



“Exploring Employees’ Resistance towards Digital Transformation: A Case Study of Higher Education Institution”

Nomana Tariq: *Allama Iqbal Open University Islamabad, Pakistan*
Nasir Mahmood: *Allama Iqbal Open University Islamabad, Pakistan*

Received: 1st November, 2024
Accepted: 27th November, 2024
Published: 31st December, 2024

KEY WORDS

Digital transformation, Employees resistance, Lack of training and rewards

ABSTRACT

Organizational transformations often encounter employees’ resistance, creating significant hurdles for the successful implementation of digital change. Although existing literature focused on organizational leaderships, employees’ resistance and technology implementation but there is a lack of in-depth exploration of how individual differ in attitudes at different levels of management working in an organization. The purpose of this case study was to identify the psychological factors that contribute to employee’s resistance and explore the underlying reasons which are creating hurdles in technology adoption. Explanatory sequential mixed method approach was employed followed by a case study design. The participants were employees of three categories; top management, middle management and lower management placed at different sections of said organization. The target population comprised 835 employees out of which two hundred sixty-four participants were selected through stratified random sampling technique. Quantitative data were collected through survey method followed by Focus Group Discussion. Descriptive statistics and ANOVA test was applied to compare three groups of management to reach the group within extreme resistance. The results of the quantitative study showed higher level of resistance among employees of lower management. The pertinent resistance factors exhibited by employees, ranging from overt opposition to subtle forms of sabotage; lack of understanding, lack of training, different types of fears and lack of motivation. The implications highlight the importance of proactive engagement, transparent communication, training and fostering a culture of trust and collaboration to mitigate resistance and facilitate successful digital transformation initiatives.

Introduction

The increasing focus on digital transformation is evident in both academic circles and within corporates (Markus & Rowe, 2023; Müller, et al., 2024). Digital transformation has significantly altered traditional business models, compelling organizations to innovate and adjust to the changing environment (Uchechukwu et al., 2023; Adama & Okeke, 2024). With the passage of time there is abundance of social, economic, technological, and demographic shifts in the society (Brown et al., 2020; Gkrimpizi et al., 2024). Furthermore, the COVID-19 pandemic has accelerated the move towards remote work technologies like video conferencing, collaboration platforms, and virtual private networks (VPNs). These digital collaboration tools allow teams to work together on projects, share documents, and communicate in real-time, no matter where they are located. As virtual events and conferences gain popularity, organizations are increasingly utilizing digital technologies to engage audience and create dynamic online experiences (Alashhab, et al., 2021; Mitchell, 2023; Stocker et al., 2023, Joel, et al., 2024).

Digital transformation refers basically to rethinking and restructuring business processes, products, and services through the strategic adoption and integration of digital technologies (Naimi-Sadigh et al., 2022; Adama & Okeke, 2024). These technologies encompass a wide range of tools, including artificial intelligence, data analytics, cloud computing, the Internet of Things (IoT) and blockchain. The purpose of digital transformation is to enhance operational efficiency, improve customer experiences, and create new revenue opportunities by leveraging the capabilities of these advanced digital tools and platforms (Matarazzo et al., 2021; Mahboub & Sadok, 2023, Adama & Okeke, 2024). In these scenarios, digital technologies often lead to uncertainty and anxiety among employees, some may

resist the changes driven by digital transformation unless they perceive personal benefits (Solberg et al., 2020, Klein, et al., 2024). The core principle and foundation of organizational digital transformation is a focus on 'people-centricity' (Zhang & Hao, 2022; Zhen & Ding, 2024). Whereas, the higher education institutes blunted work on digitalization while facing some challenges and reluctance from employees.

Resistance to organizational transformation can be seen as rational and logical because employees may believe that the costs of the change is greater than the benefits (Darmawan & Azizah, 2020). The adoption of digital technologies can create psychological pressure on employees, who are pushed to constantly update their digital skills (Harish et al., 2023). Changes in the work environment due to digital transformation impact employees' overall perception of their work experience and interpersonal relationships, leading to varying views on digital transformation (Zhang & Hao, 2022). Employees have different attitudes towards digital transformation due to the uncertainty of new technologies and changing market circumstances. Some researchers see digital technology as a threat to their jobs, with artificial intelligence (AI) and virtual agents replacing certain labor roles (Verhoef et al., 2021).

In the past decade, several fields have seen extensive publications on organizational adoption (Jalo & Pirkkalainen, 2024), the impact of digital transformation (Joel, et al., 2024), and the influence of new knowledge acquired through strategic alliances (Siachou et al., 2021). Additionally, studies have highlighted strategies and practices that effectively empower employees during digital transformation initiatives (Zhen & Ding, 2024) and examined the outcomes of digital transformation (Wen & Wang, 2022; Zhang et al., 2022). This

revolutionary technological change is transforming the world of work and impacting managerial practices at various levels. HRM must be actively involved in addressing the era of digital technology, focusing on the “digital workforce,” “digital work,” and “digital workforce management” (Parry & Strohmeier, 2014). Successful digital transformation (DT) is a complex, multidimensional strategic management process that encompasses all areas of an enterprise, including systems, IT, operations, and people (Porfirio et al., 2021; Lokuge et al., 2019; Sawy et al., 2016). Therefore, Digital transformation must address not only technical issues, such as redesigning business and operational processes (Tabrizi et al., 2019), but also strategic management challenges, like investing in human resources, enhancing organizational competences, and promoting organizational change (Benitez et al., 2022).

Studies has demonstrated that the success of organizational change largely depends on how employees perceive and respond to it (Ahmad & Cheng, 2018). In fact, the long-term success of change is significantly influenced by the employees' willingness to adapt. Early reactions and intentions towards change are particularly critical (Ahmad et al., 2020; Nabeel, 2021). The existing literature identifies a wide variety of factors contributing to individual user resistance. These include perceived threats to an employee's position (Bhattacharjee & Hikmet, 2007; Kim & Kankanhalli, 2009; Heidenreich, 2014), inertia from continued use of previous systems (Polites & Karahanna, 2012), technology anxiety (Tsai et al., 2019), cynicism towards the implementers' goals (Selander & Henfridsson, 2012), and lack of resources (Wipulanusat et al., 2019). The main challenge for human resources is equipping employees with IT-related competencies to perform effectively post-digital transformation (Gilch & Sieweke,

2021). Employees' current skills and knowledge often do not align with the requirements of digital transformation (Fareri et al., 2023). From the employee perspective, digital transformation can lead to rigorous task monitoring, increasing stress, anxiety, psychological strain, and reducing job satisfaction and commitment.

A lack of communication is a broad issue encompassing the absence of systems for sharing information and data (Pratt et al., 2020; Zhang & Cao, 2018) emphasize the importance of information sharing and collaborative communication for supply chain collaboration. Mahmud et al., (2021) categorize information-related and communication-related barriers as key obstacles to supply chain collaboration, with reluctance to share information and poor connectivity being significant factors (Oyedijo et al., 2022). High employee engagement, characterized by the application of emotional, cognitive, and behavioral energy to job tasks, directly contributes to increased work performance and achieving organizational goals (Rich, et al., 2010). Additionally, job autonomy significantly supports intrinsic motivation and long-term sustainable development (Zhou, et al., 2019).

