

## **Conversion of Old System to New System of Land Side Facilities at Jenderal Ahmad Yani International Airport Semarang**

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### **Abstract**

The current development of the transportation industry has an impact on companies in the digitalization era. Various technological advances in an airport have been implemented at Jenderal Ahmad Yani International Airport, Semarang. With the transfer of the airport building, the current system changes also occur in the check-in counter, boarding gate, and lost and found facilities at the airport. This study used a mixed method (quantitative and qualitative) with data collection using questionnaires, observation, interviews, and documentation. Quantitative method used in the form of comparative and descriptive hypothesis testing. The qualitative method used is in the form of interviews. The research was conducted at Jenderal Ahmad Yani International Airport, Semarang. The results of this study are that there are changes that occur from the old system to the new system, the success rate of the new system does not reach 90% but only an average of 80.95%. The constraints experienced when switching from a new system to an old system are generally a lack of understanding of the new system and not yet mastering the existing new system.

**Keywords:** System, Land Side Facility



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### **INTRODUCTION**

Indonesia is the largest archipelagic country in the world. When viewed from a geographical perspective, the islands in Indonesia make it difficult for people to interact from one island to another. The existence of these limitations makes people more selective in choosing transportation services. These limitations also have an impact on the Indonesian economy, especially in the air transportation sector. Air transportation is any activity carried out or transported using an airplane. Air transportation has an important role in providing transportation services to transport people and goods between airports to other airports, between airports of origin to airports of destination, as well as areas that are located far apart within a country and between countries using transportation facilities. air via flight routes.

Airport is an area on land and/or waters with certain boundaries that is used as a place for aircraft, in addition to landing and taking off, as well as a place for boarding and disembarking passengers, loading and unloading of goods, and a place for intra and intermodal transportation. which is equipped with flight safety and security facilities, as well as basic facilities and other supporting facilities (UU No. 1 of 2009). According to Annex 14 of ICAO (International Civil Aviation Organization), an airport is a defined area on land or water (including buildings, installations and equipment) designated either wholly or partly for the arrival, departure and movement of aircraft.

Jenderal Ahmad Yani International Airport is an airport managed by PT Angkasa Pura I. Ahmad Yani International Airport is an airport that has high competitiveness. In terms of the services provided, this airport serves both domestic and international flights. Apart from that,

Ahmad Yani airport also competes in terms of terminals and the facilities provided, such as a children's playground and an over-water park that will spoil passengers who are at Ahmad Yani Airport. Ahmad Yani Airport has inaugurated its newest terminal as of June 2018. This new terminal carries the theme of an environmentally friendly floating airport, of course.

The development of the transportation industry today makes competition even tighter. At every airport in Indonesia, they are competing to implement services that will certainly attract customers to return to using the airport's services. The progress achieved in this development resulted in changes from time to time. The development of the transportation industry has been very rapid, both in terms of the amount of air transport as well as the number and frequency of aircraft transport. To compensate for these developments, an airport must provide the facilities needed for aircraft operations that meet standard operating procedures that meet aviation safety and security requirements (Warsito, 2017).

The development of the transportation industry has an impact on companies in the digitalization era. As it is now, airports have used technology which of course aims to improve services starting from pre-flight to post-flight. Airline companies are required to meet all kinds of cost savings through information technology innovation. This is due to the development of information technology in the field of aviation.

Various technological sophistications at an airport that have entered and have been implemented at Ahmad Yani International Airport, Semarang, for example, are buying tickets online. In addition, the check-in system has also been carried out online. The system in an airline is very complex, the system must be able to integrate the Front Office System and the Back Office System. Technology systems in the air transportation business are divided into two, namely Front Office systems that are directly related to passengers such as reservation systems, check-in systems, boarding systems, online websites, online payments, e-ticket systems. Meanwhile, the Back Office system is a system that supports airline operations such as accounting software, human resources information systems, customer databases, and air crew monitoring systems.

