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ACCESSIBILITY IS IN THE AIR:
Assessment of Tampere Airport

Bachelor's thesis
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ABSTRACT

Blazhko Anastassiya: "Accessibility is in the Air: Assessment of Tampere-Pirkkala Airport"
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This thesis evaluates the accessibility of Tampere-Pirkkala airport in the context of sustainable urban development. The research focuses on the airport's compliance with key European standards, such as Regulation (EC) 1107/2006 and EN 17210:2021. By using on-site observations and document analysis, the study assesses the accessibility features of Tampere-Pirkkala airport and compares its services with those of other European similarly sized airports. The study finds that although Tampere-Pirkkala fulfils the basic accessibility requirements, the airport does not provide a comprehensive range of accessibility services available at comparable airports for passengers with less visible or complex needs. This gap emphasises the need for a more inclusive approach, especially in the context of regional growth and economic development. Limitations of the thesis include the absence of stakeholder interviews and reliance on publicly available data only. The study recommends introducing passenger feedback for future research to deepen the understanding of the subject. Thus, the thesis concludes that Tampere-Pirkkala airport can significantly contribute to Tampere's sustainable growth by investing into inclusive and accessible infrastructural improvements.

Keywords: airport accessibility, sustainable urban development, regional airports, Tampere, Finland.

The originality of this thesis has been checked using the Turnitin OriginalityCheck service.

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PREFACE

I want to thank my supervisors, Anna-Kaisa Viitanen and Salla Jokela, for their guidance and valuable contribution to my work.

Tampere, 11 June 2025

Blazhko Anastassiya

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LIST OF SYMBOLS AND ABBREVIATIONS

- ACI Europe – Airports Council International, European region
- CEN – European Committee for Standardization, (CEN, French: Comité Européen de Normalisation)
- CENELEC – European Committee for Electrotechnical Standardisation
- COM – Commission of European Communities
- EC 1107/2006 – European Regulation 1107/2006: Rights of passengers with reduced mobility
- EN 17210:2021 – European Standard on functional accessibility requirements for the built environment
- IATA – International Air Transport Association
- ISO – International Organisation for Standardisation
- ROI – Return On Investment
- PRM – Persons with Reduced Mobility

1. INTRODUCTION

The rising popularity of air travel in the last decades has been unprecedented. According to Statista (2024), the number of passengers travelling by air increased from 1.9 billion in 2004 to 4.9 billion people in 2024. While this growth can be a sign of the crucial role of air travel in global connectivity, it also means that unparalleled popularity may impose new sustainability challenges and raise important questions about how airports can accommodate the diverse needs of all travellers, especially the ones whose needs are special. These concerns are substantially relevant in countries like Finland, where air travel is essential for regional connectivity due to the country's population distribution and geography.

Social sustainability in airports extends beyond compliance with the rules and international standards. It should be shown through environments where individuals with disabilities, older adults, and families with young children can navigate facilities without barriers. Accessible airport design, such as clear signage, barrier-free walkways, and assistive services, improves the travel experience for people with special needs and supports broader social inclusion (Sze et al., 2017). This approach also aligns with the broader goals of sustainable urban development, which emphasise reducing inequalities and supporting the well-being of all community members (Gandini, 2025).

Physical accessibility is a foundation of social sustainability in airport infrastructure since it ensures that all members of society have equitable access and participation opportunities. In Finland, 12.9% of the population over 16 experiences activity limitations, with these challenges most affecting the elderly (Statistics Finland, 2023). According to Statistics Finland (2023), nearly 55% of those over the age of 84 face significant mobility issues. As the Finnish population ages, the proportion of travellers with accessibility needs is steadily increasing, making it essential for airports to incorporate inclusive infrastructure that supports both mobility and independence for diverse passenger groups.

Within the Finnish context, earlier accessibility concerns can stand out even more in rapidly growing urban regions. For example, the Finnish Tampere grows at an unprecedented rate (Tampereenseutu, 2024). As the population increases, Tampere-Pirkkala airport is also expected to undergo increased passenger volumes. Hence, integrating accessibility and universal design principles into airport infrastructure becomes a crucial component for its sustainable urban development in the current

situation. Universal design principles refer to inclusive planning and arrangements that apply or develop technologies to ensure accessibility of the environment (Imrie, 2012). Universal design, or UD, aligns with extended goals of sustainable development by introducing equity and inclusivity in public spaces. Airports, as vital transportation hubs, must establish continuous representation of these principles in order to meet both international standards and local needs (COM, 2007).

Thus, as air travel continues to become more popular and Tampere grows, the integration of accessibility and universal design within airport infrastructure is not only a matter of compliance but an essential approach for developing social sustainability. By prioritising inclusive environments, airports can develop mobility, independence, and satisfaction for all travellers, particularly for the elderly and those with special needs. These efforts will help ensure that the benefits of global connectivity are shared equitably across society.

