

MidOcean University
College of Management
Master of Business Administration (MBA)



**The Impact of Digital Transformation on Operational Performance in Saudi Airports
Evidence from Jeddah**

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1. Introduction

The aviation industry is undergoing unparalleled technological development due to the quick adoption of digital technologies. As airports worldwide continue to evolve and adapt to the changing needs and expectations of travelers, they are becoming more and more committed to leveraging innovative digital solutions to support their operations. Today many of the conventional airport processes are converted into highly integrated and automated processes with the support of technologies like Artificial Intelligence (AI), Internet of Things (IoT), biometric systems, big data analytics and smart airport platforms. Digital transformation is thus considered a strategic priority of airport authorities striving to enhance airport performance and remain competitive in a rapidly changing world.

The current study, titled “The Impact of Digital Transformation on Operational Performance in Saudi Airports: Evidence from Jeddah” aims to examine the impact of digital transformation technologies on the operations and performance of airports in Saudi Arabia, with a focus on Jeddah. The study highlights the important aspects of digital transformation, specifically Artificial Intelligence, IoT Applications and Smart Airport Technologies and how they can help to improve the performance of the operations. Ethical issues are a significant component of the research as it involves obtaining information from airport employees, information technology staff, passenger service staff, operational staff, and managers, all of which must be protected, and also the need to maintain organizational confidentiality.

This report is an attempt to discuss what research ethics is and how it is applied in the present study. The report covers the relevance of ethics in scientific research, the core tenets of research ethics, the ethical problems that researchers are likely to face, the rules and standards of ethical research, and the application of these tenets to the current study. The report underscores the importance of ethical adherence in delivering credible, reliable and socially responsible research results via this discussion.

2. The importance of Research Ethics will be discussed.

Research ethics are very important to ensure that research can produce credible knowledge while maintaining the welfare of the research participants, entities and society. The ethical guidelines direct researchers in making responsible decisions during the research process and ensure the credibility for the research. In today's digital age, with a growing reliance on complex organizational settings for research, ethical compliance has become a crucial aspect of conducting scientific studies. Research quality is improved by conducting

investigations and taking into consideration the findings, errors, and limitations of other people's work.

Among the major advantages of research ethics is that it helps to improve the quality of the research results. Ethical researchers should gather data properly, analyse the information objectively, and report the findings properly. This will improve the reliability and validity of research findings and enable future researchers to rely on the research of others with confidence.

In the present study, ethical conduct plays a key role in guaranteeing that the results genuinely reflect the employees' perception of the effect of the digital transformation technologies on the operational performance of airports. The practical significance of research and evidence-based decision making are supported by accurate reporting of results.

Participants will have their rights protected.

The success of any empirical study depends upon the research participants. Ethical principles provide for the dignity and respect of individuals during the research process. The participant should be made aware of the intent of the study, the participant's role in the study, and any risks that may be involved in the study.

The current study is carried out among employees who are engaged in different operational and managerial departments of King Abdulaziz International Airport. It is necessary to protect these participants in case they have information to share about internal operational systems and organizational practices. Ethical protective measures are in place to ensure that participation is safe, voluntary, and without adverse consequences.

Trust and cooperation need to be promoted.

The willingness to give honest and meaningful responses is a critical element to successful research. This is more likely to be the case when participants trust the researcher and feel that their information will be used responsibly.

When confidentiality and privacy are well respected, more accurate responses are given. This boosts the quality of data collected and helps in more impactful research outcomes.

Supporting Organizational Development

Research is frequently used as a means of improving an organisation. Ethical research can yield findings that could be used to help organizations maximize their strengths and minimize their weaknesses and enhance the way they operate. But, organizations are more inclined to support research activities if they know that sensitive information is being handled responsibly.

In the context of the present study, ethical behavior supports the positive relationship between researcher and airport environment and ensures that research findings are useful in enhancing the digital transformation efforts in Saudi airports.

Strengthening Academic Integrity

Honesty, originality and responsible scholarship are important values at academic institutions. When research is conducted ethically, the chances of plagiarism, falsifying data, and misrepresentation of results are decreased. Researchers who adhere to ethical principles help foster a trustworthy academic environment, where transparency and accountability are valued.

2. Ethical considerations for conducting research.

Ethical aspects of research.