Along with the current rapid advances in technology and systems, Ahmad Yani Airport is increasingly improving its services both in terms of buildings, facilities and systems. The existing system at Ahmad Yani Airport has undergone changes. Of course, with the rapid development of technology and industry, this airport must be able to compete in terms of systems. In terms of taking advantage of technological and industrial developments, Ahmad Yani Semarang airport takes action in carrying out operations by providing an electronic service system. We can see that the existing systems, such as the check-in counter, boarding gate, and lost and found facilities, have different system changes. As is the case with check-in counter facilities, namely the existence of electronic tickets which used to be paper tickets (paper tickets). Whereas in the boarding gate facility, which used to be one departure gate, now there are several departure gates. And in the lost and found facility where there is a search system in the event of reporting of lost or damaged baggage.

Based on the description of the background above, the formulation of the problem in this study is as follows: What is the comparison between the old system and the new system at Jenderal Ahmad Yani International Airport, Semarang? What is the success rate of converting the old system to the new system at Jenderal Ahmad Yani International Airport in Semarang? Are there and what are the obstacles experienced when changing the old system to the new system at Jenderal Ahmad Yani International Airport in Semarang? Research Objectives: To find out the comparison of the old system to the new system that was carried out at Ahmad Yani International Airport in Semarang. To determine the success rate of converting the old system

to the new system carried out at Ahmad Yani International Airport in Semarang. To find out the obstacles experienced when changing the old system to the new system at Ahmad Yani International Airport in Semarang.

### Relevant Research

**Table 1. Relevant Research**

No.	Title	Name & Year	Result Research
1	Utilization of Digital Technology in Improving Service Operations at PT Angkasa Pura II (Persero) Minangkabau International Airport Branch.	Eddy Sherien (2020)	Based on the research that has been done, it can be concluded that in carrying out its duties PT Angkasa Pura II as the manager of the Minangkabau International Airport has implemented various kinds of digital technology that support improvements to its service operations. The digital technology referred to here is using an automatic and sophisticated system such as a computerized system or a format that is read by a computer. The digital technology used at Minangkabau International Airport is Self Check-In, Digital Banner, Digital Map, BMKG Digital Info, Flight Information Display, E-toilet, iPerfome, SIDOEL (Electronic Document System), and CTF (Customer Touchpoint Feedback).
2	Implementation of the Smart Airport Concept for the Passenger Service Process at Terminal 3 at Soekarno Hatta Cengkareng Airport	Nur Inayah Iftitah (2020)	It was concluded that the smart airport concept provides many benefits such as increasing non-aeronautical revenue and providing convenience, comfort and safety for passengers. Implementation of smart airport concept facilities in passenger service aspects such as airport digital lounges, DiLo robots, airport digital hotels, self check-in, auto gates, full body scanners, baggage handling systems, and airport security items.
3	Service Innovation as a Competitive Strategy for Airports in Facing the Growth of Tourists on Karimunjawa Island	Muhammad Iqbal Tejoprabowo (2021)	Service innovation carried out by Dewadaru Karimunjawa Airport as a competitive airport strategy in dealing with the growth of tourists on Karimunjawa Island is carried out by creating new services either in the form of service processes or procedures that are adjusted to government regulations. These services are the use of technology, interaction with customers, development of new services, and service delivery systems.

### RESEARCH METHOD

This study was designed using a comparative and descriptive approach with quantitative and qualitative methods. Quantitative and qualitative methods are mixed methods (Mixed Methods). According to Creswell (2010) explains that mixed methods research is an approach that combines quantitative and qualitative research. The combination method is a method that combines or combines quantitative methods with qualitative methods used simultaneously in a study, so that more comprehensive, valid, reliable, and objective data is obtained (Sugiyono, 2011). Based on the explanation above, it can be concluded that the mixed method (Mixed Methods) is a combined method of quantitative and qualitative obtained from the results in the form of descriptive and numbers. The type of Mixed Methods used in this research is sequential mixed methods. In this research, what the writer did was collect quantitative data first. Furthermore, the authors collect qualitative data to strengthen the results obtained from the quantitative method so that related analysis results are obtained. The time of research in this study was from 1 February to 15 February 2023 and took place at PT Kokapura Ahmad Yani Airport Semarang Branch.

