

Exploring the Intersection of Society, Culture and Technology: Bridging the Knowledge Gap between Digital Transformation and Traditional Operations

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ABSTRACT

Digitalization is a transformative revolution essential for advancing any social structure in today's global economy. It requires organizations to embrace change and actively prepare their employees. Digital transformation plays a vital role in promoting traditional sectors in society and bridging the knowledge gap between digital and traditional operations, considering cultural and social aspects. This research explores the problems and challenges of digitalization, considering cultural and social factors. The findings show that a limited number of organizations have undergone digital development, including the Ministry of Finance, Information and Communication Technology, Passport Department, and National ID Cards (e-Tazkira) project. To achieve effective digital transformation, it is crucial to understand the cultural and social impact of bridging the knowledge gap. The study highlights the potential effects of digitalization on Afghanistan's economic, social, and environmental spheres. However, to fully realize the benefits, society must enhance its digital skills, awareness, maturity, and mindset regarding digital transformation processes and adapt to the use of technologies while considering the cultural and social aspects of bridging the knowledge gap between digital transformation and traditional operations. Moreover, the study reveals that advanced countries have made significant progress in digitalization, with only the transport and building industries gradually integrating digital technology into their business activities. Therefore, improving digital skills, knowledge, and utilization across society is recommended.

CCS CONCEPTS

• Software and its engineering → Patterns.

KEYWORDS

software engineering, organizational patterns, public awareness, cultural and social impact, digital transformation

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1 INTRODUCTION

Digital transformation has been a major focus for many researchers and practitioners over the past decades. By utilizing digital technologies such as artificial intelligence, big data analytics, the Internet of Things, blockchain, and other technologies, digital transformation encompasses the profound changes happening in every aspect of society, organizations, and industries.[17] In Afghanistan, over the last 21 years, organizations have grown into a collection of directorates, departments, and similar entities. During that time, organizations have increasingly developed to provide information resources and services to customers and society in times of need. The terms "digital organization" and "virtual organization" refer to the vast collection of information people need to access remotely. Societies need to raise their level of knowledge and familiarity with technology, and organizations should digitize their systems.

Since the advent of advanced technology, organizations have adopted a new type of digital technology. In moving towards digital technologies, these organizations have left behind many challenges and problems, including employee and management issues. This is because of their effect on employees and society as a whole. Now each organization must undergo paradigm shifts. Indeed, running traditional organizations is currently difficult due to a shortage of resources and time, which is crucial. Although digital organizations are now a vital part of the era, there are still several problems, such as technical staff shortages, resources, cultural issues, and high budgets for electronic devices.

1.1 Hybrid Approach

As technology rapidly advances, organizations face challenges in adopting advanced technologies. Today, organizations seek a hybrid approach, not relying solely on digital or traditional methods. This approach aims to cater to a diverse workforce, including those who may not use computers. Both older generations, who prefer traditional methods, and the current generation, reliant on electronic formats, coexist in developed and developing countries. While some

argue against a complete shift to digital, citing concerns about job displacement and the preservation of physical organizations, others see the benefits in enhancing operations through digital transformation. Employee satisfaction is found in facilities that offer both traditional and electronic formats. Many organizations now embrace a dual approach, transitioning from manual to digital processes while recognizing the opportunities and challenges presented by networking. Digital organizations provide convenience for users seeking quick services without physical visits. In today's age, users' information needs remain the same as in the past, prompting the exploration of new solutions.

1.2 People

Traditionally, organizations relied on manual processes, with people physically coming to the workplace to perform their tasks. However, with the rapid advancement of technology, organizations, particularly on a larger scale, have recognized the vital role of people in driving innovation and efficiency. As a result, they have embraced a combination of traditional and digital services to harness the strengths of both approaches. By valuing the contributions of people, organizations can better cater to their needs and preferences. As a society, we recognize the importance of fully accommodating traditional and digital approaches to leverage people's capabilities in technology-driven environments. Nowadays, organizations on a larger scale have adopted both traditional and digital services, and we cannot ignore the significance of both aspects in modern economic activities. Developed countries like the US, UK, and Europe, including countries such as Germany, have implemented various traditional and digital services for different reasons, considering people's diverse preferences and abilities. This inclusiveness extends to older individuals who may face challenges utilizing electronic formats effectively. By acknowledging the central role of people in technological advancements, we can create a more inclusive and user-friendly landscape where technology complements and enhances human capabilities. Striking the right balance between traditional and digital approaches enables organizations to serve their workforce and the broader community better, fostering an environment that promotes continuous progress and growth.