1.1 Research Aim and Objectives

According to Finavia (2024), Tampere-Pirkkala is one of the busiest airports in Finland. Combined with earlier data on Finland's ageing population, Tampere's growth, and increased demand for air travel, it should be ensured that Tampere-Pirkkala can be an inclusive and accessible hub, which will meet the needs of all kinds of passengers. Therefore, the primary aim of this research is to assess the accessibility of Tampere-Pirkkala Airport within the framework of sustainable urban development. This comprises the evaluation of the airport's compliance with international standards, such as Regulation (EC) 1107/2006 and EN 17210:2021 (European Parliament, European Council, 2006). The first one safeguards the rights of people with disabilities and people with reduced mobility and the second one outlines functional requirements of accessibility of built environment. Additionally, the study is going to consider guidance from Airport Council International Europe (ACI Europe) on assisting passengers with non-visible disabilities (ACI Europe, 2024).

By conducting on-site observations and documenting the airport's facilities, this study aims to:

- Evaluate the airport's accessibility in accordance with international standards.
- Identify existing strengths and areas requiring improvement in the airport's accessibility infrastructure and services.
- Propose recommendations to improve accessibility and inclusivity for all passengers.

- Develop replicable research, so that the methodology could be utilised to study similar regional airports.

That said, the main research question is: “To what extent does Tampere-Pirkkala airport comply with international accessibility standards, and how does it adapt the standards to the Finnish context as a part of sustainable urban development?”. It is also important to mention that my research is conducted independently, without the influence of corporate stakeholders such as Finavia. All the resources used are publicly available, and the data is collected through systematic fieldwork.

2. THEORETICAL BACKGROUND

In this chapter, numerous studies and sources are going to be reviewed. As a result, the research gap will be identified as well, and the context of the work will be supported with relevant data.

2.1 Why Regional Airports

Most of the studies of European airports and accessibility are focused on major international airports, for example, London Heathrow (Budd et al, 2013), Helsinki-Vantaa (Kozlova, 2023; Kujala, 2019) or Dublin Airport (O'Neill et al., 2005; Edwards, 2025), and other big volume destinations that operate tens of millions of passengers each year. It is expected that these types of high-traffic airports are going to have more revenue than the regional ones and consequently be able to invest more resources into technological advancements, which in turn attract researchers and promote further development (Li, 2024; Yildiz & Arslan, 2024).

In contrast, regional airports are responsible for handling almost half of all air passengers in Europe and contribute to 51.4 per cent of the continent's air connectivity in general (ACI Europe, 2023). Redondi et al. (2013) define small airports as airports with less than 2 million passengers per year, which is going to be used as a standard in this study. Thus, regional airports are not just "minor" transportation nodes but are a vital element of the connectivity of the whole European continent.

2.2 Economic Impact

Nowadays, air travel and its divisions are viewed not only as transportation points but also as revenue generators. Regional airports, even though handling less volume of passengers and cargo, still make significant contributions to the economy. A study by Lieshout et al. (2015) researched the economic impacts of the regional airports in Central Europe through GDP per capita growth. Table 1 below, retrieved from the study, shows the distribution of flights between three airport groups, filtered into groups according to the average number of passengers.

Table 1. Proportions of flights between differently sized airports. Retrieved from Lieshout et al. (2015).

Group name	Direct flights (weekly, summer 2011)	Average number of passengers (x1000)	Number of airports	Share of direct flights
A	0-100	219	487	8%
B	100-1000	3,329	184	36%
C	1000+	24,137	40	56%
Total			711	100%

The paper revealed that medium-sized airports (Group B) when passenger volume is increased by 10 per cent, account for 1.2 per cent of GDP per capita increase. With the same passenger volume increase, smaller airports (Group A) result in a 0.3 per cent GDP increase, whereas at larger airports (Group C) it leads to a 1.7 per cent increase. At the same time, Lieshout et al. (2015) also notice how larger airports are located in high population density and overall higher GDP per capita areas, which could also have an impact on the growth. Thus, these results could suggest that even though smaller airports have less contribution to GDP per capita, they also operate in less dense regions, which could affect the contributions.

In the Tampere-Pirkkala context, the airport has served more than 160 000 passengers in 2024 (Finavia, 2024), clearly putting it into the Group A. Nonetheless, since 2023, Tampere-Pirkkala has experienced a +729.7 per cent growth in domestic travellers, which far exceeds the 10% benchmark (Finavia, 2024). Hence, the implied increase in GDP per capita could be significant and measurable for the regional economy, even though the overall passenger amount is low.

Considering the great economic potential of Tampere-Pirkkala, it is crucial to note that airports generally overlook accessibility improvements for all travellers (Greenbank, 2024), which also includes passengers with reduced mobility. In addition, recent research also suggests that travellers with accessibility needs constitute a high-value market segment, thus, their active participation in air travel could lead to increased revenues in transportation and tourism. A study by Domínguez et al. (2013) revealed that passengers with disabilities spend on average US \$76.86/day, which is 80% higher than travellers without disabilities (US \$42.08). Moreover, passengers with disabilities often travel with family or companions, which also increases total spending. The study presents the lower and upper bounds of expenditure as 5.86% and 97.32% respectively, therefore, the average total spending was approximated to 24%. This is a market potential that could possibly lead to billions in revenue.