## **Population**

The population is the totality of each element to be studied which has the same characteristics in the form of individuals from a group or events to be studied (Handayani, 2020). Explained by Sugiyono (2019) that the population is a generalized area consisting of objects or subjects that have certain characteristics set by researchers to study and draw conclusions. The population in this study were all staff on duty in the Check-In Counter, Boarding Gate, and Lost and Found units at Ahmad Yani International Airport Semarang.

## **Sample**

According to Sugiyono (2016), the sample is part of the number and characteristics possessed by a population. The sample is part of the population which is used as a data source in research. In other words, the sample is part of the population in a study. Sampling according to Arikunto (2012) is determined from the number of population. If the population is less than 100 people, then the sample is taken as a whole. However, if the population is more than 100 people, 10-15% or 20-25% of the total population can be taken. Seeing from the population in the study that did not reach 100 people, the sample in this study was 20 people (respondents).

## **Data Collection Technique**

1. Research instruments. Ardianto (2010) defines that a data collection instrument is a tool used to measure the data to be collected. In this study using a research instrument in the form of a questionnaire containing questions with answers that have been provided. The questionnaire used in this study uses a Likert scale measurement. The Likert scale is a scale used to measure a person's attitudes, opinions, and perceptions of the phenomena that occur (Sugiyono, 2014). By using a Likert scale, variables will be measured and then translated into indicators. Then these variables are used as benchmarks in preparing questions and statements that can be answered by respondents. Then, answers to questions and statements in this study use the highest score (5) to the lowest score (1).
2. Data collection. According to Sugiyono (2017) methods or techniques for collecting data can be done by interviews, questionnaires, observation, and a combination of the three. The data collection techniques used in this study are as follows:
  - a. Questionnaire. Questionnaire is a data collection technique that is carried out by giving a question or written statement to the respondent to answer (Sugiyono, 2017). Kriyantono (2020) explained that the questionnaire is the main instrument for making survey results valid and reliable. The questionnaire method that will be carried out in this study is an online questionnaire where the sample can answer the questionnaire via a website link shared by the author.
  - b. Observation. Observation is the basis of all science, through observation the researcher learns about behavior, and the meaning of that behavior. This method is used to directly observe events/phenomena that are the focus of research (Sugiyono, 2019). The observations made in this study were direct observations in the field to find out the actual conditions at Ahmad Yani International Airport in Semarang.
  - c. Interview. Interviews according to Sugiyono (2018) are conversations with a specific purpose carried out by two parties, namely the interviewer who asks questions and the interviewee (interviewee) to provide answers to the questions given. An interview is a meeting of two people to exchange information and ideas through question and answer, so that meaning can be constructed in a particular topic, Esterberg (in Sugiyono, 2019). So, the interview is a data collection method that is carried out by a question and answer

process by the interviewer to the informant or the person being interviewed. Interviews were conducted to find out more in-depth things about a problem. In this study, interviews that will be conducted by researchers are with check-in counter unit staff, boarding gate unit staff, and lost and found unit staff.

- d. Documentation. In this study, another data collection technique is documentation. Documentation is a collection of data and information in the form of archives, videos or images that can support a research. According to the Federation International de Documentation (FID) explains that documentation is the work of collecting, compiling and disseminating documents from all types of human activity. The documentation used in this study is the document owned by the researcher at the time of direct observation in the field.
3. Data type. Data sources are divided into 2, namely primary data sources and secondary data sources (Sugiyono, 2015). According to Arikunto (2013) it is explained that the source of data in a study is the subject from which the data can be obtained. Sources of data in this study are as follows:
- a. Primary data. Sugiyono (2015) defines that primary data sources are data sources obtained directly through interviews with research subjects and observations. "Primary data is research data obtained directly from original sources (not through intermediary media) (Supono, 2013). So, the primary data source is obtained from observers or participants who witness events directly. The primary data in this study came from staff at the check-in counter, boarding gate staff, and lost and found staff.
  - b. Secondary data. Secondary data is primary data that has been further processed and then presented by data collectors or through intermediary media (Umar, 2013). Secondary data according to Sugiyono (2016), is a data source that does not directly provide data to data collectors. It can be concluded that secondary data is a source of data obtained through intermediaries. Secondary data is used as complementary data. Secondary data in this study are in the form of literature, journals, and previous research.

