MILAN AIRPORTS LOW-CARBON LANDSIDE ACCESSIBILITY STRATEGY

D.T3.1.3 - Building the strategy for Linate and Malpensa Airports long-term mobility integration into Milan Functional Urban Area

Version 3
12 2019

Written by SEA

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1. Introduction

SEA Milan Airports (SEA) is partner of the LAirA (Landside Airports Accessibility) European project, funded by the Central Europe Programme. LAirA aims at improving airports' surface access and fostering low-carbon mobility solutions for passengers and employees.

SEA Milan Airports' project activities have focussed on:

- the analysis of surface access to Linate and Malpensa Airports;
- the piloting of innovative mobility services for the airport passengers and employees;
- the planning of sustainable and efficient Airports' landside mobility systems.

This report is the final LAirA deliverable for SEA Milan Airports and it is the strategy to improve the Airports' surface access. It aims at bringing into a consistent and comprehensive framework SEA's future actions for Linate (LIN) and Malpensa (MXP) landside accessibility, based on the LAirA project results and on the wider SEA's commitment to sustainable surface access. Secondly, it aims to be a reference document to engage with local and regional stakeholders in delivering the strategy actions.

The report is structured as it follows:

- Chapter 2 (Methodology) shortly summarises the previous project activities which inform this strategy;
- Chapter 3 (Baseline situation) includes the analysis of Linate and Malpensa surface access and a summary of the challenges and opportunities addressed by this strategy;
- Chapter 4 (Pilot results) includes the results of the LAirA pilot projects (travel planner and car-pooling scheme);
- Chapter 5 (Vision and objectives) sets the vision for Milan Airports' sustainable surface access and the key objectives;
- Chapter 6 (Actions) details the actions to achieve Milan Airports' vision and objectives, as well as a summary of the LAirA plot project results;
- Chapter 7 (Summary) includes an overview of the actions.

2. Methodology

The preparation of this strategy relies on 3 key strands of activities, that we summarise hereafter.

A. Analyses

The main analyses concerned:

- public authorities' planning documents, which include transport-related actions and investments impacting on or directly concerning Milan Linate and Malpensa Airports' surface access; the analyses aimed at understanding the current policy and territorial planning framework relevant to Milan Airports' surface access;
- the multimodal mobility system at Milan Airports, with reference to landside transport service supply;
- passengers' landside mobility demand, and in particular their travel behaviours and patterns;
- employees' commuting, and in particular their mobility behaviours and availability to join a car-pooling scheme.

The following Chapter includes the main results of the analyses; these supported the identification key areas of interventions and actions to deliver.

B. Pilot projects

SEA delivered two LAirA pilot projects aimed at improving passengers' and employees' surface access.

The first pilot project focussed on enhancing Milan Airports digital channels for surface access (Milan Airports App, website and chatbot); in particular it focused on improving surface access functionalities and user (passenger) interfaces by integrating third-party tools. The pilot contributed to SEA Milan Airports' strategy for the development of a Mobility-as-a-Service (MaaS) application for Airports' access.

The second pilot project focussed on employee commuting and on the delivery of a car-pooling scheme at SEA Milan Airports and at other companies of the airport systems. This included the provision of car-pooling services via digital channels (App and website), and employee engagement and rewarding campaigns for behavioural change.

C. Stakeholder cooperation

SEA engaged in dialogue with stakeholders in Milan Functional Urban Area (FUA) and Lombardy region to deliver the LAirA project (and more generally as part of its institutional relationship management). Dialogue took place during project workshops, public events and individual stakeholder meetings to include stakeholders' needs and plans in this strategy.

3. Baseline situation

This Chapter includes an overview of Linate and Malpensa Airports, the main results of the LAirA analyses, and a summary of the challenges that the strategy faces and of the potentials to exploit to improve the Airports' surface access.

3.1. Linate and Malpensa Airports: overview

Both Linate and Malpensa Airports are in Lombardy region (Italy), which has over 10 million inhabitants and is leader in the Italian economic system (21.8% of the Italian GDP[1]). The Airports are in two Functional Urban Areas (FUA)[2] in the north-west of Lombardy region: Linate is in Milan FUA (code IT002); Malpensa is in Varese FUA (code IT043). Despite the Airports' locations in two FUAs, their core reference urban area is Milan Metropolitan Area (corresponding to Milan province and Milan FUA).

The Airports' catchment areas are nevertheless much wider than the Functional Urban Areas in which they are located and cover most of northern Italy, as well as nearby regions in Switzerland and France. Both Airports are part of the core Trans-European Transport Network (TEN-T).

A. Linate Airport

Linate Airport is city airport, located 9 km east of the centre of Milan. The Airport offers a wide range of short and medium-haul flights, including European Schengen and extra-Schengen destinations, operated by 19 airlines. Linate is characterised by[3]:

- the prevalence of business passengers and a high number of frequent-flyer passengers on national and international flights;
- point-to-point flights;
- the limited presence of low-cost and cargo flights;
- "originating" or "terminal" traffics without a significant number of transits; and
- the use of narrow-body aircrafts.

The Airport registered about 9.2 million passengers in 2018 and has a balanced mix of national (52.7%) and international (47.3%) passenger traffics[4]. Passenger traffic is expected to grow up to 10.6 million passengers by 2030[5].

B. Malpensa Airport

Malpensa Airport is located in the province of Varese, 52 km north-west of Milan. It has 2 passenger terminals and a cargo terminal:

- terminal 1 serves business and leisure domestic, international and intercontinental flights, operated by both low-cost and full-service carriers;
- terminal 2 hosts low-cost short and medium-haul flights (e.g. operated by EasyJet);

[1] Source: Regione Lombardia (2018) – please see: http://www.regione.lombardia.it/wps/portal/istituzionale/HP/lombardia-notizie/DettaglioNews/2018/03-marzo/26-31/lombardia-speciale-pil/lombardia-speciale-pil

[2] Source: Functional Urban Areas in OECD countries: Italy (2016) – please see: https://www.oecd.org/cfe/regional-policy/functional-urban-areas-all-italy.pdf

[3] Source: SEA Milan Airports, Linate Masterplan (2016) – please see: http://www.va.minambiente.it/File/Documento/199846

[4] ENAC (2018) – please see: https://www.enac.gov.it/sites/default/files/allegati/2019-Mar/Dati_di_traffico_2018.pdf

[5] PwC for SEA, Piano Strategico dell'Accessibilità Terrestre degli aeroporti di Milano Linate e Milano Malpensa (February 2018)

- the Cargo terminal ranks first in Italy in terms of tonnage[6].

One-hundred and seven airlines operate at Malpensa Airport[7]. The Airport registered about 24.7 million passengers in 2018 and it is the second Italian airport after Rome Fiumicino[8]. 84% of passenger traffic is international (including intercontinental traffics)[9]. Passenger traffic is expected to grow to 31.5 million passengers by 2030[10].

3.2. Mobility plans and policies for Milan Airports surface access

We identified the following main regional and local plans which are relevant to the topic of Milan Airports surface access.

- Lombardy Region – Mobility and Transport Regional Programme (*Programma Regionale Mobilità e Trasporti – PRMT*);
- Lombardy Region – Territorial Plan (*Piano Territoriale Regionale – PTR*);
- Varese Province – Territorial Coordination Plan (*Piano Territoriale di Coordinamento Provinciale – PTCP*);
- Milan Province – Territorial Coordination Plan (*Piano Territoriale di Coordinamento Provinciale – PTCP*);
- City of Varese – Urban Mobility Plan (*Piano Urbano della Mobilità – PUM*); and
- City of Milan – Sustainable Urban Mobility Plan (*Piano Urbano della Mobilità Sostenibile – PUMS*).

