

A Comparative Study of Wayfinding Graphic Design at Singapore Changi and Germany's Munich Airports

ISSN (P): 2980-7956
ISSN (E): 2821-2452

 10.22034/jivsa.2025.517192.1117

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Citation: Darvishi, M. & Zandi, H. & Darvishi, M. (2025), A Comparative Study of Wayfinding Graphic Design at Singapore Changi and Germany's Munich Airports, *Journal of Interdisciplinary Studies of Visual Arts*, 2025, 3 (6), P. 245-250.

Received: 16 April 2025

Revised: 19 May 2025

Accepted: 10 July 2025

Published: 12 July 2025

Abstract

As one of the first points of entry for travelers, airports play a significant role in representing a city's or a country's identity—not only through architecture but also through environmental graphic design, particularly wayfinding systems. This research compares the wayfinding graphic design of two of the world's most prominent airports: Singapore's Changi Airport and Germany's Munich Airport, located in culturally distinct regions. The study aims to analyse the differences in the main visual elements—imagery, color, and typography—used in the wayfinding systems of each airport and to explore the cultural or contextual reasons behind these differences.

This study is qualitative in nature and applied in purpose, as its findings can inform the graphic design of other international airports. The methodology is descriptive, analytical, and comparative, and data was collected through online and library-based sources due to the lack of direct access. The case study selection is based on Skytrax rankings, which identify Changi and Munich as the top airports in Asia and Europe, respectively. The findings indicate that Changi Airport's wayfinding system reflects the multicultural and diverse climate of Singapore through the use of varied imagery, colors, and multilingual signage (English, Mandarin, Malay, and Tamil). Pictograms follow international standards, with primary information highlighted in yellow, secondary in cyan, and additional details in green, orange, and purple. In contrast, Munich Airport demonstrates a more unified and minimalistic visual approach, consistent with German design values of precision and order. It employs a dedicated typeface (Munich Airport Pro), primarily uses English, and integrates limited color schemes, with distinctive use of Lufthansa's yellow.

Keywords: Wayfinding, image, color, typography, Changi Airport, Munich Airport.

1. Introduction

Airports, as one of the first points of entry for travelers and tourists into any city or country, play a crucial role beyond facilitating navigation—they act as powerful media for representing the cultural, historical, and civilizational identity of their host city and nation through environmental graphic design. This role has become especially significant today, as “the world’s major cities compete in trade and tourism and are constantly seeking more attractive and expressive methods and symbols to guide and engage visitors” (Asadollahi, 2016, p. 9). Among the most prominent efforts in this regard are the specialized design of airport spaces, the provision of diverse services and amenities, and the implementation of creative and efficient wayfinding graphic design systems.

Wayfinding is an ancient concept encompassing spatial orientation, cognitive mapping, decision-making, the execution of those decisions, and ultimately, information processing. It represents a higher-level understanding of the environment—knowing one’s current location, planning a route to a destination, and continuously updating one’s mental map of the surroundings (Schmalstieg & Höllerer, 2016, p. 346). Wayfinding systems combine visual and informational elements tailored to the specific urban and architectural context, presented through a comprehensive and coordinated design process that integrates signage with other environmental elements. These systems not only facilitate navigation but also contribute to the formation of a distinct sense of place, functioning as an identity system for the location. Signage, in this context, helps establish and reinforce the unique identity and legibility of a space (Calori & Vanden-Eynden, 2015, p. 6). Due to factors such as the vast scale of terminals, multiple concourses, high passenger volumes, extensive services and amenities, limited time for orientation, and the anxiety associated with locating essential facilities, airports are among the most complex and stress-inducing wayfinding environments (Zwaga, Boersema, &

Hoonhout, 1999, p. 241). However, passengers should not experience this complexity directly—their experience should be one of clarity and calm (Edwards, 2005, p. 73). The core aim of wayfinding, therefore, is to guide passengers and vehicles simply and efficiently, reducing confusion and stress. Consequently, the use of clear, intentional visual signs is essential for creating comprehensible and effective wayfinding pathways (Landrum & Brown, 2010, p. 166).

This study examines the wayfinding graphic design of two world-class airports—Changi Airport in Singapore and Munich Airport in Germany—located in culturally distinct nations. Given the significant cultural differences between Singapore and Germany, it is hypothesized that these distinctions are also reflected in the graphic design of each airport’s wayfinding system. The study aims to answer the following research question:

What are the key differences in the wayfinding graphic design elements—imagery (pictograms), color, and typography—between these two airports, and what cultural or contextual factors account for these differences?