## **RESEARCH RESULTS AND DISCUSSION**

The discussion in this study aims to provide an overview and results obtained from this study. This research was conducted to find out the comparison, what is the success rate of changing the old system to the new system and to find out the obstacles experienced when changing the old system to the new system which was carried out at Ahmad Yani International Airport in Semarang. The following is a discussion of this research:

### **Comparison of the old system to the new system carried out at General Ahmad Yani International Airport, Semarang**

Based on the results of data analysis using the Independent Samples Test, it was found that the Sig. is 0.007. In this study has a hypothesis:

Ho = there is no difference from the old system to the new system.

Ha = there are differences from the old system to the new system.

According to Santoso (2014), guidelines for decision making in the Independent Samples Test based on the significance value (Sig.) are as follows:

1. If the Sig. (2-tailed) < 0.05 then, Ho is rejected and Ha is accepted.
2. If the Sig. (2-tailed) > 0.05 then, Ho is accepted and Ha is rejected.

In this study, the value of Sig. (2-tailed) is 0.012 where  $0.007 < 0.05$ . And it can be concluded that  $H_0$  is rejected and  $H_a$  is accepted so that it can be interpreted that there are differences from the old system to the new system that occur at Jenderal Ahmad Yani International Airport Semarang. The differences that occur from the old system to the new system can be seen in the table below:

**Table 2. Differences from the Old System to the New System**

No.	Differences/changes	Old System	New System
1.	<i>Check in counter</i>	There is no self check in, the number of computers is minimal	There is self check in, there are more computers (more than 10 units)
2.	<i>Boarding gate</i>	There is no web scanner yet, there are only a few gates	Web scanner available, 8 gates (6 domestic and 2 international)
3.	<i>Lost and found</i>	Using PIR paper (property irregularity report)	Available PIR paper (property irregularity report) and apply the BIMS system

### **The success rate of converting the old system to the new system that occurred at Jenderal Ahmad Yani International Airport, Semarang**

In this study, the success rate from the old system to the new system was tested using the following descriptive hypotheses:

$H_0$  = new system success rate  $> 90\%$

$H_a$  = new system success rate  $< 90\%$

Based on the results of data analysis, it was found that the significance of the One Sample Test was 0.003. The basis for making decisions on the One Sample Test is as follows:

1. If the Sig. (2-tailed)  $< 0.05$  then,  $H_0$  is rejected.
2. If the Sig. (2-tailed)  $> 0.05$  then,  $H_0$  is accepted.

After the One Sample Test was carried out, the Sig value was produced. is 0.003 where  $0.003 < 0.05$ . So that  $H_0$  is rejected and it can be concluded that the success rate of converting the old system to the new system is less than 90%. Based on tests conducted by the author, it was found that the success of the new system reached an average of 80.95%.

### **Constraints experienced when changing the old system to the new system at Jenderal Ahmad Yani International Airport, Semarang**

Based on the interview results, it was found that the obstacles experienced by officers when changing the old system to the new system were as follows:

1. Officers find it difficult to understand the existing new system. According to an interview conducted by the author with a source named Galih Arda Alingga, officers found it difficult to understand the new system because they had never used the new system before. And according to the source Galih, almost all officers felt this. According to the second informant, Rika Alfitirana, the obstacle experienced when changing from the old system to the new system was difficulty adapting. Therefore, to overcome these obstacles, officers need to adapt and learn from the new existing system so that work can be completed quickly.
2. Officers have not mastered the existing new system. Based on interviews conducted by the author with three informants named Galih Arda, Rika Alfitirana, and Ginanjar, that the officers had not fully mastered the new system. Officers need to learn about the new system and they must try to maximize their learning of the new system. Officers are also required to attend counseling first before using the new existing system, so that when they enter their work they have mastered and are proficient in completing their work