In addition to possible profits, a study by Brielle Gillovic & McIntosh (2020) referred to accessible tourism as a part of “inclusive tourism development”, highlighting that people with special needs should be treated as an integral customer group. The work also argues that “many operators do the bare minimum to comply with the legislation”, which negatively impacts the visibility of passengers with special needs since the efforts to support them are so low. Brielle Gillovic & McIntosh (2020) suggest that the lack of attention is caused by a confined perspective on Return On Investment (ROI). This situation creates a cycle when the stakeholders do not invest enough in accessibility features, making it harder for people with disabilities to travel by air, thus, they are viewed as an insignificant market. Brielle Gillovic & McIntosh (2020) also mention the government’s influence on inclusive development – they “remain reactive” instead of incentivising proactive investments into accessibility. Thus, previously discussed studies clearly show that accessibility is not just a guideline or expenditure but a strategic revenue opportunity.

2.3 Accessibility Standards and Regulations

Accessibility standards and regulations are a big part of this study. The data gathered from this part of the literature review will be further used in the Methods and Analysis sections.

2.3.1 Regulation (EC) No 1107/2006

Regulation (EC) No 1107/2006 is a legal document, which states the rights of persons with reduced mobility (PRM) for air travel in all EU territories. Currently, in force, it has been applied with effect since July 26, 2008. Thus, this regulation is active in Tampere-Pirkkala too, meaning that it could be used as a “legal basis” for my study.

To begin with, Article 4 of the Regulation states that “carriers can refuse a PRM only for safety reasons”, or if “the aircraft’s size makes carriage physically impossible” (European Parliament, 2025). The statement has a logical foundation; however, it emphasises that “universal access” actually has defined limits, and accessibility features are not automatically planned for all aircraft in the EU. In Article 5, the concrete designation of arrival and departure points is discussed. Essentially, the managing body of the airport must sign both outside and inside points where passengers with special needs can ask for assistance or guidance.

EU Regulations also allow charging airport users for funding assistance in the airports: “The managing body of an airport may, on a non-discriminatory basis, levy a specific charge on airport users for the purpose of funding this assistance.” (European

Parliament, 2025). It is expected that the assistance is free in all EU countries since the fee is shared among all users, however, the Regulation does not specifically address if it is free of charge. Nonetheless, airports still need sustainable funding, and including the shared fee in the travel cost of all passengers makes it more viable to operate.

Article 7 and Annex I of the Regulation are going to be referred to further in the study since they contain an extended list of required services that should be provided by the airport. Together, discussed articles of Regulation 1107/2006 establish the scope and legal basis for assistance of passengers with special needs in air travel.

2.4 EN 17210:2021: Accessibility of built environment

Another crucial document in accessibility regulations is EN 17210:2021, developed by CEN-CENELEC, or simply the European Committee for Standardisation. This regulation was introduced “in response to mandate M/420 of the European Commission” (CEN, 2021). Mandate M/420 describes the accessibility requirements of government-owned infrastructure (Accessible EU, 2019); thus, the mandate is also active for the airport environment. It is important to mention that before EN 17210 and M/420, the EU was relying on the international standard ISO 21542:2019, which is currently withdrawn (ISO, 2025). These regulations were published in 2019, providing one of the first complex international standards for accessible built environments. In 2021, it was replaced by EN 17210, which introduced the European context and technical approach to standardisation. (Klenovec et al., 2021)

That said, EN17210:2021 outlines the core principles of the European context in the beginning. On page 21, it is argued that “sustainable design should be integrated with accessibility to ensure long-term usability for all” (CEN, 2021). In addition, the importance of sustainable solutions is also highlighted regarding safety, since accessibility measures ensure that all passengers, with or without disability, are going to be evacuated safely (CEN, 2021). Moreover, as mentioned on page 20, equal participation has an impact not only on security but also gives “economic and social benefits” (CEN, 2021). Thus, CEN clearly states that an accessible built environment is a fundamental concept of inclusivity and equality, which in addition brings financial gains.

Moving to the technical exigencies, CEN (2021) emphasises that they consider a wide range of needs, comprising those with “mobility, sensory, and cognitive impairments”. Chapter 5 of the documents discusses the requirements for the built environment, e.g., manoeuvring spaces for the wheelchairs, tactile paving, visual contrast in signage, pathway width, and ramps. The chapter states concrete measurements for specific

elements too, such as a maximum slope of 5% for ramps and at least 220 cm diameter turning circle for sanitary facilities (CEN, 2021). These standards are going to be later referred to in the Methods chapter, where particular ones are going to be selected for review in Tampere-Pirkkala. In addition, CEN (2021) underlines that collaboration with stakeholders is crucial during the planning and design process, meaning that accessible built solutions should be discussed with users with disabilities. Even though the guidelines provided by CEN (2021) are extensive and contextual, they will not be enough; joining efforts is important because every city and region has its own specifics and features, which are sometimes not understood by an able-bodied person.

2.5 ACI Europe: Assistance for non-visible disabilities

Airport Council International (ACI) Europe's (2024) guidance on assistance for non-visible disabilities is an extensive and thorough document that proposes useful recommendations for airport management. The majority of the points made in the guidance are strongly connected to EC 1107/2006, which makes ACI Europe's guidance a "supplementary" or "extension" material. For example, both documents agree that assistance information should be clear, accessible, and reliable (EC 1107, Article 9; ACI Europe, p. 10). ACI Europe (2024) also adds that information on assistance should be "maximum one click away from homepage". Next, ACI Europe (2024) also proposes using "supporting mechanisms" in some cases instead of always requiring a one-to-one escort. This could be, for example, simplified routes or voluntary signage like sunflower lanyards. That is also an extension to EC 1107 Article 5 that argues "designated assistance points must be clearly signed and accessible".