Trenerry et al. (2021) highlight that digital transformation (DT) efforts often prioritize strategy and business, neglecting employee-related factors. In contrast, Ma & Guo (2022) emphasize that employees are key participants in DT. As DT advances production, the demand for highly skilled labor increases, requiring employees to acquire digital knowledge and skills (Xiao et al., 2022; Zhen & Ding, 2024). Training and job design are crucial for enhancing these competencies (Li et al., 2021). However, Lanzolla et al. (2020) warn of risks at both organizational and individual levels, including data security breaches due to skill gaps. Porck et al. (2020) argue that successful DT requires collective efforts and strategic consensus across the organization. This paper aims to

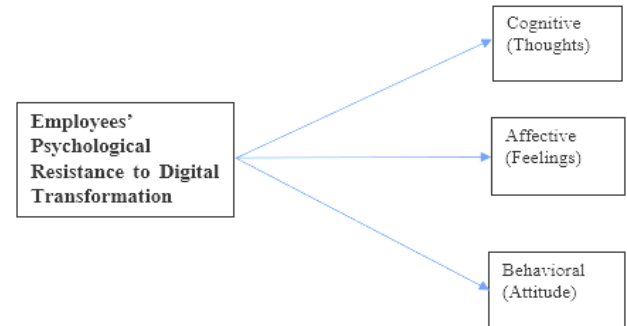
fill these gaps through a cross-sectional analysis involving all management levels.

Mostly researches and theories concerning the initiation, execution, and administration of change have been conducted within developed countries and across various industries. Research on resistance to change in developing countries are relatively few and in their own context. Limited research is available in Pakistan on implementation of digital transformation and its effects on human behavior in educational institutions. This situation demands exploration of what are the resistance factors creating obstacles and changing employee's behavior to adopt digital technology. In this changing phenomena Allama Iqbal Open University is one of the institutions that are going through this process of transformation. This institution has a large and unique system, supported by its functionality and cultural diversity, with students from across Pakistan and abroad pursuing their education here. It was an original study because digital transformation has implemented recently in AIOU. In this situation, the employees of AIOU are facing hurdles and challenges to adopt the complication of learning new technology because before digital transformation they were working manually.

According to Robbins and Judge (2017) "Organizational behavior (OB) is an interdisciplinary field that examines and oversees human behavior within organizations, drawing from disciplines such as sociology, psychology, and management'. OB is the systematic study of the attitudes and actions of the people exhibited within organization. It concerns with understanding, predictions human behavior and influencing human behavior in organizations.

Figure. 1

Digital Transformation system and Employees' Psychological Resistance



As organizational change became so pervasive and rapid, it is crucial for managers to understand the dynamics of change at individual, group, and organizational levels. Organizational change brings significant challenges for both managers and employees, deeply impacting individuals within the organization (Cornescu & Adam, 2016). The success of digital transformation (DT) is closely tied to the characteristics and capabilities of senior managers or leaders (Benitez et al., 2022; Porfirio et al., 2021). Employees are also key drivers of digital transformation (DT), but DT systems can place additional stress on them. This highlights the need to examine how DT affects employee motivation, autonomy, and job satisfaction (Neumann, et al., 2021). Therefore, leaders need to carefully consider the necessity of change within their organizations. It is essential to evaluate the reasons behind the need for change and pinpoint areas that require modification. Based on the Organizational Behavior (OB) theory, this paper sets out to explore the reasons of resistance encountered by employees when confronted with organizational change initiatives through analysis. By investigating employees' experiences, perceptions, and responses within the specific organizational setting, this study seeks to unravel the underlying reasons behind resistance and its implications for

the success of transformational efforts, in the higher education institution of Pakistan. Based on the preceding discussion following research questions were proposed to address the problem.

Q1: What are the cognitive resistance factors of employees changing behavior towards technological change?

Q2: What are the Affective resistance factors of employees changing behavior to adopt technological change?

Q3: What are the behavioral resistance factors of employees changing behavior during implementation of digital transformation?

Q4: How cognitive resistance factors make the reasons of employees changing behavior to adopt technological change?

Q5: How affective resistance factors are creating hurdles for employees changing behavior during implementation of digital transformation?

Q6: How behavioral resistance factors effects on employees' behavior in the implementation of digital transformation at AIOU?

Research Methodology

The study falls in the constructionism paradigm to explore the reasons of employees' resistance during implementation of digital transformation system at AIOU. Constructionism incorporates culturally specific knowledge and language as a fundamental basis for the constructed reality, highlighting its social dimension (Young & Collin, 2004). When collecting the experiences of employees during digital transformation, it is natural to involve the interpretation and perception of that employee, using their own reality. Therefore, a constructionism approach was the most suitable choice.

Research Design

This research study deeply explored the research settings to get an in-depth understanding of the experience of employees of different departments working in higher education institution

during the implementation of digital transformation system. A case study design was used focusing employees of higher education to explore the reasons behind their resistance undergoing digital transformation process. The case study design could illustrate the empowerment strategies employed by the enterprises in question (Li et al., 2020) and help to unravel the challenges that remain insufficiently understood (Mao, 2020). This approach was chosen purposefully because the study aimed to elucidate people's perceptions and behavior's-based data gathered at a specific point in time. The adequacy of choosing a qualitative single case study design concerning digital transformation ought to reinforce the connection between the unique and the universal, which is "the most discussed issue of all" in case studies (Tight, 2017). Researcher had taken Allama Iqbal Open University (AIOU) as a case study due to uniqueness of its functionality.

Context of the Study

The Institute selected to study as a case is Allama Iqbal Open University (AIOU) established in the Islamabad Capital Territory in 1974. It is the largest university of Asia for distance education and second oldest in the world. Its primary goal is to meet the educational needs of the masses by delivering quality education directly at their homes, breaking down geographical and time-related barriers. Today, the university serves over 1 million students per annum, offering a wide variety of programs ranging from Matriculation to the PhD level. It has a large and diverse system of education because people from all over the country and abroad, representing different cultures, and contexts are studying in this university. It has fifty-four regional offices where staff appointed to cater the needs of students enrolled from remote and regional non-accessible areas. The employees were working through conventional system since established of the University but in

2019 Digital Transformation System (DTS) was introduced and implemented first time. The employees were convenient and well versed with the old system and have some constraints to implement of this new system. The working through new systems and employees understanding and implementing need to explore to see the efficiency of the newly introduced system.

Sample of the Study

The type of participants selected were based on quantitative and qualitative purposes. At the first stage, for quantitative data the target population comprised 835 employees working in the university at the main campus. Two hundred sixty-four (N=264) participants were selected from three tiers of management: top, middle and lower. The employees included in the sample were working in different departments like administrative, admission, examination, services, academic and regional services. The quantitative sample was based on stratified random sampling technique. The detail of the study participants along with level of management are given in the figure 2 and number of employees are given in the table 1.

Figure. 2
Detail of Employees of Top Management, Middle Management and Lower Management

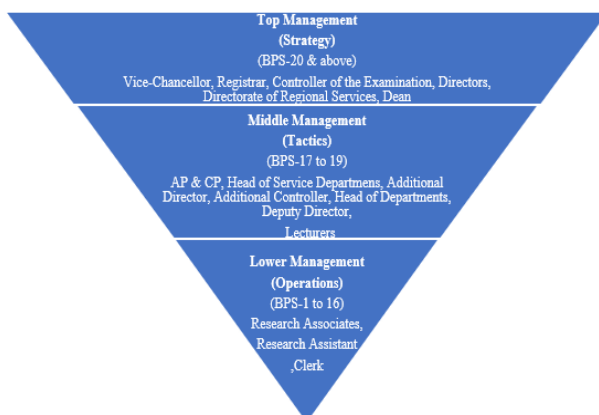


Table 1
Detail of the study Sample

Level of Management	Subset of the Population	Sample Size
Top Management	134	43
Middle Management	291	92
Lower Management	410	129

For qualitative data, there was a need to explore the reasons of employees' resistance towards digital transformation and implementation, for this purpose focus group discussions were conducted with the employees of lower management selected purposively on the basis of quantitative results. The focus group discussions were conducted department wise with lower management employees to understand underlying reasons of resistance in adoption of digital transformation system. There are five focus group discussion made: first focus group discussion was conducted with four employees of director regional services department, second FGD was conducted with five employees of admission department, third FGD was conducted with six employees of examination department, fourth FGD was conducted with five employees of Treasure department and last FGD was conducted with four employees of academic department. A focus group discussion held to investigate the factors contributing to employees' uncertainty during the digital transformation process.

