

## Signage Effectivity in Soekarno-Hatta International Airport Terminal 3

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### ABSTRACT

Airport is the main entrance gate to visitors all across the world and it has to be provided with wayfinding to help passengers navigate themselves from one point to another. In 2017, the main airport in Indonesia, Soekarno-Hatta International Airport (SHIA) expanded its terminal and operated Terminal 3 to serve international flights from several airlines and also domestic flights specifically for Garuda Indonesia airlines only. To accommodate the needs to guide these passengers from one point to another, SHIA provided itself with airport wayfinding that were placed in all areas in many forms of signage. The propose of these signs are to guide passengers with different background, languages, and nationalities to find their ways inside the terminal building in unanimous understanding of the passenger flow without confusion.

An initial research done by observing the all-access area in the departure and arrival floor, the finding indicated that some of the signage provided were misplaced and visually inconsistent from one and another, proved by the amount of visitor that still prefer to ask an officer on duty and also some make-shift signage made by printing paper that were placed in some key decision point areas by the airport authorities. Based on the initial research, further research initiated using qualitative methods by observing as the first person being the passenger that needs to navigate oneself from one point to another in four plots.

This research aim is to analyse the effectivity of existed signage provided in SHIA to guide passengers in four different scenarios, involving departure and arrival in both international and domestic area of the terminal. By researching the effectivity of signage placement and information design system in SHIA, it becomes evident that passenger confusion applied mostly in arrival area in both international and domestic wings. The confusion appeared as the result of the misplaced signage, the visual inconsistency, the order of information provided in existing signage, and also the area that aren't well-lit in some vital points. This research proved the lack of information efficiency occurs in one of the busiest airport in Indonesia and it affected passenger flow, especially in arrival area on both international and domestic wings of the terminal.

**Key Words:** Airport, Indonesia, Wayfinding

## **1. INTRODUCTION**

Soekarno-Hatta International Airport (SHIA) is a main gateway to Indonesia, located in Tangerang, this facility has been operating since year 1985. The first two terminals were able to accommodate the traffic of international and domestic flight however, Indonesian Department of Transportation already predict about the surge in passenger traffic for the next 20 years, and a main blue print has been made to maximize all the areas in SHIA (Perhubungan, 2005). Terminal 3 in SHIA has been officially operating since august 9<sup>th</sup> 2016, this expansion was made due to the surge in passengers' number traveling with aircraft in the past few years. This terminal operated to accommodate international flight that's originally operated in terminal 2 and also to cater to domestic flight specifically operated by Garuda Indonesia.

This research is focusing on the passenger of Garuda Indonesia that's operating fully in Terminal 3 alone. Just like any other airports, there are several steps that needs to be taken by the passengers in order to get from the drop-off area/parking lot into the terminal building to check-in and finally to get into their flight. Having to serve two different kind of tasks in this terminal, the flow of passenger in international area and domestic area are different, the aim of this research is to observe the wayfinding and signage provided in these areas in order to conclude its placement effectivity.

To do this, we made four different scenarios that are commonly happen in an airport and placed ourselves as the passenger that need to get from one point to the other solely on the information received from the signage provided. The four main scenarios are: Parking lot – check in desk, Check in desk to domestic gate, Plane – International arrival, and Plane – domestic arrival. Whilst observing based on said scenarios, we also conduct mini scenarios that usually happen while waiting in the airport such as: finding the bathroom, finding praying room, finding smoking room, finding nursing room, and finding restaurant and shops in order to observe the visual of the available signage and its placement in order to give the needed information for anyone using the whole airport areas. These scenarios then recorded and signage effectivity then analysed based on its placement and the information content provided to get passenger from one place to another.

## **2. PASSENGER FLOW IN SOEKARNO-HATTA INTERNATIONAL AIRPORT**

A good airport is the place that aren't just capable of accommodate the huge number of passengers, but also the one that provided good information to guide one person from one point to another (Mijksenaar,2010). In order to do that, Terminal 3 in Soekarno-Hatta International Airport (SHIA) has provided its passenger with 3 scenarios that's placed in an interactive TV screen located in the centre of the terminal. However, there's only one TV screen in the vast area of departure hall and one in the arrival hall. The information provided is accurate to

inform the passenger aiming a domestic trip where they'd expect to get themselves into the terminal building-check themselves in the counter-get themselves pass through the security-go to the gate in the waiting area below (Fig. 1). However, the same kind of information for the International passenger aren't provided whilst the stage of process they have to go through is a little different due to the importance of passing the immigration and custom.