1.3 Society

The digitalization of society has a profound impact on organizations and the broader societal landscape, encompassing environments, business vitality, and the strength of the country as a whole. However, this transformative process also necessitates significant changes in organizations' cultures, environments, and ethical standards to effectively adapt to the digital era. In this context, the digital transformation of employee workflows is crucial in shaping an organization's overall culture and driving successful digital adoption. As leaders navigate this digital landscape, managing an organization's activities and employees becomes a challenging yet rewarding aspect of their responsibilities. Within this sphere, managers face the considerable challenge of effectively managing their employees, a task recognized as one of the most significant challenges in today's society. To address these challenges and harness the benefits of digitalization, effective management necessitates

ongoing training to cultivate a digital-first mindset among employees. By nurturing this mindset, organizations can align with the rapidly evolving digital landscape and effectively implement digital processes. Moreover, supporting employees with their personnel management responsibilities becomes essential to foster a cohesive and digitally empowered workforce. Integrating digital practices into the societal fabric presents an opportunity for organizations to thrive and positively impact the broader society. By embracing digital transformation and fostering a digital-savvy culture, organizations can contribute to the advancement of society as a whole while navigating the dynamic challenges of the digital age.

Organizational patterns are proven strategies that serve as a key for building and leading an organization. In various contexts of our daily lives, we encounter recurring problems, including creating new businesses, building and managing teams, designing and developing software, constructing infrastructure (roads, buildings, power dams, etc.), conducting research, writing reports, and more. As we strive to find reusable and sustainable solutions, these solutions are commonly referred to as patterns. Therefore, a pattern is described as a solution for a recurring problem in a specific context. OR a pattern is a recurring configuration that solves real problems within a context [8]. they exists from late 70's [2, 3]. The pattern shows the recurrence of a problem-solution and provides the explanation that binds them within a given context. Patterns are available practically in each organization and field for achieving certain goals. Agile software development-related organizational patterns deal with the patterns that might be used to solve certain problems in the context of agile and lean software development skills. Patterns are neither new phenomena nor the invention of humans, but humans are pattern recognisers, and the patterns already exist. Thus, the selection of a suitable pattern for a particular problem is still a challenge [5, 10].

There are several methods to select a pattern. One of them is to follow the composition and sequence of patterns are given in a pattern language that includes patterns and the rules to place those patterns concurrently in a meaningful way forming pattern sequences [2, 13, 16]. Digital transformation is a continuous and complex process designed to transform an organization and its operations substantially. Transformation is the holistic change in the business processes of an organization. Or technology is used to change the traditional way of business into a digital form, we call this process a digital transformation [6]. It's not just about technology or organizational changes. Still, it impacts the whole process (workflows, tasks, methods, constraints), people (culture, skills, capacity), and the organization's infrastructure. Independent of the enterprise or firm, digital transformation has aspects that can be ascribed to four essential dimensions, which are changes in value creation, structural changes, technology use, and financial factors [9]. IT is revolutionizing all aspects of life worldwide, including technology, education, business, and the international economy. Developing countries have not fully experienced this global revolution. Developing countries encounter many challenges in the transfer and adoption of digital transformation. These challenges include government policies, inadequate infrastructure, training, business processes, lack of expertise, insufficient capacity building, and cultural differences. This research emphasizes the significance of digital transformation for a single company as an example. It

highlights the pressing need for similar advancements in government agencies, private companies, universities, hospitals, and other organizations in today's society.

The rest of this paper is structured as follows. Section 2 explains the benefits of organizational change. Section ?? discusses the story behind the patterns. Sections 5–9 present the patterns we discovered. Section 10 covers discussion. Section 11 explains related work. Section 12 concludes the paper.

2 THE BENEFITS OF EMBRACING ORGANIZATIONAL CHANGE THROUGH DIGITAL SOLUTIONS

Organizations and their employees have benefited from technological change. With global spending on technology across all industries and organizations exploding over the last few decades, companies have rapidly adopted innovative technologies, mainly via the Internet. Technological change has increased efficiency, improved quality, faster product delivery, and enhanced communications among organizations and communities. It can also expand employee skill sets, improve communication, reduce costs, and foster innovation. Specific benefits may depend on the type of technology being implemented. For instance, organizations such as electronic National Identity Document (eNID) and the passport issuing department can benefit from adopting cutting-edge technology, which can assist them in analyzing large data sets quickly and efficiently. Implementing a technology solution will enable them to test their systems in an automated manner, increase productivity, and enhance the quality of their products.