The analysis of the plans shows that Linate and Malpensa Airports' accessibility is a core topic. Nevertheless, the approach to the topic varies according to the scope of the planning documents.

In particular, territorial plans emphasize the Airports' economic development role; this in line with their cross-sectoral perspective. They include mobility planning actions, but they strongly refer to other mobility planning documents with scope on identifying strategies and measures to improve the local and regional mobility system and the Airports' accessibility (in particular those that we analysed).

On the other hand, mobility plans include objectives and actions which have:

- a specific focus on actions for the Airports' accessibility; or
- a wider territorial and strategic scope to enhance the Airports' accessibility.

The following Table presents a summary of the main areas of intervention in the planning documents and their relevance to Linate and Malpensa Airports. We considered the relevance to be:

- direct, when the plans explicitly mention objectives or actions which concern the two Airports;
- indirect, when the plans include actions that we understand may have impacts or concern the two Airports.

The analysis shows that in general the planning documents address the key topics of SEA Milan Airports' surface access strategy described in the following Chapters.

[6] 572,774 tons in 2018 (source: Assaeroporti)

[7] Source: SEA Milan Airports – please see: http://www.milanomalpensa-airport.com/it/voli/compagnie-aeree

[8] Source: Assaeroporti (2018)

[9] Source: ENAC (2018)

[10] PwC for SEA, Piano Strategico dell'Accessibilità Terrestre degli aeroporti di Milano Linate e Milano Malpensa (February 2018)

Table 1. Planning documents - main areas of intervention and relevance to LIN and MXP[11]

Main areas of intervention	PRMT		PTR		Varese PTCP		Milan PTCP		Varese PUM		Milan PUMS	
	LIN	MXP	LIN	MXP	LIN	MXP	LIN	MXP	LIN	MXP	LIN	MXP
Airports' integration in the catchment area	●	●	○	○						●	○	○
Public transport service improvement	●	●	○	○		●					○	○
Wayfinding	○	○										
Car-sharing	○	○										
Road transport infrastructure investments	●	●	○	○		○	●			○	○	○
Rail transport infrastructure investments	●	●	○	○		●	●			●	●	●
Taxi services	●	●									○	○
Mobility management	○	○	○	○								
Electric mobility	○	○	○	○							○	○
Cycling			○				●				○	

Source: Steer analysis

[11] ○ = indirect relevance; ● = direct relevance.

3.3. Passengers' landside mobility demand and behaviours

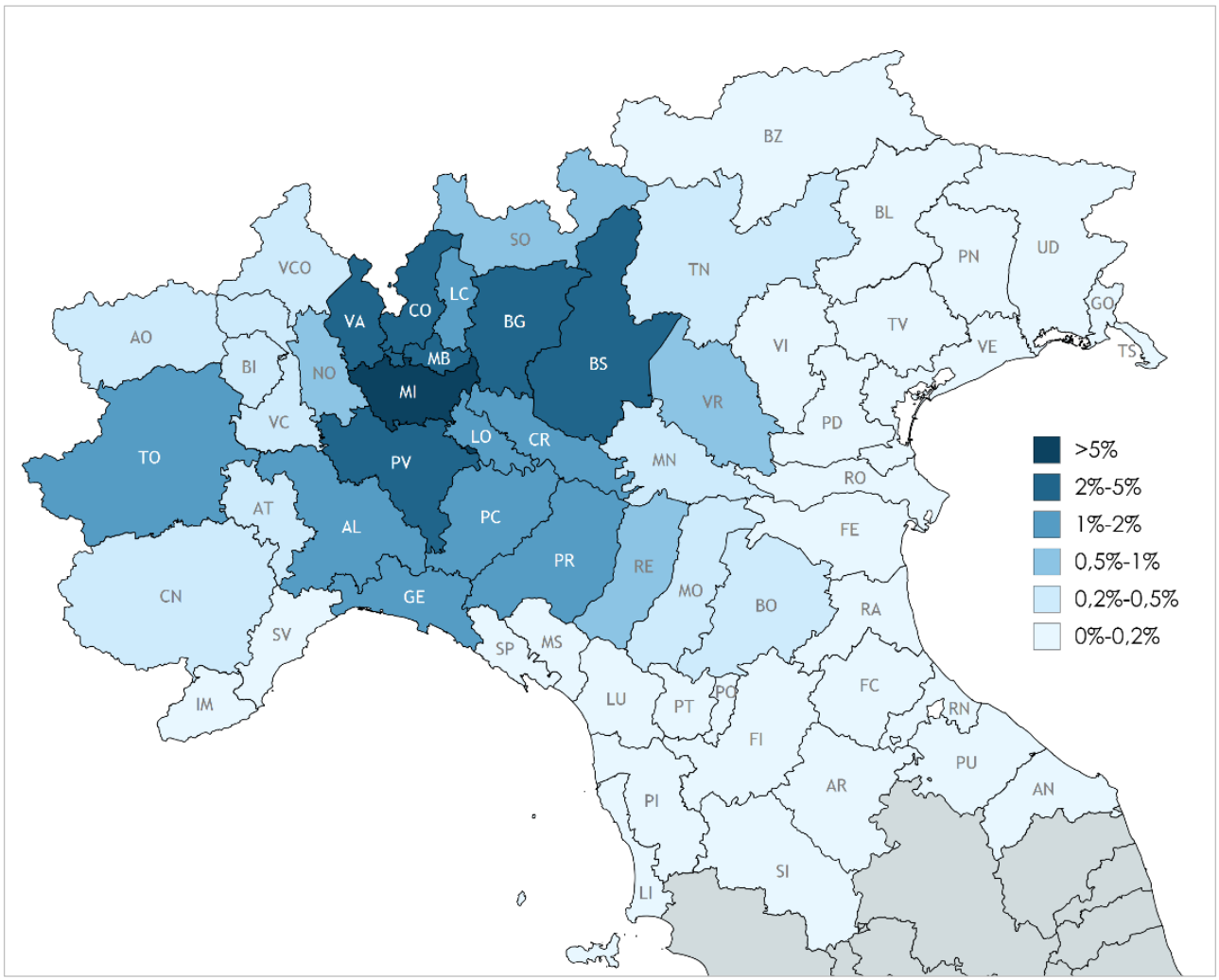
Most passengers travelling to Linate and Malpensa Airports started their journey in Italy (98.9% for Linate and 93.4% for Malpensa) and in particular in northern Italy. The second largest origin of Malpensa passengers is Switzerland (6%). The following Figures report detailed information concerning passengers' distribution by originating Italian province for Linate and Malpensa Airports[12].

Linate Airport's catchment area is primarily centred around Milan Metropolitan area (province of Milan (MI)), which accounts for 63.7% of all passengers. Other Lombardy provinces (Varese (VA), Como (CO), Monza and Brianza (MB), Bergamo (BG), Brescia (BS) and Pavia (PV)) account together for 18.6% of the passenger traffics.

Further 10.3% of travellers come from the provinces of Turin (TO), Genoa (GE), Alessandria (AL), Lecco (LC), Lodi (LO), Cremona (CR), Piacenza (PC), and Parma (PR).

All other provinces have less than 1% of passenger demand each (varying from 0.02% to 0.83%).

