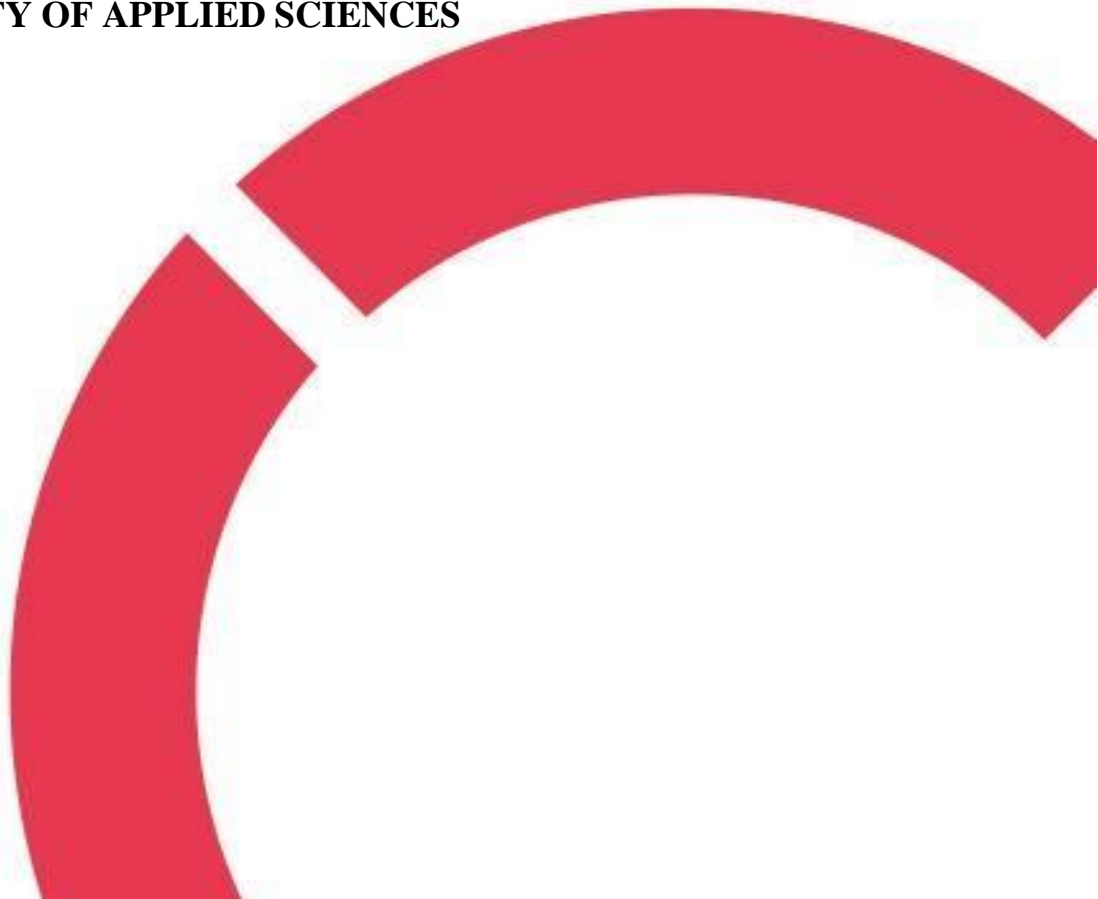**An assessment showing the behavioral change of productivity due to organizational change.**

ABSTRACT

Centria University of Applied Sciences	Date May 2023	Author Ramzan Hussain
Degree programme International Business		
Name of thesis ORGANIZATIONAL CHANGES AND THEIR IMPACT ON CORPORATE PRODUCTIVITY. An assessment showing the behavioral change of productivity due to organizational changes		
Centria supervisor Sara Åhman		**Pages** 64+ 5
Instructor representing commissioning institution or company Mizanur Rahman		

This thesis paper aims to analyze the impact of organizational change on productivity, as the reason for sustaining and motivating the operation of an organization lies in gaining more profit through increased productivity. To increase productivity or make the production procedure more efficient, organizations need to go through continuous changes. In today's competitive world, implementing changes in organizations is becoming vast, and the changes are becoming evolutionary. There are several types of organizational changes, and as there are an enormous number of organizations available, the changes are diversified. Up to now, six of the most common organizational changes are discussed. Among these changes, the most potent one is the technological one. The productivity of an organization is quite amenable if the technologies used are up-to-date and efficiently used. It is not as easy as it seems. Adapting to the latest technology requires a skilled workforce that can absorb and tolerate the pressure.

The target of this paper is to collect primary data from the employees of numerous organizations about whether they are able to adapt to the change in technology or not and the impact of the change on productivity.

Key words Change, Employee, Organization, Technology.

CONCEPT DEFINITIONS

AVP

(Assistant Vice Precedent) is a mid-level management position that is often responsible for overseeing a specific department, division, or area of operations within a larger organization.

MNC

(Multi National Company) is a company that operates and has a presence in multiple countries. These companies have established subsidiaries, branches, or affiliates in different nations, allowing them to conduct business operations on a global scale.

NBFI

(Non-Banking Financial Institution) A non-banking financial institution is a financial institution that provides financial services and products, similar to traditional banks, but does not have a full banking license.

NFL

(National Finance Limited) is a full-fledged Non-Banking Financial Institution, regulated by Bangladesh Bank.

CONTENTS

FIGURES

GRAPHS

1 INTRODUCTION

Organizational change refers to the process of implementing new strategies, structures, or processes within an organization. A process by which a firm or organization modifies its goals or methods of operation, for instance, to adapt to and deal with different circumstances or markets, is known as organizational change. Some examples of organizational changes include implementing a new business strategy, restructuring the company's hierarchy, adopting innovative technologies, changing the company's culture, entering a new market, and mergers and acquisitions. These changes can be small or large in scale and can be implemented gradually or all at once. The key is that they involve a significant shift in the way the organization operates. Organizational change can be challenging, as it often requires employees to adapt to new ways of working and can disrupt the existing company culture. However, it can also lead to increased efficiency and competitiveness, making it an important part of running a successful business. It comes down to analyzing and changing systems, particularly organizational and managerial frameworks.

This paper aims to identify whether the impact of organizational change on productivity is efficient. The impact of technological change on other types of organizational changes will also be considered. Therefore, the paper should find out about technological changes' participation as an organizational change on productivity.

The study's objective is to determine the cause and effect of technological change variables on organization. Finding out and understand if the productivity-related changes have any connections with technology organizational change and other types of changes. The theoretical part of "this" thesis paper on the impact of organizational change in productivity provides a conceptual framework for understanding organizational change. The theoretical part emphasizes types of organizational change (based on that, several types of organizational change exist, six of the most seen changes are explained), the importance of organizational change, a brief history, and evolution. Primary and secondary data are used to investigate the impact. A questionnaire was prepared to survey employees of several organizations.

Formal employees with permanent jobs are the targeted participants in this survey. In total, 32 participants were analyzed to conclude the results.

National Financial Limited is a Non-Banking Financial Institution that provides loans. The commissioner of this research study, Mizanur Rahman, AVP of National Finance Limited, is accountable for cooperating with the thesis while gathering data. As the NFL provides financial services, an adequate number of survey responses were gathered from there.

2 ORGANIZATIONAL CHANGES

Change is a part of life that gives opportunities for growth. In a broad sense, "change" refers to the act of creating, upgrading, giving, or starting something new. According to Lawton and Pratt (2022), in the case of organizations, change is a systematic transitional process that transforms organizational targets and ways of working to attain a greater result (Lawton and Pratt, 2022). Manufacturing, analysis, advancement, management, and other activities are performed by individuals in every organization. Aishu (2019) stated that, to transform, the organization may compile a situational assessment and should change attitudes and working methods (Aishu, 2019).

In Thompson's (2015) perspective, in today's rapidly changing economic and political settings, businesses must constantly adapt or risk extinction. As a result, organizational transformation is quite common (Thompson, 2015). Making changes to the organizational structure can be risky and hard to adapt to. But organizational change may be very advantageous for both the firm and its personnel. As an organization, it needs to go through many phases of change to sustain and maintain productivity while using available resources with the utmost efficiency. Lambertson (2020) states that, some drivers are responsible for making changes in the organization (Lambertson, 2020). Smith (2019) adds that the availability of modern technology, changes in consumer demand and behaviour, identification of new opportunities, structural deformity, and product or service modification are some of them (Smith, 2019).

2.1 Organizational change and its importance

When a business or organization is not changing, it implies that the business or organization's progress may be constant and unbending. In these kinds of circumstances, the picture of growth can hardly be seen,

and new dimensions become unachievable. Over time, these theories and approaches have continued to evolve and change, reflecting the changing nature of work and the business environment. Aishu states that, today, organizations face a wide range of challenges and opportunities and must be able to adapt quickly to remain competitive. As a result, organizational change has become an important part of managing any successful business (Aishu, 2019).

From Gupta's (2023) point of view, in terms of organization, the change refers to a significant impact on the organization. The effect can be either positive or negative. Transition can take several forms depending on the number of substantial changes to personnel, corporate goals, business solutions, and processes (Gupta, 2023). Tanzania (2021) stated in her journal that organizational change is the process of development, deterioration, and transition within an organization (Tanzania, 2021). For a corporation, organizational restructuring is crucial. According to the SHRM (2019) website, as a company grows, employees come and go, new signings and divisions are formed, and businesses adopt recent technologies to stay on the forefront. Keeping the organization running smoothly during the transition is possible with efficient organizational change management (SHRM, 2019).

2.2 What advantages does organizational change offer a business?

In a business, there are many key advantages to making organizational changes. Mostly, the motive for making organizational changes is to grab advantages that will eventually make the organization more productive. Below, the advantages are discussed in detail (Francis, 2018).

The American entrepreneur Jim Rohn stated, "Life does not improve by coincidence; it improves by CHANGE" (Norbert Juma, 2023). The people feel that the same idea applies successfully to business. People innovate as they evolve. Organizational change provides opportunities for people to be creative and approach problems in new ways. For example, if a company implements a new process or policy,

employees may need to produce creative solutions to make it work effectively. Similarly, if a company reorganizes its structure or introduces modern technology, it can stimulate creativity as people figure out how to use it in innovative ways. However, it is important to note that organizational changes can also be disruptive and stressful, which can have the opposite effect on creativity. Saleh (2023) states that, to maximize the potential benefits of organizational changes on creativity, it is important to carefully plan and communicate the changes, provide support and resources to help people adapt, and create an environment that encourages and values creativity (Saleh, 2023).

In Stillman's (2008) perspective, a company must operate at least twice as fast to keep up with the competition. This is the effect of organizational transformation. It facilitates progression to the next level by altering behaviors, attitudes, and other pertinent factors (Stillman, 2008). Spacey (2020) gave an example: if a company undergoes a restructuring or reorganization, it can result in employees moving to different departments, teams, or locations as part of the changes. This can create a sense of movement and change within the organization (Spacey, 2020). In addition to physical movement, organizational changes can also generate movement in terms of progress, development, and innovation. According to Corona (2022), if a company introduces a new product or service, it can generate movement by driving sales and revenue growth. Similarly, if a company implements a new process or system, it can generate movement by increasing efficiency and productivity (Corona, 2022).

Fisher & Barrett (2019) stated that people are creative when they are always improvising and reacting to what is occurring. The brain is designed to solve problems. As a result, they will invariably discover a solution if they are provided with an objective or an issue to address (Fisher & Barrett, 2019, 155). Stack (2015) thinks that, providing new challenges and opportunities, encouraging experimentation and risk-taking, introducing recent technologies and tools, creating a culture that values creativity, and promoting diversity and inclusivity are the ways through which organizational change can enhance creativity (Stack, 2015).

Luca, Lupu, & Herghiligiu (2016) mentioned in their paper that organizational change necessitates a great deal of training and new duties. Both need to acquire added information, which leads to expanding current knowledge, acquiring invaluable skills, and developing distinct behaviors. By changing roles and responsibilities, like requiring employees to learn new tasks and take on new challenges. This can help people acquire new skills and abilities related to their new roles (Luca, Lupu, & Herghiligiu, 2016, 127).