2. Research Review

Wayfinding—particularly airport wayfinding—is a well-established field of study globally, with numerous works addressing its principles and applications. However, in Iran, this subject has received relatively limited scholarly attention. Therefore, this research reviews key sources that define wayfinding and focus on airport-specific applications. David Gibson, in *The Wayfinding Handbook* (2009), provides a comprehensive guide covering the planning, design, and practical considerations of wayfinding systems. His book presents a historical overview of the field, introduces significant projects, and discusses various types of signage. It explores critical design components such as typography, layout, symbols, color, materials, and media within the context of wayfinding graphic design. James Harding and colleagues, in *Wayfinding and Signing Guidelines for Airport Terminals and*

Landside (2011), argue that given the complexity of airport environments, standardized wayfinding and signage systems across airports can facilitate safe and efficient passenger movement both within and between facilities. Chapter Two of this guideline reviews the design and construction process of signage systems and discusses wayfinding analysis and the development of airport-specific strategies. Heike Nehl and Sibylle Schlaich, in *Airport Wayfinding* (2021), define wayfinding as a visual language that expresses each airport's unique identity through its use of color, typeface, and pictograms. They emphasize that a distinctive graphic identity enhances the passenger experience and conveys the style, values, and spatial atmosphere of an airport. Hedyeh Naji Bozorg and Mohammad Darvishi, in *The Role of Augmented Reality in Wayfinding Graphic Design of Airport Terminals* (2022), highlight the potential of augmented reality (AR) to complement conventional wayfinding systems. They argue that AR, by integrating physical and digital environments and enabling the use of sound and motion, can enhance spatial perception, accelerate navigation, improve service delivery, reduce anxiety, and foster greater user interaction with the airport space.

Parvin Zare and Soudabeh Salehi, in *Wayfinding: Definitions and Solutions* (2016), define the concept of wayfinding in environmental graphic design. They explore the history of spatial orientation and wayfinding, and discuss various methods and strategies for implementing effective navigation systems.

Collectively, these scholars emphasize that wayfinding graphic design in public spaces—particularly in airports—is essential for enhancing environmental comprehension and usability. However, no previous study has offered a comparative analysis of imagery (pictograms), color, and typography in the wayfinding graphic design of Changi Airport in Singapore and Munich Airport in Germany. This gap underscores the novelty and significance of the present research.

3. Research Methodology

This study adopts a case study approach to select its sample population. Specifically, two of the top-ranked airports in Asia and Europe were chosen based on the Skytrax international airport ranking platform, and their wayfinding graphic design systems were analyzed. Skytrax ranks global airports based on various criteria such as aircraft quality, lounges, entertainment, staff, and cabin experience, identifying the world's top three airports annually from 2014 to 2024 (Table 1).

According to this ranking, Changi Airport in Singapore and Munich Airport in Germany have consistently appeared among the top three airports in Asia and Europe, respectively. These two airports were therefore selected for comparative analysis. The study is qualitative in nature and applied in purpose, as its findings can inform the development of wayfinding graphic design strategies for other airports. Due to limited access to primary sources, data were collected through library research and online resources. The analysis focuses on three principal design elements—pictograms, color, and typography—in alignment with the central research questions and hypotheses.

Table 1: Top three airports in the world (2014–2024), as ranked by Skytrax (URL4).

Airport \ Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total Ranking Count
Changi, Singapore	*	*	*	*	*	*	*	*	*	*	*	10
Incheon, South Korea	*	*	*	*	*	*				*	*	7
Munich, Germany	*	*	*									3
Haneda, Japan				*	*	*	*	*	*			6
Hamad, Qatar							*	*	*	*	*	5

Table 2: Characteristics of Singapore and Germany. Source: Authors

Characteristics	Singapore	Germany
Climate	Forest, coast, swamp, agriculture	Mountainous, connected to the sea
Culture, Customs	Due to the presence of various religions and nationalities, diverse customs exist. The people coexist peacefully.	Highly perfectionist, precise, law-abiding, organized, and serious people who value music, art, and architecture.
Religion	Various religions including Christianity, Buddhism, Islam, etc.	70% Christian, 30% other religions
Nationality	Various ethnic groups: Chinese, Indian, native, etc.	Over 90% German
Language	Native languages: Mandarin, Malay, Tamil, and official language: English	95% German, others include Serbian, Romanian, Turkish, etc.

Table 3: International Standards of Image, Color, and Typography in Wayfinding Graphic Design at Changi Airport (Singapore) and Munich Airport (Germany). Source: Authors.