Figure 1. Linate Airport passengers' distribution by originating province



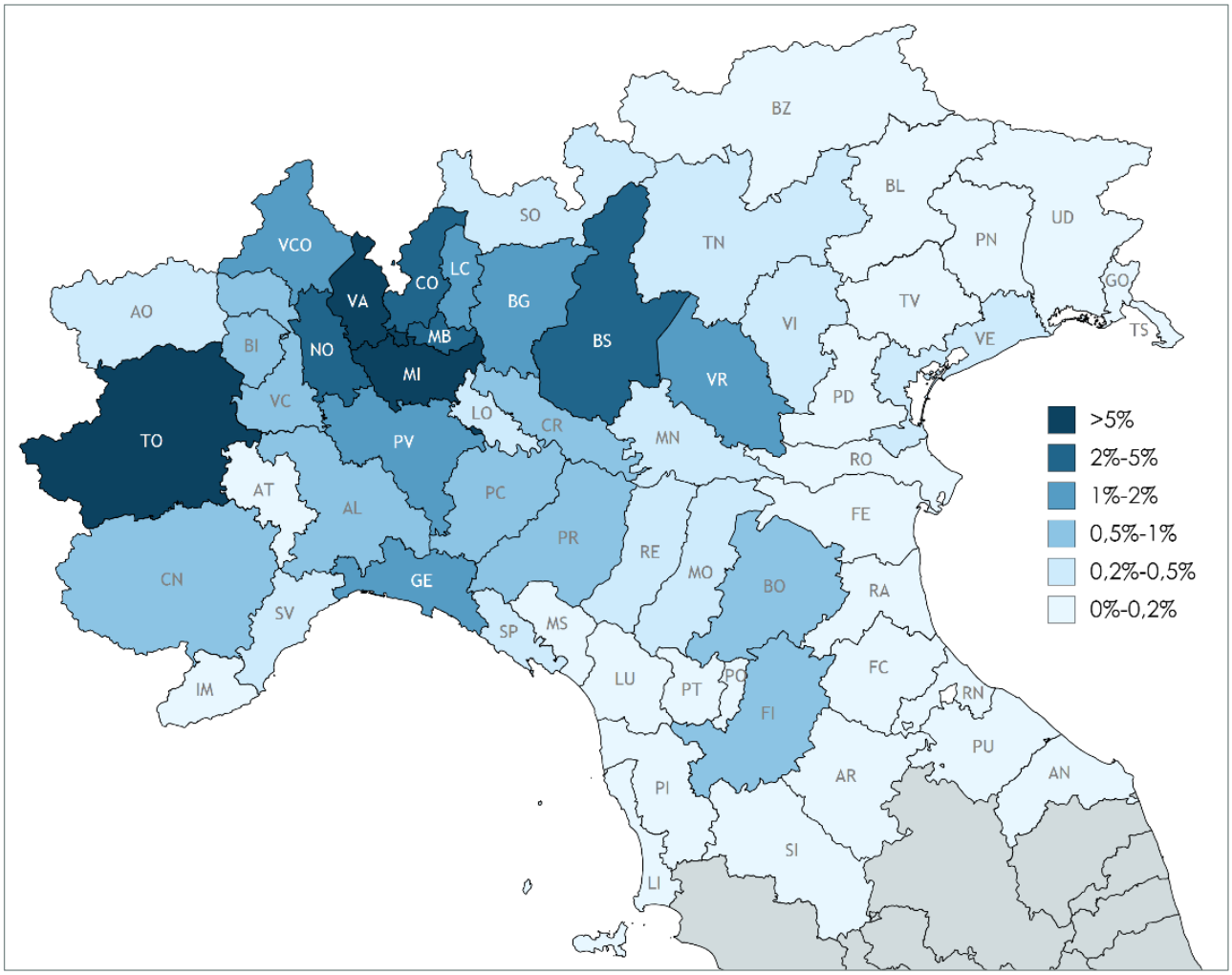
Source: Data from Gruppo CLAS for SEA, Indagine demoscopica a supporto della pianificazione della nuova accessibilità ferroviaria a Malpensa (2016), Steer graphic analysis

[12] Each province is identified by letters in the following text and Figures

The geographical distribution of Malpensa passengers is different from that of Linate. Milan Metropolitan area generates 45.9% of all traffics; Varese (VA) and Turin (TO) provinces are the second and the third provinces (15.0% and 5.9% respectively). The three provinces account for 66.8% of the total passenger traffics.

Other provinces with importance to Malpensa Airport are Como (CO), Novara (NO), Monza and Brianza (MB), and Brescia (BS); these generate 13.3% of the total passenger traffics. The provinces of Lecco (LC), Bergamo (BG), Verona (VR), Genoa (GE), Pavia (PV) and Verbano-Cusio-Ossola (VCO) account for 8.1% of passengers. The remaining provinces' weight varies between 0.1% to 0.8% each.

Figure 2. Malpensa airport passengers' distribution by originating province



Source: Data from Gruppo CLAS for SEA, Indagine demoscopica a supporto della pianificazione della nuova accessibilità ferroviaria a Malpensa (2016), Steer graphic analysis

Concerning passengers' surface travel choices, Linate passengers use (in order to importance) third-party cars (28.0%), taxies (25.6%), coaches or public transport (22.0%), or own cars (14.3%).

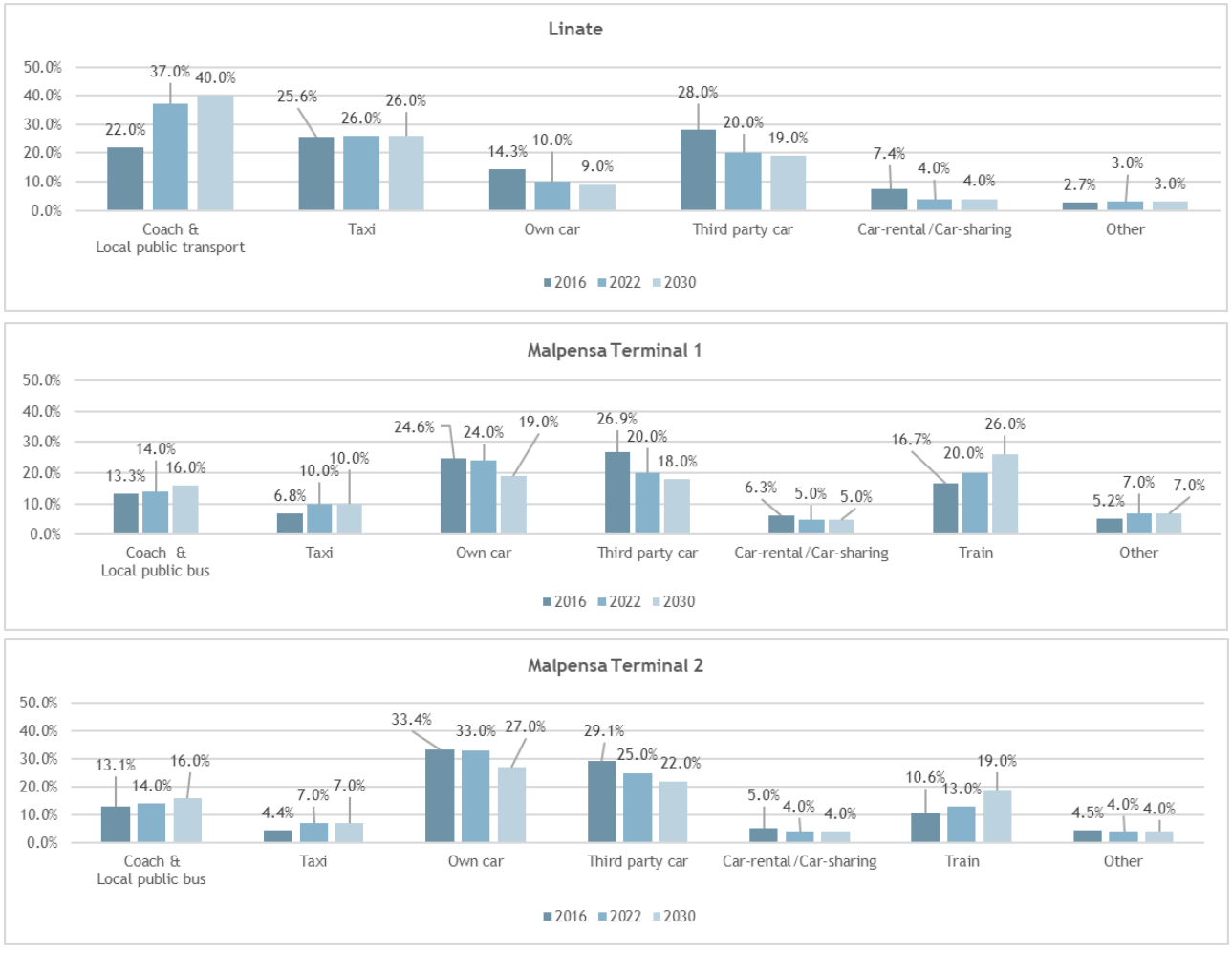
Malpensa Airport has the same share as Linate in the use of third-party cars (28%), but a higher share of passengers travelling to the Airport by own car (29%). The share of passengers using public transport (including rail) is comparable to Linate.