Another important element that is mentioned in ACI Europe's guidance is the adoption of sensory-friendly spaces. The airport is a place of high traffic and hurry-induced stress, often causing overstimulation or fatigue. This tense environment affects not only PRMs but also regular passengers. Even though Annex I of EC 1107 mandates the facilitation of the main assistance points (e.g., baggage support or toilet access), ACI Europe adds context and clear instructions for the various situations. Pages 12-14 mention the availability of "quiet rooms" or "alternative routes" to reduce noise stimulation; adequate seating is remarked on page 13, as an element to "support customer self-independence", as well as "freedom of movement"; moreover, page 14 explains how to make toilets "stoma-friendly" – a feature that is frequently omitted due to the stigma around bowel movement diseases.

That said, the features described above can be introduced with technological advancements. However, airports consist not only of planes and screens – it's a place

where humans interact, and this interaction means a lot for the whole travel process. Practices like security, check-in, and boarding must be human-centred and empathetic: ACI Europe (p. 14) advises staff to invite PRMs to “take their time”, allow passengers with non-visible disabilities to board early (p. 17), and most importantly, medical searches and condition disclosures to be handled “quietly and respectfully (p. 18). Thus, the legal foundation from EC 1107 (Article 7 & Annex I) that allows specific assistance through essential air travel processes is extended through ACI Europe’s recommendations.

This way, ACI Europe guidance supplements EC 1107/2006 by implementing legal obligations through empathetic and humane procedures, essentially for passengers with non-visible disabilities. As Tampere continues to grow, these documents could be useful to assess whether Pirkkala Airport provides dignified assistance that meets the full spectrum of passenger’s needs.

2.6 Summary

As a result, a literature review has emphasized the importance of regional airports in European connectivity. In the economic framework, Airport Council International (2013) notes that regional airports handle almost half of Europe’s air travellers, making them crucial for the economic development of airports’ regions. Thus, accessibility improvements have the potential to turn into strategic economic opportunities. In the Finnish context, the Tampere-Pirkkala regional airport could also bring significant economic benefits for local economy. According to the findings of Lieshout et al. (2015), even small airports can have substantial positive impacts on regional economic growth. Moreover, passengers with disabilities themselves represent a customer with higher spendings, being on average 80% more than of travellers without disabilities (Domínguez et al., 2013).

From the regulative perspective, literature review has explored three documents: Regulation (EC) 1107/2006 by European Parliament (2025), EN 17210:2021 by CEN (2021), and ACI Europe guidance on non-visible disabilities (2024). First document provided legal foundation of the rights of passengers with reduced mobility, second one established functional and technical requirements for accessible built environments, and third one acted as a supplemental material with practical recommendations to provide context on non-visible disabilities, respectively. Thus, the literature review found and researched the regulative benchmarks, against which Tampere-Pirkkala’s accessibility will be assessed. It was also revealed that most of the regional airports still apply minimal efforts to explore social and economic benefits of true inclusivity (Gillovic & McIntosh, 2024), in addition to ongoing minimum compliance with accessibility standards

(Greenbank, 2024). Combining these arguments with the need to adapt to local contexts, this literature review creates an academic foundation for the future research steps of the work.

3. METHODS

The research methods of this study will address the research gap for small regional airports, particularly in rapidly urbanising areas. It is also planned to determine if Tampere Airport has any specific features that need to be addressed during planning, for instance, weather conditions or proximity to the place. Essentially, I will address the research gap by using a mixed-methods approach. As defined by Tashakkori et al. (2010), “mixed methods research is an eclectic, pragmatic approach to employing combinations of research tools in answering multifaceted questions by seeking multiple, multilayered answers”.

That said, the methods I am going to utilise are observational analysis, comparative analysis, and coding. For observational analysis, I will conduct a self-guided evaluation of key physical accessibility features (including entrances, restrooms, and public areas), and document them as objectively as possible. The assessment will take place during weekday operating hours to make sure that the research captures a typical daily experience. I will also capture images of accessibility features (including physical elements like doors, ramps, and signage) to support the findings visually. Essentially, I will try to capture the elements that could be reviewed as an obstacle or an advantage for an accessible environment. Photographs will be taken with an intention to avoid capturing identifiable individuals and faces or licence plates will be blurred if needed. To try to measure and analyse compliance with international standards (e.g., EN 17210) as precisely as possible, I will create a checklist based on the observable features that are directly connected to normative regulations and accessibility recommendations. I will also see if accessibility planning in the airport goes beyond simple compliance with the requirements. The checklist included 7 categories in the following order:

- Arrival and Drop-Off Accessibility,
- Entrance and Navigation,
- Terminal Layout,
- Restrooms,
- Security Screening,
- Boarding Gates,
- Other Amenities.

Next, manual coding in Excel will be done to categorize images by feature theme, sub-theme, and compliance status, in addition to the separate column for the notes. During the coding phase, for a better understanding and broader perspective of the results, some categories of the checklist were united. Thus, seven categories became three themes – restrooms, terminal layout, and entrance and navigation. After this, the data will be compared to the chosen standards. These steps would help me to obtain a deeper understanding of the accessibility features of the airport and fill in the gaps in the available research.