## CONCLUSION

Based on the results of the study entitled "Conversion of the Old System to the New System of Land Side Facilities at Jenderal Ahmad Yani International Airport Semarang, it can be concluded as follows: Based on the results of the normality test on the IBM application SPSS Statistics version 26 found that the significance value for the old system variable was 0.385 and the significance value for the new system variable was 0.542 meaning that the significance value for the two variables was greater than 0.05 and the data was classified as normally distributed. Because the data in this study were normally distributed, the Independent Samples Test was conducted to measure the comparison between the old system and the new system. Based on the output results obtained after the Independent Samples Test was carried out, it was found that the significance value was 0.007 where  $H_0$  was rejected and  $H_a$  was accepted, which means that there is a difference or change from the old system to the new system. Based on the results of the One Test Sample test on the IBM SPSS Statistics version 26 application, it was found that the significance value was 0.003. So it can be concluded that  $H_0$  is rejected and  $H_a$  is accepted, which means the success rate of the new system is less than 90%. The obstacle experienced by officers when changing the old system to the new system was that they had not adapted and required officers to learn continuously so they were able to use the new system that currently exists at Ahmad Yani International Airport in Semarang.

Based on the conclusions that the authors obtained, the suggestions in this study: For officers, especially the Check-In Counter, Boarding Gate, and Lost and Found areas, to continue to adapt to the new system that exists at the new Semarang Ahmad Yani International Airport so that in the future officers will be more reliable in handling passengers with changes to the existing system and are being carried out at this time. For future researchers to be able to develop and add to the deficiencies that exist in this study.

## BIBLIOGRAPHY

- Abdhul, Y. 2022. Pengertian Teknik Pengumpulan Data Menurut Para Ahli.
- Adiakurnia, M.I. 2018. Foodhall, Taman di Atas Air, Ini Fasilitas di Bandara Ahmad Yani. Kompas.com.
- Admin. 2021. Pengertian check in counter sesuai fungsinya menurut ilmu penerbangan. Yogyakarta.
- Apriyadi, D. 2017. Analisis Pengaruh Ketepatan Waktu, Fasilitas Dan Harga Tiket Terhadap Kepuasan Penumpang Kereta Api Di Stasiun Purwosari. 29(99), 71.
- Ardianto, E. 2010. *Metode Penelitian Untuk Public Relations: Kuantitatif dan Kualitatif*. Cetakan Kedua. PT Simbiosis Rekatama. Bandung.
- Arikunto, S. 2013. *Prosedur Penelitian Suatu Pendekatan Praktik*. Edisi Revisi VI. Cetakan 14. Rineka Cipta. Jakarta.
- Azizah, L. 2022. 25 Macam Alat Transportasi Darat, Laut, dan Udara.
- Falah, A. 2022. Society 5.0 vs Revolusi Industri 4.0? Mengenal Perkembangan Teknologi dan Evolusi Peradaban Manusia.
- Fatharani, A., Meilina, D.G., dan Yoga, A.G. 2022. Penggunaan Autogate di Tempat Pemeriksaan Imigrasi Bandar Udara Internasional Soekarno-Hatta. *Jurnal Pendidikan, Sosial, dan Budaya* 7(4).
- Heriyanto, Y. 2018. Perancangan Sistem Informasi Rental Mobil Berbasis Web Pada PT.Apm Rent Car. *Jurnal Intra-Tech* 2(2).
- Irfan, M., et al. 2014. Peranan Sistem Informasi Manajemen dalam Bisnis Jasa Penerbangan "Air Asia".
- Juniyati. 2018. Sistem Informasi Manajemen Transportasi Udara.

