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The impact of change management in airports on employee performance in light of digital transformation: an applied study at King Khalid International Airport in Riyadh.

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Academic Year/
2025

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(Abstract):

While technology has significantly benefited humanity since the beginning of industrialization, it is crucial for it to keep innovating and adapting to stay relevant amid changing conditions. The rise of digitalization, driven by these technological advances, has led to heightened competition across various industries. In such a fiercely competitive landscape, it is vital for professionals to have a deep understanding of the latest technologies, apply them effectively, and help employees integrate these innovations. This is necessary for executing tasks well in the King Khalid International Airport sector, as well as in other fields. The process of digitalization is especially important for the air transportation industry and beyond. Consequently, this research examines how King Khalid Airport employees approach digitalization. Additionally, the study explores how digitalization affects employee productivity and satisfaction within airport. To evaluate this impact, the research used the Digital Transformation Readiness Survey scale from the Center for Creative Leadership-Corporate Leaders and other scales that assess employee productivity and satisfaction. It sought to determine the effect of demographic factors on productivity, satisfaction, and levels of digitalization among employees. The study's findings showed a partially significant effect. Regression analysis results indicated that the extent of digitalization significantly affects employee productivity. Moreover, it was found that employee satisfaction plays a crucial role in linking employee productivity with the digitalization process.

Keywords:

Digitalization , Airport Employees , Employee Productivity ,
Employee Satisfaction

Acknowledgement :

I want to take a moment to express my heartfelt gratitude to all those who played a part in this research. To begin with, I owe thanks to God. Next, I appreciate my family and friends, whose support and understanding helped me through the challenging times in my academic journey; your faith in my potential has been a vital source of inspiration. I also want to acknowledge Mid-Ocean University for creating an academic setting that made this research possible. The university's resources and facilities were crucial for achieving this goal. Additionally, I am thankful for the help and collaboration from the professors and referees involved in the questionnaire and research sample. Their willingness to share insights and experiences greatly enhanced the project's depth. I extend my thanks to the academic community and the authors whose previous work provided the groundwork for this research. Their contributions were key in developing both the theoretical framework and methodology. Lastly, I am grateful to all who supported me, whether directly or indirectly, in completing this research. This achievement reflects the hard work of many individuals, and I sincerely appreciate every contribution made.

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List of terminology:

1- Digital Transformation: The integration of digital technology into all areas of a business, fundamentally changing how it operates and delivers value to customers.

2- Employee Performance: The effectiveness with which an employee fulfills their job responsibilities and contributes to organizational goals.

3- Resistance to Change: The behavioral response of individuals or groups that oppose or struggle against new changes.

4- Technology Adoption: The process by which individuals or organizations begin to use new technologies.

5- Performance Metrics: Standards used to measure employee performance and effectiveness, often including KPIs (Key Performance Indicators)

(Chapter 1)

1- Introduction :

The term digitalization originates from the Latin word 'digitus,' meaning 'finger,' and is linked to concepts like 'number' and 'digit' in various European languages (Baloğlu, 2023). Digitalization represents a contemporary approach that has rapidly spread in our globalizing world, influenced by the industrial revolution, and affects nearly every aspect of life. This process is continuously evolving, moving through various stages, each introducing new ideas during a time marked by increased production and consumption (Baloğlu, 2023). In existing literature, digitalization is defined as transferring an organization's information and hardware into a virtual space by converting them into digital formats using electronic devices (Baloğlu, 2023). In today's business environment, digital transformation is viewed as an essential phenomenon that permeates all areas of an organization's operations and integrates digitalization into new management strategies. The benefits of digitalization are numerous, including improved access to information, faster production and workflow, secure information management and storage, and cost savings through digital storage solutions. However, like any new method, it comes with certain challenges, such as security issues, the risk of cybercrime, and new online threats. Nonetheless, it is expected that technology advancements will address these issues promptly (Üzmez & Büyükbeşe, 2021). The study of employee satisfaction began to take shape in the 1920s alongside the emergence of job satisfaction as an academic field. The Neoclassical management perspective of the 1930s and 1940s played a significant role in this evolution, earning acknowledgment in both organizational practices and the academic literature. As a result, research in this area started to proliferate (Çabukel, 2008). These studies produced various definitions, which can generally be summarized as 'a sense of happiness that enhances an employee's commitment to their job and workplace' or 'the degree to which employees feel aligned with their work and environment' (Korkmaz & Erdoğan, 2014). Findings from these studies suggest that employee satisfaction brings numerous advantages to employers, such as fostering organizational stability, boosting commitment, increasing motivation, and improving employee performance. Furthermore, it is crucial to recognize the mutual benefit between businesses and employees; a company's operational effectiveness is directly linked to its capacity to offer rewarding and satisfying benefits to its workforce. Thus, employee satisfaction is a critical factor for both the business and its employees (Korkmaz & Erdoğan, 2014). Employee productivity is measured as a performance ratio, calculated based on the relationship between inputs and outputs. It can be conceptually defined as maximizing an employee's performance to ensure sustainability at a level that benefits the organization the most (Özçelik & Kandemir, 2017). Key metrics for assessing employee productivity include performance, productivity itself, and the time taken to complete tasks. In the current business environment, there is a clear