Remote work is one way that technology can increase participation and involvement among remote employees. Sharing databases, intranets, and the entire country can increase the number of people involved in a project. Now, technology allows remote employees to participate and contribute from anywhere in the world, regardless of their location, thus overcoming the limitations of remote work. Employees can work at their convenience while collaborating and communicating with team members. Organizations can also stay ahead of their markets with cutting-edge technology. Today's businesses must adapt to fast-changing economic situations and meet client expectations. Failure to pay attention to client needs and market changes could result in organizations losing their competitive advantage. Furthermore, staying up to date with the updated technology could enable a company to capture untapped business prospects. Information technology can help organizations analyze their competitive position, manage their strategic goals, monitor supplier connections, and gain deeper insights into their customers. Transitioning from manual to digital systems offers numerous advantages, including:

Increased efficiency. Automation of many manual processes reduces the time and effort required to complete tasks, allowing employees to dedicate their time to higher-value tasks. Digital systems also reduce error risks and improve data accuracy compared to manual processes.

Improved cooperation. Digital systems enable teams to work together more easily, regardless of location, and can facilitate better communication and coordination among team members. Increased mobility: Digital systems often offer web or

mobile access, allowing employees to work from anywhere, on any device, increasing their flexibility and productivity. Better data management: Digital systems provide a centralized, secure repository for data, making it easier to manage and analyze data to inform decision-making.

Scalability. Digital systems can more easily scale to meet the growing needs of an organization as it expands.

Cost savings. Digital systems can reduce costs associated with manual processes, such as paper and printing costs, as well as improve overall operational efficiency.

Enhanced customer knowledge. Digital systems can improve the customer experience by enabling faster and more convenient service, such as automating the process of booking appointments, reducing wait times, and improving the customer experience.

Improved security. Digital systems can provide better security for sensitive data than manual processes, with built-in security features, such as encryption and user authentication, that can help protect data from unauthorized access and theft.

Real-time data access. Digital systems can provide real-time data access, allowing organizations to quickly respond to changing conditions and make informed decisions.

Better data analysis. Digital systems can store large amounts of data and provide advanced analytics tools to help organizations better understand their operations and make informed decisions.

Increased accountability. Digital systems can provide a clear audit trail, making it easier to track changes and ensure accountability for decisions and actions.

Enhanced sustainability. Digital systems can reduce the use of paper, reducing an organization's carbon footprint and helping to preserve natural resources.

Increased competitiveness. Digital systems can provide organizations with a competitive advantage by improving operational efficiency, enabling faster and better decision-making, and enhancing the customer experience. Ultimately, transitioning from manual to digital systems can profoundly impact an organization's ability to develop a strategic vision, resulting in a competitive edge over its rivals. A strategic vision can help focus an entire business on its goals and tasks, leading to better deals, profits, and market share. Additionally, a strategic vision benefits employees by describing where the organization is heading and how technology can enable them to achieve those goals.

Technology, in general, is developed, executed, and applied differently in different countries. Also affecting the growth of technology and its acceptance are procedures and the digital society in which they are implemented. The development and application context, when it involves technology that promotes interconnection and breaks isolation, is of particular interest. A new era of communication technologies is creating new challenges for developing countries, such as cyber security. This is because developing countries' protection, risks, and response abilities differ from those in developed countries. Thus, technologies cannot be implemented and applied under the same situations. According to observations



Figure 1: Challenges for digital society.

and literature reviews, some organizations pay considerable attention to digitalization and its ethical aspects. Yet, in Afghanistan, digitalization has been a significant problem. These included cultural issues, insufficient resources, lack of digitalized systems, a lack of technical staff for some government organizations, a lack of awareness of technologies, and no technological facilities for employees. Recent outrageous limitations of people movement led to adoption of new business models based on digital solutions. Digital transformation simultaneously forces businesses to adapt and allows them to do so. An association can keep up with evolving market and consumer expectations while addressing pandemic-specific challenges by embracing change.

This topic became particularly relevant to Afghanistan's organizations and society when people were compelled to isolate themselves from their daily activities, work, and education. As a result, information and social business processes underwent a significant transition to electronic formats. The majority of the studies dealt with ethical concerns about public domain information. Additionally, the present study examines the ethical implications of transitioning from a traditional to a digital organization and society. Some public sectors were selected and observed, including the education system. It was chosen because these organizations affect the most significant aspects of human life. In our observation, we concluded that the most critical issue at that moment was the digitalization

of the education system and public organizations because educational institutions were forced to switch to remote teaching. Due to this, all teaching materials, remote resources, remote lectures, and student evaluations had to be converted into digital formats.