In particular, concerning rail transport to travel to/from the Airports, Milano Centrale is the most convenient option indicated by passengers directed to Linate and Malpensa; Milano Cadorna is also indicated as convenient by Malpensa passengers. It is worth noting that more than 20% of Linate and Malpensa passengers is not aware of the Malpensa Express service.

The LAirA analysis of mobility demand included forecasts of the passengers' travel choices. 2016 data on modal split (the latest available) was chosen as the base year for forecasts[13]. The forecasting model[14] considered traffic volumes, passengers' demographic and transport behaviour data (age, transport mode, reason for travel, origin, destination, etc.), as well socio-economic data concerning the passenger's countries of origin. The following Figures report the analysis results by terminal and for the time horizons 2022 and 2030.

Forecasts indicate an increase in the use of public transport (coach, bus and rail), a decrease in the use of own cars and third-party cars, and a slight decrease in car-sharing and car-rental.

Figure 3. Forecasts on passengers' travel choices at Linate and Malpensa[15]



Source: Data from Gruppo CLAS for SEA, Indagine demoscopica a supporto della pianificazione della nuova accessibilità ferroviaria a Malpensa (2016), and PwC for SEA, Piano Strategico dell'Accessibilità Terrestre degli aerporti di Milano Linate e Milano Malpensa (February 2018), Steer graphic elaboration

[13] Data from Gruppo CLAS for SEA, Indagine demoscopica a supporto della pianificazione della nuova accessibilità ferroviaria a Malpensa (2016)

[14] PwC in PwC for SEA, Piano Strategico dell'Accessibilità Terrestre degli Aeroporti di Milano Linate e Milano Malpensa (February 2018)

[15] Minor data inconsistencies are due to the numbers rounding in the source documents. Concerning Linate Airport, local public transport data include the share of Metro 4 extension in 2022.

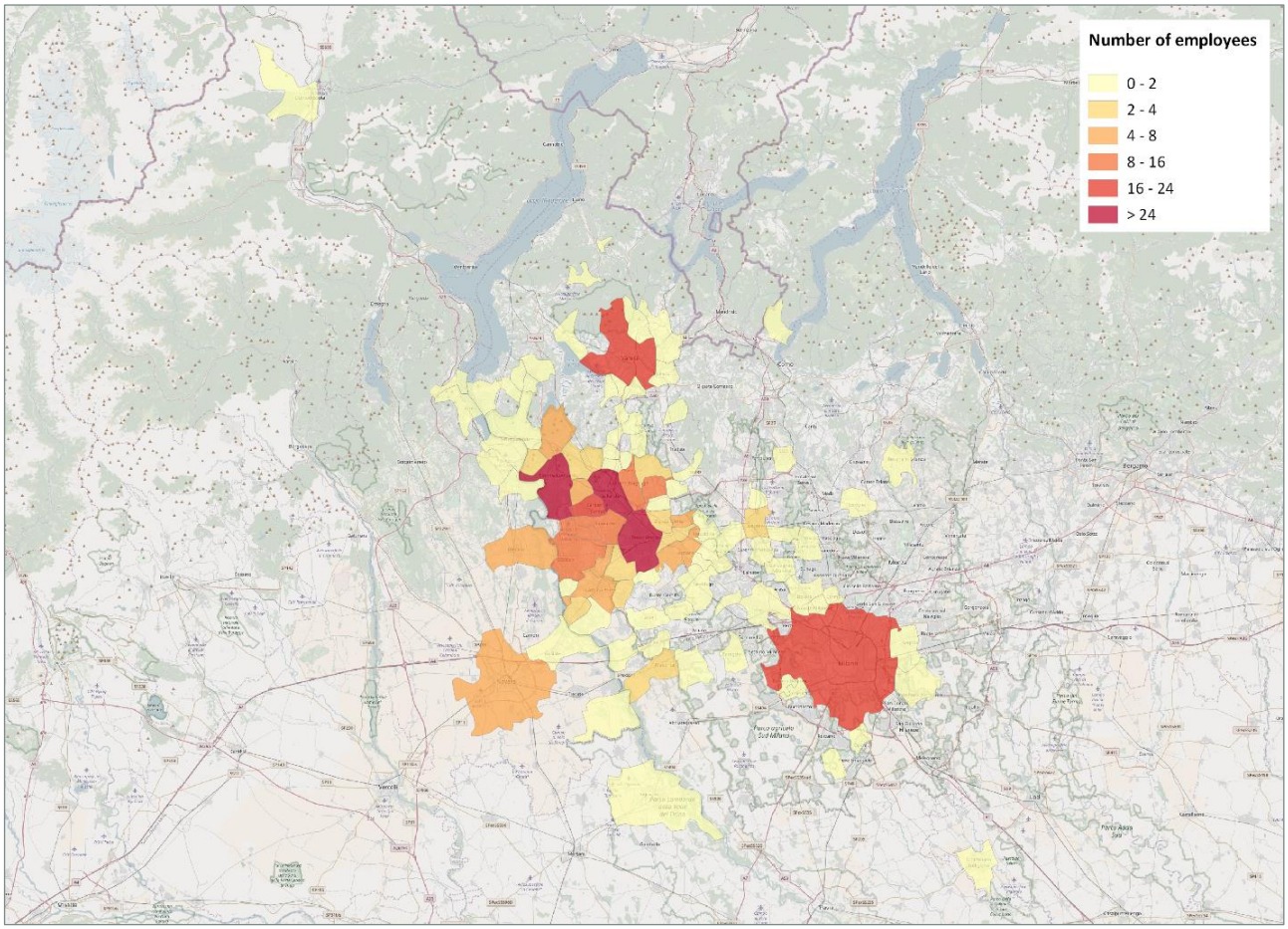
3.4. Employees' mobility needs and behaviours

SEA Milan Airports (SEA) prepared and delivered an on-line survey to the employees at Linate and Malpensa Airports to collect information on their travel behaviours to commute to work; the survey addressed both SEA staff and other employers' staff at the airports' systems. The survey focused on:

- employee profile and trip origin;
- travel behaviours; and
- availability to join a car-pool scheme.