trend towards enhancing productivity to maintain a competitive advantage. Consequently, the focus on achieving low-cost, high-quality outcomes has become crucial for sustaining that competitive edge (Kıraç, 2024). Furthermore, these definitions influence one another within organizations. Increases in employee satisfaction typically lead to higher productivity, while declines in satisfaction can result in decreased productivity. When employees feel satisfied, they often develop a sense of ownership toward the organization, which can positively influence productivity by encouraging them to find fulfillment in their work (Ulusoy & Tınar, 2017). Conversely, employee dissatisfaction can lead to a lack of enthusiasm for their work, diminished feelings of belonging to the organization, and a potential drop in performance. It is important to note that employee satisfaction can vary based on factors such as individual perspectives, motivation methods, and personality traits (Eceoğlu, 2020).

2- Research problem:

Airports all over the world are embracing cutting-edge technologies like biometric identification, AI-driven passenger management, IoT-enabled baggage systems, and automated check-in procedures as the aviation industry undergoes a quick digital transformation. As a vital hub in Saudi Arabia, King Khalid International Airport (KKIA) in Riyadh is actively implementing these digital advancements as part of Saudi Vision 2030, which aims to improve passenger experience and operational efficiency.

Digital transformation, however, brings about major organizational changes, frequently causing disruptions in workflows, necessitating new skills, and modifying job responsibilities. These changes may result in employee opposition, lower productivity, and inefficient use of new technologies if not handled properly. Despite the abundance of research on the technological aspects of digital transformation, there is a dearth of information on how change management strategies affect employee behavior in airport environments.

- **The Fundamental Research Question:**

How does effective change management affect employee performance at King Khalid Airport in Riyadh?

3- Sub-Questions:

- 1- How advanced is the digital technology used by airport staff?
- 2- Does the use of digital tools influence how productive and satisfied employees are?
- 3- Are there differences in the digital transformation based on different categories?

4- Research Significance :

This study on the impact of change management on employee performance during digital transformation at King Khalid International Airport (KKIA) in Riyadh holds substantial importance for multiple stakeholders, including airport management, policymakers, employees, and academic researchers.

This research is important because:

- 1- It provides actionable insights for airport management on how to implement digital transformation while maintaining high employee performance.
- 2- It contributes to the broader literature on change management in aviation, particularly in the Middle East.
- 3- It helps minimize resistance and improve adoption rates of new technologies by understanding employee perspectives.
- 4- It supports Saudi Vision 2030 by ensuring smooth workforce transitions in critical infrastructure projects.

5- Research primary objective:

The main goal of this research is to highlight how important digitalization is for the growth of King Khalid International Airport, just like in other industries. The study also seeks to explore how digitalization affects employee satisfaction and productivity. The key aims of this research center around the uncertainties related to these main goals.

1-How much airport staff resist the move to digital processes.

2-The level of trust employees have in digital solutions.

3-Employees' feelings about digital tools.

4-Whether the company is digitally advanced enough.

5- How digitalization affects the workers.

6- How well employees embrace digital changes.

7-The effect of digital technology on employee productivity.

6- Hypotheses:

To assess this impact, three hypotheses were created. They are summarized below:

H1: Increased digitalization at airports leads to higher employee productivity.

H2: There is a relationship where employee satisfaction affects the connection between digitalization and productivity.