Instruments of the Study

The employees' resistance and underlying reasons of this resistance were measured through a questionnaire followed by a focus group discussion. The questionnaire was conducted on a face-to-face basis and focus group discussions were audio recorded. Twenty-eight questions (items) were used to examine respondents' attitudes towards the existence of psychological resistance factors in employees. Seven questions were used to

measure cognitive factors, twelve questions for affective factors and nine questions used for behavioral factors. Researcher aimed to assess the relevance of cognitive, affective, and behavioral items by obtaining the opinions of seven experts in the relevant field. Researcher calculated the S-CVI for each category/factor of items:

Cognitive Items: Out of 12 cognitive items, 7 were unanimously agreed upon as relevant by all experts.

Affective Items: From the 34 items, 12 were selected as relevant in the final assessment.

Behavioral Items: Out of 20 items, 9 were identified as relevant.

By aggregating the results, the researcher determined the overall CVI for the study. This universal CVI reflects the consensus that:

- **7 out of 12 cognitive items** are relevant.
- **12 out of 34 affective items** are relevant.
- **9 out of 20 behavioral items** are relevant.

The final outcome of the process yielded a universal CVI of 0.83, indicating a high level of agreement among the experts on the relevance of the items. This robust agreement strengthens the validity of the constructs measured in my research, ensuring that the selected items effectively capture the intended dimensions of cognitive, affective, and behavioral aspects. The process of establishing the CVI not only enhances the credibility of the research findings but also provides a solid foundation for future studies in the field.

The questionnaire was developed after rigorous literature review and validated by the subject experts. The questionnaire was pilot tested to establish instrument's reliability. The internal consistency results show Cronbach's alpha value of 0.89.

The FGD questions were validated by the five subjects' experts. They provided feedback on the content, relevance to the purpose and arrangement of questions. Based on their comments and the guidance provided by the supervisor, the questions were amended and rephrased accordingly. The qualitative data were collected through focus group discussions with employees from lower management. Key notes and voice recorder were used to ensure accuracy of captured information and no vital information was omitted during the conduct of interviews. On average each interview took 55 minutes consuming a total time duration of four hours and forty-five minutes. During focus group discussions, participants were assigned codes to ensure anonymous data recording and interpretation. Each group and participants were interviewed repeatedly until saturation was reached.

Data was merged at third phase to explore underlying reasons of employees' uncertainty undergoing digital transformation process. Thematic analysis was made to the qualitative data. It involved familiarizing myself with the data, coding significant parts, grouping similar codes into themes, and then reviewing, defining, and naming those themes.

Results and Interpretations

Table 3

Demographic Characteristics

Gender	Age	Education Level	Ethnicity	Experience
Male	18-30 years	M Phil & Ph D	Urdu	1 to 5 years
	31-40 years	Master	Punjabi	6 to 10 years
Female	41-50 years	Graduate	Pathan	11 to 15 years
		FA/FSC	Sindhi	16 & above
	51 and above	Up to Matric	Balochi	2
			Other	18

The demographic information of respondents shows the diverse culture of AIOU employees. There is an equal chance and opportunity for everyone to experience digital transformation in the organization explicitly evidencing its uniqueness. In terms of experience, participants with different levels of experience, representing a diverse range of

backgrounds. This representation of data gives a glimpse of variance among respondents which demonstrates the researcher's intention to include participants from varied levels of experience.

Table 4
Employees Psychological Resistance towards Digital Transformation (N=264)

Psychological Resistance	Mean	SD
Cognitive	2.69	.515
Affective	2.65	.702
Behavioral	2.56	.483
Psychological total	2.63	.509

Table 4 shows the mean score of the cognitive factor (M = 2.69), indicating the average level of misunderstanding, stress, confusion, and lack of knowledge regarding the cognitive factor in the sample. The standard deviation (SD) was 0.515, whereas the mean (M = 2.65) for the affective factor, with a standard deviation of 0.702, revealed that employees were felt nervousness/anxiety, low self-efficacy, anger, and experienced various fears related to the status quo, freedom, and insecurity. The mean score was (M = 2.56) with a standard deviation of 0.483 for the behavioral factor, indicating the average level of employees' reactions to digital transformation, such as complaining, arguing, questioning, lack of confidence, lack of commitment, and demotivation. Results showed that employees of top management, middle management and lower, management are uncertain regarding concept of psychological resistance. Furthermore, cognitive factor and affective factor have highest mean values, but affective factor exhibited the highest standard deviation, indicated greater variability in responses. Whereas cognitive factors have the highest mean score compared to affective and behavioral resistance factors, these finding shows that employees' have lack of understanding and knowledge regarding digital transformation (DT).

Phase-1

An analysis of variance (ANOVA) test was used to determine whether there was a significant difference between and within the groups. ANOVA was applied for the analysis.

Intensity of Psychological Resistance at Levels of Management One-way ANOVA and Post Hoc Comparison:

The ANOVA test was applied to determine if the resistance of employees differed across different management levels. Participants were divided into three groups (Group 1: top management; Group 2; Middle management; Group 3; Lower management. Data shown in table 5.

Table 5
Analysis of Variance among Employees Psychological Resistance

Factors	Top Management		Middle Management		Lower Management		F (2,61)	P	η ²
	M	SD	M	SD	M	SD			
Cognitive	2.58	.337	2.66	0.56	2.75	0.53	1.78	.171	.01
Affective	2.44	.382	2.40	0.54	2.89	0.80	17.14	.000	.12
Behavioral	2.52	.326	2.45	0.40	2.66	0.56	5.57	.004	.04
Psychological	2.50	.32	2.48	0.42	2.78	0.58	11.78	.000	.08

Table 5 shows mean, standard deviation and F-values for cognitive, affective and behavioral factors across different management groups. Results indicated mean differences across management level on cognitive factor with F (2,261) = 1.78, P <0.05. Findings revealed that lower management exhibited higher level of individual resistance factor as compared to middle and top management. Result of the ANOVA showed a significant difference between groups and within groups of management in relation to their cognitive, affective and behavioral factors. The Post-hoc Comparisons indicated significant between group mean differences of each group with other two groups. Result indicated significant mean differences across levels of management on group factor with F (2,261) = 17.14, P <0.05. Findings revealed that lower management exhibited higher level of affective factor as

compared to middle and top management. Similarly, result showed that significant mean differences across levels of management on behavioral factor with $F(2,261) = 5.57, P < 0.05$. Findings revealed that lower management exhibited higher level of behavioral factor as compared to middle and top management. The Post-Hoc comparisons indicated significant between group mean differences of each group with other two groups.

Phase-II

To gain a better understanding of lower management employees' resistance and the reasons for their uncertainty about digital transformation, the second qualitative phase was carried out through focus group discussions among a pool of respondents as a follow-up to the quantitative results. The results of the quantitative phase were firstly analyzed to find out the extreme resistance within groups of management. Findings of first phase revealed that employees of lower management have high level of resistance as compared to middle and top management towards digital change. Therefore, the researcher conducted focus group discussions (FGDs) with lower management.

Respondents were asked to answer five open-ended questions designed to capture their perceptions and experiences within their organizations. These five questions were created for lower management focus group discussions (FGDs) to explore the reasons for employees' resistance during the implementation of the digital transformation system (DTS). Eight themes emerged from the focus group discussions. Several probing questions helped both the interviewer and interviewees explore the reasons behind employees' changing behavior due to the implementation of the DTS. A majority of employees are encountering numerous challenges during the digital transformation (DT) process. The emerged themes are discussed below.

Reasons of Employees Psychological Resistance

The inductive analysis highlighted eight key themes indicating different types of resistance in adopting digital transformation in the university. The details of themes emerged, sub-themes and evidence are given in the table 6.