Škrinjar, Bosilj-Vuksic, & Indihar-Štemberger (2008) experienced that exposing business processes to substantial changes might have a significant budgetary impact considering the creation of a new organizational culture that encourages diversity and inclusion. It will result in hiring top talent and fostering a sense of community among your current workforce (Škrinjar, Bosilj-Vuksic, & Indihar-Štemberger, 2008, 746). For Kenton (2022), a culture like this is certain to produce superior results, which will be reflected in the income report (Kenton, 2022). Overall, organizational changes that lead to improvements in efficiency, productivity, revenue, and customer satisfaction can help increase earnings for a company (Francis, 2015).

As Francis (2015) stated, implementing change within a company can be challenging. Long-term, it will provide a deeper insight into how people work, what their abilities are, how they think, and how they approach problem-solving (Francis 2015). In Athuraliya's (2023) words, organization ns will gain valuable information about their workforce and be able to determine where they now stand, their flaws and strengths, and how to approach the organizational change process (Athuraliya, 2023).

Belief is a potent instrument. A person who has a purpose and something to believe in can recover, develop, and achieve a healthy mental state. Forsyth (2021) adds that, providing the staff with a goal will inevitably lead to a more proactive and efficient workflow. By aligning changes with the company's values, communicating transparently, involving employees, providing support, and celebrating successes, organizational change can enhance belief in the company's culture (Forsyth, 2021).

One of the benefits of organizational change is the improvement of technology, which includes communication tools. These allow staff to communicate more effectively. Additionally, Hamilton (2022) thinks it can promote more personal contact, resulting in enhanced comprehension and conviction. However, for this to happen properly, the ethics of the employees must be strongly maintained. Otherwise, internal communication may also damage the entity, as biased conclusions can be drawn when internal communication is done in separate groups (Hamilton, 2022).

As one advances technologically and gains new perspectives and skills, one can make better selections and have more options. According to The Marlo Companies (2021), constant transitions cause the organization to evolve, placing it ahead of the competition (The Marlo Companies, 2021).

2.3 What problems do business face due to ineffective organizational change?

Firstly, when an organization undergoes organizational change, such as a reorganization or merger, employees will experience anxiety, worry, and uncertainty. This will have an impact on the productivity, achievement, and engagement of the staff. In other words, the outcomes might not adhere to the rules. The norm favors a predictable future, but change disrupts this, which can result in confusion and a lack of confidence. Francis (2013) states that if a worker loses confidence and their ideas are not encouraged and acknowledged by superiors; this could increase their stress levels, causing them to perform less well daily (Francis, 2015).

Secondly, when there are changes inside an organization, employees may experience a loss of attachment. Change typically involves dealing with new individuals, such as a new leader or a new team. Over time, employees will develop feelings of attachment and loyalty toward their coworkers. When breaking a promise of this nature, individuals may experience anxiety and stress. In accordance with Yu's (2009) report, employees believe the environment is unpredictable, there is little opportunity for ambiguity, they

have less freedom, and the optimal time to work is not always available. They are consequently less eager to take chances and less motivated to make an impact (Yu, 2009, 27).

Thirdly, Cahill's (2020) report shows that, when there are changes at work, morale may decrease. When employees disliked a workplace change, they lost confidence and believed there was no prospect for their careers with the organization. This is especially true when there is insufficient communication regarding the organizational shift. Low morale can spread throughout a whole organization, making it difficult to acquire and retain new employees (Cahill, 2020).

Lastly, according to Malik (2019), when a business undergoes a transition, employees may perform less effectively as there may be a lack of clarity. This is because employees spend a great deal of time considering how to adapt to the organization's ongoing changes. This reduces their concentration on their everyday work tasks, which is a requirement of their occupations. In actuality, the primary cause of organizational change is a decline in skill level, as the vast majority of adjustments are made to increase a company's efficiency and effectiveness (Malik, 2021). In addition, Daniel (2019) states that, staff employees who pay less attention to their work will be less talented and successful, which might negatively impact the organization's core (Daniel, 2019).

Errida & Lotfi (2021) stated that organizations can face challenge keeping up with the rapid pace of technological change and the increasing demands of customers. As a result, it is necessary to make significant changes to the current technology infrastructure to remain competitive and meet stakeholders' needs. However, implementing these changes will require a significant investment of time, resources, and effort, and there is a risk that the changes may not be successful or may result in disruptions. It is not unusual for workers to be resistant to trying out new procedures or taking on additional responsibilities (Errida & Lotfi, 2021). Tanner (2023) states that, employees may work in a new region of the company with a focus unfamiliar to them due to organizational changes. This may mean that they have new managers or team members to report to. As a direct consequence of this, employees could prefer that nothing changes (Tanner, 2023).

Hyslop's (2023) point of view suggested that it is needed to identify the impact of technological change on productivity to state how logical it is to go through technological change to enhance productivity. Due to making changes to technological infrastructure, it is needed to understand how it reacts to other types of ongoing changes or what other changes it causes (Hyslop, 2023).

2.4 Evolution of organizational changes

Carnell & Kolltveit (1980) stated that, organizational changes have occurred for as long as institutions have existed. Despite the widespread belief that organizations are adaptable structures in a dynamic world, both human and organizational emergence coexist. There was an evident need for structure as people historically started coming together to build houses, pyramids, and fight (Carnell & Kolltveit, 1980, 9).

Shinohara (2016) stated in his book that the history of organizational change dates to the beginning of organized work and businesses. As society and economies evolved, the organizations also evolved in structured procedure. In the early days of commerce, businesses were often small and simple, with clear hierarchies and defined roles for employees. As businesses grew and became more complex, the need for more flexible and approachable (Shinohara, 2016, 2). Suddaby & Foster (2017) states that, as businesses grew and became more complex, the need for flexible and approachability increased organizational structures emerged (Suddaby & Foster, 2016, 21). According to Sutevski (2020), this led to the development of various management theories and approaches, such as scientific management, human relations theory, and systems theory (Sutevski, 2020).

Ushioni (2018) says that, changes in the modern era were never as quick, complicated, chaotic, or surprising as they are now (Ushioni, 2018). Adding Greiner's (2014) words, near-term shock happens whenever the pace and nature of changes overwhelm an individual's capacity to adjust to them, leaving the person unable to accept change without exhibiting maladaptive behaviors (Greiner, 2014).

2.5 Types of organizational changes

Successfully running an organizational change may boost employee engagement, encourage effective collaboration, and improve job possibilities. Cutting expenses, shortening the production time span, and having a positive impact on productivity and quality can be caused by these factors. Dharma (2022) said that organizational changes can be planned or reactive, depending on the situation (Dharma, 2022). According to NIBUSINESSINFO (2000) online, the situation can have an external component or an internal component (NIBUSINESSINFO, 2000). Despite the widespread belief that organizations are adaptable structures in a dynamic world, companies today, however, genuinely go through a continual evolving process. Changes that are competent enough may help the workers stay active throughout the introduction of innovative technologies or policies by supporting segments of the basic changes and allowing the organization to stay in a perpetual state of growth. Arther (2023) states that, organizations can introduce new services or products, change how their items are manufactured and advertised, embrace emerging innovations, spread to new regions, downsize offices or infrastructures, hire new people, acquire competing companies, and more. They could change in size as a result, either growing or shrinking or remaining the same size (Arther, 2023). Several types of change necessitate various approaches. Depending on the sort of change being made, everything from execution to communication must be customized. In accordance with Sharma's (2020) blog, there are six commonly used organizational changes depending on the sort of change being made; everything from execution to communication must be customized. The changes are structural change, strategic transformational change, people-centric organizational change, technological change, remedial change, and unplanned change, respectively (Sharma, 2020).

FIGURE 1. Six types of organizational changes (adapted from Sharma, 2020)

The most visible organizational changes are presented below. These six types of organizational changes are: structural change, strategic transformational change, people-centric organizational change, technological change, remedial change, and unplanned change. All the changes are explained below.

2.5.1 Structural change

Ganti (2021) explained that a large shift in a country's economy's processes or institutions, often driven by large socioeconomic advancements, is called "structural change" (Ganti, 2021). The key in bringing about a radical shift is the innovation that is incorporated into that process. Technological advancement, new economic trends, worldwide movements in the labor and capital markets, shifts in the availability of resources, shifts in the demand and supply of resources, and changes in the political environment are frequently the causes of structural change. Root (2016) explains that, there may be significant effects on current techniques in sectors of the economy with major development and research aspects (Root, 2016).

For instance, in Tiny's (2022) point of view, the introduction of the cellphone marked a significant shift for both businesses and consumers as the need for goods like torches and cameras declined as their capabilities were made accessible as part of a small gadget with a different primary application (Tiny, 2022). Sharma (2020) thinks applications were created as a result for monitoring bank or business accounts, accessing information, and making transactions, among other things (Sharma, 2020).

2.5.2 Strategic transformational change

According to Banning (2022), transformational change is required if an enterprise has struggled to address a serious underlying issue, has been slow to adapt to new procedures, technologies, or business needs, or to keep up with these changes in the past. Organizational change that fully transforms your company is known as transformational change (Banning, 2019).

Daly (2022) said that management experts claim that transformational change happens in an organization as a reaction to or preparation for substantial alterations in the science or environment. Transformational change is often advantageous. To guarantee its success, it must be carefully controlled, as it can instill dread, uncertainty, and instability in the employees. A merger or acquisition, a change in leadership, the adoption of innovative modern technologies that necessitate radical changes in team structure and process, and the development of a new core product or service to address external market forces are some of the potential causes of transformational change. Restructuring as a strategic transformational change can result in either an increase or decrease in the workforce as a strategic transformative shift inside a business (Daly, 2022). Sharma (2020) added that in terms of job losses and cutbacks during COVID-19, the tourism and hospitality sectors were two of the most severely affected (Sharma, 2020).

2.5.3 People-centric organizational change

According to Marsh & Sayre (2019), all changes have an impact on people, but people-centric organizational transformation also involves employing fresh staff or putting new parental leave policies into place. Accountability, openness, good leadership, and an empathic strategy are necessary for people-centric change (Marsh & Sayre, 2019).

Effective change management for people-centric change combines both top-down and bottom-up approaches. Even if their only responsibility is to persuade the person seated next to them, every employee in a company has a part to play in the co-creation of organizational changes. Leaders aid in directing the vessel. Each squad member has a role to play in promoting the changes they wish to see. Eveleigh (2019) says administrators occupy a middle position and ideally, correctly, and effectively represent the interests of both groups. Leadership must consider that staff members will naturally oppose change when executing a people-centric shift (Eveleigh, 2019).

FIGURE 2. The Kübler Ross Change Curve in the Workplace (adapted from Malik, 2022)

The Kübler Ross' Change Curve Model shows five stages of emotional responses experienced when a business goes through people-centric organizational change. Malik (2023) stated that a person uses their protective mechanisms to distract from the actual event that transpired during the initial stage of shock or denial. As the reality of change settles in, dread or rage starts to show itself. When a person reaches the fury level of the transition curve, they seek the least restrictive route to alter the situation. They might try to compromise and bid. All hope is gone when an individual is in a depressive state (Malik, 2023). According to Work Design Magazine (2019), in the later phases of the change arc, individuals adapt to the changes. adjusting to the change and starting to consider new, beneficial opportunities brought about by the change (Work Design Magazine, 2019).

2.5.4 Technological change

In Adam's (2010) perspective, a technology shift is an improvement in a product's or process's productivity that leads to a rise in output without a corresponding rise in input. In other words, someone creates something new or enhances an existing procedure to receive more money for doing the same amount of work (Adam, 2010).

The world has been touched by technology in both positive and negative ways. The intensifying market competition and the rapidly evolving state of technology are the main drivers of technological transformation within businesses. Idemudia (2020) stated that a typical component of technology transformation is the adoption of new software or systems to improve business processes. The goals of technology initiatives, however, are occasionally vague and inadequately stated, which concerns and annoys the workers and eventually leads to opposition (Idemudia, 2020). In Sharma's (2020) article, finding innovative technology and putting it into practice are the two main components of technology change management, which aims to increase profits and efficiency (Sharma, 2020). Although technology is supposed to improve people's lives, learning curves can hinder our ability to put the latest ideas into action.

According to Faber (2022), people typically want to stick with what they are accustomed to. A sound transition strategy is essential when implementing innovative technologies (Faber, 2022). Jones (2020) identified that people want to know why innovation is necessary, how it is unique from current methods, and how you plan to support them during the transition (Jones, 2020).