H3: The research suggests that demographics influence the levels of employee satisfaction, productivity, and views on the digitalization process.

7- Change management theory:

Theories of change management offer a systematic way to guide people, teams, and organizations as they move from their current situation to a preferred future. One well-known model in this area is Kurt Lewin's Change Management Model, which includes three main phases: unfreezing, changing, and refreezing. This framework underlines the importance of preparing staff for transformation, executing the change effectively, and integrating new practices into the organizational culture. Additionally, John Kotter's Eight Steps for Leading Change highlights creating urgency, forming a guiding coalition, and embedding new methods within the organization's culture, showcasing the role of leadership in successful change efforts. Another vital theory is the ADKAR Model, which identifies five outcomes necessary for individuals to navigate change successfully: Awareness, Desire, Knowledge, Ability, and Reinforcement. This model emphasizes the individual's point of view in change management, making sure employees are not just informed but also encouraged to accept changes. For airports like King Khalid Airport in Riyadh, these theories can greatly affect how workers adapt to digital advancements, leading to smoother transitions and better overall performance. By utilizing these theoretical concepts, airport management can create customized plans that resonate with their staff,

ensuring that technological upgrades not only change procedures but also motivate and empower employees to build resilience and adaptability in a continually evolving environment.

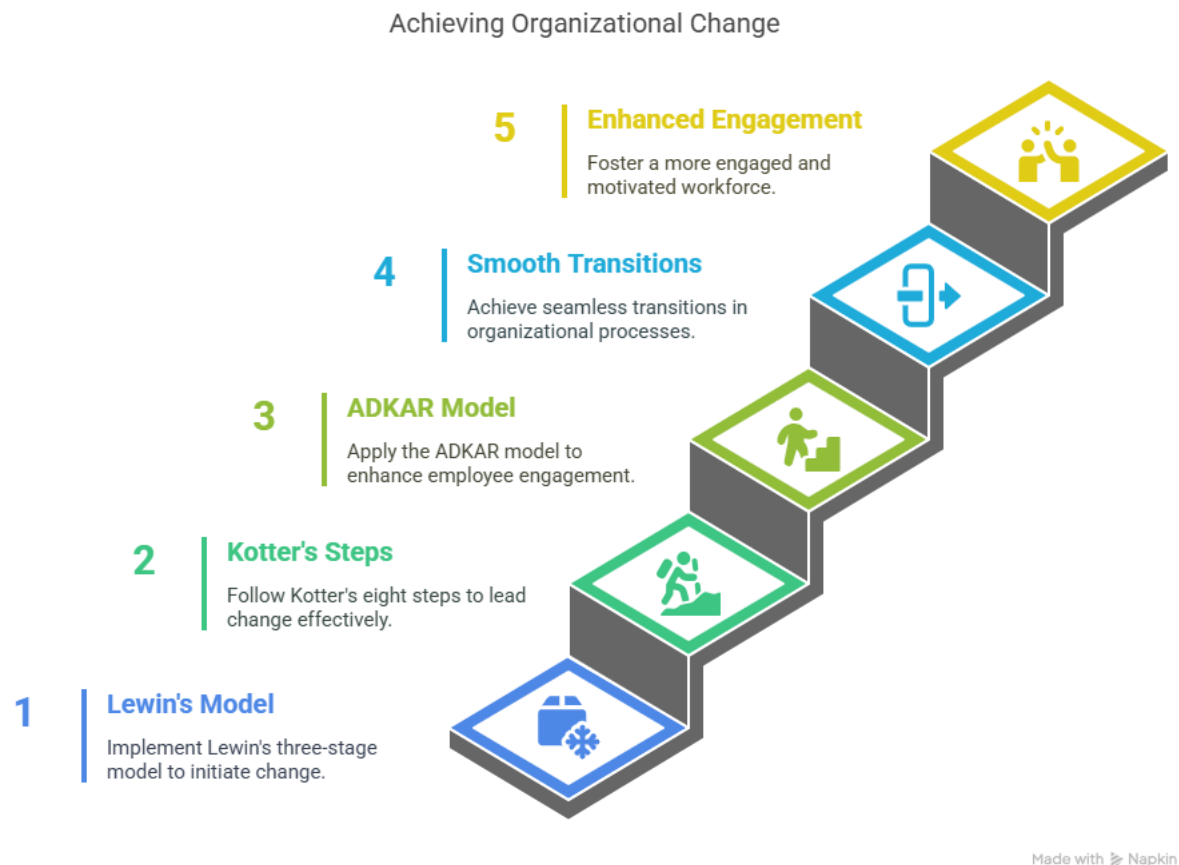


Figure (1- 1) Change management theory

8- Chapter 2 (Previous Studies) :