Figure 1 : SHIA Terminal 3 Departure Flow  
(soekarnohatta-airport.co.id)

In practice, the passenger flow on the departure area shows not much differences from the one stated in the master plan, although passenger build-up can be found in some key decision points such as near the front area in which the passenger has to enter to go through security checking where the passenger bid their goodbyes to their family and expected to leave the trolley behind (Fig. 2a). The next important key decision point they have to take is right after security (and immigration in the international departure area) where the passenger will meet a free-standing trapezoid sign (Fig. 2b) leading all passengers towards the centre of the departure hall (left-hand side in domestic area and right-hand side in international area).

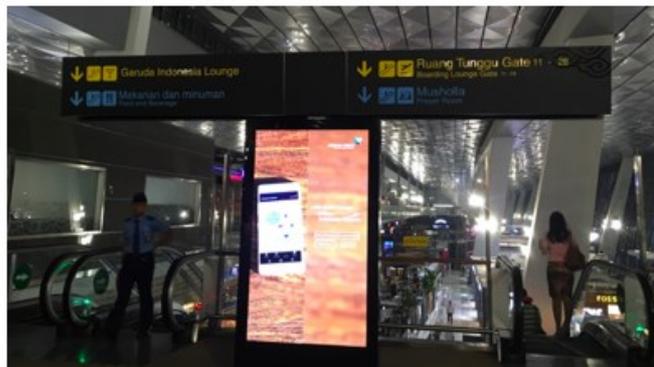
Another key decision point comes after several meters, providing information either the passenger prefers to wait in the mezzanine area and dine or go straight to the boarding area on the first floor below (Figure 2c). Finally, once the passenger arrived on the first floor in the boarding area, another directional free standing trapezoid signage that stands side-by-side with flight information screen direct the to the gate written in the boarding pass (Fig. 2d).



a.



b.



c.



d.

Figure 2: SHIA Terminal 3 Departure Area Signage

The authorities also provided an official passenger flow in the arrival area where the passenger expected to get off the plane and go through a long alley that'd take them into yet another alley which by the end of it they can chose in between two exits depends on the needs to get a baggage or not (Fig. 3). Just like the flow in departure area, this only provides to the domestic passenger and can't cater to the information needed by the international passenger arriving in SHIA, where they're supposed to go through immigration-baggage hall-and custom without having an option to just exit a door when they don't have any luggage or nothing to declare.

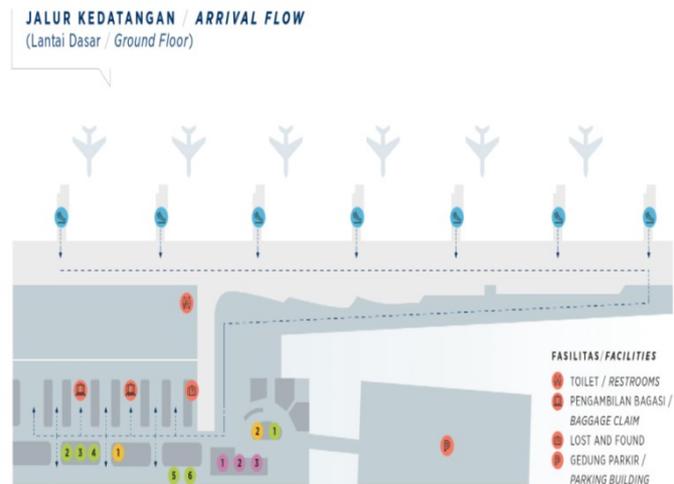


Figure 3: SHIA Terminal 3 Arrival Flow  
(soekarnothatta-airport.co.id)

During the observation, we found that the original passenger flows planned by the airport authorities are applicable in the domestic area. The passenger gets out of the plane and guided by the employee to get into the arrival hall (considering the plane parked in the apron and passenger did not embark by the aerobridge). The identification sign can be found right in front of the main gate of the arrival hall and it leads the passenger into a long alley (Fig 4a). The passengers are guided through the hall by a ceiling mounted directional signage, followed by a free-standing trapezoid signage no too far away (Fig. 4b). Along this alley, there's a key decision point on the left-hand side if the passenger is transiting or need to move to another flight, for the passenger without the need of transit, they can continue to walk ahead until they meet with a cornering alley that indicates to take a left turn, a ceiling mounted signage is provided in this area to guide the passenger to bot hit the wall (Fig. 4c).