Table 6
Resistance due to Cognitive factor

Themes	Sub-Themes	Evidence (Codes)
Technical issues	inefficient software server	the software's capacity is less than the available data
	internet speed slow apps not user friendly system hang	slow server speed apps are complicated
	delay work	net link down technical difficulties, deadlines
Time taking	need for relearning	employees are hesitating to learn new things
	need more effort	put more effort into learning new things
Lack of knowledge	lack of information adequacy	not receiving complete information
	received selected information	management is providing insufficient information
Lack of understanding	misunderstanding	having difficulty understanding digital culture, confusion

Theme 1: Technical Issues

Employees are facing many challenges during the process of adopting digital change, particularly in terms of emotional and practical aspects. Organizational transformation comes with the essential requirement of learning and developing new skills as well as acquiring new knowledge. Here, a major challenge is the lack of understanding and knowledge of technical issues. Technical problems can be unpredictable, and employees may not know how long it will take to fix them. Employees may resist changes by technical issues, especially if they have lack of required knowledge and skills.

In these cases, stress, frustration can develop, which can delay productivity. *'I think one of the main reasons of user's resistance is technical issues during implementation of digital transformation system'*. (TRE-1)

Inefficient software can be a significant hindrance during any organizational transition when a company undergoes a transformational process. Whether it's a restructuring, adopting new workflows, or moving towards digitalization. The need for efficient tools is necessary. When the software they rely on is outdated, having less data, it exacerbates that tension. One interviewee said *'Organizational change is always challenging, but inefficient software magnifies the difficulties. Organizations should treat software as a critical element of their change management strategy, ensuring it support not hinders the transformation processes'*. (ACA-3)

Majority of interviewees of different departments at AIOU perceived that digital apps are complicated not user friendly. *'I think digital apps are not user-friendly that's why we often feel frustrated and get stuck while trying to complete tasks'*. (DRS-3)

Theme 2: Time Taking

Another employee of academic department explained the impact of a network link going down during the adoption of digital technology. *'Having the network link go down during the crucial phase of adopting digital technology is incredibly frustrating'*. (ACA-2)

Frequent outages during the adoption phase can erode trust in the new technology. Employees may start to question the reliability

and value of the new systems, which can affect their willingness to fully embrace the change. Effective backup plans and contingency measures are essential. *'When the network goes down, employees are often unable to access essential tools, applications, or data required to perform their tasks. This disruption halts workflow and can cause immediate delays'*. (ADM-1)

One employee of examination department said workers may worry about their ability to succeed under new digital system, leading to stress and decreased morale. *'I think modern digital technologies often come with a range of advanced features and functionalities that can be complex to understand. We need to put in a lot of effort to adopt new technology'*. (EXA-2)

Theme 3: Lack of Knowledge

A significant barrier to digital transformation is the insufficient digital knowledge among employees. When employees are not skillful in the technologies being introduced, it slows down the entire adoption process. It leads to confusion, mistakes, and operational inefficiencies. *'One of the biggest challenges with digital adoption is that many employees feel left behind due to their lack of digital knowledge'*. (EXA-1)

Employees may be experts in their roles, but when new technologies are introduced, they struggle to adapt. This gap in digital literacy creates a division between those who can quickly embrace the change and those who can't. It often leads to frustration, stress, reduced productivity, and even a sense of alienation among employees. If organizations don't

address this gap with effective training and ongoing support, the entire digital transformation can be spoilt. It's not just about the technology while it's about ensuring that people feel equipped and confident to use it. *'I completely agree. One challenge that arises from employees' lack of understanding is a gap in skills and competencies'*. (EXA-2)

Digital transformation often requires new knowledge and skills. When employees lack understanding, training, and support to acquire these skills, it can hinder their ability to effectively utilize digital tools.

Theme 4: Lack of Understanding
Employees' resistance to change can arise because they do not fully understand the change and its implications. If they do not understand the need for change or interpret in a different way the initiative resistance is likely to occur. *'I think, when employees do not fully understand the purpose, benefits, and impact of digital change, they may be hesitating to embrace it. This lack of understanding due to incomplete knowledge is creating a barrier to successful implementation of digital transformation system'*. (ACA-1)

Providing incomplete or selective information during a digital transformation process can be incredibly damaging. When employees don't have a full understanding of why changes are happening or how they're expected to use new tools, it creates confusion and mistrust. People start filling in the gaps with their own assumptions, which often leads to rumors and resistance to the change. *'I think, clear, transparent communication is essential during*

digital transformation processes. (ACA-2)

In the same way, the findings of previous studies (Cornescu & Adam, 2016; Gilch & Sieweke, 202; Fareri et al., 2023) point out that understanding the digital knowledge and providing technical skills is necessary before implementation of organizational change. The study of Gkrimpizi, et al. (2024) emphasize that understanding of digital transformation helps organizations align their strategic goals with technological developments. This alignment is crucial for ensuring that digital initiatives support overall institutional objectives and improve operational efficiency.

Theme 5: Different Types of Fears

Table 7

Resistance due to Affective Factor

Themes	Sub-themes	Evidence (Codes)
Different types of fears	fear of moving from known to unknown	feeling of fear when moving from a familiar to an unfamiliar situation, nervousness
	fear of failure	feeling of disappointment
	fear of mistakes	fear of making errors
	fear of insecurity	feeling of insecurity in embracing technology
	fear of loss	Sense of losing freedom and control
Uncertainty	increase anxiety level	Increasing anxiety due to excessive workload and pressure
	Surprises	Unexpected challenges in technology adoption

When change comes in any organization then their employees have different types of fears. It's a nature of human being they are feel uncomfortable and anxiety to move from known to unknown situation. Due to uncertainty and fear employees wants a sense of security. Majority respondents of different department of AIOU perceived that they have feeling of

fear moving from familiar to unfamiliar state. Fear is a natural reaction when shifting from a traditional to a digital system, especially for employees who've been doing things the same way for years. There's often a fear of the unknown whether they'll be able to adapt, if their skills will become obsolete, or if they'll be judged for not picking up the new system quickly.

'The feeling of fear when transitioning from a traditional to a digital system is quite common, and it's something organizations often underestimate. For many employees, the traditional systems they've worked with for years feel familiar and safe. Moving to a digital system are bringing surprised and creating uncertainty in employees.' (EXA-3)

Employees explained that we fear making mistakes undergoing the digital transformation process. *'I would like to add that a lack of understanding and knowledge can also lead to errors, and mistakes. When employees are not familiar with new digital system, they may mistake errors that some employees are doing'*. (TRE-4)

The majority of interviewees feel a sense of loss regarding things like freedom, power, and attachment to the old system. *'I believe that when employees move from a traditional system to a digital one, there's often a deep feeling of loss especially if they've been using the old system for a long time. It's not just about learning new tools; it's about losing the familiarity and comfort that came with the old ways of working'*. (EXA-6)

'Moving from an old system to a digital one often brings a sense of loss for employees, loss of familiarity, control, and even a sense of expertise. They may feel they're giving up the freedom they had in a system they knew inside out, where they felt powerful and competent. There's also emotional attachment; people form connections with processes and tools they've used for years'. (DRS-2)

Theme 6: Feeling of Uncertainty

When an organization is not ready to support its employees during an upcoming change, the workers may feel anxiety and uncertainty. Many interviewees from different departments expressed the opinion that their anxiety levels are increasing due to organizational transitions, workload, and pressure. *'I would say, uncertainty is one of the biggest challenges that employees face during institutional change, and it often leads to increased anxiety. Employees worry about their roles, their ability to adapt, and the future of the institution itself'*. (ACA-1)

The rapid pace of digital change often introduces stress, as employees must quickly learn new tools and systems. Without proper support, this can lead to anxiety, especially for those who feel unprepared or fear falling behind. *'The constant push to learn new technologies is stressful. There's no time to get comfortable with one system before we're expected to move on to the next. It's overwhelming and causes a lot of anxiety'*. (ADM-2)

A reaction to digital transformation (DT) is a cognitive and behavioral response shaped by an individual's ability to adapt and their understanding of how to respond to the change (AL-Abrow et al., 2019b; Peng et al., 2021). This reaction is heavily influenced by how managers introduce the change and how others respond to it. Negative reactions typically occur when the change is anticipated to increase workload, create uncertainty, and cause fatigue, especially when the change is rapid and affects the entire organization or large parts of it (Beare et al., 2020; Li et al., 2017).