As such, the primary purpose of our work was to explore the ethical aspects of traditional society's transformation into a digital culture. We considered the environmental aspect. Our study aimed to address the challenges and threats associated with transforming a digital society in terms of ethical implications. The process illustrated in the diagram in Figure 1 provides a detailed description of the digital society's challenges.

3 THE STORY BEHIND THE PATTERNS

Rather than presenting these patterns in a traditional manner, let's explore them through a real-life story. Allow us to introduce you to a fictitious company named OB-Service, located in Kabul, the capital of Afghanistan. While the company's name has been changed for privacy reasons, everything else in this narrative is based on real events. This story will refer to the corresponding organizational patterns in parentheses. OB-Service, with a strategic focus on market proximity, offshore development, and operational efficiency, maintains offices in various provinces of Afghanistan and several Asian countries. During the years 2019 and 2020, the company faced technical challenges. Simultaneously, in 2019, the world was

hit by the COVID-19 pandemic, which led to lockdowns affecting organizations worldwide. The company's leadership desired online transactions and communication through computer applications and software, corresponding systems, and a proficient training team equipped with cutting-edge technologies, recognizing the need for business improvement. That they should easily use and access everywhere. The technical team had very limited computer and technology knowledge. To understand customer capacity, the development team needs to perform employee evaluation (Perform Employee Evaluation). Some employees did not realize the importance of software projects and technology. The technical team trained employees to become domain experts in roles (Domain Experts In Roles) and digitally literate employees (Digitally Literate Employees).

In addition, we remind employees that they are the actual users and owners of the systems. Their contribution will ensure the success of the system as well as the potential benefits needed for employee confidence (Promoting Employee Confidence). In a training workshop, trainers work with employees, and an expert should train each new employee to keep them continuously learning (Day Care and Building Continuous Learning culture).

In multiple regions of Afghanistan and other countries, there arose a need for an improved circular communication platform. Developing additional technology-mediated communication tools (Technology-Mediated Communication) became essential to fulfill each task and offer simultaneous access to an enhanced, technology-based circular communication platform for all participating organizations. Consequently, the organization received high-quality software on time, and their employees underwent training.

We have used some existing organizational patterns, and some are newly discovered. The sequence of patterns shows that these patterns are composed in hierarchical order. When hierarchical patterns are composed, the superior pattern holds the subordinate patterns. In other words, each subordinate pattern refines the previous one as it was discussed by Vranić et al. [19]. The use of patterns in the sequence represents the pattern's strength.

4 THE PATTERNS

In this paper, we have identified five organizational patterns (highlighted in blue in figure 2 for the digitalization of the OB-Services company through organizational patterns. These patterns were observed in practice during the transformation of organizations from traditional systems to digital ones. We have considered recurring structures and best practices while documenting and writing these patterns.

4.1 Pattern Format

We expressed the patterns in Coplien and Harrison's pattern format [8] with the problem expressed as a conflict of the two most prominent contradicting forces in the *but* form, as proposed by Vranić and Vranić [20].

The format is written in the following structure

<Pattern Name>

...The context in which the pattern occurs.



The text in bold describes the actual problem as a conflict of the two most prominent contradicting forces.

Therefore

Here, the text in bold describes the solution.

❖❖❖ – An optional part with resulting consequences upon applying the given pattern.

Description optional description to explain the pattern.

5 PERFORM EMPLOYEE EVALUATION

...A team of developers and trainers has been engaged to create software for an organization's employees. However, there is a lack of domain knowledge and technical background within the organization and among its employees.



Insufficient technological expertise, difficulties in collaboration, and a lack of domain knowledge hinder effective software development and implementation, impeding the organization's ability to achieve its goals.

The administration wants to implement digitalization fast and with high quality but needs to identify employees with the necessary expertise and skills. The development team needs employees with strong communication and coordination skills to ensure project efficiency and effectiveness, but faces challenges finding such individuals within the organization.

Therefore

Conduct a thorough needs assessment workshop to identify skill gaps and create a tailored capacity-building plan. Evaluate employees' understanding of technology, business processes, and ability to provide precise requirements within specified timeframes. Utilize the plan to guide software implementation and provide targeted employee training, enhancing project efficiency and effectiveness. This pattern has been successfully implemented by the Ministry of Education and the Department of MIS to implement a better Certificate Management Information System.