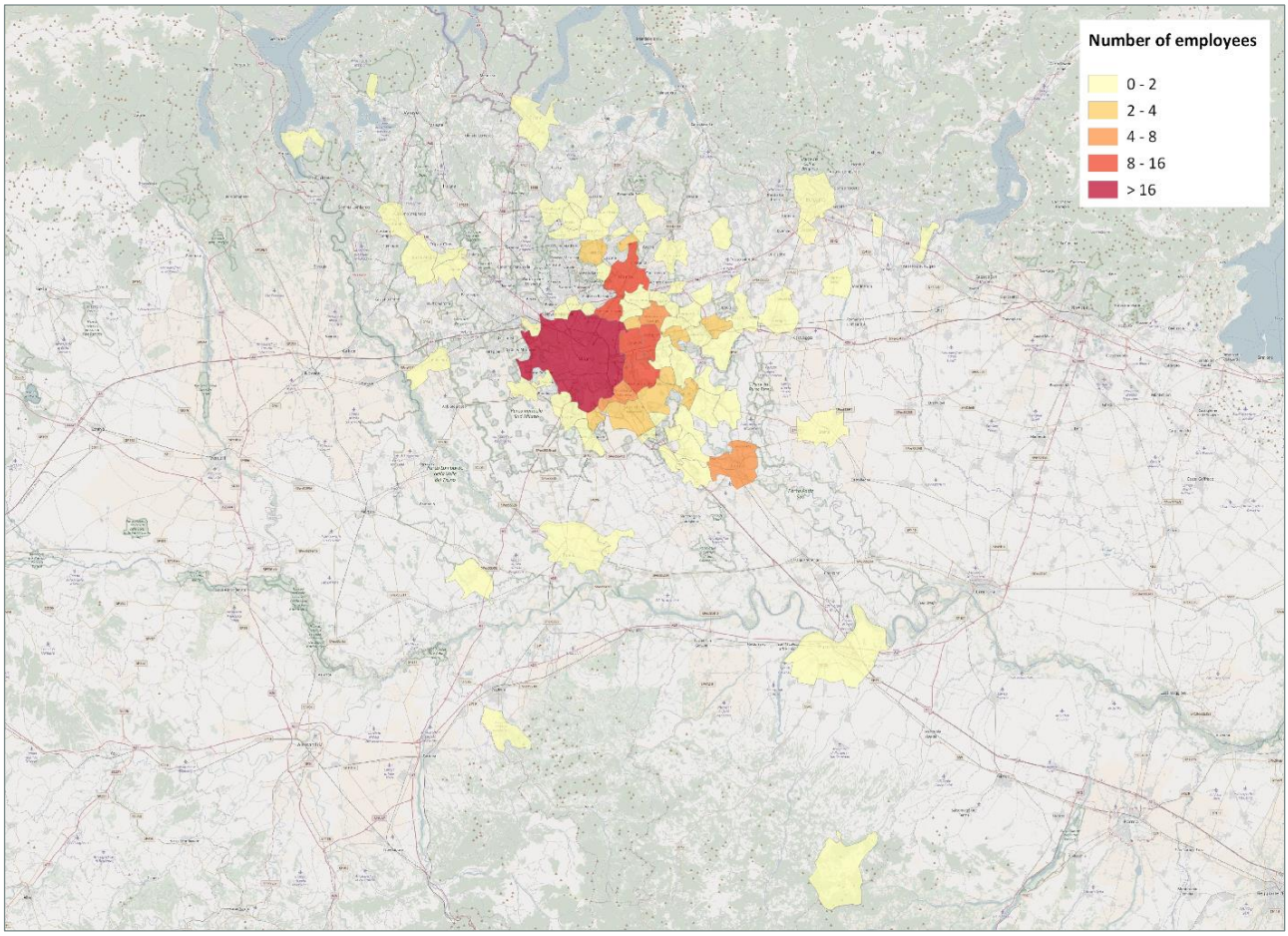
Most of Malpensa employees answering the survey commute from many small-medium urban centres around the Airport (mainly in the Varese and Milan provinces), while most of Linate employees start their journey from the Municipality of Milan, as reported in the following Figures.

Figure 4. Malpensa trip origins - number of respondents by Municipality



Source: Steer

Figure 5. Linate trip origins – number of respondents by Municipality



Source: Steer

Concerning work times, most employees at the two Airports have variable work times. Work time variability seems to be a welfare benefit rather than being related to work shifts; in fact, most employees have variability in the classes 15-30 and 30-60 minutes.

We observed a higher presence of work shifts at Malpensa, in particular for non-SEA employees. On the other hand, Linate shows peaks between 8 am and 9 am for work start and between 16 pm and 18 pm for work end, which is typical of office hours.

There is a marked difference between Malpensa and Linate concerning the travel time to commute. In particular, Malpensa employees' travel times are generally lower than those of Linate: about 75% of Malpensa and 50% of Linate employees travel to the reference airport in less than 30 minutes. This may be due to the combination of two factors:

- the trip origin for Linate is mostly in Milan urban area which has higher levels of road congestion;
- the use of car as main transport mode.

Concerning the frequency of answers on transport modes to commute to work, car has a share (in terms of frequency of answers) of over 80% in Malpensa (car as driver and car as passenger), while in Linate, which is located in Milan urban context, the use of public transport is more frequent (about 28%, referring to train, bus and metro).

The survey also analysed employees' availability to join car-pooling scheme. About 40% of respondents in Malpensa (162 on 388) and Linate (116 on a total of 303 answers) declared availability. Despite the absolute values are not high, the data show a high potential because:

- Malpensa and Linate airport systems host over 20,000 employees;
- car has a share (in terms of frequency of answers) of over 80% in Malpensa and of about 60% in Linate;
- about 90% of employees driving to work are solo-travellers.

The survey shows that:

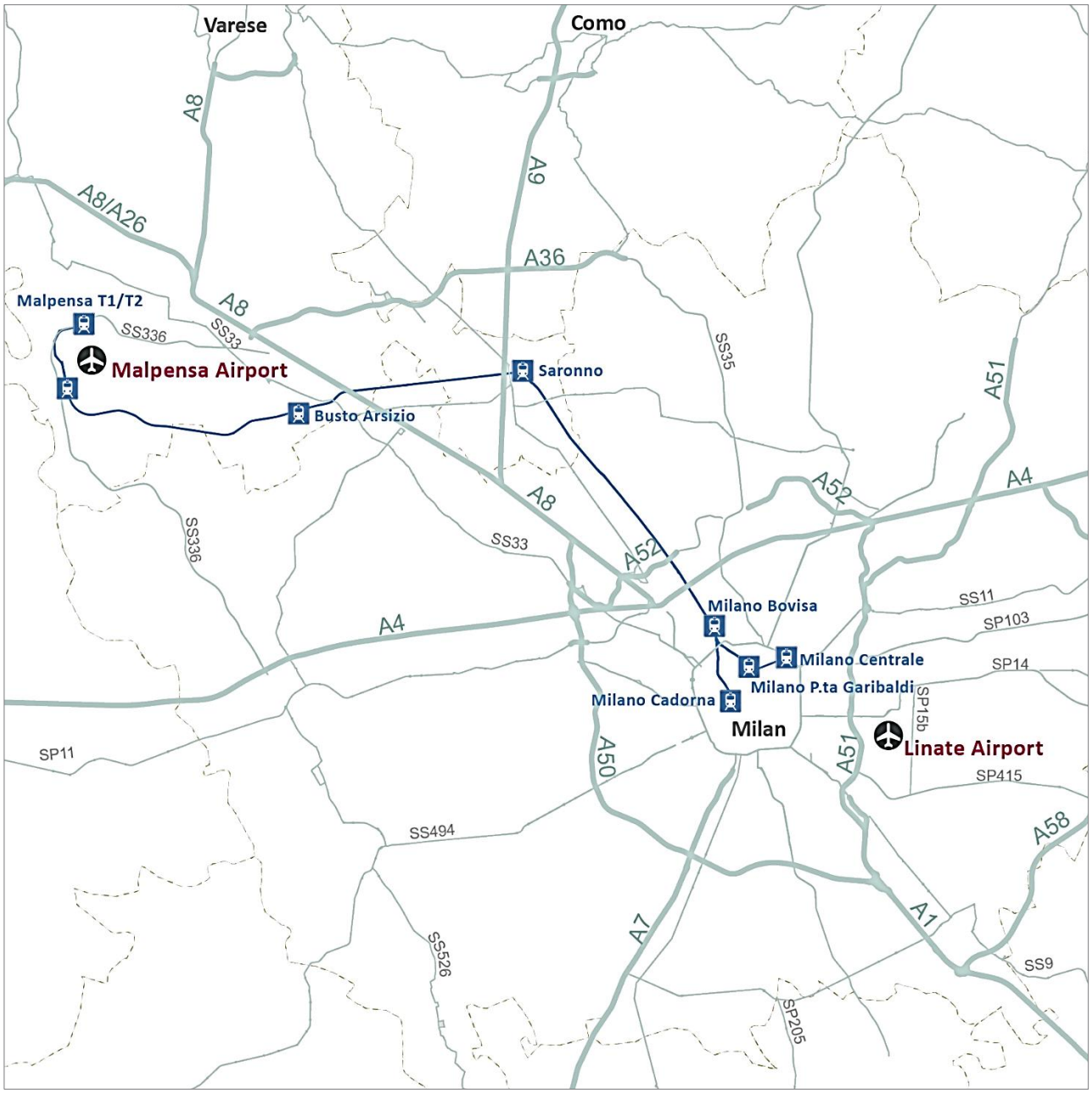
- the youngest age class is less available to car-pool;
- there is an overall direct correlation between the number of transport modes to commute to work and the availability to car-pool.