3.1 Ethical Considerations

Conducting research that involves human participants, and sensitive data needs to be carefully and fully adjusted to ethical principles, particularly in studies that address vulnerable populations such as individuals with disabilities. For the observation analysis stage, photographic documentation of the airport infrastructure will deliberately exclude identifiable individuals, with faces blurred. Research methods must always adhere to Tampere University's ethical guidelines. This way, the research will not only respect the rights of the participants but also improve the reliability of the findings.

In addition, since the study involves the photographic documentation of public spaces, proper anonymisation techniques will be implemented immediately. It was ensured that research data was accessible only to the researcher and supervisor, and the correspondence about the research process was confidential. Thus, as the study is completed, all research materials will be completely removed from all storage systems.

4. RESULTS

This study has assessed the compliance of Tampere-Pirkkala Airport with main European accessibility standards: EN 17210:2021 and EC 1107/2006. Supplemental basis provided by ACI Europe's recommendations was also partly used in the evaluation.

The research included creation of a checklist with standards that are possible to assess, on-site observations and photographing in the airport, and manual thematical coding in Excel. Within each category, a brief description will comprise observations and notes about relevant compliance, as well as refer to the assessed regulation. In addition, photographs of the assessed subject will be added if possible. A coding table will represent the category (theme), sub-theme, code, extent of compliance for each observed feature, and a column to add observations. If it is will not be possible to assign suitable compliance to an assessed object, I will put N/A (not applicable) into the compliance column, and further analysis will rely on notes made in the Observations column. Sub-themes were explored during qualitative coding and stated as follows: pathway finding (how people navigate routes), mobility (the infrastructure that enables movement), and assistance (supportive amenities). Sub-themes will help to reveal the patterns that comply with the regulations and what elements should be improved.

4.1 Sub-theme 1: Pathway Finding

Table 2 below represents Tampere-Pirkkala airport features sorted according to the sub-theme "Pathway Finding". The table structure gives a clear overview of which features meet the standards and which require attention. My own notes were recorded in the "Observations" column.

Table 2. Thematic coding results for the "Pathway Finding" sub-theme

Theme	Feature	Compliance	Observations
Restroom	Contrast colours in the room	Yes, (EN 17210:2021, Section 6.3.2)	High-contrast colours could increase visibility

Terminal Layout	Contrast-coloured, dedicated routes inside	Yes, (EN 17210:2021, Section 9.2.13; ACI Europe's Guidance p. 15)	The whole terminal was coloured in a distinct contrast-colour pair, e.g., blue-yellow, black-white, etc.
Terminal Layout	No alternative routes noticed	No, (ACI Europe, p. 15 and EN 17210:2021 Section 6.2.2).	Sensory-friendly environments were not found either.
Terminal Layout	Contrast signage	Yes, (EN 17210:2021, Section 6.6.8; ACI Europe's Guidance, p. 15)	Visual signage ensures better guidance throughout the facility
Terminal Layout	Contrast colours in the banners	Yes, (EN 17210:2021, Section 6.6.8)	Banners were not a part of necessity; however, it was still nice to see them.

In the context of this study, I referred to “Pathway Finding” as an aspect that allows passengers to navigate intuitively, freely, and without stress. Clear routes are crucial to the airport’s built infrastructure. According to the results, 1 out of 5 features was not fully compliant; however, it is important to notice that the feature was not compliant with the recommendation guidelines from ACI Europe, not with EN 17210:2021 standard.

Figures 1 and 2 below illustrate the process of initial coding. I have done the coding manually, starting with the identification of preliminary codes, and consequently uniting them and assigning them to a theme.

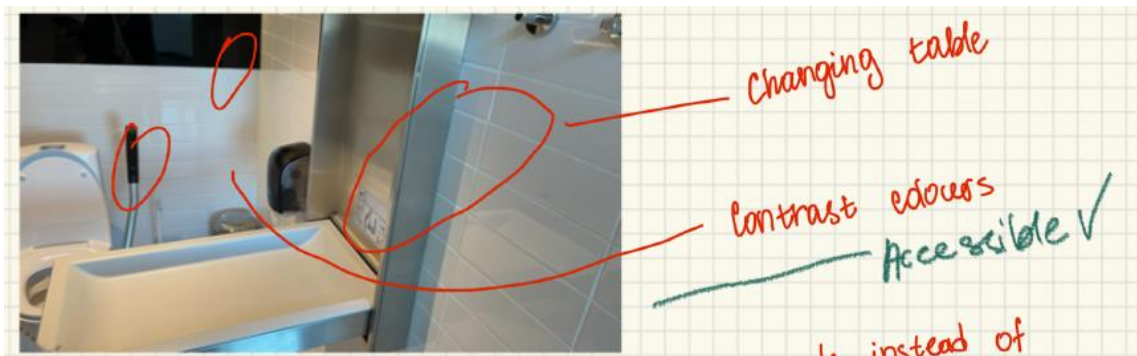


Figure 1. Restroom picture coding. Source: Blazhko, Anastassiya (2025)

