



Midocean University
College of Management
Department/Major MBA

RESEARCH ETHICS REPORT

The Role of Artificial Intelligence in Improving the Operational Efficiency of Baggage Handling Systems in International Airports in Saudi Arabia.

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1. Introduction

The principles of research ethics form the bedrock of valid, reliable and trustworthy research. Ethical principles are adhered to by researchers during all phases of research from the identification of the research problem to the design of research, data collection, data analysis, interpretation of data, and dissemination of research findings. Research ethics are set in place to safeguard the integrity of the research, the rights and well-being of those involved in research, public trust in research, and the quality of research findings (Resnik, 2020). Ethical issues are therefore not confined to meeting institutional requirements but are more a broad spectrum that guides and regulates proper research practice and the generation of good scientific products.

Research ethics has become much more relevant in today's research world, especially concerning research on humans, information about organizations and new technologies. Researchers often obtain sensitive data from individuals and organizations, and it is important to ensure that the data obtained is kept confidential, consent for the participant is respected and that the data is used responsibly. Ethical research practices minimize the potential for harm, minimize the risks to the participants, and ensure fairness, transparency and accountability during the research process. Also, following ethical guidelines enhances the credibility of research results and allows for easier acceptance by academic institutions, practitioners, policy makers and society at large.

This study aims to examine the potential of Artificial Intelligence (AI) technologies in enhancing the effectiveness, reliability, and performance of baggage handling operations, focusing on Saudi Arabian international airports. Airports continue to grow in response to Saudi Arabia's Vision 2030 goals on expanding aviation and to solidify the country's reputation as a global aviation and transport hub, putting airports under pressure to boost efficiency, decrease delays and enhance passenger satisfaction. The use of Artificial Intelligence technologies such as predictive maintenance systems, intelligent baggage tracking solutions, automated monitoring systems and data-driven decision-making tools can help solve these problems and enhance airport operations.

Information needs to be obtained from airport staff, operational managers, maintenance staff, technical staff, and other personnel related to the baggage handling process. Given the possibility of these participants sharing information on operational practices, technological systems and organizational performance, it is especially important that researchers are aware of ethical issues. Ensuring that participants do not incur any professional, social or organisational risks involves issues such as participant confidentiality, voluntary participation, informed consent, privacy protection and responsible data management. Furthermore, the information of the organization which is gained during the study should be protected and used only for academic and research purposes.

The aim of this report is to examine in detail research ethics and their application in the current research. The first section of the report addresses the significance of research ethics in assuring research quality and participants' protection. It then examines the basic moral principles on which good scientific research is based—scientific integrity, objectivity, confidentiality, and informed consent. Also explored are some of the most prevalent ethical concerns that researchers can face, including plagiarism, data fabrication and falsification, privacy violations, bias and conflicts of interests. Additionally, it covers the institutional and regulatory guidelines for conducting ethical research, such as Institutional Review Board (IRB) requirements, APA ethical guidelines and the rules and regulations regarding data protection and human participant research.

Most importantly, the report uses these ethical principles to apply to the research project currently being undertaken by demonstrating how the ethical considerations will be met throughout the study. This involves the processes and procedures used for recruiting participants, informed consent, the collection of data, the storage of data, and the protection of confidentiality, as well as risk assessment and reporting. The report emphasizes the importance of ethical adherence in maintaining the credibility, integrity, and scientific value of the study, and it will help advance knowledge on the use of Artificial Intelligence in airport baggage handling systems in Saudi Arabia.

2. The importance of Research Ethics.

2.1.Maintaining the quality and credibility of research.

Ethical research practices result in accurate and reliable research results. Researchers with good morals report the data to be, and do not manipulate or fabricate it, so others can follow and verify and make additions to the work.

In the present study, ethical considerations in research make sure that the findings reflect the genuine effect of AI technologies on the baggage handling systems at Saudi Arabian airports instead of the researchers' bias and preconceived notions.

2.2.The ethical and regulatory aspects of research involving human subjects.

Research ethics is to prevent the psychological, social, professional and legal harm of research participants. The participants supply valuable information and thus must be treated with respect, dignity and protection during the research process.

Given the nature of this study, which includes employees in the airport operations and baggage area, it is important to protect participants against any detrimental outcomes that could arise from exposure to information from the operational and baggage handling environments.

2.3.Increasing Trust between Researchers and Society

The integrity of the researcher leads to greater participant and organization willingness to participate in future research. Ethical behavior helps to build trust in academic institutions and in science.