Table 8

Resistance due to behavioral factor

Themes	Sub Themes	Evidence (Codes)
Employees emotional reaction	arguments	conflicts, heated discussions
	queries/ complains	frequently sending queries/ complains to management
	demotivated	hopeless, lack of enthusiasm, lack of confidence
Lack of tolerance	silence	hesitance to speak up in times of change, low participation
	loss of control	sometimes loses patience level, inability to manage
	anger	annoyance, aggression, and frustration
	lack of resources	deficiency of material and human resources
	lack of rewards	lack of rewards for extra effort, no bonuses for overtime work/weekend work
	health Issues	headache, fatigue, absenteeism due to stress

Theme7:Emotional Reactions/Responses

Organizational change can be emotionally challenging, and complaints often arise from stress and frustration. Poor organizational communication created tension among employees, leading to negative reactions toward the change (Li et al., 2021). Many employees argue and complain because they are worried about the uncertainties that change brings. Employees often express frustration with poor communication during change initiatives. Employees feels that leader doesn't provide enough details about the reasons for the organizational change. *'We're in the dark half the time. There's so little communication from management, and we're left guessing how the changes will affect us. That's why we argue because we feel ignored'*. (EXA-3)

'I've been doing my job a certain way for years. Now they want to change

everything. It's frustrating and hard to adjust...'. (ADM-5)

'A lot of times, employees worry about the immediate impact on their workload. They argue not because they're against the change but because they feel it's going to make their lives harder without the right support'. (TRE-3)

For many employees, organizational change is inherently stressful. Complaints often reflect emotional responses to the pressure of adapting to new environments and systems. *'People get emotional during change because it affects their sense of stability. Complaints are often a reflection of their stress rather than actual opposition to the change itself'*. (ACA-2)

Employees often complain when they feel the change process lacks clear direction or when roles and responsibilities are left ambiguous. Complaints are their way of asking for clarity and reassurance.

'When employees don't know exactly what's expected of them or where the organization is headed, it creates anxiety. Complaints are their way of asking for clarity and reassurance'. (EXA-4)

'People complain when they feel like decisions are made behind closed doors without considering the impact on them. They just want to be informed and feel involved'. (EXA-3)

Some interviewees of different departments of focus group explained that *'I prefer silence during this scenario because I know authority has power'*. (DRs-1)

Theme 8: Lack of Tolerance

Organizational change can make employees feel powerless, especially when decisions are made without their input. The feeling that they have no control over the situation leads to disengagement and a loss of motivation. During organizational transformation, employees often feel that the expectations placed on them increase without adequate support. The added pressure, without proper training and insufficient resources, can lead to burnout and a drop-in motivation. *'They expect us*

to do more with less, and it's exhausting. The extra workload from the changes makes it hard to stay motivated, especially when there's no time to adjust'.

(ACA-3)

Employees often feel that they are expected to do more with less during periods of change, and the lack of additional resources leads to stress and frustration. Many employees feel that they are not given enough time to adjust to new processes or expectations. Without the time to properly integrate changes, they become frustrated and disengaged. *'They expect us to adapt to the new way of doing things immediately, but they don't give us any time to catch up or learn properly. It's unrealistic and stressful'.* (ADM-3)

Employees often express frustration over the gap between management's expectations and the resources provided. When management sets high goals without supplying the necessary resources, it creates a sense of unfairness and frustration. *'They want us to achieve these ambitious goals, but they don't give us what we need to get there. It feels like they expect miracles without considering the reality of what we have to work with'.* (EXA-6)

When employees are forced to work without sufficient resources, it often leads to stress and burnout. *'We're constantly under pressure to perform, but without the right tools or enough people, it feels impossible. It's wearing everyone down, and we're getting burned out'.*

(ADM-5)

During digital transformations, employees often invest significant effort to adapt to new technologies, processes, and workflows. When their hard work goes unrecognized or unrewarded, it leads to demotivation and frustration. *'We're working harder than ever to adapt to these new systems, but there's no acknowledgment and reward for the extra effort. It feels like management expects us to just keep going without recognizing the strain it's putting on us.* (EXA-1)

'They rolled out new software, but we barely got any training on how to use it. Without proper guidance, we're just trying to figure it out on our own, and that's demotivating'. (ADM-4)

Employees often feel that the expectation to learn new digital system should come with corresponding rewards, such as bonuses, promotions, or even additional time off. When such incentives are absent, it leads to dissatisfaction. *'We're expected to upskill and learn all these new technologies, but there's no reward for doing so. Why should we push ourselves if there's nothing in it for us in the end?'.* (EXA-4)

Digital transformation often results in longer working hours, with employees needing to handle technical challenges alongside their usual responsibilities. This extended workload can lead to burnout, fatigue, and other health issues. *'It's exhausting to keep learning new tools and systems without a break. We're expected to be constantly adapting, and it's leading to burnout. There's no time to catch our breath.'* (ADM-2)

'I'm exhausted. Between my regular duties and trying to learn new systems, I'm working longer hours, and it's starting to take a toll on my health. There's no recognition for the extra hours, and it's draining'. (EXA-5)

However, majority employees are facing lot of hurdles undergoing digital transformation process which we have discussed above. Recent literature has begun to explore the impact of digital transformation on employee health (Dengler, et al., 2022). Employee's acceptance towards digital transformation is crucial during organizational shifts (Spieth et al., 2021). Leader need to address and resolve issues that are creating challenges in the implementation of the digital transformation system.

Quantitative findings of psychological resistance showed that means score of psychological resistance factors such as cognitive factor mean 2.75 and reasons

behind cognitive resistance of employees are lack of understanding, selected information, technical issues and lack of knowledge. Majority of interviewees perceived regarding lack of understanding "Management did not give training before implementation of digital transformation system. We were working on manual system for long time so we need to time to understand and adopt digital process. Whereas, mean of affective factor is 2.89 and reason behind affective resistance are feeling of uncertainty and different types of fears such as fear of moving known to unknown, fear of failure, fear of mistakes, fear of insecurity, fear of loss of freedom. Majority of interviewees have feeling of uncertainty due to unexpected change; employees' anxiety level is increasing undergoing through digital transformation process and unrealistic timelines. Mean of behavioral factor is 2.66 and reasons beyond employees' reaction argument, complaining are loss of control, frustrated, lack of resources, lack of rewards and health issues.

Discussion

The findings of this study provide insights into the hurdles that employees of higher education institution are facing due to digitalization at different levels of management. Employee's resistance (Jalo & Pirkkalainen, 2024; Nabeel, 2021; Cornescu & Adam, 2016) is the critical issue in the adoption of digital technology, but their conjoint influence on organizational-level adoption of technologies has not been quantitatively examined in the existing literature. Our mixed-methods paper addresses this gap by proposing and validating a research model that incorporates decision makers' perceptions of expected employee psychological resistance during organizational transformation and explores how psychological factors makes the reason of employees change behavior. Psychological resistance has cognitive, affective and behavioral factors (Virol &

Adam, 2016). Previous studies identified psychological resistance factors according to their own context. This study is dissimilar from past researches because researcher had chosen levels of management and identified resistance factors and explore the reasons behind employees changing behavior in the context of Allama Iqbal Open University. According to Nadeem, et al., 2024 the employee-employer relationship is largely evaluated through the psychological contract, focusing on fulfilling employee expectations while simultaneously driving organizational outcomes. The adoption of digital technologies may enforce psychological pressure on employees, compelling them to continuously update their digital skills (Harish et al., 2023).