Research ethics are based on a set of principles that guide researchers in conducting investigations responsibly and professionally. These principles help to build trust, scientific credibility, and fairness of participants in the research process. While the actual ethical demands of an investigation may depend on its specific nature, there are some basic principles that are considered universally to be integral parts of ethical investigation.

Transparency and Honesty

Transparency is the requirement for researchers to report information accurately and openly at each of the stages of the research process. Describing the methods, data and results honestly enables others to assess the quality of the research and repeat the work to check the conclusions.

The results of a research should not be exaggerated, unfavorable findings should not be hidden or misleading interpretations should not be made. Progress in scientific knowledge can only come from truthfully reporting evidence without manipulation.

Professional Integrity

Professional integrity is defined as being consistent in ethical standards in the research process. Researchers should follow institutional guidelines, be respectful of standards of the profession and research and be responsible and accountable in their research.

It is also important that researchers recognize constraints, disclose information and prevent any actions that might jeopardize the credibility of the study.

- The following example is from the current study.

The researcher will clearly define the methodology, sampling technique, and data analysis technique followed in the study. Potential constraints that might influence the interpretation of the results will be openly discussed.

Fairness and Objectivity

Ethical research involves researchers handling the information objectively and treating all participants fairly. Conclusions must be supported by evidence, not by assumptions, expectations or personal preferences. Objectivity helps to ensure that the results of the research are as true to life as possible, and to believe in the results.

- The following example is from the current study.

Questionnaires will be answered by the airport staff and objective statistical methods will be used to analyse the results. The researcher will remain objective with regard to interpretation of the data, which will not be interpreted in favour of specific departments, technologies or viewpoints.

Participants can expect that information given will be kept confidential. Researchers need to take proper precautions to ensure the anonymity of the participant(s) and to safeguard the data from unauthorized access.

In organizational research, confidentiality is a critical concern as participants might discuss subjects that concern the inner workings of the organization, management processes, or their experiences at work.

Example from the Current Study

Participants will not be asked to provide any personally identifiable information. Data will be kept secure and reported in a summary format to comply with privacy and confidentiality. Educational sessions that promote informed and voluntary participation.

The participant should be given enough information about the study before asking him or her to join. They need to be informed about the goals of the study, what it entails, and the importance of their right to drop out at any time without penalty.

Respect for Participants

Respect for participants is not limited to confidentiality and informed consent. It is about the acceptance of the dignity, autonomy and worth of all persons engaged in the research.

Researchers should provide a research environment that promotes participation of individuals in a fair and respectful manner.

- The following example is from the current study.

The researcher will make an absolute effort to provide equal treatment for all employees involved in the study based on their work positions, departments, ages, genders and work experiences.

The principles taken together offer a foundation for scientific research that is done responsibly and help to ensure that the present study is undertaken in an accepted manner.

3. The basics of research ethics

The principles of research ethics are a relatively small group of principles used to guide researchers to execute research responsibly and professionally.

Transparency and Honesty

Transparency means that researchers should present information correctly and openly at every stage of the research process. Honesty in the description of methods, data and conclusions enables others to assess the quality of the research and test the conclusions.

Researchers must refrain from overstating results, hiding negative results, or misinterpreting results. Truthful reporting and the absence of evidence manipulation are crucial for advancing scientific knowledge.

Example from the Current Study

The researcher will keep getting the data from the participants and report it precisely, irrespective of whether it is supportive or contradictory to the expects presented in the research.

Professional Integrity

Integrity in research is the consistency of ethical behavior in conducting research. Researchers must follow institution policies, professional standards and do responsibly and with accountability.

Integrity also demands that researchers recognize limitations, provide relevant information and refrain from actions that would jeopardize the integrity of the research.

Example from the Current Study

The researcher will clearly explain the methodology, sampling procedure, and data analysis to be used in the study. The constraints that are involved in interpreting the results will be openly discussed.

3.3 Fairness and Objectivity

When conducting research, researchers are expected to be fair to all involved and unbiased in their analysis of information. Conclusions should be based on evidence, not assumptions,

expectations or personal preferences. Objectivity helps to ensure that the findings of research correspond to reality, and enhances the confidence in the results.

Example from the Current Study..

Objective statistical analysis will be used to analyze the responses received from the airport employees. The researcher will refrain from favouring any specific viewpoints, technologies or departments when interpreting the data.