According to Winston (2019), digital transformation or the adoption of modern technology within an organization are two examples of technological change (Winston, 2019). Pratt & Sparapani (2021) defines digital transformation as, the integration of digital technology across all business areas, that has a profound impact on how an organization functions and provides its customers with value (Pratt & Sparapani, 2021). Although technology is the foundation of digitalization, change management includes a human element that advances alongside technology. This is why the core of the concept of digital transformation must be interpreted as per organizational policies. Leonard-Barton (2014), while conducting research, found that, while maintaining the same number of inputs, installing modern technology can improve the productivity mechanism (Leonard-Barton, 2014). According to Vitez (2019), it could take less time or result in more outputs from the same or fewer inputs (Vitez, 2019).

2.5.5 Remedial change

According to Brown (2023), remedial actions are retaliatory. This sort of modification is necessary when a problem is identified and a solution must be implemented (Brown, 2023). Since these changes are meant to solve an issue, they are urgently required. On the other hand, Tahir (2020) says that although it is not optimal, reactionary change is certain. The benefit of the remedial modification is that its assessment is quick and straightforward, with solving the question "was the problem resolved or not?" (Tahir, 2020).

Having a successful communication plan is far different from merely managing customer communications. If what has been done so far is insufficient, swift adaptation is required. Sharma's (2020)

point of view on remedial change implies that activation, a gaming firm, saw those players frequently asked questions and provided comments after each new game they published. Salesforce was utilized by Activision to implement Social Studio from Marketing Cloud. Service Cloud receives automated uploads of pertinent tweets and social media interactions from Marketing Cloud (Sharma, 2020).

2.5.6 Unplanned change

Not every organizational shift is anticipated. Sudden change is described as a required response to unexpected situations. Shaw (2018) says that, although an unforeseen change can sometimes be anticipated, it may be managed effectively through change management (Shaw, 2018). Sharma (2020) noticed that companies frequently adapt to unforeseen organizational changes, particularly when those changes result from internal management forces (Sharma, 2020).

It is simple to see how labor has evolved throughout time. Women now make up a larger share of the economy than they ever did. The demographics of the workforce are shifting as many older, retired workers from the government and industry transition to corporate companies. Francis (2014) stated that the workforce is continuously diversifying due to economic expansion and immigration. Unexpected changes may result from a performance disparity on the other side (Francis, 2014). According to the MBA Knowledge Base site (2013), examples of gaps between actual and anticipated levels of organizational performance include a stagnant product line, a shrinking gross margin, and revenues that fall short of corporate goals (MBA Knowledge Base, 2013).

3 PRODUCTIVITY

In Kenton's (2019) perspective, productivity, on the other hand, is a ratio that shows how much output is produced for a given amount of input (Kenton, 2019). Waters (2023) stated that growth in productivity can be noticed when an economy is creating and consuming more products and services with the same or less input available (Waters, 2023). According to Holliday (2022), productivity is valued by customers and workers, business leaders, and analysts (Holliday, 2022). Information available at the U.S. Bureau of Labor Statistics (2019) website states that the significance of advances in labor productivity to economic growth in the United States may be seen in historical or "time series" statistics on production and hours worked. Since 1947, the U.S. corporate sector has been able to create nine times more goods and services with just a slight increase in labor hours thanks to productivity gains (Bls.gov, 2019). Ross (2021) concentrated on productivity improvement. Improvement is the most obvious reason for which organizational change has become a necessity. Increasing productivity is the largest issue enterprises face globally as society adjusts to a new standard for living and working. It has been challenging during the pandemic due to the hybrid work approach and an ever-changing business tech stack (Ross, 2021).

The impact of organizational change on production can vary depending on the specific changes being implemented and the organization's overall goals. Monitask (2023) stated that, in general, organizational changes that are well-planned and effectively executed can lead to improved efficiency and productivity. For example, implementing innovative technologies or streamlining processes can help employees work more quickly and efficiently. On the other hand, if the changes are not well planned or are not well received by employees, they can lead to disruptions and reduced productivity (Monitask 2023). Wilkens (2022) says this can happen if employees are not professionally trained on the innovative technologies or processes or if they resist the changes because they feel uncomfortable or threatened by them. In these cases, it is important for organizations to provide support and guidance to help employees adapt to the changes (Wilkens, 2022). Overall, the impact of organizational change on production can be positive or negative, depending on how the changes are implemented and how well they are received by employees.

3.1 Connection between organizational change and productivity

Peek (2023) stated that change can lead to increased productivity by providing new ideas, tools, and approaches that can help individuals and organizations work more efficiently and effectively. For example, implementing new technologies or processes can streamline workflows, reduce errors, and speed up tasks, leading to increased output. On the other hand, change can also have negative effects on productivity if it is not managed effectively. Change can be disruptive and cause stress and confusion among employees, which can lead to decreased motivation and productivity (Peek, 2023). Additionally, if changes are made too frequently or without proper planning, it can lead to a lack of consistency and stability, which can negatively impact productivity.

According to Bordia p. et al. (2004), when organizations go through change, it can disrupt how work is done and create uncertainty among employees from an organizational perspective. As workers get used to the new routine, this disruption may result in a brief drop in productivity (Bordia p. et al., 2004, 362). However, if the change is successfully handled, it may eventually result in greater productivity. One way that organizational change can lead to increased productivity is by improving processes and workflows. Sharma (2020) stated that change can often highlight inefficiencies in the current way of doing things and present an opportunity to streamline processes and make them more efficient. This can lead to increased productivity and cost savings (Sharma, 2020). In Ryba's (2022) perspective, increasing employee engagement and motivation is another way organizational transformation may boost productivity. Employee engagement and motivation may rise as a result of the new learning and growth possibilities that change might bring about. Employees are more likely to be productive and contribute to the success of the company when they are motivated and engaged at work (Ryba, 2022). Last but not least, organizational transformation may boost productivity by enhancing the company's general culture. When change is skillfully handled, it may foster a culture of invention and ongoing development. Collaboration and innovation may grow as a result of this culture, which may eventually boost output.

3.2 Impact of technological advancement on productivity

Technological change and productivity are closely linked. Technological change refers to the introduction of new technologies that have the potential to improve productivity, while productivity refers to the amount of output produced per unit of input.

Technological breakthroughs are to blame for businesses and organizations experiencing complete transformation that has simplified and deeply embedded the way they conduct operations. According to Roe (2019), generous-sized businesses are not the only ones that have gotten better off because of technological breakthroughs; more importantly, it is true for small and medium-sized organizations (Roe, 2019).

In the case of MNCs, as per Wadood, Gharleghi, and Samadi (2016), it is not so easy to communicate among thousands of employees. Technology is to blame for this level of advancement. In business, technology serves as a facilitator, making a job or procedure easier to keep at a well-organized and effective pace. Using cloud-based support services systems, top managers may stay focused and up to date while increasing revenues and profits (Wadood, Gharleghi, and Samadi, 2016, 133). It shows a clear sign of productivity being increased.

Periyasamy (2023) explains that technology has helped organizations become more productive in a variety of ways, from strategies to increase output to solutions to address mistake problems. Organizations are no longer required to stop in the middle of any task (Periyasamy, 2023). Billingsley (2020) said that the advancement in technology has eliminated all previous impediments, including those related to connectivity, performance outcomes, monitoring, and production (Billingsley, 2020). Due to the internet and a variety of programs and applications, organizations can now maintain their productivity with little to no disruption from regular everyday operations.

3.3 Maintaining productivity during organizational change

Maintaining productivity during organizational change can be a challenge, but it is possible with careful planning and management. Here are some strategies that organizations can use to help maintain productivity during times of change:

According to Turner (2021), open and transparent communication with employees is key to maintaining productivity during organizational change. It is important to provide regular updates on the change process and its impact on employees, and to encourage employees to ask questions and provide feedback. Employees may feel stressed or anxious during times of change, which can impact their productivity. Providing support such as training and coaching can help employees adapt to the change more quickly and maintain their productivity. During times of change, it is important to set clear expectations for employees regarding their roles and responsibilities. This can help minimize confusion and ensure that work continues to be completed efficiently. Involving employees in the change process can help them feel more invested in the outcome and maintain their productivity (Turner, 2021).

Encouraging employee participation in decision-making and soliciting their ideas and suggestions can help foster a sense of ownership and motivation. Alasdair, Lefort, and Tesvic (2017) said that, breaking down the change process into manageable phases can help reduce the disruption to productivity. Prioritizing the most important changes and implementing them in a phased approach can help minimize the impact on productivity (Alasdair, Lefort, and Tesvic, 2017). Celebrating small successes along the way can help maintain employee morale and motivation. Recognizing and rewarding employees for their efforts and accomplishments during times of change can help maintain their focus on productivity.

4 RESEARCH METHODOLOGY

As the research part of the paper is the most vital, it is important to structure the entire analytical aspect properly. Measuring the influence of organizational change on productivity includes preparing and distributing a questionnaire to the employees who are holding formal positions and are enjoying permanent jobs as well. For establishing a structured approach for studying the impact of technological change on productivity using surveys. By carefully defining the research question, developing a survey instrument, collecting and analyzing data, and drawing conclusions, organizations can gain valuable insights into the effects of organizational change on employee productivity.

4.1 How to Survey

When it comes to conducting a survey as part of the research methodology, there are some theoretical concepts that should be kept in mind. These topics are discussed below.

Lorraine (2022) explained the steps to a survey as follows: to keep up with the research goal, the survey question must be compact and well defined. Like questions, must be crystalized, lucid, and live up to the research criteria. Next, the survey audience must be well defined. The people who are examined should have a meaningful relationship with the paper. In terms of designing the questionnaire, it must have relevant questions and cover the topic as clearly as possible. Then the way the questionnaire is delivered to the survey candidates is also important. As data can differ depending on the way the questionnaire is delivered. If the survey candidates are interviewed, the reliability of the data will be better if it is collected online. Then the collected data should be analyzed properly (Lorraine, 2022).

Fleetwood (2023) described quantitative research as a type of research methodology that uses numerical data and statistical analysis to answer research questions and test hypotheses (Fleetwood, 2023). This type of research aims to measure and quantify the relationship between variables, allowing for the identification of patterns and trends.

Quantitative research typically involves the collection of data through structured survey, experiments, or observation. The collected data is then analyzed using statistical methods to identify patterns and trends and test aims and objectives.

This thesis will use quantitative research methodology to conduct the analysis. Through quantitative data collection, primary-level data are collected, containing string and numeric values. For that, a questionnaire has been produced to collect primary data. A draft version of the questionnaire has been prepared for this paper. Google Forms is used to prepare the questionnaire after the draft is approved.

4.2 Data Sampling

The choice of sampling strategy depends on the research question, the population being studied, and the resources available for data collection and analysis. Careful consideration should be given to selecting a representative and unbiased sample to ensure the validity and reliability of the research findings (Singh Setia, 2016).

According to Mariani (2022), when conducting a survey on the impact of organizational change on productivity, it is important to determine the appropriate group of people to survey. It is important to understand who is affected by the organizational change (Mariani, 2022). It is not necessary that a certain

change in the organization affect all the employees. As technological changes are considered, it is certain that not all employees will be affected by them. So, the affected employees will be the target.

If the organizational change only affects a specific group of employees, such as those in a certain department or location, then it may be appropriate to survey only those employees. This can provide more targeted insights into the impact of the change on a specific group of employees.

Data reliability and validity are important considerations in quantitative research to ensure that the data being collected is accurate and relevant to the research question being studied. By using reliable and valid measures, researchers can increase their confidence in the findings and the conclusions drawn from the research. Chiang (2015) said reliability refers to the consistency and stability of data over time and across different researchers, while validity refers to the accuracy and relevance of data to the research question being studied (Chiang, 2015).

Reynolds, Altmann, and Allen (2021) said that reliability is often assessed through measures of internal consistency and test-retest reliability. Internal consistency measures the extent to which different items or questions in a survey or instrument are measuring the same construct, while test-retest reliability measures the stability of the same instrument over time (Reynolds, Altmann, and Allen, 2021, 169). Higher levels of internal consistency and test-retest reliability indicate higher levels of data reliability.