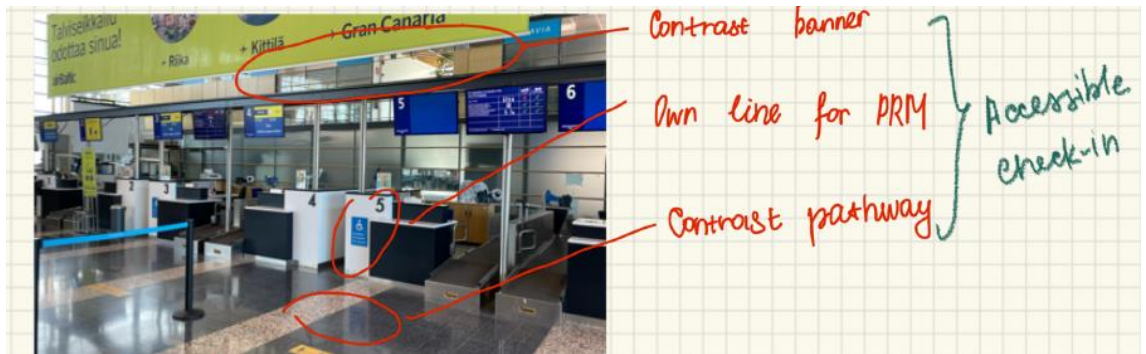


Figure 2. Check-in area coding. Source: Blazhko, Anastasiya (2025)

During the coding phase, it was also attempted to identify the signs of adapting features in the research area. These features are going to be discussed in the next chapter.

4.2 Sub-theme: Mobility

The next sub-theme according to which features were sorted is “Mobility”. Table 3 uses the same structure as the earlier one and reviews the compliance with the standards.

Table 3. Thematic coding results for the “Mobility” sub-theme

Theme	Feature	Compliance	Observations
Terminal Layout	Wide enough corridors and hallways	Yes, (EN 17210:2021, Section 5.3.5)	No obstructions were noticed
Entrance and Navigation	Too much gravel on the roads	Partially, (EN 17210:2021, Section 7.1.15: “Routes shall be free of obstacles...”)	While gravel increases friction for slippery surfaces, I felt like there could be a better method of maintenance.
Entrance and Navigation	Bus stop right in front of the entrance	Yes, (EN 17210:2021, Section 7.2.6; EC 1107/2006, Article 5(1))	The proximity of the bus stop to the airport was a pleasant surprise
Entrance and Navigation	Smooth pavement bricks	Partially, (EN 17210:2021, Section 7.1.5)	Gravel on the top destabilises the

			smoothness and could be an obstacle
Entrance and Navigation	Close-by PRM parking	Yes, (EN 17210:2021, Section 8.3; EC 1107/2006, Article 5(1))	Could be even closer
Entrance and Navigation	Clear main entrance	Yes, (EN 17210:2021, Section 9.1.3; EC 1107/2006, Article 5(2))	The main entrance was easily noticeable
Entrance and Navigation	10–15-degree slope on the ramp	Yes, (EN 17210:2021, Section 10.1.2 – gradient should not be more than a "gentle slope" -less than 30 degrees (BFSC, 2025))	Measured through the picture, not professionally
Entrance and Navigation	Elevators were not found.	No, (EN 17210:2021, Section 6.6.5 (as signage))	This feature is presented as both a signage and mobility problem since even if an elevator existed, it could not be

Figure 3 below shows how these mobility features were found during initial coding. For the “Mobility” section, it was also important to think from the perspective of a passenger or person with limited mobility, which allows us to recognise even more features, e.g., parking distance.

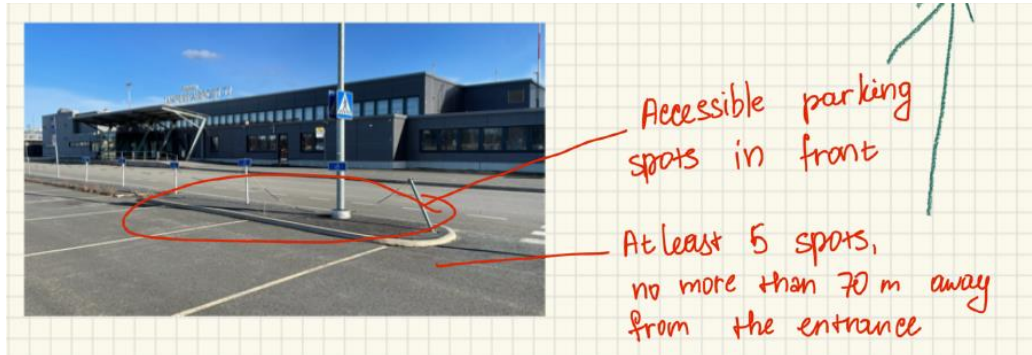


Figure 3. Parking photograph's coding. Source: Blazhko, Anastassiya (2025)

Here, mobility referred to the ability of physically moving across the facilities of the airport, with sufficient level of safety and support. Photographs helped to identify and prove the compliance of the features.

4.3 Sub-theme: Assistance

Table 4 uses the same structure as the previous ones. Here, it outlines all assistance-related features and their compliance with both requirements and recommendations.