Figure 4: SHIA Terminal 3 Domestic Arrival Signage

After turning, passenger will walk through another vast hallway that has several ceilings mounted directional signage leading to the two ways of exit options; with baggage or without baggage (Fig. 4d). Several meters from the end of the hall, a ceiling mounted signage station baggage claim is placed and at the end of the hall the passenger will see an information desk with an LED signage that said ‘out to the parking lot’. While observing, we found that many passenger with baggage automatically follow this LED signage and they had to be assisted to re-enter the arrival area in order to get their baggage (Fig. 5 a & 5b).

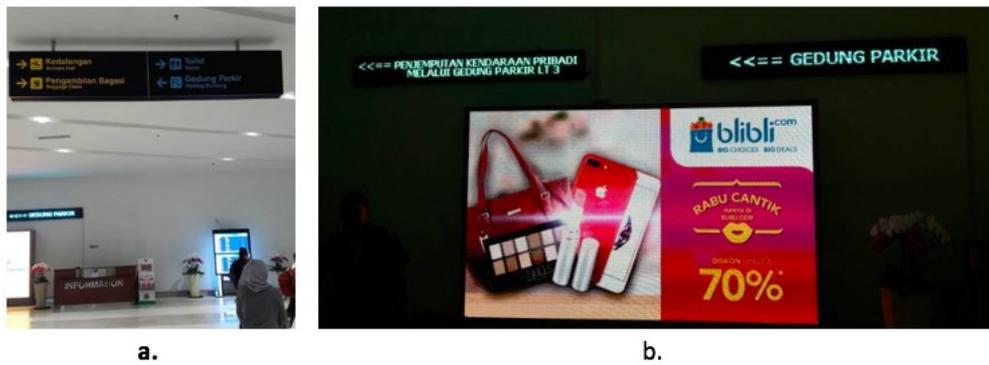


Figure 5: Misleading LED Signage in Domestic Arrival Hall

Beside the domestic arrival hall, there's also international arrival hall that has some different tasks, whereas in domestic, passenger do not require to go through immigration and custom, whilst in international flight they are entitled to go through that. The flow the passenger has to go through a series of tasks as they embark from the plane and walk through the hallway that leads to an escalator to bring them down into the arrival area that guide them towards immigration, baggage claim, customs, then exit way (fig.6).

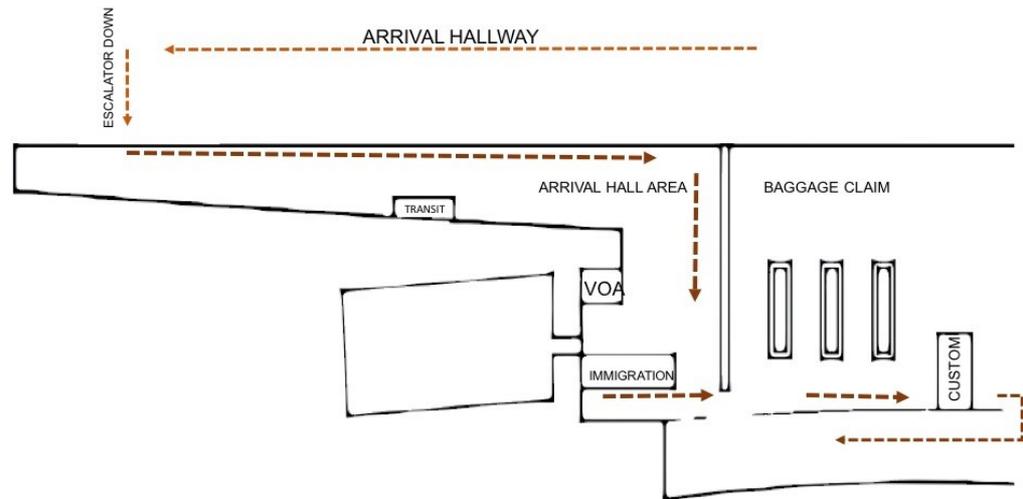


Figure 6: SHIA Terminal 3 International Arrival Flow

The first thing the passenger will meet once they embark the plane is some airport officers standing near the gate leading them to walk pass through a long alley, even though there's a wall-mounted directional signage provided at the end of each aerobridge (fig 7a), the airport officers are needed because the directional signage lead to two different directions and might attract confusion since the main alleyway between domestic and international flight are not divided.