Identifies the importance of maintaining confidentiality and protecting privacy

The participants should be assured that information provided will be kept confidential.

Researchers need to take proper precautions to safeguard the identities of participants and to prevent inappropriate access to data collected.

In organizational research, confidentiality is of paramount importance since the people involved might disclose information that concerns internal operations, management practices, or workplace experiences.

Example from the Current Study

Participants' data will be anonymous. Data will be kept secure and be presented in aggregate only to assure privacy and confidentiality.

3.6 Respect for Participants

Confidentiality and informed consent are not the only aspects of respect for the participants. It means respecting the dignity, autonomy and worth of all persons associated with the research process.

The research environment should be designed to ensure that participants are included in the research process, and that they are treated fairly and with respect.

Example from the Current Study

The researcher will treat all employees involved in the study equally, irrespective of their position, department, age, gender and professional experience.

Together these principles offer guidelines for the conduct of scientific research and for the conduct of the present study in keeping with generally accepted scientific ethical standards.

4. Research ethics

Plagiarism

Plagiarism is defined as making use of the ideas, words, data or intellectual contributions of others without giving appropriate credit. It is regarded as one of the most serious forms of academic dishonesty.

Example : Plagiarism is copying discussion about digital transformation technologies or about the performance of the airport from previous studies without the appropriate reference.

The principles of data fabrication and falsification.

Fabrication is the creation of data that were not collected, falsification is the manipulation of data to achieve desired results.

Example: The provision of made-up answers to survey questions to make the sample more representative of the overall population, or the manipulation of the statistical findings to make relationships between digital transformation and operational performance more robust, would be considered unethical behavior.

Research Bias

Bias can happen when the design, execution or interpretation of research is influenced by the personal expectations or preferences of the researchers.

Example :Consequently, to presume that all the digital technologies necessarily result in better airport performance, and to interpret the results without objective analysis, would result in bias in the study.

Violation of Privacy

Violations of privacy are when participant information is shared without their consent or when data are used in an irresponsible way.

Example :Providing airport management or other identifiable employee responses would be unethical.

5. Ethical Governance of Scientific Research.

In today's complex environment of research, ethical governance is integral to research activities. Today's researchers conduct their research in an organizational, technological and social context, where participant rights, confidential information and research accountability must be managed. The ethical conduct in research is therefore no longer seen as a personal matter, but as a process in which it is regulated by institutional regulations, professional standards and international guidelines.

Research governance structures have been put in place to ensure that research activities are ethically and responsibly managed and that those involved are suitably safeguarded during the research process. These frameworks set up procedures that encourage transparency, fair play, accountability and minimize the risk of unethical behaviors.

Institutional Ethical Oversight

An ethics committee is a group that is often found in a university or research institution that reviews proposed studies before data is collected. The main role of these committees is to ensure that the research activities are in accordance with accepted ethical principles and that the potential risks to the research participants are adequately addressed.

Ethics committees consider, among other things, the way in which the subjects have been recruited, how the data is protected, how the participants' confidentiality is respected and how they are informed. As part of this review process, researchers are provided with advice on how to increase ethical compliance prior to implementation.

- **Relevance to the current study:**

The current study is conducted with employees in a large airport context, therefore, through ethical oversight, it is ensured that the confidentiality of the participants will be maintained and information of the organization will not be exposed inappropriately.

- **Ethical Responsibilities of Researchers**

In addition to formal regulations, there are also ethical responsibilities on the part of the researcher. They will be expected to carry out investigations in an honest way, not engage in misleading practices and ensure their conclusions are backed up by evidence.

It is in the interest of good researchers to understand that their actions can impact not only on the credibility of their specific study, but also on the public's trust in the scientific research process. Thus, the ethical responsibility starts from the design of the study and continues through to publication of the findings.

The work is relevant to the current study.

The researcher will make sure that everything he/she concludes regarding the digital transformation technologies and operational performance is based on the data he/she received from participants and not on assumption or individual expectations.

Academic referencing and intellectual property are examined.

The respect of intellectual property is an integral part of academic ethics. Recognition of the contributions of others and proper documentation of the sources of knowledge are essential to the advancement of scientific knowledge.