Elements	International Standards	Changi Airport, Singapore	Munich Airport, Germany
Pictograms	<ul style="list-style-type: none"> - Clarity, simplicity, and direct reference to the subject - Overall square-shaped format - Approximately equal positive and negative space - Dominance of black and white over other colors - Use of flat colors without texture or gradients - Surface-based images 	<ul style="list-style-type: none"> - Adherence to international standards for imagery - Sense of motion and dynamism using color variety within pictogram frames 	<ul style="list-style-type: none"> - Adherence to international standards for imagery - Very simple - Monochromatic - Precise, organized, disciplined, and formal - Static, rigid
Color	<ul style="list-style-type: none"> - Black - Blue - Yellow - Green - Red - yellow-green - White - Orange - Purple - Brown - Coral - Fluorescent pink - Fluorescent - Light blue 	<ul style="list-style-type: none"> - Yellow - Blue - Green - Red - White - Black 	<ul style="list-style-type: none"> - Black - Blue - Green - White - Red - Lufthansa Yellow
Typography	<ul style="list-style-type: none"> - Use of English - Fonts: Clearview, Road Transport, Frutiger, Helvetica - High clarity and legibility due to sans-serif and monoline properties 	<ul style="list-style-type: none"> - Use of four languages: English, Mandarin, Malay, and Tamil - Font used: Frutiger, characterized by clarity, legibility, sans-serif, and monoline traits 	<ul style="list-style-type: none"> - Use of English - Font: Munich Airport Pro, designed specifically for the airport, featuring clarity, simplicity, legibility, sans-serif, and monoline traits

To analyze the wayfinding graphic design systems of the selected airports, this study first provides an overview of the historical, linguistic, geographical, demographic, and cultural contexts of Singapore and Germany.

Subsequently, it examines the graphic design elements of the airports' wayfinding systems, focusing on imagery (pictograms), color schemes, and typography.

4. Research Findings

To analyze and evaluate the wayfinding graphic design systems of the two selected airports, the study compares the characteristics of Singapore and Germany—including climate, culture, customs, religion, nationality, and language—as shown in Table 2.

To further understand the distinctive features of wayfinding graphic design in these two airports, Table 3 compares the international standards of visual form, color, and typography applied in the wayfinding systems of Changi Airport (Singapore) and Munich Airport (Germany).

In summary, while both airports adhere to international principles of wayfinding design, their implementations reflect the unique cultural, social, and linguistic characteristics of their respective countries. Changi Airport's system is characterized by diversity, vibrancy, and multilingual inclusivity, whereas Munich Airport's system emphasizes simplicity, formality, and visual discipline. These distinctions demonstrate how cultural context plays a defining role in shaping user experience through graphic design within international airport environments.

5. Conclusion

This comparative study of image, color, and typography—three fundamental elements of wayfinding graphic design—at Changi Airport (Singapore) and Munich Airport (Germany) yielded the following results:

Singapore is a nation marked by considerable diversity in climate, culture, customs, religion, ethnicity, and language, whereas Germany is relatively homogeneous and formal in these respects. The graphic designers of the wayfinding systems at Changi and Munich Airports have developed their design concepts based on these respective national characteristics. At Changi Airport, diversity serves as the guiding principle of design, while at Munich Airport, the emphasis is placed on simplicity, clarity, and formality. Accordingly,

Changi Airport exhibits notable variety in spatial design, architectural form, and decorative elements across different areas, reflecting the country's multicultural and multireligious context. In the wayfinding system, while pictograms conform to international standards, they are presented in a wide range of colors. Primary and essential information is displayed in yellow, secondary information in teal, and additional information in accent colors such as green, orange, and purple—derived from the airport's logo and visual brief. Typography on signage incorporates the four major languages spoken in Singapore: English (on the left side), and Mandarin, Malay, and Tamil (on the right side, arranged in three lines). The English text employs the Frutiger typeface, a globally recognized standard in airport wayfinding systems. In contrast, the minimalist and cohesive spatial design of Munich Airport reflects the precision, orderliness, and formality characteristic of German culture, offering passengers a sense of national identity. The airport's pictograms are modernized versions of the iconic designs by Otl Aicher and conform to internationally recognized standards for airport signage. The use of color is restrained and systematic, featuring a limited palette consistent with other international airports. A distinctive feature is the inclusion of Lufthansa's signature yellow in relevant signage. Munich Airport uses only English on its wayfinding signs, employing a custom typeface called Munich Airport Pro. Compared to Changi Airport, Munich's signage system demonstrates less variation in form, color, and typography. In conclusion, the wayfinding graphic design of an airport can reflect the culture and customs of its host city and country while maintaining compliance with international standards. Through deliberate choices in pictogram style, color, and typeface, each airport not only facilitates clear navigation but also offers travelers an implicit cultural introduction to their destination.

Funding

This research received no external funding.

Authors' Contribution

The author contributed equally to the conceptualization and writing of this article. The author approves the content of the manuscript and agrees to all aspects of the work.

Conflict of Interest

The author declares no conflict of interest.

Acknowledgments

The author gratefully acknowledges all those who provided academic consultation for this paper.