Figure 7: SHIA Terminal 3 International Arrival

Once the passenger walk through this hallway, several wall-mounted directional signage reappears in front of every aerobridge we need to pass (Fig. 7b), containing the same information that lead to baggage claim and transit (not mentioning Visa on Arrival or Immigration that the passenger needs to go through first before reaching the baggage claim area). This lead to a dead-end where another wall mounted directional signage is provided containing information of transit, custom, baggage claim, Visa on Arrival, and Immigration guiding the passenger with arrows pointing to the left, while in reality the passenger are faced with an escalator down to the ground floor (Fig 7c & 7d). Upon reaching the ground floor, some other airport employee will guide the passenger to go to the left-hand side to go to immigration. The first problem occurred here for the transit passenger, as they pass through the locket because of the lack of lighting and the visual inconsistency that appears as the identification sign.



Figure 8: Visa On Arrival in International Departure Area

If the passenger does not need to transit, they can go through the hallway and will be guided to turn right by a man holding a sign at the end of the dead-end hall, leading to series of lockets of immigration. The second problem occurs here for traveler that need visa on arrival, because the location is right at the opposite of immigration queue and not well-lit and not provided with consistent identification signage, resulting in confusion among the foreigner that led them to ask around to the person in charge (Fig. 8).

### 3. AIRPORT SIGNAGE DESIGN

Human navigational skill is something that is learned and human uses the wayfinding provided by their environments as some stimuli to mark themselves and distinguish one place from another as they explore along the route (Hill, 1998). In an airport, passengers who are not familiar with the terminal environment rely solely on the wayfinding system provided in the facility (Schultz, 2007) and the mean of wayfinding is made easier by the proper placement of signage providing information needed without consulting verbally to any person in charge (Calori, 2015). In an airport, a clear wayfinding is needed to provide the psychology of different passenger characteristics that are unfamiliar with the space, has a limited time to get their task done, and sometimes have their own disabilities that slows them down (Transport Research Board, 2011). In the previous research done by Ada Mishler and Mark Neider about improving wayfinding, concluded there are five main principles as guidelines to make informative signage, the principles are: Distinctiveness, Consistency, Simplicity, Isolation, and Reassurance (Mishler, A & Neider, M, 2017).

#### 1. Distinctiveness

People that are navigating their way in the airport has various reasons, yet the main reason is to get themselves into the plane in order to do this, passenger rely on the wayfinding and signage provided by the terminal to cater to their needs (Ashford et al., 2011). To accommodate

various passenger behavior, a signage has to be visible from distance (Montello, D & Sas, C, 2006). In order to deliver the message, the design has to communicate important information effectively to the user yet aesthetically intermingle with its surrounding to be noticed by the user (The Norwegian State Council on Disability, 1997).

## 2. Consistency

To maintain orientation in a foreign surrounding, human need to perform an effortful task of analyzing the wayfinding by connecting visual cues into their memories (Montello, D & Sas, C, 2006). The visual cues can be obtained by having a consistent presence from one display to the other that can be delivered through shape, color, font, and style throughout the design. A standardized graphics gives people opportunity to led one familiar symbol to a broad understanding of the same symbol they encountered in many different places, for example a fork and knife icon that always associated with restaurant no matter what style drawn in the design (Misler, A & Neider, M, 2017).

## 3. Simplicity

Some passenger might have more time to spend in the airport whilst the other has to rush and when they do, they need to find their way as quickly as possible to save the time. However, human only managed to quicken their pace but not lessen their errors (Srinivas, S & Hirtle, S, 2015). To avoid information overload that lead to longer processing time, passenger have tendency to filter the information provided by priority as they look for directly address information they need (Schultz, 2007). The amount of information suggested to be displayed in one area is limited to three to four units of information, considering their behavior as the move through the area as they walk to find their destination (Passini, 1992).

## 4. Isolation

In order to avoid confusion, signage also has to be placed in the area where there is least visual clutter (Montello, D & Sas, S, 2006). The placement of the signage should be determined by analyzing the decision point taken by the passenger and still considering the information hierarchy that needs to be delivered within the limited space provided by taking viewing distance, viewing angles, physical limitation, lighting conditions, and the adjacent surface available in the surrounding areas (Calori, 2015).

## 5. Reassurance

A clear verification that passenger is moving towards the right direction in a vast area such airport is important. A sign placement in the destination is important to confirm that the passenger is at the right place they need to be (Calori, 2015). The presence of more signs can be redundant if placed too close to one another, yet it also helps verify people that they are moving to the right direction (Misler, A & Neider, M, 2017).