Correct referencing enables readers to check information, assess evidence and trace the source of ideas and ideas used in the study. It also shields researchers from charges of plagiarism and academic dishonesty.

Relevance to the Current Study

Theories, empirical results, and evidence presented in the discussion on the subject of digital transformation in airport operations will be cited and referenced in accordance with the APA rules and regulations.

Digital Data Protection

Data protection has become a major ethical issue as more research is conducted using electronic methods of data collection and storage. Researchers should be able to store their digital information in a secure manner and make sure that no one else can access it.

These include password protection, setting access permissions, ensuring secure storage, and implementing responsible data retention practices.

Relevant to the present study

The survey responses collected from the employees of an airport will be kept electronically with secure systems, with only the researcher and academic supervisors able to access these.

6. Ethical Implementation Framework for the Current Study

The study analyzes the effects of Digital transformation technologies on the operational performance of King Abdul Aziz International Airport (KAIA) in Jeddah. Because the research is collecting information from staff in operational, managerial, information technology and passenger service roles, it is important to have appropriate safeguards in place to ensure the rights of the research participant are protected and organizational confidentiality is maintained.

Participant Recruitment Strategy

The study is directed at employees with first-hand experience of the airport and the digital transformation processes. The selection of participants will be done fairly and unbiased; ensuring that all eligible employees have an equal opportunity to join the study.

The selection of participants will depend on whether they are appropriate for the research goals and not on personal ties or organizational influence. This way guarantees justice and increases the representativeness of the sample.

Study Population and Sample

The target population are:

- * Airport Operations Personnel
- * Information Technology Staff
- * Passenger Service Employees
- * Airport Management Personnel

The expected sample size is between 200-300 employees, with a good representation of various functional departments in the airport environment.

Privacy and Confidentiality Management

One of the most significant ethical issues in the ongoing study is the issue of respecting participant privacy. The respondents might give their views on operating systems, technological infrastructure and organisational performance, so there is a need for confidentiality measures to facilitate participation.

The researcher will NOT collect:

- * Names.
- * Employee identification numbers.
- * Personal telephone numbers.
- * Personal email addresses.

Information which could be used to identify directly the persons involved.

Secure Data Storage

Any information gathered will be securely stored electronically on password protected devices and via secure storage systems.

Additional safeguards include:

- * Restricted access permissions.
- * Secure backup procedures.

Security against unauthorized copying or sharing.

- * Ongoing review of research records in storage.

Risk Assessment and Management

Potential Risk	Risk Level	Mitigation Strategy
Participant identification concerns	Low	None of the personal identifiers will be taken and the results will be presented in a summary format.
Disclosure of sensitive operational information	Low	No specific operational information will be provided and organizational information will be generalized.

Perceived pressure to participate	Low	All participation will be voluntary and there will be no pressure to continue.
Survey fatigue	Very Low	The questionnaire is short and should take about 10-12 minutes to respond to.
Misunderstanding of survey questions	Very Low	Questions will be examined and communicated in simple and familiar terms.
Unauthorized access to data	Very Low	Access, storage and retrieval will be protected by password-controlled storage systems and access controls.
Researcher interpretation bias	Low	SPSS software will be used to objectively apply statistical analysis procedures.

7. Conclusion

Ethical issues are an important part of good science and are vital to the credibility, reliability and social benefits of the results of research. Responsible and ethical research is more crucial than ever before as organizations are increasingly using research findings as a basis for decision making. The ethics guidelines facilitate the process of research for the researcher by encouraging honesty, accountability, openness and respect of research subjects throughout the research process.

The values of research as outlined in this report go beyond academic requirements. Ethical principles are used to safeguard the interests of participants, build public trust in scientific research and promote the production of trustworthy research. The report highlighted the need for ethical behaviors, analyzed important ethical concepts, examined typical ethical dilemmas and looked at governance mechanisms for responsible research practice.

This study, in particular, focused on the applicability of ethical principles in the current study titled “The Impact of Digital Transformation on Operational Performance in Saudi Airports: Evidence from Jeddah.” The study examines the use of Artificial Intelligence, Internet of Things applications and smart airport technologies to enhance the performance of airports' operations at King Abdulaziz International Airport. Since the research is going to be conducted with information from employees working within an organizational context, confidentiality, informed consent, privacy protection and responsible data management are important issues to consider.

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