The findings showed that overall resistance was exhibited in lower management as compare to top and middle management at quantitative phase. This study highlights the psychological resistance factors such as cognitive (what they think about the change? Affective (what they feel about the change? behavioral (how employees react towards change). The quantitative data related to cognitive factor shows that employees have stress, confusion and misunderstand regarding the digital transformation system. Employees' existing knowledge and skills frequently fail to align with the demands of digital transformation which create stress and confusion in employees' behavior (Fareri et al., 2023).

Employees have different types of fears, insecurities and anxiety related to affective factor. According to Virol & Adam, (2017) when change is implemented within an organization, it produces different types of fears such as, feelings of failure, fear of known to unknown, fear of insecurity and anxiety; data demonstrated that employees have different fears and doubts undergoing digital transformation process and behavioral factor (How to react towards change?

The behavioral factor related data shows that employees of lower management have these sub-factors such as lack of confidence, loss of control and demotivation. Perceiving justice positively or negatively is one of the coping mechanisms against resistance, as it is argued that the distribution of resources, processes, and procedures significantly affects employees' attitudes and behaviors in the context of change (Nabeel, et. al., 2021). Employees' have different attitudes towards digital transformation due to the uncertainty of new technologies and changing market conditions (Nadeem, et al., 2024; Verhoef et al., 2021; Tsai et al., 2019). Overall results of quantitative data shows that employees have uncertainty towards digital transformation system. The results showed that there were notable average differences in psychological resistance across different levels of management ($F(2,261) = 11.78, P < 0.05$). The results showed that middle and lower management showed less psychological resistance than lower management. Overall results of quantitative data shows that employees have uncertainty towards digital transformation system.

Qualitative findings explored lot of reasons behind employees' uncertainty undergoing digital transformation process. Previous researchers were mostly conducted on business or health center areas according to their context regarding explored reasons of employees change behavior due to organizational change (Joel, et al., 2024; Zhen & Ding, 2024; Khaw, et. al., 2023; Azouri, et al., 2022; Adam, 2022; Rehman et al., 2021). In the light of results, eight themes were emerged at qualitative phase that was associated with psychological resistance factors. Participants of different departments are undergoing digitalization process and the result of this study was demonstrated that employees of lower management were uncertain due to various reasons such as employees were worries and confused due

to lack of understanding, lack of digital literacy and technical issues. Ma and Guo (2022) highlight the central role of employees in digital change phenomena. As DT progresses in production, the need for a highly skilled workforce rises, driving employees to develop digital knowledge and skills (Xiao et al., 2022; Zhen & Ding, 2024).

The result also highlighted the importance of employees feeling because employees had different types of fears like move towards known to unknown situation, fear of mistakes, fear of insecurity and increasing level of anxiety. Employees hold different attitudes toward digital transformation system due to the uncertainty surrounding new technologies and shifting market situations. Some view digital technologies as a threat to their jobs, fearing that artificial intelligence (AI) and virtual agents may replace certain labor roles (Verhoef et al., 2021). To strengthen employees' capabilities, effective training programs and job design are essential (Li et al., 2021).

In this scenario employees were frustrated. In the consequences, they were loss of control over himself/herself and doing questioning, arguing and complaining. However. Communication gap, lack of training and workload are major reasons behind employees' emotional reactions. Ultimately, they were loss of patience and demotivated. According to Pratt et al., (2020) lack of communication is on another major issue, involving the absence of systems for sharing information and data. Employees are key participants and hold power in digital transformation, so we need to understand their behavior to successfully implementation of a digital transformation system.

Conclusion

The findings of the study suggest that the digital transformation creates challenges for all level of management especially for lower management, thus change has a big

impact on individuals. Several studies highlighted the significance of initiatives for digital change within modern organizations. However, the cognitive, affective and behavioral reactions of employees, who are the recipients of change, frequently manifest as resistance, especially in Pakistan. This is an original study on employee change behavior at AIOU. This research paper makes a valuable contribution to the field of organizational change management and information communication technology (ICT) by offering insights into the dynamics of resistance and providing practical strategies for reduce resistance and fostering successful change implementation in organizations. The study also explored lot of reasons behind employees' resistance such as lack of understanding, different types of fears, and lack of digital skills and insecurity of data are very critical factors. One an important reason of them is communication gap. If the reasons behind the change, its benefits, and the expected outcomes are not communicated clearly, employees might engage in speculation and spread misinformation, which could increase their resistance. Another reason is lack of training during organizational change, it is a significant issue that can lead to a variety of negative outcomes for both the organization and its employees. Without adequate training, employees are more likely to resist change because they feel unprepared or unsure about their ability to succeed in the new environment. This study suggests that the top management should develop proactive strategy that encompasses people, process, and technology. Moreover, leaders should make active efforts to raise awareness among employees regarding the transformation initiative moreover they should give training at all levels of management on digital skills and stress management before implementing any change. It is important to gain desired results and need to do is, effectively

communicate employees to reduce their different types of fears and uncertainty due to any organizational transformation. Overall, the practical implications of the paper on employees' resistance to organizational change empower organizations to navigate change more successfully by fostering understanding, communication, digital training and engagement among employees.

Limitations and Future Research

This study provides practical guidance for public and private organizations undergoing digital transformation. During the transformation process, manufacturing corporations can empower their employees based on the specific goals and needs of each stage. The study suggests three key practices for these corporations. Firstly, this study investigates extreme resistance at the management level within a single public organization with a limited scope. Future research should adopt a multi-case study approach or a larger sample to validate the findings. Secondly, the researcher focused on three factors related to psychological factors in the context of AIOU. Future research should explore additional psychological factors beyond the three identified in this study, such as emotional intelligence, resilience, and stress management, to gain a more comprehensive understanding of their impact on organizational transformation. Third, in the twenty-first century, digital technology has transformed several organizational structures and governance models worldwide. Digital transformation (DT) has become essential and presents new challenges for organizations. As a result, it is important to explore the role of employee involvement and participation in the digital transformation process, assessing how inclusive leadership practices can improve acceptance and engagement among employees.

Acknowledgement

The author wishes to acknowledge Prof. Dr. Nasir Mahmood for useful comments during and the later stages of this research.

Data Availability

The data supporting the analysis and findings of this paper are accessible through the corresponding author, and interested parties can request access to the data from the authors directly.

Declarations

All the procedures adopted by the study, involving human participants, were in accordance with the ethical standards of the institution of AIOU and its later amendments ethical standards.