Validity, on the other hand, can be assessed through several different measures, including content validity, criterion-related validity, and construct validity. Content validity refers to the extent to which the questions or items in an instrument are representative of the construct being measured (Testing and Assessment: Reliability and Validity, no date). Criteria-related validity refers to the extent to which the instrument is able to predict outcomes that are related to the construct being measured. Construct validity refers to the extent to which the instrument is measuring the construct it is intended to measure.

For this paper, the questionnaire was made according to the aims and objectives. Considering them, the outcome supports their going extinct. So, the predictive validity theory, which falls under criterion related validity tests the validity of this research. criteria-related validity, is a method of testing the validity of data in quantitative research.

Data was collected through self-administered online questionnaires about their recent experiences because of organizational change. These are the following steps that were taken:

Observing the participants in the natural context. Collecting the required data. Organizing the data to get a clear view of the survey. Analyzing the gathered data with making interpretations based on the insights suggesting solutions and recommendations based on the problem. For data validation and reliability, internal consistency is considered.

4.3 Commissioning Company

Surfing the Wikipedia website, it is found that National Finance Limited, established on July30, 2001, is a financial institute better known for providing services like auto loan, SME loans, home loans and personal loans. Deen Mohammad Bhuiyan and National Professor Kabir Chowdhury are its creators of National Finance Limited. There are 12,628,395 dollars in its total paid-up capital (Wikipedia, 2022). According to the National Finance Ltd. website, the vision of the organization is that, through quality, commitment, accountability, innovation, and inclusion, they hope to become the top financial institution by acting as a powerful catalyst in building a bright future for our clients, team members, communities, and shareholders. They have a total of four particular missions for bringing together motivated employees, top-notch procedures, clever technology, international networks, and exceptional entrepreneurial acumen to: provide a secure financial future and enduring peace of mind; establish and maintain an impartial workplace; provide value for our partners and shareholders; and add value to communities and economies (National Finance Ltd., no date).

As a financial institute, it has managed to attain a great level of response in the national market. Mizanur Rahman, the commissioner of this research paper, is designated as the AVP of National Finance Limited. National Finance Limited is a financial institution that operates in Bangladesh. It is in the capital city of Dhaka. National Finance Ltd. is a full-fledged Non-Banking Financial Institution (NBFI), regulated by Bangladesh Bank. The company provides a wide range of financial products and services, including loans, deposits, leasing, and investment products. National Finance Limited is committed to providing reliable and customer-centric financial services to individuals, small businesses, and corporate clients. The company is known for its innovative approach to financial services and its emphasis on transparency, integrity, and accountability (National Finance Ltd., no date).

5 DATA ANALYSIS & RESULTS

The data analysis and results section of a thesis paper on the impact of organizational change on productivity presents the findings of the research study. The following are some key components of this section:

5.1 Data analysis methods

As there are numerous ways to analyze research, it is important to choose the right way to do it. There are many methods and tools to use in this modern age. With the help of technology, less time-consuming answers are expected.

For this research, Microsoft Excel was used to analyze the data of 32 respondents. The survey was done with Bangladeshi citizens. The exact timing of the survey collection started on March 31 and closed on April 5. The link to the Google Forms was circulated to the survey candidates to initiate the research. Then the data was extracted from a Google Forms. Pivot table was used to calculate the frequency and relative frequency of this analysis. Most of the questions asked will be displayed to show the outcomes and draw a proper scenario by interpreting the results.

5.2 Descriptive statistics

Descriptive statistics such as average, median, frequencies, and percentages are given to provide an overview of the data and its distribution. The descriptive statistics will help readers understand the characteristics of the sample under study.

In total, 32 samples were collected with the Google Forms, in which 23 were male and 9 were female. So, approximately three-fourths of the total population were male. The average age of the respondents is 34 years and 2 months. The average work experience is 6 years and 11 months, which can be said to be almost 7 years.
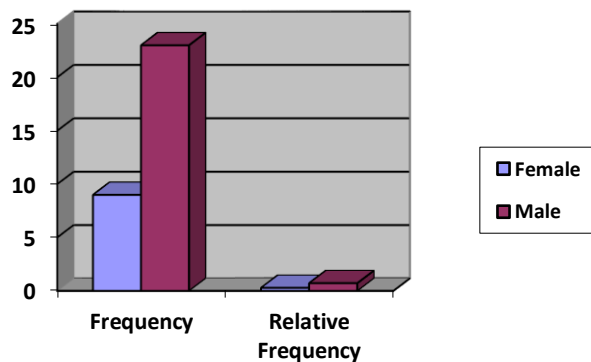
GRAPH 1. Gender Ratio (n=32)

5.3 Inferential statistics

In this section, the results of the statistical tests will be described and statistically interpreted. The results are presented in tables or figures, and their statistical significance is reported underneath.

5.3.1 Communication

For communicating, the employes use different ways. In case of this survey most of them are using Facebook, WhatsApp. As out of 32 persons, 8 uses Facebook & WhatsApp, 6 uses Facebook, WhatsApp & LinkedIn, 4 persons uses Facebook only; and other media are used so rarely. This shows that, people are more comfortable using internet services for communicating in terms of official communication. The reason of using Facebook and WhatsApp is because of its' sophisticated uses and cost efficiency.
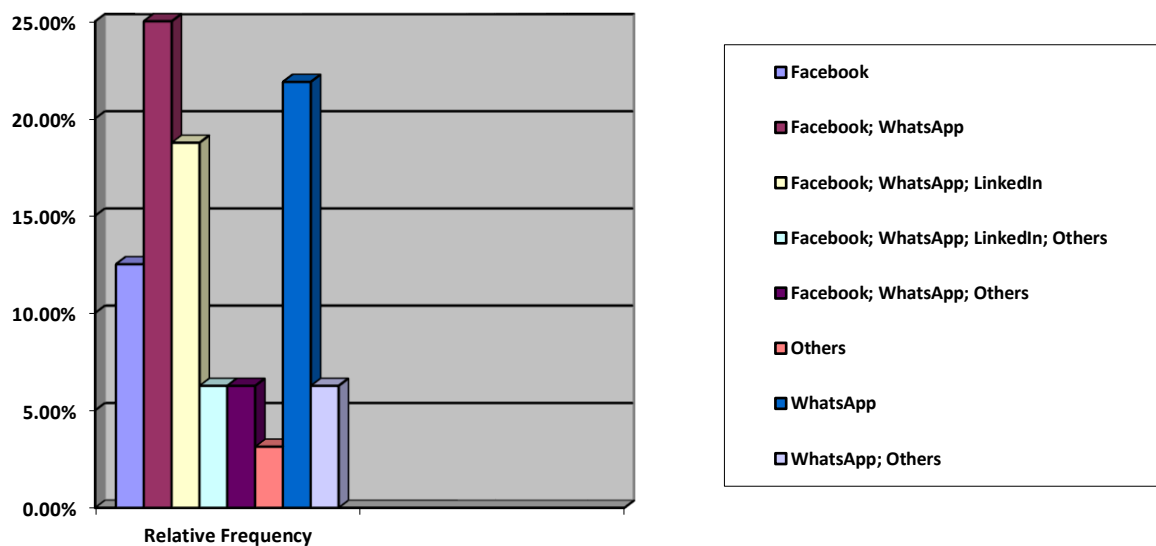
GRAPH 2. Communication Media

5.3.2 Usage of employee evaluation tools

Tracking employees with any kind of software or online server is quite common in offices. By tracking employees' work and progress, proper growth and scope for improvement can be identified. In this study, 28 people out of 32 have experienced a tracking system, which is 87.5 percent. It shows a highly considerable number, which implies organizations are relying on this kind of technological system.
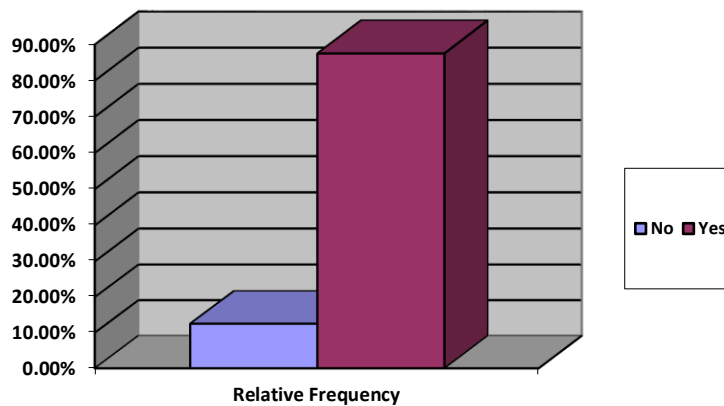

GRAPH 3. Tracking Record

Another sudden technological transformation occurred during the COVID-19 lockdown days. Most employees had to shift their workstations at home, and this brought a meaningful change in the post-lockdown work culture. Even though locked down existed, there were some. Some employees had to attend the office physically. 68.75 percent of the employees had attended work from home and gone to the office. As most of the respondents were from financial institutions or banks, the prevalence rate is acceptable. Only 6.25 percent of people had attended the office physically, and the rest were working at home.
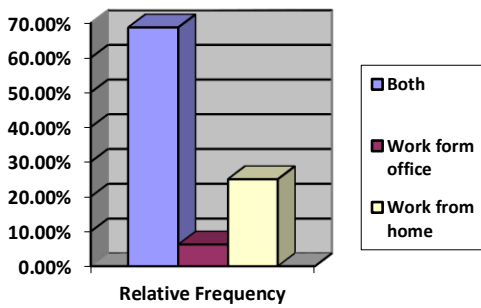
GRAPH 4. Workstation during covid-19

During COVID-19, 43.75% of respondents were highly satisfied, and 25% were satisfied with the positioning of their workstation. So, the applied technological changes during the COVID period brought better achievements for the respondents. In most cases, people submitting their work online and skipping the traffic jam made room for extra leisure time.
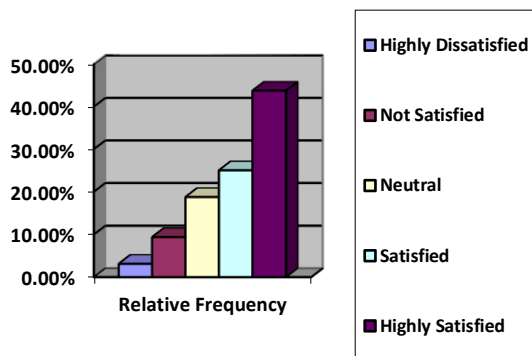

GRAPH 5. Satisfaction level at work during covid-19

28 out of 32 respondents which is 87.50 percent preferred working from home rather than working at the office. It looks like most of the employees were comfortable working at home. The reason can be anything. But the main question raises that, does this significant response have a willing effect on positive contribution on organization on not.
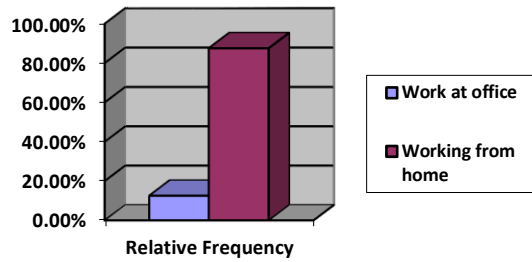
GRAPH 6. Workstation preference

5.3.3 Technological change

The frequency of technological change in an organization can vary depending on a variety of factors, such as the industry, the size of the organization, and the pace of technological advancements in the market. When the question, 12. Have you experienced any technological change in your organization recently? was asked, 28 out of 32 respondents experienced technological changes in their respective organizations in recent times, and 26 of them have participated in a training program that was held to adapt to technological change.
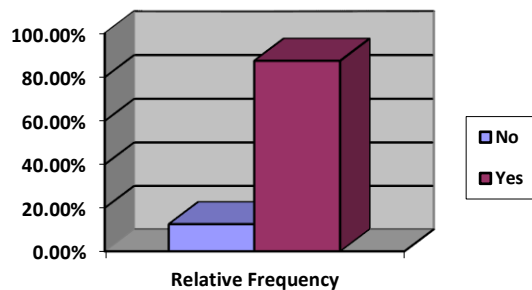