9- Introduction :

The landscape of airport operations worldwide is changing as digital transformation, powered by automation, artificial intelligence, and biometrics, improves efficiency, security, and the overall experience for travelers. King Khalid International Airport (KKIA) is embracing these technologies as part of Saudi Vision 2030, making it a significant player in aviation. However, to truly succeed in digital transformation, it is essential to implement more than just technological improvements. Effective management of change is necessary to help employees adapt, reduce disruptions,

and maintain productivity. Research consistently shows that a well-structured approach to change management—incorporating training, communication, leadership support, and employee participation—is crucial for minimizing resistance and enhancing workforce output during periods of digital change. This section synthesizes key literature, pinpoints existing gaps, and sets the stage for exploring how change management influences employee performance at KKIA. The results will prove useful for academic inquiries and practical applications related to digital transformation in airports.

10-Previous Studies:

1- According to Çankaya in 2020, it can be beneficial to use digital tools at airports. The study also looks at the various domains in which these technologies are utilized at an airport. API technologies are expected to enhance the growth of airports. The study also indicates that robots (digital resources) can identify travelers' problems and requirements during the trip, hence accelerating the service experience.

Spencer is a robot at Schiphol Airport. Its design works to reduce passenger stress when searching for the departure gate at the airport. Spencer has two uses; it sells products while travellers find their gate. This will enhance operational performance and airport economic growth.

2- Ersöz et al. (2020) stated that today, technology cannot be avoided. It's important to note Information Technology is (IT) vital for the workers. It helps share vital efforts, makes task easy . It help to store data and to share data. Also, they claim that the assumption of advanced technologies increasing unemployment will not come true. As a result, they decided technology can help the employees work much more efficiently.

3- Çankaya (2020) discusses how airport digital resources directly benefit the traveling community focussing on the ICTs. The study also investigates the various application areas of such technologies in an airport setup. "Airport progress will speed up with orientations towards API technologies." The paper also revealed that robots which are part of digital resources can detect the needs and problems of the passenger during his/her journey thus improving the service process. In addition, the study examines Spencer, a robot at Schiphol Airport that alleviates stress from passengers regarding the location of their departure gate. This robot does two unique things. Passengers see marketing items as they search for their gate. It boosts both airport efficiency and the economy.

4- According to Sucu (2021) research was done to understand employees commitment towards digitalization and the climate in organizations. A survey was applied to 183 workers who worked on digital systems working on the apron area of

ground handling firms of Istanbul Airport. The study found that the more employees get involved in digitalization, the better will be the organization's climate. The organizational environment has a significance effect on compliance to digitalization, as per regression analysis. According to the results of the ANOVA test, high school graduates were more likely than university graduates to have participated in digital activities. It was used t-test to assess the effect of gender on employee adaptability to digitalization efforts, but did not provide statistically significant results. In short, the places of work with high motivation and morale and in spaces with enthusiasm staff performs positively.

5- With the rapid changes in the external environment digital transformation organizations are better able to adjust. Studies suggest that using digital technologies is crucial for improving business agility. Digital tools enhance information access speed, enabling more flexible decision-making and fostering the improvement of agility. The research indicates that the process of digitization allows firms to react quickly to changes and assess market opportunities better. The findings show that digital transformation enables organizations to enhance the likelihood of maintaining a competitive advantage through organizational agility (Özdemir, 2023).

6- In 2024, Yılmaz examined the relationship between organisational agility and innovativeness, with innovative people significantly influencing how people adapt to change and view agility. The study finds environmental innovativeness is key factor that enhances perception of organisational agility. Thus, organisation culture must be built that encourages innovation and strategies must be devised by assessing emotions of individuals during a change.

7-According to Över (2021), agility affects everything from your work environment to the motivation of your employees. This upgrade will also improve its internal operations and public image. In today's fast-paced and complex environment, organizations need an adaptable corporate culture to succeed and survive.