- Jurnal. 2022. Analisis Pelayanan Counter Check-In Citilink Indonesia Dengan Menggunakan Metode Antrian di Era Pandemi Covid-19. *Jurnal Harian Regional*.
- Komariah, A. dan Satori, D. 2011. *Metode Penelitian Kualitatif*. Cetakan Kedua. Alfabeta. Bandung.
- Krisnan. 2021. 7 Pengertian Metode Penelitian Kualitatif Menurut Para Ahli. Diakses dari Kriyantono, R. 2020. Teknik Praktis Riset Komunikasi Kuantitatif dan Kualitatif Disertai Contoh Praktis Skripsi, Tesis, dan Disertai Riset Media, Public Relations, Advertising, Komunikasi Organisasi, Komunikasi Pemasaran, Rawamangun: Prenadamedia Group.
- Moleong, L.J. 2017. *Metode Penelitian Kualitatif*. Edisi Revisi. Cetakan Ketiga Puluh Delapan. PT. Remaja Rosdakarya. Bandung.
- Mukhtar. 2013. *Metode Praktis Penelitian Deskriptif Kualitatif*. Terbitan 2013. GP Press Group. Jakarta.
- Mulachela, H. 2022. Sistem adalah suatu kesatuan, berikut teori dan cirinya.
- Nazir, M. 2013. *Metode Penelitian*. Bogor. Ghalia Indonesia.
- Nisa. 2022. Society 5.0 vs Industry 4.0, Apa Bedanya?
- Peraturan Menteri Perhubungan Republik Indonesia Nomor 185 Tahun 2015 Tentang Standar Pelayanan Penumpang Kelas Ekonomi Angkutan Niaga Berjadwal Dalam Negeri.
- Peraturan Menteri Perhubungan Republik Indonesia Nomor 77 Tahun 2015 Tentang Standarisasi Dan Sertifikasi Fasilitas Bandar Udara.
- Rudyanti, I. 2022. Dokumentasi: Definisi, Fungsi, Jenis dan Contohnya dalam dunia Bisnis.
- Salma. 2021. Instrumen Penelitian: Pengertian, Jenis-Jenis, dan Contoh Lengkap.
- Sherien, E. 2020. Pemanfaatan Teknologi Digital dalam Meningkatkan Operasional Pelayanan Pada PT Angkasa Pura II (Persero) Cabang Bandar Udara Internasional Minangkabau. *Tesis*. Universitas Andalas. Padang.
- Sugiyono. 2017. *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta. Bandung.
- Sugiyono. 2019. *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta. Bandung.
- Sukria, W.O. 2019. Analisis Pengaruh Penerapan System Reservation Ticket Online Terhadap Kepuasan Pelanggan (Studi Kasus: PT Garuda Indonesia Cabang Semarang). *Skripsi*. Universitas Maritim Amni. Semarang.
- Sutabri, T. 2012. *Analisa Sistem Informasi*. Edisi 3. Penerbit Andi. Yogyakarta.
- Syafnidawaty. 2020. Data Primer.
- Syafnidawaty. 2020. Data Sekunder.
- Thabroni, G. 2021. Teknik Analisis Data Penelitian Kualitatif dan Kuantitatif.
- Toriq, M. dan Martoatmodjo, S. 2014. Pengaruh Fasilitas Dan Kualitas Layanan Terhadap Kepuasan Pelanggan Pada SPBU Pertamina 54.612.64 Di Sidoarjo. *Jurnal Ilmu & Riset Manajemen* 3(8).
- Umar, H. 2013. *Metode Penelitian Untuk Skripsi Dan Tesis*. Rajawali. Jakarta.
- Yuliana, D., Setyadi, K., dan Asih, P. 2020. Pengalaman Penumpang Terhadap Penerapan Digitalisasi Fasilitas Bandara di Bandar Udara Kualanamu Medan. *Jurnal Perhubungan Udara*. 46(2).
- Yusuf, M. 2014. *Metode Penelitian Kuantitatif, Kualitatif & Penelitian Gabungan*. Edisi 1. Cetakan 4. Prenadamedia Group. Jakarta.