GRAPH 7. Experiencing Technological Change

The tilling effect shows how organizations are taking initiatives about installing technologies and adapting them to run the organization in a better way. Here, in question 13, If the answer to #12 question is yes, have you have received any training on how to use these new technologies? was asked. Then 81.25% of the total population said yes, and the rest responded with no. So, it implies that installing new technology requires training in most cases.
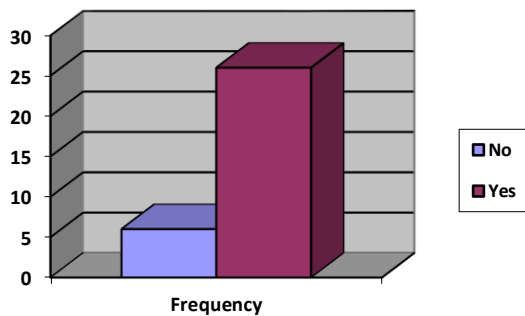

GRAPH 8. Receiving Training

In terms of applying the changes, respondents feel that the change in technology has noticeably modified their daily routine and responsibilities. For question 14, the technological change brought momentous changes to your daily work routines and responsibilities, out of 32 respondents 14 of them agreed, and 12 of them strongly agreed, that technological change has somehow affected their daily routine and responsibilities.
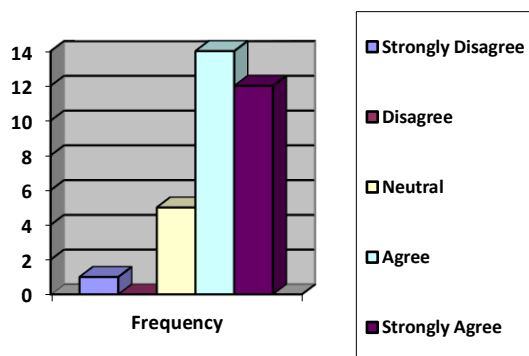
GRAPH 9. Change in routine and responsibilities

5.3.4 Adapting the technological change

Respondents answered positively to the statement 16. As it was asked if the respondent aggress with the statement, I feel more efficient and confident after adapting to the technological change, 43.75 percent agreed on the question, and 21.88 percent strongly felt that efficiency at work has increased after adapting the technology and applying it in daily work.
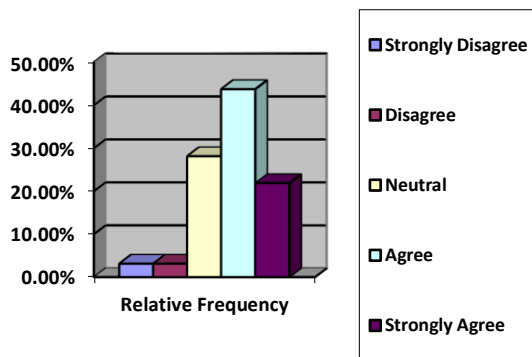

GRAPH 10. Increase in work efficiency after adapting to technological changes

Dealing with customers, stakeholders, and employees after the technological change appears can be different. In this research, the data shows that respondents to the question 19, How much did the introduction of these recent technologies affect the organization's ability to communicate and collaborate with employees, customers, and other stakeholders? has been neutral when it comes to observing changes in communication and collaboration among the stakeholders, customers, and employees. 20 respondents did not notice any changes, but the other 9 respondents have seen drastic changes.
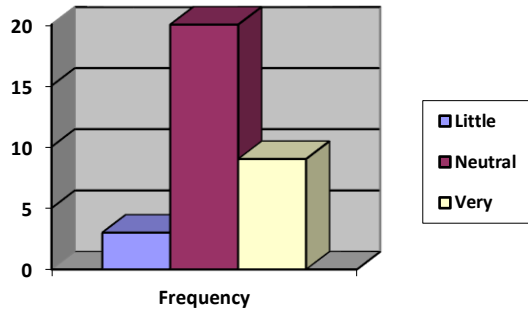
GRAPH 11. Impact on organization's ability to communicate and collaborate customers, and other stakeholders

The change in technology at a particular organization may bring out its true potential and increase its competitiveness in the industry. "The question 18" Do you think that technological change increases the organization's competitiveness in the industry? was answered, with 81.25 percent of respondents experiencing an increase in competitiveness at the industry level.
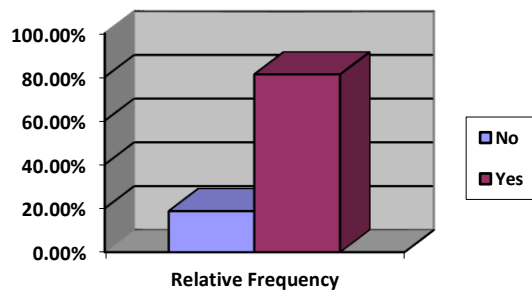

GRAPH 12. Competitiveness in the industry

In many cases, adapting to technological change has been difficult and challenging. But after adapting to the change, the scenario has also changed. This paper showed the same kind of situation. Here, the impact of technological change on the way the organization was operating before the change occurred has changed. The statement 20. Technological change has highly impacted the way work is done in the

organization was answered with, 46.88% agreeing and 18.75% strongly agreeing that the way the organization is operating has been noticeably affected by technological changes.
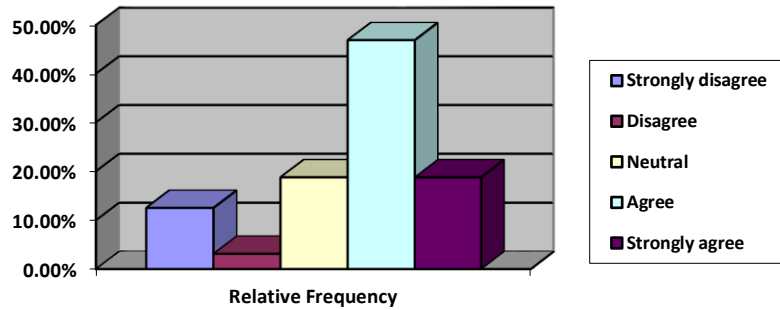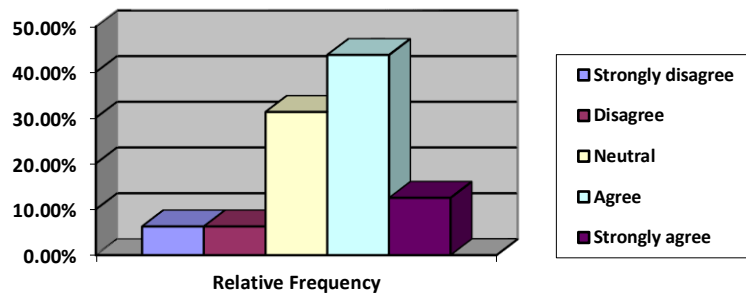

GRAPH 13. Positive impact of technological change on operating system

But while implementing technological change, three-fourths of the total respondents faced difficulties and challenges. It has some risks associated with it, but proper adaptation can bring positive changes to the organization. "When question 21" Have you noticed any challenges or difficulties the organization was facing while implementing the technological changes? was asked, 75 percent answered yes.
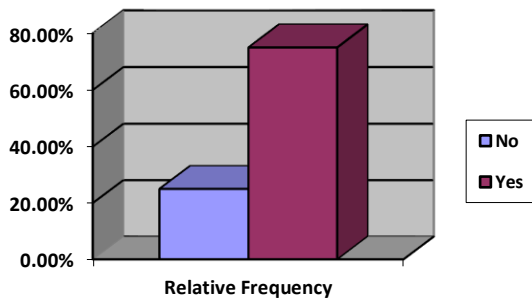
GRAPH 14. Facing challenges and difficulties

Individual job satisfaction and morale are quite helpful to an employee when it is time to increase efficiency and skill. So, technological change here has increased the job satisfaction level and morale of employees. For "the statement 22" Technological change has highly affected my job satisfaction or morale, 43.75% agreed, and 12.50% strongly agreed, that their job satisfaction and morale have increased after implementing technological changes.


GRAPH 15. Job Satisfaction and moral

5.3.5 Efficiency and productivity

Efficiency and productivity are two critical factors that can be positively impacted by technological change in an organization. Mostly, the reason to implant modern technologies is to increase efficiency and productivity. Efficiency and productivity are interrelated, as increasing production with the same amount of capital after implementing new technological changes is a sign of efficiency. Another way is if the time consumption after implementing recent technology is reduced, which is a sign of an increase in productivity and efficiency. Here, 23. Do you think the required time for work has significantly reduced after adapting to innovative technology? question was answered with, 84.38% respondents experienced reduced time to complete the same task after the technological change was made.

On the other hand, Table 17 contains the question 24. Do you think the introduction of these modern technologies affects employee productivity significantly? shows the respondents have noticed the

organization has been more productive since the emergence of technological implementation. 26 respondents out of 32 answered positively when asked if the introduction of these recent technologies increases employee productivity.

"If the answer to question #24 is yes, to what degree does the introduction of these innovative technologies affect employee productivity?" was the question 18, situated on graph 18. It shows responses to the question at what level the productivity has increased, 37.50% said the productivity got higher than before, and 28.13% of respondents believe the degrees of productivity rose as high as ever before. 21.88% of respondents have experienced productivity, but it was moderate from their perspective.
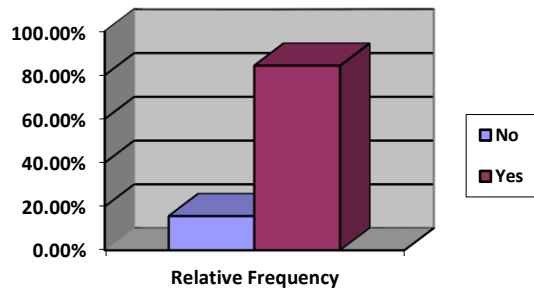
GRAPH 16. Time consumption after implementing technological change.
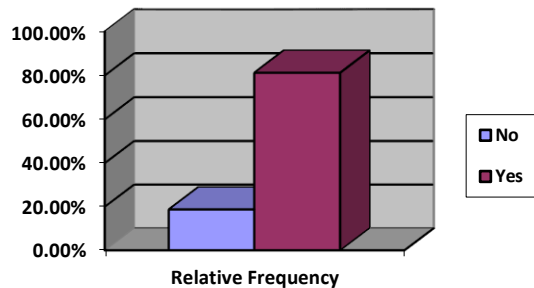

GRAPH 17. Employee Productivity
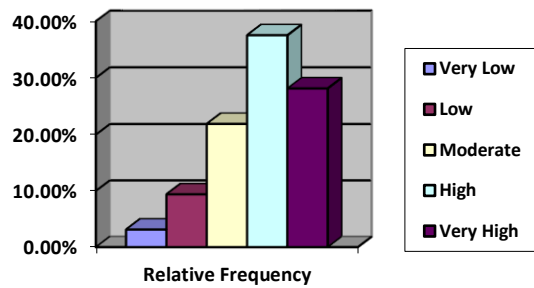
GRAPH 18. Degrees of productivity

Cost reduction can be another sign of better productivity. Here, in Table 19, for question 26, "have the technological changes resulted in any cost savings or increased efficiency for the organization?", 65.63 percent of the respondents agreed that technological change is responsible for reducing the cost of operating and maintaining the organization.
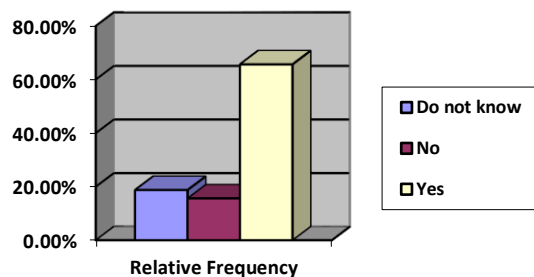
GRAPH 19. Cost reducing

The cost efficiency can be measured in an unusual way, too. If a technological change can reduce mistakes and increase accuracy in production, productivity will also increase. Table 20, containing question 27 "Does technological change reduce error and increase accuracy?", shows that 21 respondents out of 32 believe that the change has dealt with either reducing error or increasing accuracy.
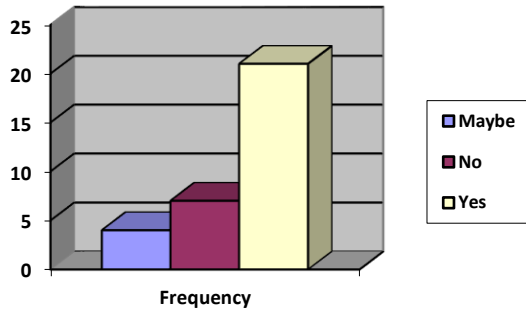
GRAPH 20. Reducing error and increasing accuracy

The main purpose of installing the new technological system is to reduce the time it takes to manage the same amount of work in less time with the help of modern technology. Here in Table 21, for the statement 28, "By adapting the innovative technology, large volumes of work are handled in less time", 43.75% agreed and 37.50% strongly agreed that it takes less time to process large volumes of work after adapting the training.
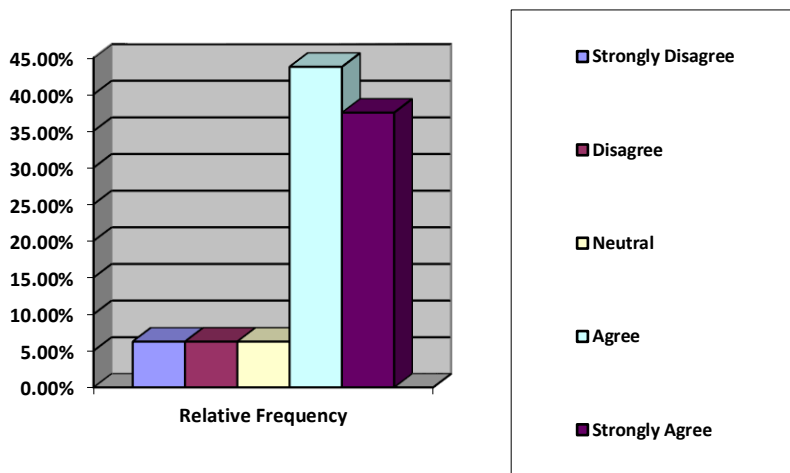

GRAPH 21. Large volume of work is handleable in lesser time.