8- Through digital transformation, organisations can add a touch of creativity and efficiency to their work by going digital. According to the research, the transformation significantly increases innovation within organizations through the changes it brings to business models(in Şahin, 2023). Also, Kohli and Melville (2018) pointed out that the digital technology facilitates information sharing and cooperation among employees, which helps in the creative generation of ideas. Also, according to the evidence, organisations who are adept at managing the digital transformation journey can quickly respond to changing customer needs, thereby enhancing their innovation capability.

9- Managing a digital workforce with firm leadership is crucial to assist employees through technology-induced transformations, creating an environment that promotes flexibility and innovation. Furthermore, workplaces with positive and adaptive cultures that embrace digital transformation will possibly enhance employee performance and foster their creativity and engagement (Yunita & Isnaini, 2024).

10- Leaders who adopt participatory methods can greatly enhance the motivation and commitment of employees, affecting their performance favourably during a change. According to Njuguna & Muathe 2016, training and communication is imperative for managing change. This is because it help employees get the necessary skills to change with new technologies.

11- Comparison between studies:

Areas of Emphasis: Certain studies focus on technologies with customer implications (for example, airports), while others explore the internal effects (on employee performance, agility).

Sucu used empirical data (survey), on the other hand, Çankaya, Özdemir (theoretical data) or observational data.use of theoretical data (analysis of papers or observation)

While everyone agrees that digitalization brings advantages, they each have different priorities such as the passenger experience (Çankaya), employee morale (Sucu), or strategic agility (Özdemir).

Matrix of the Impact of change Management on employee performance
(table 1-1)

Change Management Factors	Productivity	Job Satisfaction	Adaptability to Tech	Safety
Training & Skill Development	Boosts efficiency via AI tool training	Increases confidence, enhancing satisfaction.	Speeds up tech adoption	Improves safety protocol adherence, reducing errors.
Effective Communication	Aligns efforts with digital goals, increasing output.	Reduces uncertainty, boosting morale.	Encourages tech familiarity via updates.	Clarifies safety guidelines, lowering errors.
Leadership Support	Drives digital tool use, improving productivity.	Enhances morale through recognition	Inspires confidence in new systems.	Reinforces safe practices via monitoring.
Employee Involvement	Increases task efficiency via ownership	Fosters value, improving satisfaction.	Builds confidence in new tools	Ensures practical safety protocols, reducing errors.
Change Readiness Culture	Drives proactive tool use, enhancing productivity	Maintains satisfaction during shifts.	Accelerates tech adoption.	Integrates safety tools, minimizing errors

12- theoretical framework:

This research is based on three main theoretical views that shed light on how digital transformation, change management, and employee performance are connected:

1-Lewin's Change Management Model (1951):

- Involves the Unfreeze-Change-Refreeze steps.
- Details phases of how organizations adapt.

2-Kotter's 8-Step Change Model (1996):

- Offers a practical approach for implementing change.
- Highlights urgency, building support, and creating a vision.

3-Technology Acceptance Model (TAM) - Davis (1989):

- Looks at how useful and easy technology seems.
- Forecasts how people will adopt new technology.