6 DIGITALLY LITERATE EMPLOYEE

...In the modern digital era, inspiring employees to leverage their creativity and communicate effectively using technology is imperative. Developing digital literacy attitudes and behaviors is essential for organizations, enabling them to understand the potential of technology.



Employees need to understand the digital culture and how to interact effectively with and utilize modern tools. Leveraging these tools is vital for enhancing organizational performance, but cultural and non-supportive obstacles make this process challenging.

Having the latest technological skills is crucial for successful digital transformation, and employees must be motivated to use their skills to create new opportunities and drive positive change

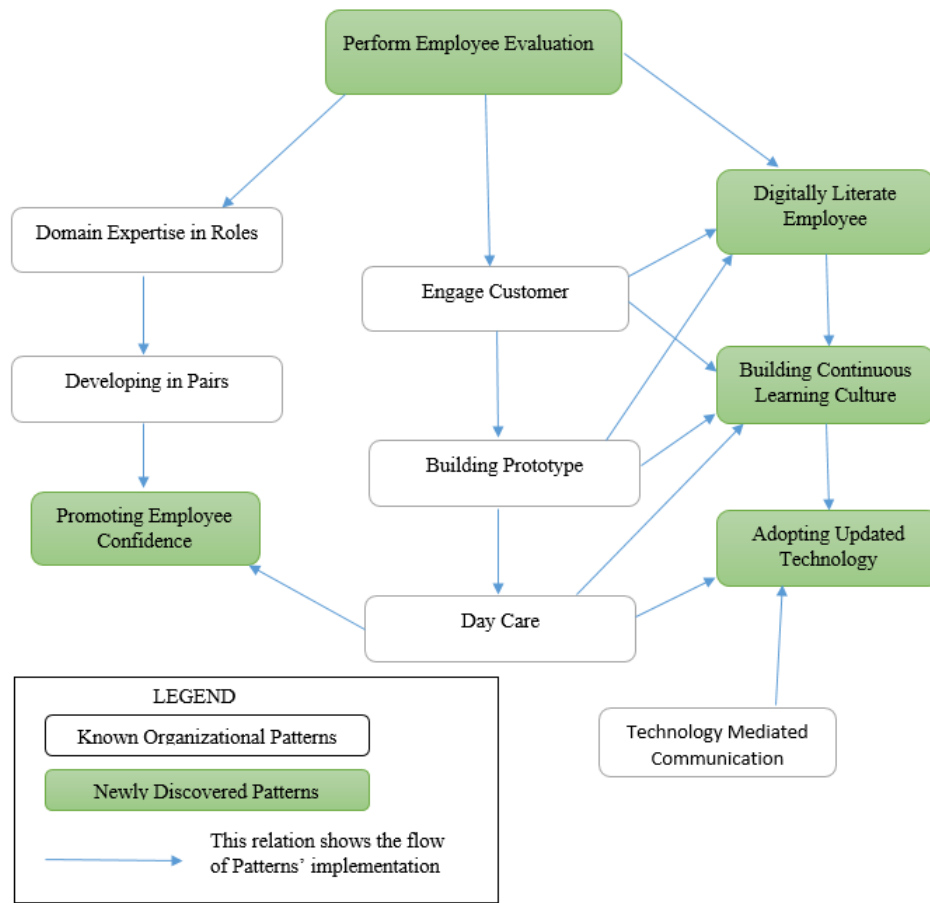


Figure 2: Pattern diagram of digital transformation.

within the organization, but there is no managerial skill in top-level management to encourage them.

The fear of job displacement due to technology creates a conflict between employees' job security concerns and the imperative of embracing technology for digital transformation. Organizations must effectively reassure employees that technology will not replace them and emphasize their value to resolve this conflict.

Therefore

Employees should acquire and enhance relevant technological skills necessary for the digital era. They must be motivated and empowered to utilize their acquired skills and knowledge to create new opportunities and foster innovative organizational environments. Promote a digital mindset among the organization's employees, as it has been proven that individuals who embrace this mindset experience higher job satisfaction, greater success, and increased chances of promotion. Additionally, they continually develop practical

skills. To build an adaptable workforce, the head of the organization should also possess a digital mindset, leading to promoting a digital culture within the organization.

The Ministry of Higher Education has successfully implemented this pattern at Nangarhar University in all faculties. Initially, they provided training to the administrative staff on using the (HEMIS) higher education management information system and subsequently created a HEMIS system for all faculties to upload students' marks.

7 BUILDING CONTINUOUS LEARNING CULTURE

... Shift to digital solutions emphasizes cultural change in digital transformation. Fostering continuous learning culture is crucial to navigate this change, support transformation efforts, and equip employees with digital skills.