Table 4. Thematic coding results for the “Assistance” sub-theme

Theme	Feature	Compliance	Notes
Restrooms	Emergency cord in the restroom	Yes, (EN 17201:2021, Section 12.1.2)	Would be good to check if it works
Restrooms	Bidet might not be reachable	Partially, (EN 17201:2021, Section 12.1.2)	Even if the bidet is not specifically mentioned, the toilet should be “in the reachable distance”

Restrooms	No sign of stoma-friendly restroom	No, (ACI Europe's Guidance, p. 13)	That would be a nice addition
Entrance and Navigation	Automatic doors	Yes, (EN 17201:2021, Section 9.1.10)	Basic requirement
Entrance and Navigation	Tactile pavement	Yes, (ACI Europe's Guidance, p. 28)	Basic requirement
Entrance and Navigation	Support handles next to the ramp	Yes, (EN 17201:2021, Section 10.1.7)	Basic requirement
Terminal Layout	Accessible parking spots in the front	Yes, (EN 17201:2021, Section 8.3)	According to Google Maps, only 70m away from the entrance

Assistance in this case refers to the airport's supportive amenities and how well they serve its purpose. This section also includes a photograph to verify the findings visually.



Figure 4. Bathroom's picture coding. Source: Blazhko, Anastasiya (2025)

For example, Figure 4 above displays how assistance features were labelled in the photographs. Even though images belonged to various themes, sub-themes were identified throughout them and became a unifying element.

5. DISCUSSION

The main aim of the research was to assess the extent to which Tampere-Pirkkala Airport complies with international accessibility standards and how these standards are adapted to the Finnish context as a part of sustainable urban development. Generally, the findings from results suggest a distinct picture: the airport has made some significant steps to comply with requirements in some areas, however, there are still critical gaps that need to be addressed if the airport wants to fully explore its potential as an inclusive regional hub.

That said, it could be clearly seen that Tampere-Pirkkala airport satisfies the most requirements and guidelines. For the first sub-theme, “Pathway Finding”, the regulatory documents emphasise that navigation through the facilities should be intuitive, inclusive, and comfortable (CEN, 2021). In Tampere-Pirkkala, contrast colours in corridors and clear signage are fully compliant with EN 17210:2021’s visual requirements (Sections 6.3.2, 6.6.8, 9.2.13) and recommendations from ACI Europe (pages 13-15). These features represent the fundamental understanding of universal design principles, making routes accessible to navigate and find. It is worth noting that nevertheless, alternative or “sensory-friendly” routes were not found, which are recommended by ACI Europe (page 15). This gap implies that passengers with sensory sensitivities have to experience the stimuli from the business and brightness of the regular routes without any alternative. Even though it is compliant with EN 17210:2021 technically, the lack of other, more sensory-friendly routes, limits the inclusivity of the airport. Moreover, since the research was conducted during spring, it was not checked if signs have illuminated coating that would help to navigate the airport visually during dark Finnish winter. Thus, there could be additional measures, both inside and outside, that could improve pathway finding all year round.

As for the second sub-theme, “Mobility”, the majority of the researched features turned out to be compliant: out of 8 features, 5 were fully compliant, 2 were deemed partially compliant, and 1 was not compliant. The proximity of PRM parking, specific drop-off zones, and spacious hallways of the terminal layout was overall well maintained and accommodating of mobility needs. Thus, these characteristics demonstrated compliance with Regulation (EC) 1107/2006 and EN 17210:2021. As for the identified gaps, elevators were not found, and this could be implied as a signage problem – even for an able-bodied person, it was hard to understand where the elevator is and does it even exist (EN 17210:2021, Section 6.6.5). For partially compliant features, they were mostly

connected to the usage of gravel, which is used in Finland to increase the friction of the surface and protect the pedestrians from the slipping hazard (also compliant with EN 17210:2021, Section 9.6.3). However, the same section states that “Floor surface finishes shall be smooth, allowing wheeled equipment devices to move with minimal resistance and permit a high degree of manoeuvrability.” (CEN, 2021). Gravel could be an obstacle to manoeuvrability, thus, this adaptation for the Finnish context could be improved. For example, engineers and planners could suggest a different way of increasing friction without harsh particles scattered all over the pathway.

Lastly, characteristics in the sub-theme “Assistance” followed a similar compliance pattern as previous categories: out of 7 features, 5 were found to be fully compliant, one was compliant partially and one was not compliant at all. Essentially, discussed elements like the consistent appearance of support handles next to the ramps (EN 17210:2021, Section 10.1.7), automatic doors (EN 17210:2021, Section 9.1.10), and emergency cord in the restroom (ACI Europe’s guidance, p.28) clearly satisfy minimal legal expectations. However, no stoma-friendly assistance was found (ACI Europe, p. 13), and bidets were not always reachable (EN 17210:2021, Section 12.1.2), which suggests partial to no compliance. Thus, while basic assistance amenities are present in the airport, it comes to the conclusion that Tampere-Pirkkala does not pay enough attention to features that promote privacy and self-reliance.

Furthermore, another layer of context specific to Finland is the airport’s approach to the Finnish climate. Traditionally, loose gravel is used in Finland for anti-slip treatment when the roads become icy. While gravel improves friction, it challenges the mobility of wheelchair and stroller users. This points out a feature to work on, which should balance both safety on slippery surfaces as well as consistent accessibility. Thus, there is a need for regionally adapted universal design solutions, such as underneath heating systems or frost inhibitors, that will keep the roads secure and inclusive.