The mains reasons to join a car-pool scheme are budget saving and less stress related to driving. On the other hand, the main reasons not to join are the need to be independent in commuting / need to detour or stop along the trip and work time flexibility.

3.5. The multimodal mobility systems at Milan Airports

Linate and Malpensa Airports are integrated within a dense road and rail transport network connecting them to core regional, national and cross-border urban and economic areas. The following Figure presents the Airports' positioning within the main regional infrastructure system.

Figure 6. Linate and Malpensa Airports: main road and rail networks



Source: Steer

Concerning mobility services, the analysis shows that both Airports have very good accessibility levels thanks to plenty of services (private and public, on-demand and regular).

In particular **Malpensa Airport** has rail, coach and bus connections:

- direct rail services operate to/from Milan City centre and Switzerland;
- coach and bus services operate to/from Milan railway station, Fiera Milano City and Switzerland; additionally, both on-demand and regular services operate to/from major Italian cities, other provincial urban centres, and Linate and Bergamo Orio Al Serio Airports.

Moreover, the Airport offers car-sharing services: currently there are 5 parking slots at Terminal 1 and two recharging stations.

Linate Airport has coach and bus services to Milan city centre, Milan railway station, Fiera Milano City and San Raffaele Hospital in Milan urban area, as well as coach services to other regional cities, and to Malpensa and Orio al Serio Airports. On-demand coach services to Switzerland are available.

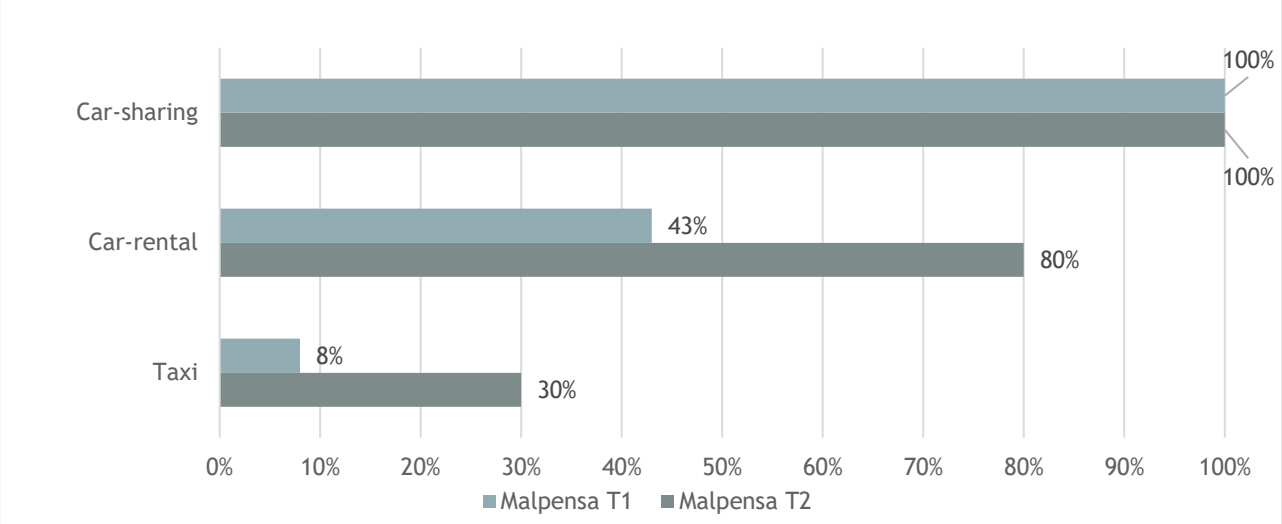
The car-sharing offer is more developed than at Malpensa Airport and includes the following providers:

- CAR2GO - 20 parking slots;
- ENJOY - 14 parking slots;
- DRIVENOW - 10 parking slots; and
- E-Vai - 4 electric parking slots.

We understand this is due to the Airport proximity to Milan urban centre.

The following Figure presents the **saturation level of the mobility services at Malpensa Airport**, as a ratio of the current demand (passengers/day) and current supply (service capacity/day)[16].

Figure 7. Mobility service supply saturation at Malpensa Airport: car-sharing, car-rental and taxi by Terminal



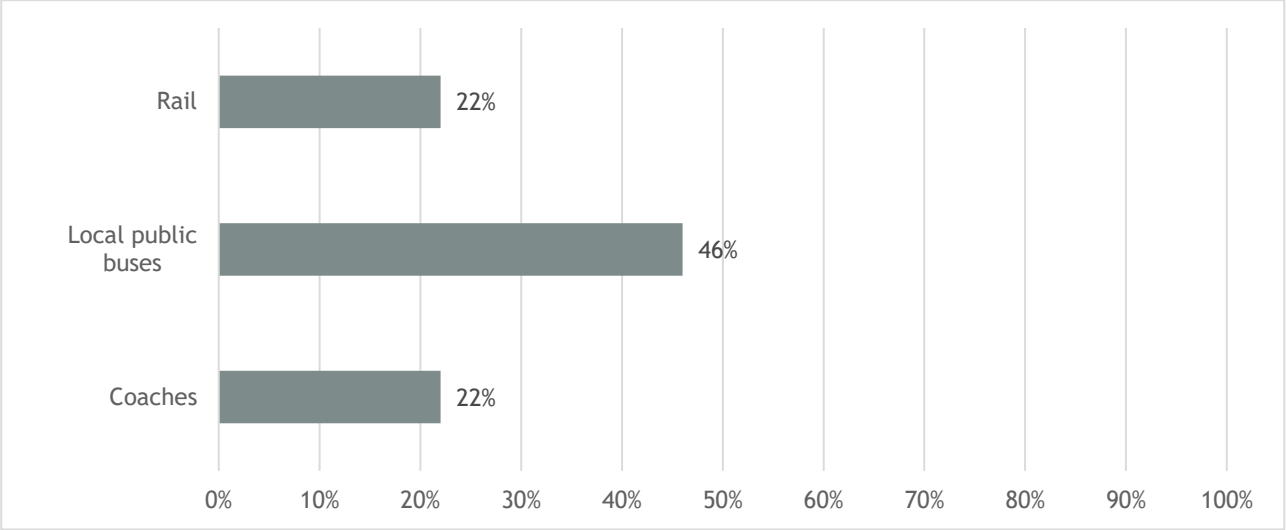
Source: PwC for SEA, Piano Strategico dell'Accessibilità Terrestre degli aeroporti di Milano Linate e Milano Malpensa (February 2018)

Concerning car-sharing, we understand that the 100% saturation level has not particular significance due to the limited offer (5 parking slots). Nevertheless, this suggests there is room to extend services.