The organization faces challenges as not all employees are tech-savvy. Providing training for everyone is crucial, but resource constraints and potential disruptions are significant obstacles

Organizations prioritize processes, resources, and outcomes but overlook the importance of nurturing and leveraging the employees' culture as a crucial driver of success in digital transformation. Building a culture of continuous learning among employees requires dedicated time and effort, but this investment yields impressive long-term results. Recognizing that employees are the most significant drivers of digital transformation success, organizations must prioritize and treat them as vital contributors to achieving successful outcomes.

Therefore

Utilize cutting-edge technologies for effective communication: Organizations should adopt advanced technologies that enable managers and internal communication departments to reach every employee with relevant information. **Encourage cooperation and connection:** It is important to foster a culture where employees are encouraged to cooperate and connect with the organization, particularly during digital transformation. This promotes collaboration, knowledge-sharing, and a sense of ownership among employees. **Adopt a digital culture to break down barriers:** The organization should embrace a digital culture that breaks down barriers and promotes collaboration across teams and departments. Given the ever-changing digital landscape, employees must learn to collaborate effectively, manage their time, and continuously acquire new skills. Provide convenient learning opportunities. The organization should ensure that learning is readily accessible to its employees. This can be achieved by offering educational resources and training courses through a website or online platform. Workers require access to remote learning platforms to develop their skills and enhance their knowledge continuously.

This pattern has also been successfully implemented by the Ministry of Education and the Department of (MIS) Management Information System, to implement a better Certificate Management Information System.

8 PROMOTING EMPLOYEE CONFIDENCE

... During digital transformation, improving organizational confidence becomes a major initiative. Employees gain confidence through experience with digital technologies and need to be supported by the organization. Promoting employee confidence is critical for the successful maneuvering of the digital landscape.



The organization aspires to build employee confidence, which is vital for navigating the digital landscape and enhancing overall well-being but is challenged by the fact that current employees need more confidence and organizational support to develop it.

A supportive work environment, where employees receive encouragement and assistance, can boost their confidence, but there is no supporting culture in the organization to grow their confidence.

Gradually empower employees by entrusting them with more responsibility to foster confidence. and increase proportionally with

each step learned, but Lack of confidence can hinder skilled employees from reaching their potential.

Therefore

Organizations must implement a comprehensive approach. Gradually empower employees by entrusting them with more responsibilities aligned with their skillsets and provide them with the necessary support and guidance to build their confidence. Implement personalized learning and development programs to target areas where employees lack confidence, tailoring training and support based on individual needs. Recognize employees' achievements and provide positive support to boost their confidence, and foster a supportive work environment where employees feel safe to take risks and learn from their experiences.

9 ADOPTING UPDATED TECHNOLOGY

... In the fast-changing tech landscape, organizations must embrace updated technology to remain competitive and relevant. Employees require continuous learning and support to integrate new tools and stay up-to-date effectively.



Organizations face challenges in adopting updated technology as some employees hesitate to learn cutting-edge tools due to safety concerns, hindering their ability to stay competitive and relevant in the fast-changing tech landscape.

An organization must constantly innovate and improve to survive and thrive in a competitive market, but there is no professional and skilled staff.

However, the introduction of updated technology or changes in work processes might discomfort employees. Therefore, they may strongly resist these changes. Overcoming this resistance and providing support to employees during the transition is essential to successfully adopting updated technology and fostering organizational growth.

Therefore

To ensure effective adoption of the most recent technology, a well-designed training program is essential. The training should be tailored to consider factors such as employees' experience and skill set, the complexity of the changes they need to learn, and the time required for learning. A comprehensive training needs assessment should be conducted, taking into account both the organization's requirements and the personnel's needs. This assessment will help identify the areas that the training program should cover and enable planning for future training needs. By considering these factors, organizations can implement a targeted and successful training initiative, empowering employees with the knowledge and skills to embrace the latest technology advancements.

10 DISCUSSION

Introducing digitalization into a traditional organization and society is a complex process. It requires addressing proper and ethical data storage, transmission, and handling of cultural issues and legacy systems. Additionally, emphasis should be placed on appropriate electronic data processing, training, and capacity building. One of the significant challenges lies in the uncertain effects of digitalization on organizations and society and their ability to adapt to rapid changes. In Afghanistan, digital transformation levels vary across social and economic domains, with only a few sectors, such as electronic national identification documents (eNIDs), the passport department, and the Ministry of Information Technology, fully embracing digital enhancements. However, the government and the people are facing challenges in these sectors due to the large quantities of data that need to be stored and processed. Conversely, other fields have implemented a relatively small amount of digital technology, with virtual meetings, communication among organizations, and training sessions becoming increasingly common in education, health, business, and other sectors.