Thus, the main insight of the research is that Tampere-Pirkkala Airport fulfils the fundamental legal requirements of EC 1107/2006 and EN 17210:2021. Accurately followed regulations are represented through contrast signage, ramp gradients, PRM parking, and basic restroom needs. However, the airport misses opportunities to improve social sustainability and become more inclusive by limiting the accessibility development at basic legal compliance level. Accessibility improvements could also attract new customer group, as mentioned in earlier chapters, whose spending patterns pose an opportunity for economic gains.

As for international cases, many European airports are introducing accessibility improvements in a way that Tampere could follow. For instance, Spain's Aena network is providing stoma-friendly restrooms for travellers in 18 airports of their system (Aena, 2025). One of the airports with accessibility enhancements, La Gomera, had 120,707 passengers in 2024 (Aena, 2024), making it suitable to compare to Tampere-Pirkkala with its 161,747 passengers in the same year (Finavia, 2024). As for Nordic examples, it is worth noting that Norwegian medium-sized airports have adopted a broader list of assisted needs than Finnish ones. Leknes Airport, with its 131,473 passengers in 2024 (Avinor, 2025), alongside traditional disability services, also has assistance for "asthma and allergies, heart or lung disease, stoma patients" (Avinor, 2025), whereas Tampere-Pirkkala offers assistance for "intellectual disability, a visual impairment, hearing loss or reduced mobility as well as to the elderly and other passengers with limited mobility" only (Finavia, 2023). This points out a gap that cannot be explained by a smaller number of passengers or different climates – similarly sized airports with similar weather conditions still manage to offer more accessibility services than Tampere-Pirkkala. As for the sensory-friendly routes, Northern Ireland's Derry Airport, with 154,486 passengers in 2023 (NISRA, 2024), offers an alternative as well as Fast Track routes for people with sensory disabilities, like autism, attention deficit hyperactivity disorder (ADHD), and sensory processing disorder (SPD) (City of Derry Airport, 2025). At the same time, Derry Airport offers assistance for the "fear of flying", which includes supportive materials and call guidance lines (City of Derry Airport, 2025). Consequently, Tampere-Pirkkala could improve its accessibility services by following these international examples, which demonstrate that even similarly sized airports can provide more comprehensive assistance for a wide range of passenger needs.

Nevertheless, the study had several limitations. The observational part of the research was conducted independently and without the use of professional measuring equipment, which may have limited the accuracy of the results. In addition, the analysis relied on publicly available information and documentation, without direct engagement with airport staff or passengers with accessibility needs. This approach may have not been able to fully reflect service quality, user satisfaction, and operational services in Tampere-Pirkkala and other analysed airports. These limitations suggest that future studies need to introduce more comprehensive data collection methods, such as interviews and surveys, to obtain a deeper understanding of accessibility services and their features.

In conclusion, the analysis shows that while Tampere-Pirkkala meets fundamental accessibility requirements, it could offer an even more comprehensive range of services for passengers with diverse needs. The comparison with chosen similarly sized

European airports that improve assistance features, like services for stoma patients, sensory disabilities, and alternative routes, could contribute to inclusivity and social sustainability at Tampere-Pirkkala. As Tampere is growing, and the Finnish population is ageing, the demand for accessible air travel will continue to increase (Statista, 2024; Statistics Finland, 2024; IATA, 2025). Adopting these practices could help the airport better serve its increasing and diversifying passenger base.

6. CONCLUSION

The main objective of this thesis was to evaluate how well Tampere-Pirkkala airport complies with accessibility standards such as Regulation (EC) 1107/2006 and EN 17210:2021, and its contribution to sustainable urban development in the Finnish context. The research aimed to answer the following question: To what extent does Tampere-Pirkkala comply with international accessibility standards, and how does it adapt these standards as a part of sustainable urban development? By conducting on-site observations and systematic analysis of relevant documentation, the study identified both strengths and areas that can be improved in the airport's accessibility infrastructure and services.

The findings reveal that Tampere-Pirkkala Airport meets the basic requirements of EU regulations and European standards, providing essential support for passengers with reduced mobility and visual impairments. However, the airport lacks a wider, more comprehensive range of accessibility services offered, in contrast to similarly sized regional airports in Europe. For example, Tampere-Pirkkala does not offer specialized facilities for stoma patients, nor it does provide support for passengers with sensory disorders or certain health conditions, such as allergies or asthma. At the same time, these services are available at airports of similar size and passenger volume, e.g., Leknes in Norway or Derry in Northern Ireland.

These results have significant impact for both policy and practice. Current restrictions in the airport's ability to serve diverse needs of the passengers and may limit its contribution to regional economic growth. The study emphasises the importance and need for Tampere-Pirkkala to move beyond minimum compliance and adopt a more inclusive and proactive approach to airport infrastructure.

In conclusion, this research shows that while Tampere-Pirkkala is on the right path, there is still significant room for improvement. Future research should explore the specific needs of diverse passenger groups, evaluate the economic and social benefits of improved accessibility, and develop policies for introducing best practices from similar European airports. By prioritising inclusivity, Tampere-Pirkkala can support Tampere's sustainable growth, ensuring equitable opportunities for every resident and visitor.

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