**5.3.6 Leading to other type of organizational changes**

Technological change can have an impact on other types of organizational change, and the two can often be interdependent. This section will answer if technological change has any influence on other types of organizational changes.

Answering question 32, "Did you notice any new hiring for executing the technological change?" graph 22 shows that, 22 of 32 respondents experienced new hiring when technological change took place. It implies that technological change has a significant impact on people-centric organizational change. Adapting to recent technology requires new hires.
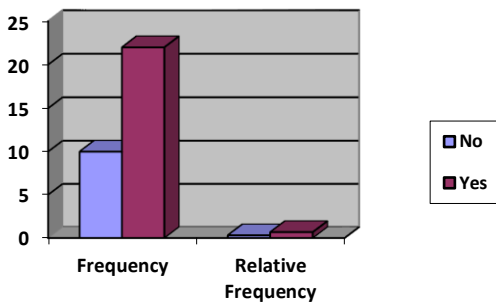

GRAPH 22. New Hiring

Sometimes a particular change influences a type of change that is unexpected. Table 23 shows that technological change has influenced the culture a bit. For statement 33, "Technological changes impacted the culture of the organization", 50% of people agreed, and 18.75% strongly agreed, that the cultural change occurred after the technological change arrived.
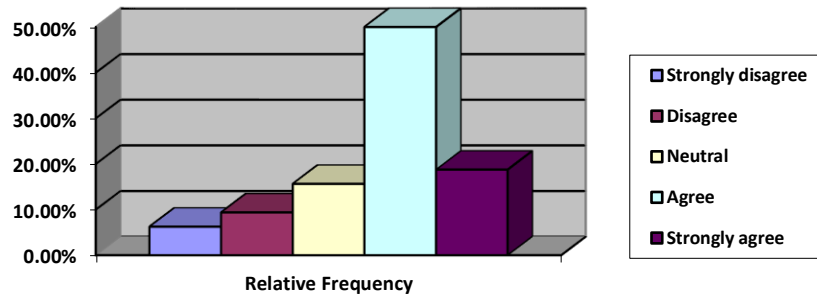
GRAPH 23. Impact in culture

The existence of strategic transformational change can also be seen in this paper. As 81.25% answered the question 34, "Have any existing processes or policies been modified to support the use of these new technologies?" by saying yes to experiencing policy wise alteration when the technological change took place. Here, the change in policies states the existence of strategic transformational change.
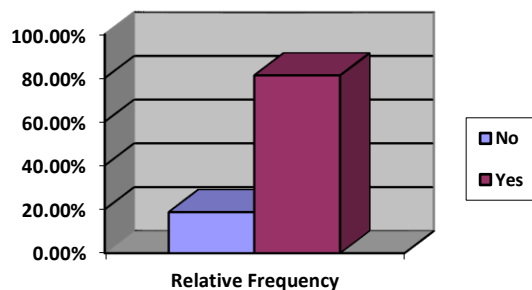
GRAPH 24. Change in policies.

Changes in job responsibilities explain strategic transformational change. Answering question 35, "Did technological change result in any changes in your job roles or responsibilities?" at graph 25, shows that 21 people received different responsibilities after the technological upgrade; the technological transformation might be responsible for the strategic transformational change here.
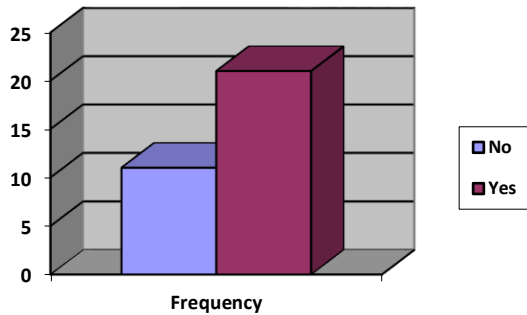
GRAPH 25. Impact on job responsibilities

Any physical transformation is a structural change. Most of the employees have seen the installation of new devices or renovations in the office. 68.75% is a sizable number that can prove that structural change occurred. As question 36, "Did you notice any infrastructural modifications made due to technological change?" was answered with 22 responses that said yes.
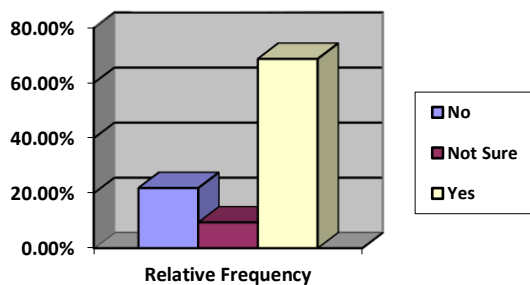

GRAPH 26. Impact on infrastructure

Table 27 represents the question 17, "Have any technological changes led to the creation of new products or services for the organization?". The presence of strategic transformational changes can be seen. As introducing a new product or service is a strategic transformational change, 65.63% respondents agreed that facing a new product or service signifies the existence of a strategic transformational change.
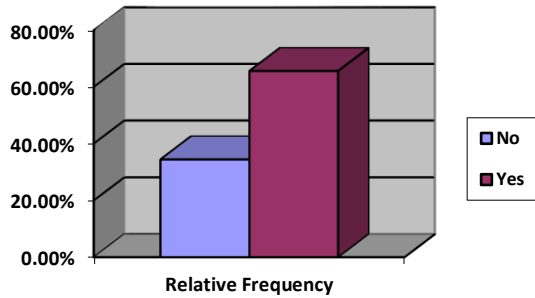
GRAPH 27. Introducing new products or services

5.3.7 Training

As installing modern technology is supposed to be an unprecedented event, to make it familiar, the organization must provide proper training for the employees. Here in Table 28, the question 29 was, it was very hard for me to adapt to the technological change. 56.25 percent of respondents answered in favor of facing difficulties during learning and adjusting to the new technological changes during the training. So, it creates a negative impact on the employees when a new change occurs.
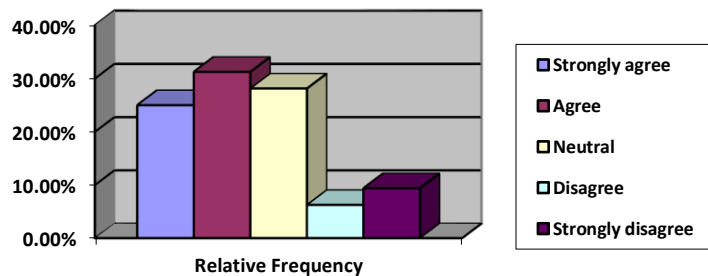
GRAPH 28. Training Difficulty

Answering question 30, "Were there any requirements or exams needed to ensure that employees have the necessary technical skills and knowledge to effectively use modern technologies?" in graph 29, 25 people responded that to adapt to modern technology, prerequisites were available. So, attending the training was not for everyone. It can be said that not everyone has access to technological change.
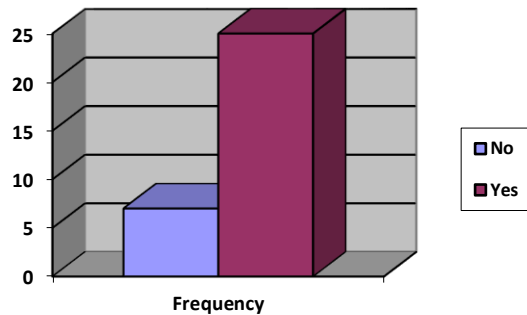
GRAPH 29. Training Requirements

Most of the training is provided in groups or batches. So, one employee can observe the situation of others. The question 31 was, "what do you think, overall, about how hard it was for your colleague to adapt to the change?". Only 9.38% respondents said it was easy for others to adapt to the training. Even though 37.50% of respondents did not notice what the other situation was, 31.25% of respondents observed that other employees were facing difficulties during the training session.
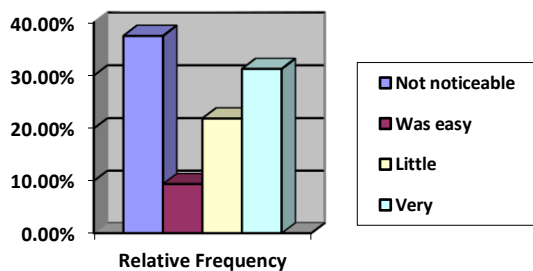
GRAPH 30. Situation of other employees during training

5.4 Discussion of results

After analyzing all the questions, the impact of technological change can be seen as having a positive impact on the organization. Though in some cases the change's influence is not up to par, in most cases it is.

The most influence is seen in the efficiency and productivity section. As technological organizational change's main goal is to help an organization grow its true potential in efficiency and productivity. There is evidence that shows proof of growth in productivity that came through installing and adapting innovative technologies.

The COVID-19 situation was an unplanned change. As the way of operating was changed and mostly backed by technological support, it can be said that the technological change brought a notable change in the lockdown situation.

Technological change responsible for influencing other organizational changes shows that structural change, people-centric organizational change, strategic transformational change, and unplanned change were experienced by the respondents after adapting to technological upgrades.

Only the training sector shows a different story. The respondents have faced difficulties while learning the features of that technology. So, even though technological change promises impressive results, it needs the employees to sustain the training procedure.

5.5 Recommendations

Technological changes have two sides, like a coin. It brings blessings when applied properly. But if the implementation goes wrong, both time and money will be wasted. So, it is important to monitor and thoughtfully plan what and how the technology will be introduced. This paper indicates that proper concentration must be given to the employees when training is provided. As the employees may face difficulties during the training period. Lastly, before implementing new technical changes, the sustainability of the organization should be kept in mind.

6 CONCLUSIONS

Throughout the paper, many aspects were discussed. The main goal was to find any significant positive or negative impact of technological organizational change on productivity. Overall, the research can conclude that technological organizational change has impacted productivity in numerous ways. One of the most important and noticeable impacts of the research is that different types of organizational changes are interdependent. Due to technological change, other types of organizational changes are also influenced, and the other types of change may also influence technological change to occur as well. As there can be many different causes for the organizational change to take place, the effects are very reactive, according to what was found. Even insignificant changes can have a broader impact. As changes are frequently happening these days, the main concern before taking a change-related decision will be to invest in technological upgrades after evaluating the effectiveness and sustainability of installation.

The aim of this thesis was to identify whether the impact of technological change was efficient or not. The impact of technological change does really have any impact on other types of organizational change. The paper shows healthy symptoms of technological change affecting productivity efficiently. Section 5.3.6 of this paper shows how technology influences other types of changes significantly. So, the aims of this paper were properly achieved. The participation of technology is quite significant when it comes to affecting productivity and influencing other organizational changes.

The objective determines the cause and effect of organizational change. Here, the technological change showed many different effects. Influencing other types of changes and getting influenced by other types of changed also. One of the most important one is affecting productivity both directly and indirectly.