Digitalization can have various negative social consequences, impacting the human environment with issues such as digital inequality, inauthenticity, degradation of individuality, and formulaic thinking. The levels of digitalization also vary across regions and organizations. However, it has enabled more accessible and effective environmental change monitoring, benefiting sectors like education, wholesale and retail trade, and chemical and manufacturing industries through the use of sensors, microprocessors, and satellite data. On the other hand, European countries' transport and construction industries are slower in adopting IT, while the oil and gas industry, medicine, and education have achieved full digitalization [7].

Digital transformation, a significant trend in the 21st century, aims to enhance environmental sustainability through the use of digital technology, effectively reducing natural resource waste. Although large international companies are developing strategies to minimize their negative impact on the environment, such approaches have not gained widespread popularity. Many companies remain unaware of the importance of sustainable development for natural ecosystems, even in the digital age. This study focuses on the effectiveness of digitalization in promoting ethical norms, sharing information, and benefiting society and individual awareness. It delves into information processing, transmission, storage, and utilization ethics. The challenges of digital awareness, attitude development, and cultivating a digital transformation culture emerge as critical ethical issues during digital changes. Risks are associated with socio-cultural identities and the growth of addictions related to specific activities. Recent outrageous limitations of people movement accentuated the challenges society and organizations face due to insufficient digitalization. Proactive measures are essential to address these challenges and promote ethical awareness and a digital culture among employees and society at large. The government and private sectors must accelerate digital transformation efforts within the country, considering the ongoing challenges posed by the 2019 digital precipice and the lasting impact of the pandemic.

This study aims to provide an exploratory overview of how to understand digital transformation within traditional organizations and society. If traditional organizations are to implement digital transformation initiatives successfully, they have much to learn from technologically native organizations. According to the study, management must be aware of critical perspectives, such as technology-centric, employee-centric, organizational-centric, and strategic-centric views, to successfully carry out digital transformations. Developing a clear digital strategy and plan: A society must have a well-defined digital strategy that outlines its goals, objectives, and priorities for digital transformation. This will ensure that the efforts and resources invested in digitization are aligned and focused.

Investing in technology infrastructure and resources: Implementing digital initiatives requires hardware, software, and technology infrastructure investments. This includes implementing reliable and secure networks, data centers, and cloud computing.

Promoting a culture of innovation and technology adoption is the key. The success of digital transformation also depends on the willingness and ability of individuals and organizations within a society to embrace and adopt the latest technologies. This requires creating a culture that supports innovation and experimentation.

In addition to the increasing use of technology, there are also rising concerns about data privacy and security. Society and organizations must have strong data protection policies and regulations to protect personal and sensitive information.

Ensuring workforce training and upskilling: The workforce must have the necessary skills to use and implement cutting-edge technology effectively. This involves providing training and upskilling opportunities for employees and ensuring that the education system prepares future generations with relevant digital skills.

Building partnerships and collaborations with technology providers: Digital transformation often requires cooperation and partnerships with technology providers, startups, and innovation hubs. This can help ensure that society has access to the latest technology and expertise.

Evaluating the success and effectiveness of digital initiatives: To ensure that digital initiatives deliver the desired outcomes regularly, monitoring and assessing their impact is essential. This includes tracking metrics such as productivity, efficiency, and customer satisfaction. Continually adapting to changing technology trends and developments: The pace of technology change is rapid, and it is critical for a society to constantly adapt and evolve its digital strategy in response to new trends and developments. This requires a willingness to experiment and continuously improve its digital initiatives.

11 RELATED WORK

Patterns were applied in software development architecture, software engineering, and the organization of software businesses, offering a well-proven and versatile solution within these domains. [8]. Patterns had existed before and were developed by Alexander to solve the challenge of building towns and construction [1].