[16] Source: PwC for SEA, Piano Strategico dell'Accessibilità Terrestre degli aeroporti di Milano Linate e Milano Malpensa (February 2018)

Concerning car-rental services the saturation level differs significantly by terminal. In particular, the high level of saturation at terminal 2 may depend on the fact that only three out of eleven companies (the total number of companies in Malpensa) operate at the terminal. The different saturation level of taxi services at the two terminals may follow the same logic.

Figure 8. Mobility service supply saturation at Malpensa Airport: rail, local public buses, coaches



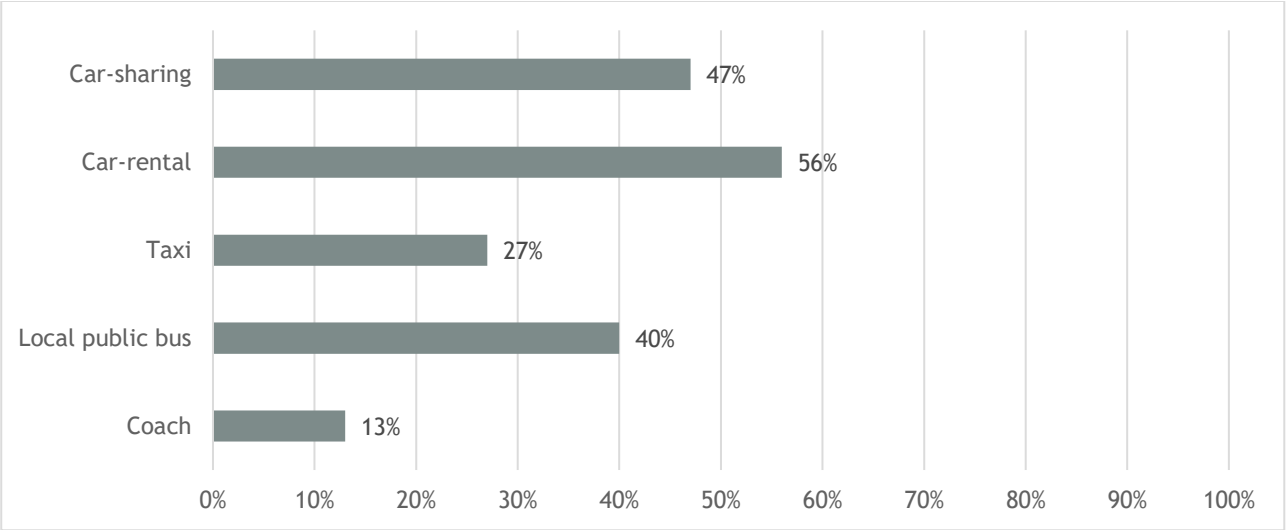
Source: PwC for SEA, Piano Strategico dell'Accessibilità Terrestre degli aeroporti di Milano Linate e Milano Malpensa (February 2018)

Rail and coach services have the same saturation levels (22%), while local public bus services have a 46% saturation. Numbers suggests there are margins to improve rail and coach services.

The following Figure presents the **saturation level of the mobility services at Linate Airport**.

The transport mode with the lowest saturation level is coach (13%), while local public bus services operate at 40% of their capacity. Car-sharing and car-rental services operate at approximately half of their capacity and taxies at approximately one third.

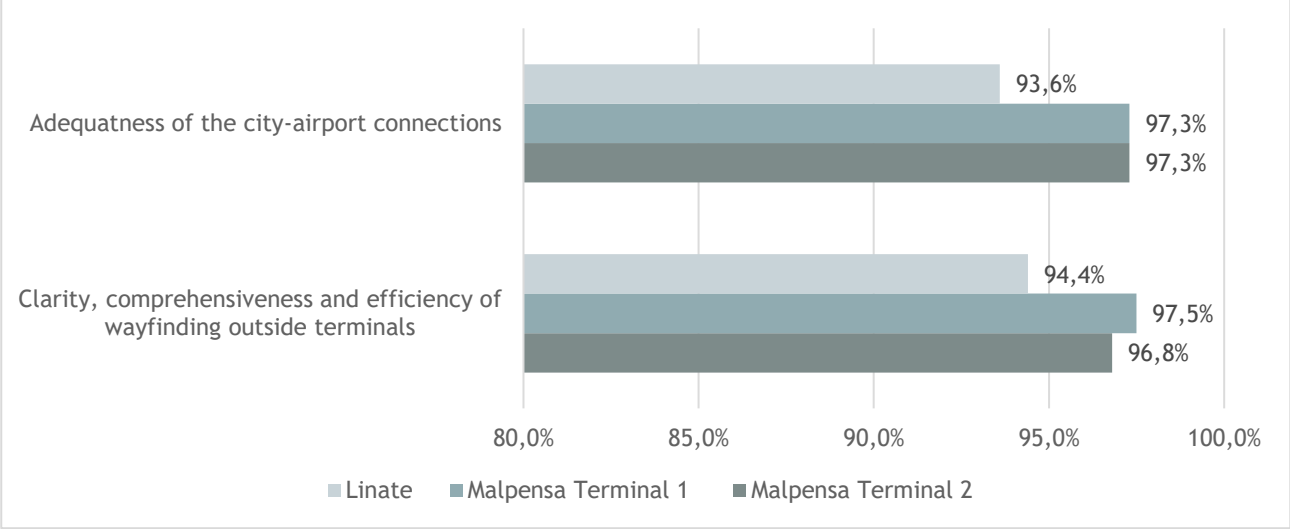
Figure 9. Mobility service supply saturation level at Linate Airport



Source: PwC for SEA, Piano Strategico dell'Accessibilità Terrestre degli aeroporti di Milano Linate e Milano Malpensa (February 2018)

Passengers' satisfaction level with transport mode integration is very good, as reported in the following Figure.

Figure 10. Customer satisfaction with transport mode integration at Linate and Malpensa Airports



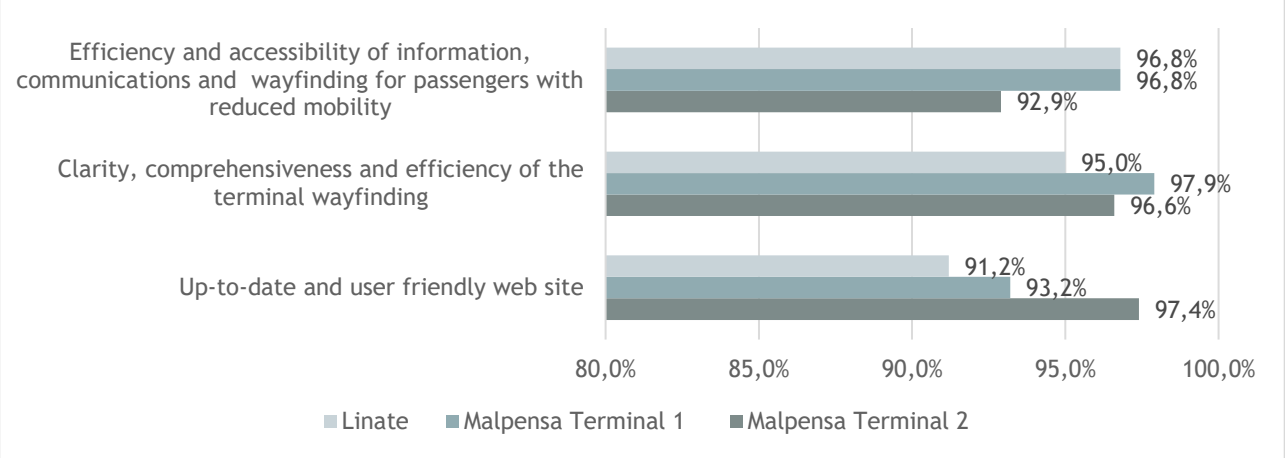
Source: Service Charter Milano Linate, SEA (2018)