Organizational change is a necessary process that organizations must undergo to remain relevant and competitive in today's rapidly changing business environment. Technological change is a critical aspect of organizational change, as it can significantly impact an organization's operations, culture, and overall strategy.

To successfully implement organizational change, organizations must have a comprehensive plan, involve all stakeholders, provide training and support, monitor progress, address concerns, and measure success. Change can be challenging and disruptive, but it is essential for organizations to embrace change and adapt to recent technologies and ways of doing things. By doing so, organizations can improve efficiency and productivity, enhance their culture, and achieve their strategic goals.

REFERENCES

Adam B. J. 2010. *Handbook of the Economics of Innovation*, Volume 2. Available at: https://www.sciencedirect.com/topics/economics-econometrics-and finance/technologicalchange#: ~:text=A%20technological%20change%20(TC)%20can, invention%2C%20innovation%2C%20and%20diffusion. Accessed: April 09, 2023.

Aishu, I. 2019. *What is Organizational Change?* - Meaning, Types, Levels, Barriers, Efforts. [online] Economics Discussion. Available at: https://www.economicsdiscussion.net/organisation/what-is-organisational-change/31897. Accessed January 13, 2023.

Alasdair, Johnston, Lefort, F. & Tesvic, J. 2017. *Secrets of successful change implementation.* Available at: https://mckinsey.com/capabilities/operations/our-insights/secrets-of-successful-change-implementation. Accessed: April 30, 2023.

Arther, G. 2023. *5 Types of Organizational Change and How to Manage Them*. Available at: https://www.apty.io/blog/types-of-organizational-change/. Accessed February 21, 2023.

Athuraliya, A. 2023. *5 Gap Analysis Tools to Identify and Close the Gaps in Your Business*. Available at: https://creately.com/blog/strategy-and-planning/gap-analysis-tools/. Accessed: March 11, 2023.

Banning, D. 2019. *What is Transformational Change? Why Is It Hard to Do Well? An Example Framework & Case Study.* Available at: https://www.businessagility.net.au/post/2019/08/23/what-is-transformational-change-why-is-it- hard-to-do-well-an-example-framework-case-study. Accessed January 11, 2023.

Billingsley, K. 2020. *Conclusion.* Available at: https://pressbooks.pub/anne1/chapter/conclusion/. Accessed: February 05, 2023.

Bls.gov. 2019. *U.S. Bureau of Labor Statistics*. [online] Available at: https://www.bls.gov/k12/productivity-101/content/why-is-productivity-important/home.htm. Accessed: April 13, 2023.

Bordia, P. et al. 2004 *"Uncertainty during organizational change: Is it all about control?"* European Journal of Work and Organizational Psychology, 13(3), pp. 345–365. Available at: https://doi.org/10.1080/13594320444000128. Accessed: April 30, 2023.

Brown, L. 2023 *"Change Management Definition – Understanding Types of Organizational Change Strategies,"* Invensis Learning Blog [Preprint]. Available at: https://www.invensislearning.com/blog/change-management-definition/. Accessed: April 12, 2023.

B.Tiny. 2022. *The Best Examples of Organizational Change: Examples from Industry Giants*. Available at: https://www.tinypulse.com/17-essential-survey-questions-to-predict-employee-attrition-and-turnover. April 09, 2023.

Cahill, D.J., PhD. 2020. *Maintaining Employee Morale through Company Leadership Changes*. Available at: https://hsdmetrics.com/blog/employee-retention/maintaining-employee-morale- through-company-leadership-changes/. Accessed: March 06, 2023.

Carnell, C. & Kolltveit, B. 1980. *"The Evaluation of Organizational Change,"* Journal of General Management, 6(2), pp. 8–15. Available at: https://doi.org/10.1177/030630708000600202. Accessed: February 05, 2023.

Change Management: *The Impact on Organizations* | Monitask. 2023. Available at: https://www.monitask.com/en/blog/change-management-the-impact-on-organizations. Accessed: February 05, 2023.

Chiang, I.-C.A. 2015. *Reliability and Validity of Measurement*. Available at: https://opentextbc.ca/researchmethods/chapter/reliability-and-validity-of-measurement/. Accessed: April 30, 2023.

Corona, K. 2022. *Improve the Efficiency of Any Process*. Available at: https://www.pipefy.com/blog/improve-process-efficiency/. Accessed: March 18, 2023.

Daniel, C.O. 2019. *"Effect of Organizational Change on Employee Job Performance,"* Asian Journal of Business and Management, 7(1). Available at: https://doi.org/10.24203/ajbm.v7i1.5700. Accessed: February 09, 2023.

Daly, C. 2022. *How to Manage Transformational Change in Your Organization*. Available at: https://thoughtexchange.com/blog/how-to-manage-transformational-change-in-your- organization/. Accessed: April 09, 2023.

Dharma, S. 2020. *Management Study Guide. Different Types of Change (2022).* Available at: https://www.managementstudyguide.com/types-of-change.htm. Accessed: April 09, 2023.

Errida, A. & Lotfi, B. 2021. *"The determinants of organizational change management success: Literature review and case study,"* International Journal of Engineering Business Management, 13, p. 184797902110162. Available at: https://doi.org/10.1177/18479790211016273. Accessed: April 07, 2023.

Eveleigh, D. 2019. *Top Down or Bottom Up? A Change Management Perspective.* Available at: https://www.linkedin.com/pulse/top-down-bottom-up-change-management-perspective-david- eveleigh/. Accessed: March 17, 2023.

Faber, G. 2022. *Adapting Technology Learning Curves for Prospective Techno-Economic and Life Cycle Assessments of Emerging Carbon Capture and Utilization Pathways*. Available at: https://www.frontiersin.org/articles/10.3389/fclim.2022.820261/full. Accessed: March 10, 2023.

Fisher, C.M. and Barrett, F.J. (2019) "The Experience of Improvising in Organizations: A Creative Process Perspective," Academy of Management Perspectives, 33(2), pp. 148–162. Available at: https://doi.org/10.5465/amp.2017.0100. Accessed: March 06, 2023.

Forsyth, E. 2021. Study.com |*Research Schools, Degrees & Careers*. Available at: https://study.com/academy/lesson/organizational-culture-and-change.html Accessed: February 5, 2023.

Fleetwood, D. 2023. *"Quantitative Research: What It Is, Tips & Examples,"* QuestionPro [Preprint]. Available at: https://www.questionpro.com/blog/quantitative-research/. Accessed: April 30, 2023.

Francis, A. 2018. *Advantages and Disadvantages of Organizational Change*. Available at: https://www.mbaknol.com/management-concepts/advantages-and-disadvantages-of- organizational change/. Accessed: April 04, 2023.

Francis, A. 2014. *Unplanned Organizational Change*. Available at: https://www.mbaknol.com/modern-management-concepts/unplanned-organizational-change/. Accessed: April 14, 2023.

Ganti, A. 2021. *Structural Change Definition.* [online] Investopedia. Available at: https://www.investopedia.com/terms/s/structural_change.asp Accessed February 01, 2023.

Greiner, L.E. 2014. *Evolution and Revolution as Organizations Grow*. [online] Harvard Business Review. Available at: https://hbr.org/1998/05/evolution-and-revolution-as- organizations-grow. Accessed: April 09, 2023.

Gupta, D. 2023. *"6 Types of Organizational Change, Explained,"* The Whatfix Blog | Drive Digital Adoption [Preprint]. Available at: https://whatfix.com/blog/types-of-organizational- change/#:~:text=What%20Is%20Organizational%20Change%3F, different%20forms%20of%20organizational%20change. Accessed: March 22, 2023.

Hamilton, C. 2022. *Change Management Communications in A Company: A Full Guide for 2022*. Available at: https://www.alert-software.com/blog/change-management-communication- guide. Accessed: February 04, 2023.

Holliday, M. 2022. *"What Is Productivity? Why It Matters & How to Measure It,"* Oracle NetSuite [Preprint]. Available at: https://www.netsuite.com/portal/resource/articles/business-strategy/productivity.shtml. Accessed: March 11, 2023.

Hyslop, C. 2023. *How can technology improve productivity? Let us count the ways.* | Glasscubes. Available at: https://www.glasscubes.com/how-can-technology-improve- productivity/ Accessed: April 21, 2023.

Idemudia, E.C. (ed.) 2020. *"Handbook of Research on Social and Organizational Dynamics in the Digital Era,"* Advances in Human Resources Management and Organizational Development [Preprint]. Available at: https://doi.org/10.4018/978-1-5225-8933-4. Accessed: March 10, 2023.

Jones, R. 2020. *5 Strategies to Increase Adoption of New Technology.* Available at: https://www.trainingfolks.com/blog/5-strategies-to-increase-adoption-of-new-technology. Accessed: March 10, 2023.

Kenton, W. 2019. *Productivity.* [online] Investopedia. Available at: https://www.investopedia.com/terms/p/productivity.asp Accessed: April 08, 2023.

Lambertson, S. 2020. *"Change Management: Understanding the Type and Drivers of Change,"* Cloud for Good [Preprint]. Available at: https://cloud4good.com/announcements/change- management-understanding-the-type-and-drivers-of-change/. Accessed: March 09, 2023.

Lawton, G., & Pratt, M.K. 2022. *Change management, CIO* [Preprint]. Available at: https://www.techtarget.com/searchcio/definition/change-management. Accessed: March 18, 2023.

Leonard-Barton, D. 2014. *Implementing New Technology.* Available at: https://hbr.org/1985/11/implementing-new-technology. Accessed: March 10, 2023.

Lorraine 2022. *"How to Conduct a Survey That You Can Trust In 8 Steps,"* Pollfish Resources [Preprint]. Available at: https://resources.pollfish.com/market-research/how-to-conduct-a- survey-that-you-can-trust-in-8-steps/. Accessed: February 28, 2023.

Luca, A., Lupu, L.M. & Herghiligiu, I.V. 2016. *"ORGANIZATIONAL KNOWLEDGE ACQUISITION - STRATEGIC OBJECTIVE OF ORGANIZATION,"* CBU International Conference Proceedings, 4, pp. 126–131. Available at: https://doi.org/10.12955/cbup.v4.753. Accessed: February 07, 2023.

Malik, P. 2023. *The Kübler Ross Change Curve in the Workplace (2023).* Available at: https://whatfix.com/blog/kubler-ross-change-curve/. Accessed: March 18, 2023.

Malik, P. 2021. *7 Barriers to Organizational Change (And How to Overcome Them).* [online] The Whatfix Blog | Drive Digital Adoption. Available at: https://whatfix.com/blog/barriers-to- organizational-change/. Accessed: March 18, 2023.

Marsh, M. & Sayre, M. 2019. *People-Centric Change Management.* Available at: https://www.workdesign.com/2019/10/people-centric-change-management/. Accessed: April 06, 2023.

Mariani, M. 2022. *How important is it to know your survey target audience?* Available at: https://www.idsurvey.com/en/how-important-is-it-to-know-your-survey-target-audience/. Accessed: March 02, 2023.

MBA Knowledge Base. 2013. *Unplanned Organizational Change.* [online] Available at: https://www.mbaknol.com/modern-management-concepts/unplanned-organizational-change/. Accessed: March 11, 2023.

National Finance Ltd. Available at: https://www.nfl.com.bd/ Accessed: April 30, 2023.

NIBUSINESSINFO. 2000. *Types of organizational change*. [online] nibusinessinfo.co.uk. Available at: https://www.nibusinessinfo.co.uk/content/types-organisational-change. Accessed: April 09, 2023.

Norbert J. 2023. *Jim Rohn Quotes on Life, Leadership and Time*. Available at: https://everydaypower.com/jim-rohn-quotes-2/. Accessed February 09, 2023.

Peek, S. 2023. *"5 Ways to Increase Business Productivity,"* business.com [Preprint]. Available at: https://www.business.com/articles/five-ways-to-increase-business-productivity/. Accessed: April 30, 2023.

Periyasamy, R. 2023. *4 Successful Enterprise Change Management Examples*. Available at: https://www.apty.io/blog/change-management-examples/. Accessed: February 05, 2023.

Pratt, M.K. & Sparapani, J. 2021. *"What is digital transformation?"* CIO [Preprint]. Available at: https://www.techtarget.com/searchcio/definition/digital-transformation. Accessed: February 23, 2023.