Several earlier studies have focused on documenting and analyzing the role of digital transformation in organizations, employing various methodologies and techniques. These studies underscore



Figure 3: The global network of OBS- Company and its branches in different countries

that digital transformations have become integral to our daily lives and business operations. With digitalization, everyday communication, business activities, and numerous other daily tasks would be virtually possible in the modern era. A profound understanding of the domain is essential to achieve successful digital transformation. Furthermore, clearly defining the roles within organizations, businesses, and daily activities can significantly enhance the effectiveness and efficiency of the digital transformation process, as demonstrated in a study conducted by Benavides et al. [4]. A study conducted by Vasilev et al. [18]. This study aimed to specify the level, problems, and prospects for the development of digital competencies in higher education organizations in Russia. The authors used the methods of sociological survey and statistical information processing. A research study by Kutnjak et al. [14]. A case study involving digital transformation explains how companies can integrate business processes, create new business opportunities, innovate products, reduce costs, and create new business models. This will enable them to maintain a competitive position on the global market. Digital transformation is a new approach recognized as a future way to improve business and address the challenges of the future. A research conducted by Hansen et al. [11]. Organizational leaders need to adapt existing approaches to digital transformation quickly. However, it is challenging to adopt new approaches without a shared mindset between IS and business leaders.

As the authors describe their assumptions about IS leadership, they challenge existing IT strategies and collaboration patterns, and they adapt the organization's approach.

There are many challenges companies face when managing their digital transformations in terms of key actors; based on a survey of

Slovenian companies, discover six organizational patterns, recommendations, and possible evolutionary paths within each pattern; the patterns provide information about companies' current positions, while the evolutionary paths help companies decide which path to follow based on their current scenario. A research study by Indihar Štemberge et al. [12]. Digital technology plays a key role in the organization and function of socio-economic relations day by day. A research study by Mamakhatov et al. [15]. the developing countries in Africa must invest more in human capital, especially digital skills, and create the necessary infrastructure for citizens to access digital transformation. It also suggests that this investment will help build up the Human Capital Development of these nations. The research result shows a negative correlation between the Electronic Data Interchange (EDI) ranking and the Human Capital Index (HCI). That is, if there is an increase in HCI, then EDI rankings would decrease accordingly. Previous studies have extensively explored the critical role of digital transformation in organizations and society, emphasizing its significance in daily life and business operations. Successful digital transformation requires in-depth domain knowledge, clear role definition within organizations and activities, and the assessment of digital skill levels among employees and society. Furthermore, it involves finding solutions to enhance digital skills and fostering a culture of digitalization within society and all organizations. A comprehensive literature review has identified five organizational patterns derived from practical experiences across various organizations and societies. When integrated with relevant practices from the literature, these patterns form a cohesive pattern language. The challenge of digital transformation is pertinent to both organizations and society, and this paper strongly advocates the adoption of digital systems over

manual or traditional approaches for the betterment of society. Our primary focus is on promoting digital transformation and fostering its continued development for the benefit of society.

12 CONCLUSIONS

The study aimed to examine both the benefits and drawbacks of digitalization and identify the associated challenges, limitations, and best practices. The results showed that digitalization positively impacts organizations, business operations, and society. It offers greater flexibility and promotes ongoing improvement of products compared to traditional methods. However, challenges such as needing more specialists, adequate resources, and limited internet access in remote areas hinder digitalization in Afghanistan. Nevertheless, with the support of the government at local and regional levels, these issues can be effectively addressed. The Ministry of Information and Communication Technology, the Ministry of Finance, and some government sectors are already leveraging digitalization in the country.

Recent outrageous limitations of people's movement expedited the global digitalization process, including remote work, e-business, and e-learning, but Afghanistan was not yet equipped to accommodate these changes. As technology continues to evolve, ethical considerations must guide social interactions and the digitalization process. Recommendations should be developed and implemented in Afghan universities and organizations to ensure a successful digitalization journey. Furthermore, the digital transformation process is time-consuming and presents significant challenges, making it a complex and difficult journey.

To address these challenges, we propose a pattern language consisting of five organizational patterns that provide a recurring structure for digital transformation. During our research on digital transformation, we identified and documented these challenges and developed this pattern language as a solution.

The benefits of digital transformation for society as a whole are wide-ranging and can have a significant impact on daily life. Some of the most notable benefits include improved access to information and services, as digital technologies make information and services more accessible to people, regardless of their location. This provides access to education, healthcare, and financial services. Digital transformation also fosters increased connectivity, bringing people closer together and breaking down geographical barriers to create a more connected global community. Additionally, it creates new job opportunities in the tech and digital sectors, driving economic growth and job creation. In the healthcare sector, digital technologies are revolutionizing patient care by enabling remote consultations, digital record-keeping, and improved patient monitoring. Moreover, digital transformation can contribute to improved environmental sustainability by helping organizations decrease their carbon footprint, reduce paper usage, and enhance supply chain efficiency. Overall, digital transformation has the potential to bring numerous benefits to society and improve people's lives in meaningful ways.

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