2.4.Adequate adherence to Institutional and Legal Requirements

The ethical guidelines for human studies must be followed by the researcher conducting the study, as is required by universities, research institutions and funding bodies. Ethical approval guarantees that research methods are in accordance with the international guidelines and institutional policies.

2.5.Sustainable Scientific Knowledge is Supported

Science knowledge is an accumulation. Ethical research helps to establish a foundation of knowledge that future research can be based on. Unethical research can lead to false results, which lead to a loss of resources and hinder scientific advancement.

3. Research ethics: Fundamental Principles

3.1.Scientific Integrity

Scientific integrity is understood as honesty, accuracy and transparency in the research process. Findings should be reported honestly, and limitations of the study should be cited.

The application has been provided for the Current Study.

The researcher will report all results pertaining to the implementation of AI in baggage handling systems as they were provided by the participants, not altering the responses to aid in the development of the hypotheses.

3.2.Integrity

Integrity is defined as consistency of a researcher's actions, values and professional responsibilities. Misconduct and disclosure of any factors that can affect the research should be avoided.

The application has been provided for the Current Study.

The researcher will be transparent in reporting about research procedure, data collection, statistical analysis and limitation of the research.

3.3.Objectivity

In conducting research, it is important for the researcher to minimize any personal bias in study design, data collection, analysis and interpretation.

The application has been provided for the Current Study.

Objective statistical analysis, not opinions about AI technologies, will be used to analyse all answers that were collected from airport staff.

3.4.Confidentiality

Confidentiality refers to the protection of participant information and the prevention of unauthorized access to the research information.

The use of this application in the Current Study.

Participants will not be asked for personal identifiable information such as their name, employee ID, or contact information.

3.5.Informed Consent

Informed consent means that the participants must agree to participate in the study on their own volition after being provided with adequate information about the study.

The application has been provided for the Current Study.

The participants will be given a thorough explanation of the study goals, procedures, risks, benefits, and the right to withdraw from the study without penalty.

4. Ethical issues in scientific research.

1. Plagiarism

Plagiarism is the presentation of ideas, words, or intellectual property of another person as one's own.

- Example

Taking parts of other studies on airport AI systems and using them without credit to the source will be considered plagiarism.

2. The creation and manipulation of data to meet desired objectives.

Data fabrication is making up data, and data falsification is changing the data that is actually collected.

- Example

It would be an ethical violation to create false survey responses to inflate the number of responses, or to manipulate the statistical findings to suit hypotheses.

3. Bias

Bias is when researchers let their personal beliefs or expectations affect the results of research.

- Example

The selection of participants who are highly willing to implement AI may result in selection bias.

4. Privacy Violation

When the information of the participants is disclosed without permission, it is considered a violation of privacy.

- Example

When information might be used to identify a particular airport employee or organization, it is not ethical to publish.

5. Conflict of Interest

Conflict of Interest arises where personal, financial or professional relationships could affect the research decision.

- Example

If the researcher has a professional relationship with an AI technology provider in Saudi airports, then they should be disclosed.

6. Rules and Regulations governing Research Ethics

A. Institutional Review Board (IRB) is an institutionally approved panel of experts.

Research proposals involving human subjects are reviewed by an Institutional Review Board prior to the initiation of research. The IRB evaluates participant protection, risk management, informed consent process and confidentiality.

Ethical clearance from the appropriate university ethics committee would be obtained prior to the distribution of the questionnaires for this study.

B. APA Ethical Standards

According to the American Psychological Association (APA, 2020), there are ethical guidelines accepted internationally, which focus on:

- Beneficence and nonmaleficence
- Fidelity and responsibility
- Integrity
- Justice
- Respect for people's rights and dignity

In the present study, the ethical standards of APA are followed in all stages of the study.

National Regulations

The study will follow the laws and regulations of Saudi Arabia regarding data protection and privacy and ethical research procedures with human beings.

7. Application of research topic to real life situations

7.1.Ethical Considerations- The Study Population and Sample

The study population includes the employees of international airports working in Saudi Arabia, such as baggage handling employees, airport operations managers, maintenance personnel, logistics coordinators, and technical staff who are part of the AI-supported systems of airport operations.

The sampling technique to be used is stratified random sampling to ensure that various occupational categories and airport departments are fairly represented. This will help the development of the ethical principle of justice, which is in the form of equal opportunities to participate.

The study does not involve any vulnerable populations. All participants are adults and are able to give informed consent.

7.2.Obtaining Informed Consent Procedures are included.