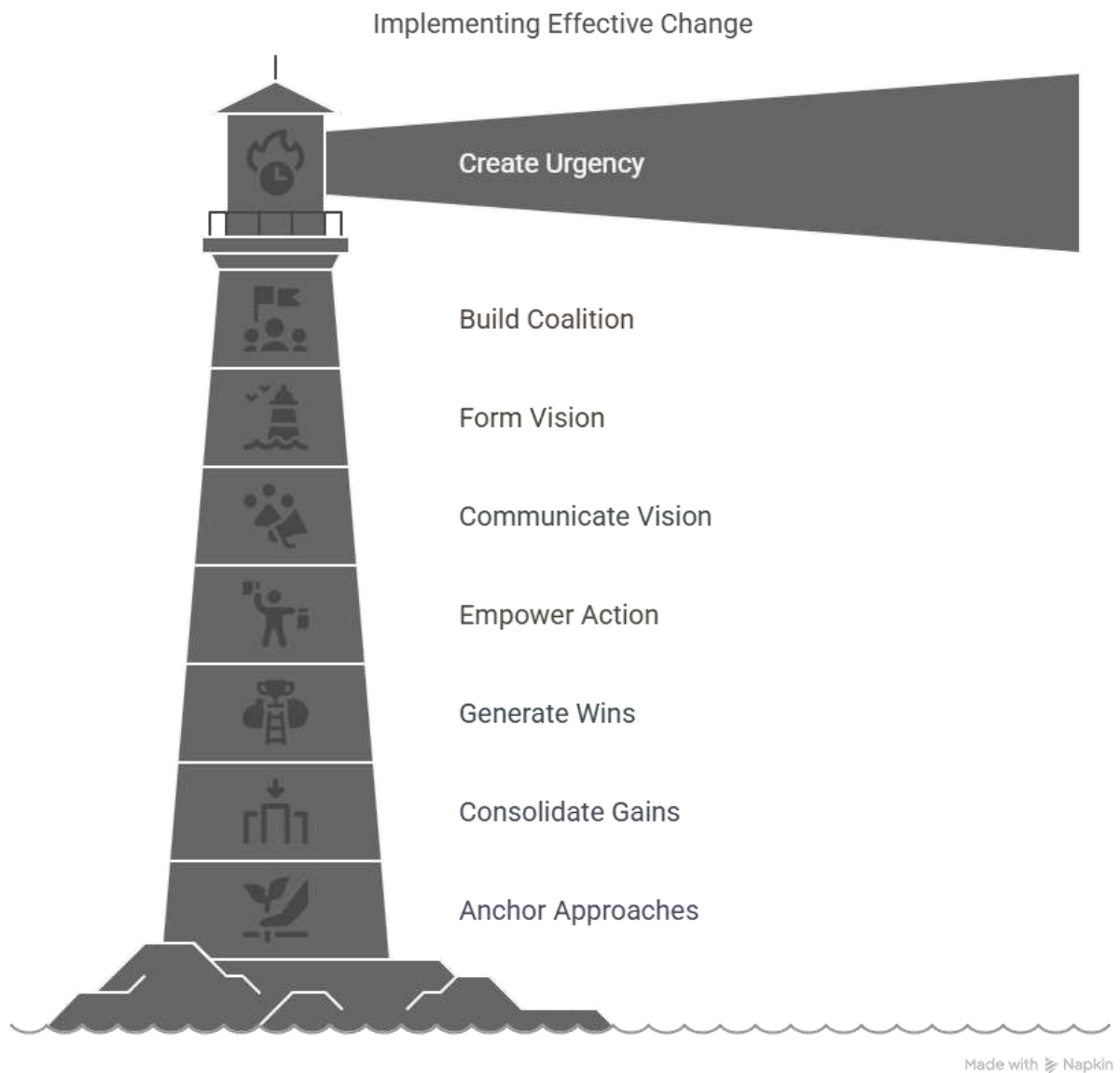
These models assist in understanding:

The way KKIA handles digital transformation

The factors that affect how employees adopt technology

The importance of leadership in carrying out changes

The methods for maintaining improvements in performance.



Figer (1-2) theoretical framework

13- Introduction:

This research, a quantitative method is applied within a practical, cross-sectional framework to achieve a structured and measurable analysis of data. The approach details important aspects such as the target group, sampling methods, tools for data gathering, and analysis techniques, which support both reliability and validity. Through the use of organized methods, this study seeks to deliver objective and broadly applicable results regarding the topic being explored.

14- Research Methodology:

This research is a practical, cross-sectional project. The study used a quantitative approach, which is detailed in the methodology section, including information on the population, sample, tools for data collection, and the analysis of the data.