References

- Adam, N. A. (2022). Employees' innovative work behavior and change management phases in government institutions: The mediating role of knowledge sharing. *Administrative Sciences*, 12(1), 28.
- Adama, H. E., & Okeke, C. D. (2024). Digital transformation as a catalyst for business model innovation: A critical review of impact and implementation strategies. *Magna Scientia Advanced Research and Reviews*, 10(02), 256-264.
- Ahmad, A. B., & Cheng, Z. (2018). The role of change content, context, process, and leadership in understanding employees' commitment to change: The case of public organizations in Kurdistan region of Iraq. *Public Personnel Management*, 47(2), 195-216.
- Ai, H., Hu, S., Li, K., & Shao, S. (2020). Environmental regulation, total factor productivity, and enterprise duration: Evidence from China. *Business Strategy and the Environment*, 29(6), 2284-2296.
- Alashhab, Z. R., Anbar, M., Singh, M. M., Leau, Y. B., Al-Sai, Z. A., & Alhayja'a, S. A. (2021). Impact of coronavirus pandemic crisis on technologies and cloud computing applications. *Journal of Electronic Science and Technology*, 19(1), 100059.
- AL-Abrow, H., Alnoor, A., Ismail, E., Eneizan, B., & Makhamreh, H. Z. (2019b). Psychological contract and organizational misbehavior: Exploring the moderating and mediating effects of organizational health and psychological contract breach in Iraqi oil Tanks Company. *Cogent Business & Management*, 6(1), 1683123. <https://doi.org/10.1080/23311975.2019.1683123>
- Azouri, M., Harb, A., Chaaya, L. B., & Akoury, C. (2022). Strategic assessment of factors that create a resistance to change during the implementation of Enterprise Resource Planning (ERP) systems. The case of Lebanese organizations. *Arab Economic and Business Journal*, 14(2), 18-30.
- Beare, E. C., O'Raghallaigh, P., McAvoy, J., & Hayes, J. (2020). Employees' emotional reactions to digitally enabled work events. *Journal of Decision Systems*, 30(2-3), 235-258. <https://doi.org/10.1080/12460125.2020.1782085>
- Benitez, J., Arenas, A., Castillo, A. and Esteves, J. (2022), "Impact of digital leadership capability on innovation performance: the role of platform digitization capability", *Information and Management*, Vol. 59 No. 2, 103590.
- Brown, Malcolm, Betsy Reinitz, and Karen Wetzel. 2020. Digital transformation signals: Is your institution on the journey. *EDUCAUSE Review*. Available online: <https://er.educause.edu/blogs/2019/10/digital-transformation-signals-is-your-institution-on-the-journey> (accessed on 12 September 2023).

- Cornescu, V., & Adam, R. (2016). Organizational Change—Managing Employees Resistance. In *Challenges, performances and tendencies in organisation management* (pp. 381-389).
- Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). Sage.
- Darmawan, A. H., & Azizah, S. (2020, January). Resistance to change: Causes and strategies as an organizational challenge. In *5th ASEAN Conference on Psychology, Counselling, and Humanities (ACPCH 2019)* (pp. 49-53). Atlantis Press.
- Dengler, K., Hiesinger, K., & Tisch, A. (2022). Digital transformation: The role of computer use in employee health. *Economics & Human Biology*, *46*, 101137.
- Fareri, S., Apreada, R., Mulas, V., & Alonso, R. (2023). The worker profiler: Assessing the digital skill gaps for enhancing energy efficiency in manufacturing. *Technological Forecasting and Social Change*, *196*, 1–14. <https://doi.org/10.1016/j.techfore.2023.122844>
- Ford, J. D., Ford, L. W., & D'Amelio, A. (2018). Resistance to change: The rest of the story. *Academy of Management Review*, *33*(2), 362-377. doi:10.5465/amr.2008.31193235
- Ford, J. K., Baldwin, T. T., & Prasad, J. (2018). Transfer of training: The known and the unknown. *Annual review of organizational psychology and organizational behavior*, *5*(1), 201-225.
- Gilch, P. M., & Sieweke, J. (2021). Recruiting digital talent: The strategic role of recruitment in organisations' digital transformation. *German Journal of Human Resource Management*, *35*(1), 53-82.
- Gkrimpizi, T., Peristeras, V., & Magnisalis, I. (2024). Defining the Meaning and Scope of Digital Transformation in Higher Education Institutions. *Administrative Sciences*, *14*(3), 48.
- Grønvad, M. T., Abildgaard, J. S., & Aust, B. (2024). Moving Beyond Resistance and Readiness: Reframing Change Reactions as Change Related Subject Positioning. *Journal of Change Management*, *24*(1), 5-24.
- Harish, V., Mansurali, A., & Krishnaveni, D. (2023). Digital Transformation for Business: Enablers, Framework and Challenges. In *Transformation for Sustainable Business and Management Practices: Exploring the Spectrum of Industry 5.0* (pp. 203-218). Emerald Publishing Limited.
- Jalo, H., & Pirkkalainen, H. (2024). Effect of user resistance on the organizational adoption of extended reality technologies: A mixed methods study. *International Journal of Information Management*, *75*, 102731.
- Joel, O. S., Oyewole, A. T., Odunaiya, O. G., & Soyombo, O. T. (2024). The impact of digital transformation on business development strategies: Trends, challenges, and opportunities analyzed. *World Journal of Advanced Research and Reviews*, *21*(3), 617-624.
- Khaw, K. W., Alnoor, A., Al-Abrow, H., Tiberius, V., Ganesan, Y., & Atshan, N. A. (2023). Reactions towards organizational change: a systematic literature review. *Current Psychology*, *42*(22), 19137-19160.
- Klein, S. P., Spieth, P., & Söllner, M. (2024). Employee acceptance of digital transformation strategies: A paradox perspective. *Journal of Product Innovation Management*.
- Lanzolla, G., Lorenz, A., Miron-Spektor, E., Schilling, M., Solinas, G., & Tucci, C. L. (2020). Digital

- transformation: What is new if anything? Emerging patterns and management research. *Academy of Management Discoveries*, 6(3), 341-350.
- Li, J. Y., Sun, R., Tao, W., & Lee, Y. (2021). Employee coping with organizational change in the face of a pandemic: The role of transparent internal communication. *Public Relations Review*, 47(1), 101984. <https://doi.org/10.1016/j.pubrev.2020.101984>
- Li, M., Wang, Z., Gao, J., & You, X. (2017). Proactive personality and job satisfaction: The mediating effects of self-efficacy and work engagement in teachers. *Current Psychology*, 36(1), 48–55. <https://doi.org/10.1007/s12144-015-9383-1>
- Li, Q., Cai, F.R., & Zhang, H.R. (2021). Research on the effect and its influencing factors of manufacturing employees' craftsman spirit on their job well-being. *Chinese Journal of Management*, 18(06), 864–872. <https://doi.org/10.3969/j.issn.1672-884x.2021.06.008>
- Lokuge, S., Sedera, D., Grover, V. and Xu, D. (2019), "Organizational readiness for digital innovation: development and empirical calibration of a construct", *Information and Management*, Vol. 56 No. 3, pp. 445-461.
- Mao, Y. (2020). Combating COVID-19 through collaborative governance: lessons from East Asia. *Chinese Public Administration Review*, 11(2), 132-141.
- Ma, J., & Guo, M.J. (2022). Enterprise digital transformation, employees' digital cognition and innovation performance: Is technology the knife, while I am the lamb to slaughter? *Science & Technology Progress and Policy*, 1–11. Retrieved from <http://kns.cnki.net/kcms/detail/42.1224.G3.20221205.1054.010.html>
- Mahboub, H. M., & Sadok, H. (2024). Barriers to digital transformation: The case of Moroccan companies. *Journal of Telecommunications and the Digital Economy*, 12(1), 261-276.
- Mahboub, H., & Sadok, H. (2023). Implementing enterprise digital transformation: a contribution to conceptual framework design. *Nankai Business Review International*, 14(1), 35-50.
- Mahboub, H., & Sadok, H. (2022). Towards a Better Digital Transformation: Learning from the Experience of a Digital Transformation Project. In *Digital Economy. Emerging Technologies and Business Innovation* (Vol. 461, pp. 203–214). Springer International Publishing. https://doi.org/10.1007/978-3-031-17037-9_15
- Mahmud, P., Kumar Paul, S., Azeem, A. and Chowdhury, P. (2021), "Evaluating supply chain collaboration barriers in small- and medium-sized enterprises", *Sustainability*, Vol. 13:7449
- Markus, M. L., & Rowe, F. (2023). The digital transformation conundrum: Labels, definitions, phenomena, and theories. *Journal of the Association for Information Systems*, 24(2), 328–335.
- Matarazzo, M., Penco, L., Profumo, G. and Quaglia, R., 2021. Digital transformation and customer value creation in Made in Italy SMEs: A dynamic capabilities perspective. *Journal of Business Research*, 123, pp.642-656.
- Mitchell, A. (2023). Collaboration technology affordances from virtual collaboration in the time of COVID-19 and post-pandemic strategies. *Information Technology & People*, 36(5), 1982-2008.
- Müller, S. D., Konzag, H., Nielsen, J. A., & Sandholt, H. B. (2024). Digital