The first page of the electronic questionnaire will include an informed consent statement that includes:

- Study title
- Research objectives
- Researcher's academic affiliation
- Expected completion time
- Confidentiality assurances
- Voluntary participation statement

☐ **Right to withdraw at any time**

Once participants access the questionnaire, they will electronically provide their consent.

☐ **Data Confidentiality and Privacy Protection**

Following measures will be taken to ensure the security of the data of the participants:

☐ **Data Collection**

They will be collected via a secure online survey platform. Names, employee numbers, phone numbers, email addresses or other identifying information will not be solicited.

☐ **Data Storage**

Data collected will be kept in a password protected device, only accessible by the researcher and supervisors.

☐ **Access to Data**

Raw data files will not be made available to anyone other than the researcher and academic supervisors.

☐ **Presentation of Results**

Only statistical data will be provided as an aggregate of the results. There will be no publication or presentation identifying the individual participant, department or airport.

☐ **Data Disposal**

Research data will be stored for the required length of time along with the secure deletion of the data in accordance with university regulations.

8. Risk Assessment and Management

Although the study is classified as a minimal-risk study, several potential ethical risks may exist.

Potential Risk	Risk Level	Mitigation Strategy
Concern about identification	Low	No identifying information collected
Disclosure of organizational information	Low	Results reported in aggregated form only
Participant fatigue	Very Low	Questionnaire designed to be concise and user-friendly
Perceived managerial pressure	Low	Emphasis on voluntary participation
Data security concerns	Very Low	Secure storage and password protection

Conclusion

Research ethics is the foundation of research and is not simply a set of administrative requirements or institutional procedures. Ethical principles offer a complete system that informs researchers at all points in the research process, beginning with the development of research questions, through data collection, to analysis and dissemination of results. The implementation of moral values guarantees the honesty, transparency, accountability and dignity of human in conducting scientific research. As a result, ethical research helps generate valid, reliable and socially useful knowledge which is trustworthy by researchers, practitioners, policy makers and society in general.

The fundamental principles of research ethics such as scientific integrity, objectivity, confidentiality, informed consent and protection of the participants have been discussed in this present report. It has also touched upon some of the most significant ethical issues which may arise to researchers, including plagiarism, fabrication of data, falsification of data, violation of privacy, bias, and conflict of interest. In addition, the report examined the rules, procedures, and regulations around approved ethical research practices, such as Institutional Review Board (IRB) guidelines, APA ethics guidelines, and other pertinent national regulations on data protection and research with human subjects.

In the context of the present study, which is titled “The Role of Artificial Intelligence in Improving the Operational Efficiency of Baggage Handling Systems in International Airports in Saudi Arabia”, it is evident that ethical considerations are relevant in the field of organizational and technology-related research. With the study including the collection of data from airport staff, operational managers, maintenance staff and others, confidentiality and protection of the participants' privacy is a key aspect of the study. Participants should have a clear understanding of the purpose of the study, what their involvement will entail, and that they are free to withdraw from the study at any time and for any reason, as well as the steps taken to protect their information. Of equal significance is the proper treatment of the data and information of any organization and the use of the same for academic purposes only.

The study has been determined to be a minimal-risk research project, but consideration must still be given to issues of identification of participants, disclosure of

sensitive information about the organization, perceived pressure to participate in the study, and security of the data. These risks can be adequately mitigated through implementation of the appropriate safeguards that include anonymous data collection, secured data storage, limited access to research records and clear reporting processes. These actions boost participant trust and the overall confidence in the research process.

Furthermore, the ethical aspects contribute to the scientific value of the research by affirming that the results are a true representation of the actual perceptions and experiences of the participants with regard to the implementation of Artificial Intelligence technologies in baggage handling systems. Ethical behaviour helps to avoid data manipulation, researcher bias, and objective interpretation of data. Consequently, the study can offer valuable insights into the role of AI technologies in the Saudi Arabian international airport and their impact on predictive maintenance, intelligent baggage tracking, automated monitoring systems, and operational efficiency.

To conclude, the effectiveness of any scientific search is not just based on its methodology but also on the ethical standards which guide the implementation of the methodology. Ethics and good scientific practice go hand-in-hand with good research. The current study, which strictly follows ethical guidelines throughout the research process can produce accurate and reliable findings which can be useful for further academic research, evidence-based decision-making in airport management and can help aviation authorities and policymakers gain the most from Artificial Intelligence technologies within the Saudi aviation sector. Overall, ethical research practices are essential for promoting scientific progress and social development, ensuring that knowledge is produced and utilized in an ethical and responsible way.

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