Table 1. Signage Effectivity in SHIA According to Mislser & Neider

Principle	Definition	Existing	Analysis
Distinctiveness	The sign stands out from the surroundings.		The signs in some areas distinctive enough to differ itself from the surrounding with the help of neon box that illuminates information.
Consistency	Has one or more featured element that connects them visually.		Most signage already has uniform visual information (blue-colored to inform all access facilities and yellow-colored information for passenger access relating to flight). However some make-shift signage still found in some 'decision-making' points.
Simplicity	The provided information has to be limited to maximum 4 wayfinding information for a faster processing		The amount of information packed in some signage consist of more than four information (that also translated into five different languages), delaying the information taking process in order to find the information needed.
Isolation	Should be placed in a place where no other signage interfere with different information		There are three different directional signs provided in SHIA (hanging, big free-standing, and trapezoid free-standing) that contains almost similar information whilst they are placed within 3 meters of each other, resulting in information redundancies.
Reassurance	More signs should be placed within distance to reassure the user of the correct route they're taking.		SHIA provided several signage along in the vast hallway where the passenger can navigate themselves and be reassured by the information they get from the next signage provided several meters away.

## 4. FINDINGS

### 4.1. INCONSISTENCY

By doing the four-scenarios initiated in this research, we found that most areas are already well-informed by signage and the passengers can navigate their way easily by obtaining the information provided. However, the information takes longer to take because some inconsistency found in many signages.

The directional signage provided has three different designs that delivers similar information when placed in the vast departure area, the placement of this signage are depending on the ceiling height of the area. In arrival and parking bridge areas, the directional hanging signage can be found along the way (Fig. 9a), meanwhile in the departure area that has high ceiling provided by the free standing rectangular signage (Fig. b), whilst at the same time a free-standing trapezoid signage can be found anywhere in Terminal 3 areas (Fig. 9c). In some key decision points that were not provided by permanent signage, can find a make-shift directional signage that printed out in a piece of paper and taped into a pedestal in order to accommodate the information needed (Fig. 9d).



Figure 9: Directional Signage Variation in SHIA Terminal 3

The inconsistency of the shape and style also can be found in many identification signage that are used in the airport facilities such as toilets, praying rooms, smoking room, and shower. They all have the same type of services, yet the visual appearance of the signage differs from one another.



Figure 10: Identification Signage Variation in SHIA Terminal 3

## 4.2. READABILITY

The main importance of signage is to inform a message in a very little time to get one person to their destination properly, to do this, the readability is crucial. One of the main problem from the signage found in SHIA Terminal 3 is the readability of some identification signage of the toilet where an aluminum plate used as based to a blue colored word identifying “toilet” completed with the symbols follow on the wood-textured plate that has three different symbols in blue colored stickers that has low contrast, resulting in lower readability (Fig. 11).



Figure 11: Toilet Identification Signage in SHIA Terminal 3

## 4.3. MISPLACEMENT

Although the designated flow planned by the airport authorities can be executed well, some signage are misplaced, resulting the needs to assign a person in charge to guide passenger from one point to the other to avoid getting lost. This phenomenon found mostly in international arrival area where the traveler might be a foreigner that are not familiar with the airport and also because the steps need to be taken from the plane to the exit way are more complicated than the steps in domestic arrival area. The misplacement of an LED signage that led passenger straight to the exit towards the parking lot that found in the domestic arrival area also resulting in confusion to the passenger.



Figure 12: Result from the Misplaced Signage in SHIA Terminal 3

## 5. CONCLUSION

The signage provided in terminal 3 Soekarno-Hatta International Airport (SHIA) are good enough because it delivers the main purpose of signage that is to take one person from one point to the other, although in order to do this properly, the passenger still need to ask around due to the redundancy found in some signage that are placed too close to each other. To reduce the confusion, the authorities had tried to counter this problem by placing a make-shift signage in some decision-making areas, but the visual and information provided aren't coherent with the rest of the signage and this creates another confusion problem.

Some other thing that can be found in this airport is also the important role of authorities in assigning their employee to guide passenger in the arrival area (both domestic and international) because the passengers are expected to pass through an alley before getting into the main hall and the information provided in the alley does not match the points the passengers need to take.

Some extra identification signage needed to be placed in services areas such as V.O.A, transits, immigration, and custom area to unite the signage visual with the rest of the design. This also needed to do in order to reduce passenger confusion in the international arrival hall.

## 6. FURTHER DISCUSSION

Based on the finding of this research, further studies relating to wayfinding in all Indonesia airports can be done. Hopefully by doing further studies, we can find one unity in term of visual consistency from one airport to another without interrupting the contain information of the identity of the various airport itself.

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