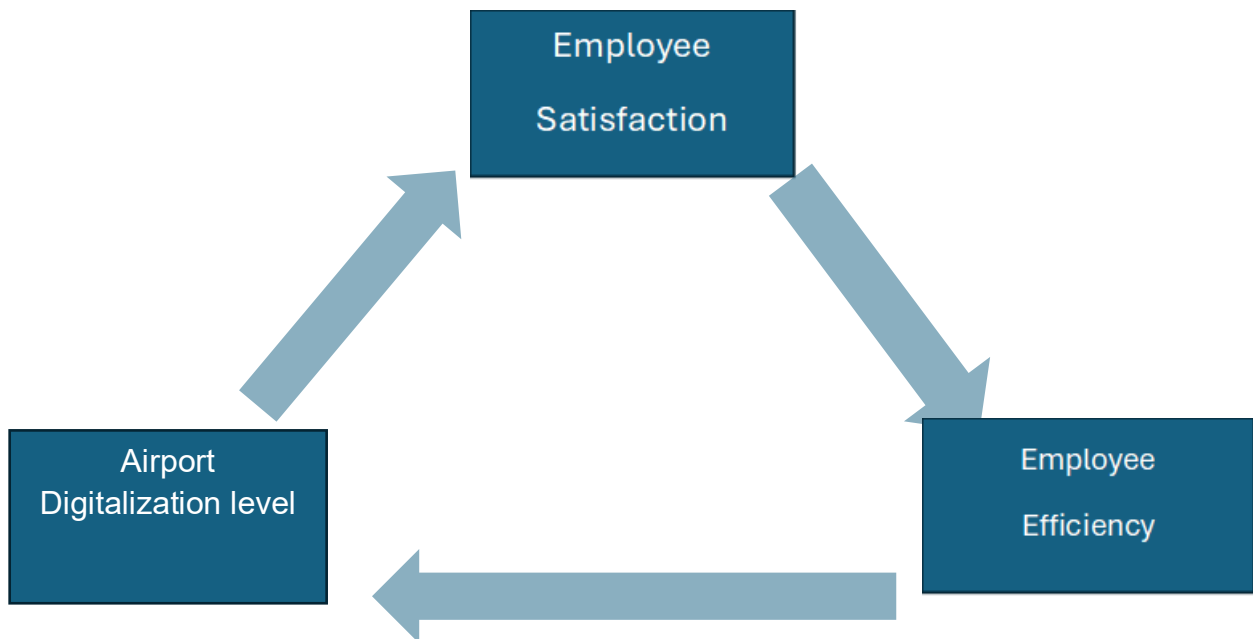


Figure (1-3) Research Model

15- Study Population :

The group being studied will include workers at King Khalid International Airport (KKIA) in Riyadh, Saudi Arabia, who are impacted by digital transformation efforts, either directly or indirectly. This group may encompass:

- 1- Operational Workers (such as those in ground handling, security, and customer service)
- 2- Technical and IT Personnel (like individuals overseeing digital systems, automation, AI, and data analysis)
- 3- Administrative and Management Teams (including HR, finance, and operations managers)

4- Support Personnel (such as maintenance and logistics staff)

To gain thorough insights, the sample might be divided according to departments, job functions, and degrees of digital adoption.

16- Research sample :

Location of the Study: King Khalid International Airport (KKIA) in Riyadh
Participants: Between 300 and 400 employees
Sampling Technique: Stratified random sampling
Main Categories: Departments: Operations, Security, Information Technology, Customer Service, Administration, and Management
Experience Levels: Less than 2 years, 2 to 5 years, 5 to 10 years, More than 10 years
Digital Adoption Types: Early adopters, regular users, and resistant users
Methods of Data Collection: Surveys (quantitative) Interviews (involving 15-20 employees, 10-15 managers, and 5-8 executives) Focus Groups (4-6 groups, each with 8-10 participants) .

17- Research Limitations:

Investigating how change management affects employee performance during the digital transformation at King Khalid International Airport (KKIA) in Riyadh faces several limitations:

1. **Narrow Focus:** This research concentrates solely on KKIA, which may hinder the applicability of its results to other airports that operate under different cultural, technological, or operational conditions.
2. **Limited Data Availability:** Obtaining complete employee performance information or sensitive operational statistics can be challenging, which could restrict the depth of the analysis performed.
3. **Bias in Feedback:** Using surveys or interviews for gathering employee opinions can lead to bias, as individuals may interpret the effectiveness of change management subjectively.
4. **Time Limitations:** The research might only reflect a specific period, therefore it might overlook the long-term effects or ongoing consequences of digital transformation efforts.
5. **Cultural Influences:** The distinct cultural and organizational landscape of Saudi Arabia may shape how employees react to change, making it tough to compare with findings from other countries.
6. **Inconsistent Technology Adoption:** Variations in how quickly or which digital technologies are embraced at KKIA could impact the reliability of the research outcomes.

Chapter 4