- transformation competencies: A contingency approach. *International Journal of Information Management*, 75, 102734.
- Nadeem, M., Ali, Y., Rehman, O. U., & Saarinen, L. T. (2024). Barriers and strategies for digitalisation of economy in developing countries: Pakistan, a case in point. *Journal of the Knowledge Economy*, 15(1), 4730-4749.
- Nabeel, R. (2021). The Psychology of resistance to change: The antidotal effect of organizational justice, support, leader-member exchange. *Frontier Psychology*, 12, 12. Doi:10.3389/fpsyg.2021.678952
- Naimi-Sadigh, A., Asgari, T. and Rabiei, M., 2022. Digital transformation in the value chain disruption of banking services. *Journal of the Knowledge Economy*, 13(2), pp.1212-1242.
- Neumann, W. P., Winkelhaus, S., Grosse, E. H., & Glock, C. H. (2021). Industry 4.0 and the human factor—A systems framework and analysis methodology for successful development. *International journal of production economics*, 233, 107992.
- Oyedijo, A., Koukpaki, A.S.F., Kusi-Sarpong, S., Alfarsi, F. and Yang, Y. (2022), “Restraining forces and drivers of supply chain collaboration: evidence from an emerging market”, *Supply Chain Management: An International Journal*, Vol. 27 No. 3, pp. 409-430
- Pratt, M. G., Kaplan, S., & Whittington, R. (2020). Editorial essay: The tumult over transparency: Decoupling transparency from replication in establishing trustworthy qualitative research. *Administrative science quarterly*, 65(1), 1-19.
- Peng, J., Li, M., Wang, Z., & Lin, Y. (2021). Transformational leadership and employees' reactions to organizational change: evidence from a meta-analysis. *The Journal of applied behavioral science*, 57(3), 369-397.
- Penton, S., & Pettersson, F. (2019). Factors affecting managerial willingness to change: A case study on change management when implementing new digital technology.
- Porck, J. P., van Knippenberg, D., Tarakci, M., Ateş, N. Y., Groenen, P. J., & de Haas, M. (2020). Do group and organizational identification help or hurt intergroup strategic consensus? *Journal of Management*, 46(2), 234-260.
- Porfirio, J., Carrilho, T. and Jardim, J. (2021), “Leadership characteristics and digital transformation”, *Journal of Business Research*, Vol. 124, pp. 610-619.
- Pratt, M. G., Kaplan, S., & Whittington, R. (2020). Editorial Essay: The Tumult over Transparency: Decoupling Transparency from Replication in Establishing Trustworthy Qualitative Research. *Administrative Science Quarterly*, 65(1), 1–19. <https://doi.org/10.1177/0001839219887663>
- Raza, M. A., Imran, M., Rosak-Szyrocka, J., Vasa, L., & Hadi, N. U. (2023). Organizational change and workplace incivility: Mediated by stress, moderated by emotional exhaustion. *International Journal of Environmental Research and Public Health*, 20(3), 2008.
- Rehman, N., Mahmood, A., Ibtasam, M., Murtaza, S.A., Iqbal, N., & Molnár, E. (2021). The psychology of resistance to change: The antidotal effect of organizational justice, support and leader-member exchange. *Frontiers in Psychology*, 12, 678952.
- Robbins, S. P., Judge, T. A., & Judge, T. A. (2017). *Organizational behavior*. Pearson.

- Sawy, O.A.E., Kræmmergaard, P., Amsinck, H. and Vinther, A.L. (2016), "How lego built the foundations and enterprise capabilities for digital leadership", *MIS Quarterly Executive*, Vol. 15 No. 2, pp. 141-166.
- Siachou, Evangelia, Eleni Trichina, Ioanna Papasolomou, and Georgia Sakka. "Why do employees hide their knowledge and what are the consequences? A systematic literature review." *Journal of Business Research* 135 (2021): 195-213.
- Solberg, E., Traavik, L.E.M., & Wong, S.I. (2020). Digital mindsets: Recognizing and leveraging individual beliefs for digital transformation. *California Management Review*, 62(4), 105–124. <https://doi.org/10.1177/0008125620931839>
- Spieth, P., Laudien, S. M., & Meissner, S. (2021). Business model innovation in strategic alliances: a multi-layer perspective. *R&D Management*, 51(1), 24-39.
- Stocker, V., Lehr, W., & Smaragdakis, G. (2023). COVID-19 and the Internet: Lessons learned. In *Beyond the Pandemic? Exploring the Impact of COVID-19 on Telecommunications and the Internet* (pp. 17-69). Emerald Publishing Limited.
- Tabrizi, B., Lam, E., Girard, K. and Irvin, V. (2019), "Digital transformation is not about technology", *Harvard Business Review*, Vol. 13, March, pp. 1-6
- Tight, M. (2017). *Understanding case study research: Small-scale research with meaning*. Sage.
- Trenerry, B., Chng, S., Wang, Y., Suhaila, Z. S., Lim, S. S., Lu, H. Y., & Oh, P. H. (2021). Preparing workplaces for digital transformation: an integrative review and framework of multi-level factors. *Frontiers in Psychology*, 12, 620766.
- Tsai, J. M., Cheng, M. J., Tsai, H. H., Hung, S. W., & Chen, Y. L. (2019). Acceptance and resistance of telehealth: The perspective of dual-factor concepts in technology adoption. *International Journal of Information Management*, 49, 34–44. <https://doi.org/10.1016/j.ijinfomgt.2019.03.003>
- Uchechukwu, E.S., Amechi, A.F., Okoye, C.C. and Okeke, N.M., 2023. Youth Unemployment and Security Challenges in Anambra State, Nigeria. *Sch J Arts Humanit Soc Sci*, 4, pp.81-91.
- Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal Of Business Research*, 122, 889–901.
- Viorel, C., & Adam, R. (2017). Organizational change: Managing employees' resistance. *Journal of Organizational Change Management*, 12, 381-389. https://doi.org/10.1142/9789814656023_0042
- Wen, H.W., & Wang, S.Y. (2022). Research on the effect of digital technology application on enterprise innovation. *Science Research Management*, 43(04), 66–74. <https://doi.org/10.19571/j.cnki.1000-2995.2022.04.008>
- Wipulanusat, W., Panuwatwanich, K., Stewart, R. A., & Sunkpho, J. (2019). Drivers and barriers to innovation in the Australian public service: a qualitative thematic analysis. *Engineering Management in Production and Services*, 11(1), 7-22.
- Xiao, S.S., Sun, R.Q., Yuan, C., & Sun, J. (2022). Digital transformation, human capital structure adjustment and labor income share. *Journal of*

Management World, 38(12), 220–237.

<https://doi.org/10.19744/j.cnki.11-1235/f.2022.0174>

- Yuh-Shy, C. (2017). Individual Resistance from Employees to Organizational Change. *International Business Department, Ching Yun University, Available at cholar. google. Com/citations.*
- Zhang, Q. and Cao, M. (2018), “Exploring antecedents of supply chain collaboration: effects of culture and interorganizational system appropriation”, *International Journal of Production Economics*, Vol. 195, pp. 146-157.
- Zhang, X.X., & Hao, X.L. (2022). Induction and alleviation of employees' digital transformation resistance from the perspective of configuration. *Studies in Science of Science*, 41(11), 2050–2061. <https://doi.org/10.16192/j.cnki.1003-2053.20220831.001>
- Zhen, M., & Ding, W. (2024). Empowering employees for digital transformation in manufacturing enterprises: A case study. *South African Journal of Business Management*, 55(1), 4207.
- Zhou, Q., Li, Q., & Gong, S. (2019). How job autonomy promotes employee's sustainable development? A moderated mediation model. *Sustainability*, 11(22), 6445.