Reynolds, C.R., Altmann, R. & Allen, D. 2021. *"Reliability,"* Springer eBooks, pp. 133–184. Available at: https://doi.org/10.1007/978-3-030-59455-8_4. Accessed: April 30, 2023.

Roe, D. 2019. *The Role of Technology in Change Management.* Available at: https://www.cmswire.com/digital-workplace/the-role-of-technology-in-change-management/. Accessed: April 14, 2023.

Root, G., III. 2016. *What Causes Structural Change Within an Organization?* Available at: https://smallbusiness.chron.com/causes-structural-change-within-organization-436.html. Accessed February 21, 2023.

Ross, S. 2021. *"Why Is Productivity Important in Economics?"* Investopedia [Preprint]. Available at: https://www.investopedia.com/ask/answers/040615/why-productivity-important- concept-economics.asp. Accessed: March 13, 2023.

Ryba, K. 2022. *"How to Use Employee Engagement to Increase Motivation,"* Why are employee engagement and motivation important? 13 July. Available at: https://www.quantumworkplace.com/future-of-work/how-to-use-employee-engagement-to-increase-motivation. Accessed: April 30, 2023.

Saleh, J. 2023. *Change Management: The Impact on Organizations* | Monitask. Available at: https://www.monitask.com/en/blog/change-management-the-impact-on-organizations. Accessed: March 15, 2023.

Sharma, K. 2020. *4 Types of Organizational Change, Explained.* [online] Whatfix Digital Adoption Blog | Insights, News, Tips, Trends - Whatfix Blog. Available at: https://whatfix.com/blog/types-of-organizational-change/. Accessed January 11, 2023.

Shaw, M. 2018. *Unplanned Change and Crisis Management.* Available at: https://link.springer.com/referenceworkentry/10.1007/978-3-319-20928-9_748?error=cookies_not_supported&code=f31f0009-f6bd-4a91-95e3-93de2e07b7d1. Accessed: March 03, 2023.

Shinohara, S. 2016. *"History of Organizations,"* in Springer eBooks. Springer Nature, pp. 1–5. Available at: https://doi.org/10.1007/978-3-319-31816-5_1-1. Accessed: March 18, 2023.

SHRM. 2019. *Managing Organizational Change.* [online] SHRM. Available at: https://www.shrm.org/resourcesandtools/tools-and-samples/toolkits/pages/managingorganizationalchange.aspx. Accessed: March 08, 2023.

Singh Setia, M. 2016. *"Methodology Series Module 5: Sampling Strategies.,"* ResearchGate, pp. 505–509. Available at: https://www.researchgate.net/publication/316889481_Methodology_Series_Module_5_Sampling

_Strategies. Accessed: February 05, 2023.

Škrinjar, R., Bosilj-Vuksic, V. & Indihar-Štemberger, M. 2008. *"The impact of business process orientation on financial and non-financial performance,"* Business Process Management Journal, 14(5), pp. 738–754. Available at: https://doi.org/10.1108/14637150810903084. Accessed: February 21, 2023.

Smith, C. 2019. *The Nature of Organizational Change vs. Drivers of Change.* [online] The Change Management Blog. Available at: https://change.walkme.com/nature-of-organizational- change/. Accessed: March 18, 2023.

Spacey, J. 2020. *9 Examples of Transformational Change*. Available at: https://simplicable.com/en/transformational-change. Accessed: April 30, 2023.

Stack, L. 2015. *Increasing Creativity in Your Organization: Six Ways to Spark Innovative Thinking.* Available at: https://theproductivitypro.com/blog/2013/04/increasing-creativity-in- your-organization-six-ways-to-spark-innovative-thinking/. Accessed: February 04, 2023.

Stillman, J. 2008. *"Business Lessons from Alice in Wonderland,"* CBS News, 31 July. Available at: https://www.cbsnews.com/news/business-lessons-from-alice-in-wonderland/. Accessed: March 04, 2023.

Stress Management Strategies," Public Personnel Management, 38(1), pp. 17–32. Available at: https://doi.org/10.1177/009102600903800102. Accessed: April 12, 2023.

Suddaby, R. & Foster, W.M. 2016. *"History and Organizational Change,"* Journal of Management, 43(1), pp. 19–38. Available at: https://doi.org/10.1177/0149206316675031. Accessed: February 20, 2023.

Sutvski, D. 2020 *"The Evolution of Organizational Changes – 9 Predecessors,"* *Entrepreneurship in a Box* [Preprint]. Available at: https://www.entrepreneurshipinabox.com/443/evolution-of-organizational-changes/. Accessed February 03, 2023.

Tahir, U. 2020. *5 Types of Organizational Change*. Available at: https://changemanagementinsight.com/types-of-organizational-change/. Accessed: March 03, 2023.

Tanner, R. 2023. *Organizational Change: 8 Reasons Why People Resist Change*. Available at: https://managementisajourney.com/organizational-change-8-reasons-why-people-resist-change/

Accessed: April 12, 2023.

Tanzania, N. 2021. *"ORGANIZATIONAL CHANGE AND DEVELOPMENT,"* www.linkedin.com [Preprint]. Available at: https://www.linkedin.com/pulse/organizational-change- development-nice-tanzania/?trk=public_profile_article_view. Accessed: March 22, 2023.

Testing and Assessment - *Reliability and Validity*. Available at: https://hr-guide.com/Testing_and_Assessment/Reliability_and_Validity.htm. Accessed: April 30, 2023.

The Marlo Companies. 2021. *Top 10 Benefits of Organizational Change.* [online] Available at: https://themarlocompanies.com/2021/08/top-10-benefits-of-organizational-change/. Accessed: February 04, 2023.

Thompson, C. 2015. *Why Businesses Need to Adapt Change in a Rapidly Changing Business Environment to be Continuously Successful*. Available at: https://www.linkedin.com/pulse/why- businesses-need-adapt-change-rapidly-changing-colin-thompson/. Accessed: February 18, 2023.

Turner, A. 2021. *"How to Maintain Productivity During Organizational Change,"* Think Transition [Preprint]. Available at: https://thinktransition.com/how-to-maintain-productivity-during-organizational-change/. Accessed: April 30, 2023.

Vitez, O. 2019. *The Impact of Technological Change on Business Activity*. Available at: https://smallbusiness.chron.com/impact-technological-change-business-activity-2191.html. Accessed: April 14, 2023.

Wadood, S., Gharleghi, B. & Samadi, B. 2016. *"Influence of Change in Management in Technological Enterprises,"* Procedia Economics and Finance, 37, pp. 129–136. Available at: https://doi.org/10.1016/s2212-5671(16)30103-4. Accessed: February 15, 2023.

Waters, S., PhD 2023. *What Is Productivity? Definition and Ways to Improve.* Available at: https://www.betterup.com/blog/what-is-productivity. Accessed: March 03, 2023.

Wikipedia Project 2022. *"National Finance limited,"* Wikipedia [Preprint]. Available at: https://bn.wikipedia.org/wiki/%E0%A6%A8%E0%A7%8D%E0%A6%AF%E0%A6%BE%E0%A6%B6 %E0%A6%A8%E0%A6%BE%E0%A6%B2_%E0%A6%AB%E0%A6%BE%E0%A6%87%E0%A6%A 8%E0%A7%8D%E0%A6%AF%E0%A6%BE%E0%A6%A8%E0%A7%8D%E0%A6%B8_%E0%A6% B2%E0%A6%BF%E0%A6%AE%E0%A6%BF%E0%A6%9F%E0%A7%87%E0%A6%A1. Accessed: April 30, 2023.

Wilkens, P. 2022. *On-the-Job Training: How Technology is Powering New Era Programs - Spiceworks.* Available at: https://www.spiceworks.com/hr/learning-development/guest- article/on-the-job-training-how-technology-is-powering-new-era-programs/. Accessed: February 19, 2023.

Winston, K. 2019. *What is Technological Change? - Definition, Advantages, Impact & Examples - Video & Lesson Transcript* | Study.com. [online] Study.com. Available at: https://study.com/academy/lesson/what-is-a-technological-change-definition-advantages-impact-examples.html. Accessed: March 10, 2023.

Work Design Magazine. 2019. *Why Change Management Efforts Need to Be More People- Centric.* [online] Available at: https://www.workdesign.com/2019/10/people-centric-change- management/. Accessed: February 07, 2023.

Yu, M.-C. 2009. *"Employees' Perception of Organizational Change: The Mediating Effects of Stress Management Strategies,"* Public Personnel Management, 38(1), pp. 17–32. Available at: https://doi.org/10.1177/009102600903800102. Accessed: April 12, 2023.

APPENDIX 1/1

Survey questionnaire

The questionnaire includes potential questions related to technological changes in the organization and is given below.

1. Name   :
2. Age   :
3. Gender   :
4. Occupation   :
5. Work Experience   :
6. Designation   :
7. What media are used for communicating with other colleagues?
   a. Facebook
   b. WhatsApp
   c. LinkedIn
   d. Others
8. Does your organization use any software or server to keep track of employee records?
   a. Yes
   b. No
9. What was the organization's way of operating work during the pandemic?
   a. Work from home
   b. Work form office
   c. Both
10. If work from home was available, how satisfied would you be with shifting workstation athome?
    a. Highly Satisfied
    b. Satisfied
    c. Neutral
    d. Not Satisfied
    e. Highly Dissatisfied

APPENDIX 1/2

11. Which one was better for you, working from home or working at the office?

    a. Working from home

    b. Work at office

12. Have you experienced any tectological change in your organization recently?

    a. Yes

    b. No

13. If the answer to the #12 question is yes, did you have received any training on how to use these recent technologies?

    a. Yes

    b. No

14. Technological change brought significant changes to your daily work routines and responsibilities.

    a. Strongly Agree

    b. Agree

    c. Neutral

    d. Disagree

    e. Strongly Disagree

15. Was there any risk associated with technological change while learning?

    a. Yes

    b. No

16. I feel more efficient and confident after adapting the technological change.

    a. Strongly Agree

    b. Agree

    c. Neutral

    d. Disagree

    e. Strongly Disagree

17. Have any technological changes led to the creation of new products or services for the organization?

    a. Yes

    b. No

APPENDIX 1/3

18. Do you think that technological change increases the organization's competitiveness in the industry?
    a. Yes
    b. No

19. How much did the introduction of these modern technologies affect the organization's ability to communicate and collaborate with employees, customers, and other stakeholders?
    a. Very
    b. Neutral
    c. Little

20. Technological change has highly impacted the way work is done in the organization.
    a. Strongly Agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly Disagree

21. Have you noticed any challenges or difficulties the organization was facing while implementing the technological changes?
    a. Yes
    b. No

22. Technological change has highly affected my job satisfaction and morale.
    a. Strongly Agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly Disagree

23. Do you think the required time of work has significantly reduced after adapting to modern technology?
    a. Yes
    b. No

APPENDIX 1/4

24. Do you think the introduction of these innovative technologies affects employee productivity significantly?
    a. Yes
    b. No

25. If the answer to question #24 is yes, to what degree does the introduction of these modern technologies affect employee productivity?
    a. Very High
    b. High
    c. Moderate
    d. Low
    e. Very Low

26. Have the technological changes resulted in any cost savings or increased efficiency for the organization?
    a. Yes
    b. No

27. Does technological change reduce error and increase accuracy?
    a. Yes
    b. No

28. By adapting the recent technology, a large volume of work is handleable in less time.
    a. Strongly Agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly Disagree

29. It was very hard for me to adapt the technological change.
    a. Strongly Agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly Disagree

APPENDIX 1/5

30. Were there any requirements or exams needed to ensure that employees have the necessary technical skills and knowledge to effectively use new technologies?
    a. Yes
    b. No

31. What do you think, overall, how hard it was for your colleague to adapt to the change?
    a. Very
    b. Not noticeable
    c. Little

32. Did you notice any new hiring for executing the technological change?
    a. Yes
    b. No

33. Do technological changes impact the culture of the organization?
    a. Yes
    b. No

34. Have any existing processes or policies been modified to support the use of these new technologies?
    a. Yes
    b. No

35. Did the technological change result in any changes in your job roles or responsibilities?
    a. Yes
    b. No

36. Did you notice any infrastructural modifications made due to technological change?
    a. Yes
    b. No