Concerning **passenger mobility information systems,** Milan Airports' web site and App provide several information to passengers concerning flights, directions and parking, shopping & food, and Airports' services and facilities. The web site and App functionalities on "directions and parking" provide information on the Airports' accessibility according to the preferred travel mode:

- Passengers travelling by car find road directions and parking service information; they have the possibility to book parking on-line. Real-time traffic data through Google Maps and web-streaming from 6 video cameras showing the level of congestion on the main roads to the Airports are available.
- Passengers travelling by bus can find information on the main services, operators, schedules and fares.
- Passengers travelling by taxi find companies' phone numbers, as well as information on limousine services.
- Concerning car-rental, the web site and App provide a list of operators, phone numbers and web sites.
- The web site pages and App functionality concerning car-sharing describe in detail the service and cars' location.
- Finally, passengers can find information on rail services and schedules, including real-time updates.

Customer satisfaction with the information services provided is very high, as reported in the following Figure.

Figure 11. Customer satisfaction with information quality at Linate and Malpensa Airports



Source: Service Charter Milano Linate, SEA (2018)

We note that despite customers' feedback on service integration and information quality is very positive both areas are priorities in SEA Milan Airports' future actions, as described in the following Chapters.

3.6. Challenges and opportunities

This paragraph summarises the challenges and opportunities to enhance Milan Airports sustainable surface access.

Table 2. Challenges and opportunities for sustainable surface access

Challenges	Opportunities
• Mitigating landside mobility impacts generated by passenger traffic increase at Malpensa Airport and ensuring service quality; • Fostering employee and passenger behavioural change towards sustainable transport modes; • Matching surface access environmental sustainability and the importance of the parking revenue stream, plus identifying new revenue streams; • Managing vehicular traffic access to the Airports; • Tailoring car-pooling services to employees' work shift needs, in particular at Malpensa; • Engaging mobility stakeholders to enhance the Airports' surface access.	• Extending and enhancing rail services and infrastructure, and increasing rail service penetration in the Airports' catchment areas; in particular improving Malpensa Express service level to attract demand; • Exploiting the expected increase in passenger demand for public transport services by extending services and improving service level; • Exploiting employees' availability to join a car-pooling scheme; • Enhancing shared-mobility services; • Further enhancing passenger mobility information systems (physical and digital); • Leveraging regional plans in electric mobility to increase the recharging offer at the Airports.

Source: SEA Milan Airports

4. Pilot results

This chapter includes a summary of the LAirA pilot projects at Milan Airports and specifically the travel planner (passenger pilot) and the car-pooling scheme (employee pilot). The pilot results aim at informing SEA sustainable surface access strategy.

4.1. Passenger pilot - travel planner

The LAirA pilot focused on enhancing SEA Milan Airports App and website surface access information by a multimodal travel planner that passengers can use when travelling to the airports.

The pilot needed a strong stakeholder cooperation, in particular with transport providers in Milan Airports' catchment area. The availability of multiple transport services made the project complex and at the same time was a key reason to act. The travel planner is multimodal and includes transport offer of over 20 providers in the road public transport, coach and rail sectors.

Based on the passenger origins and destinations the travel planner calculates and shows the routes including transport services, departure and arrival time, and travel duration. The most environmentally friendly route (the one with lowest CO_2 generation) is highlighted.

The pilot included two types of user tests.

The first test focused on users' interaction with the travel planner. 3,130 users visited the travel planner App / Website section in September 2019 (7.64% of the total number of people visiting SEA digital channels). This allowed understanding among others which devise they mainly used (mobile) and their geographic area (mainly Milan), as well as gender and age.

The second test focused on user experience and encompassed the travel planner test by a panel of users to collect detailed information on issues and improvement areas. In particular main issues were technical and related to how information is provided. Improvement areas mainly concerned a further integration of the travel planner with flight departure times, ticketing integration and real time information. The travel planner information on the greenest travel option (CO_2 calculator) was appreciated by users.

The project development relied on a team including staff from several SEA departments, plus external consultants, which managed technical, Information Technology and legal issues. The project lasted 6 months, but modifications and improvements are still ongoing and are part of SEA efforts to continuously enhance passenger services.

The main challenges in the project delivery concerned:

- engaging transport providers and agreeing cooperation;
- verifying the algorithm travel planning results, in terms of travel combinations and proper functioning;
- providing travel options which ensure information on all available solutions, and consequently treating equally all transport providers based on service availability;
- designing the travel planner to provide users the best experience and added value.

Based on the pilot project successful results, SEA is committed to further enhance the travel planner functionalities and future challenges concern:

- ensuring that the travel planner evolves as technology progresses;
- enhancing the travel planner promotion;
- adding functionalities which may include home-to-gate travel planning, real time information and ticketing.

4.2. Employee pilot - car-pooling scheme

The LAirA pilot focused on providing employees an App to share rides to work. The pilot aimed at encouraging employees currently commuting individually to share cars with colleagues and reduce car traffics. The pilot included the App procurement and employee engagement campaigns (Season's Carpool Races).

The pilot started in July 2019 and is still on-going; SEA decided it will pay for the car-pooling services until summer 2020. Pilot results indicate that:

- the number of registered users is lower than expected (277 users by the beginning of December 2019), as well as the number of matched rides (318);
- several registered users are not active users, and this limits the possibility to reach a critical mass of users;
- the highest number of registrations happened right after the pilot launch (employees registered during or soon after the on-site pilot campaigns at Linate and Malpensa in July 2020); new registrations declined in the summer period;
- it was difficult to reach non-SEA employees (employees at other companies in the airport systems);
- employees may share trips and not certify them on the LAirA platform;
- users are mainly at Malpensa Airport; this could be explained by the airports' location (Linate proximity to Milan urban area which allows employees using public transport services).

SEA assessed that it is probably too early to assess the pilot results and more time is needed for employees to know and get confident with the car-pooling pilot service. For this purpose, SEA is planning additional actions starting from January 2020:

- delivering more targeted communication campaigns (e.g. by groups of employees living in the same geographic area), including e-mails, training webinars - workshops and "ambassadors" presenting the car-pooling services;
- developing *ad-hoc* campaigns at bigger companies of the airport systems.

We note that based on employees' feedback, SEA also launched a LAirA "Bike Race", in order to reward employees who cycle to work.

SEA will assess the final pilot results in summer 2020 and decide if continuing the car-pooling service provision.

5. Vision and objectives

SEA Milan Airports' vision in landside accessibility is **making Malpensa and Linate Airports smart mobility hubs**.

This means developing the Airports to be:

- **the greenest Italian Airports in surface access**;
- **at the heart of northern Italy mobility networks**;
- **equipped with technologies and infrastructure for the best customer mobility services**.

Developing this vision means answering the following strategic challenges:

1. **Reducing traffic congestion on the local road network**: passenger traffic increase brings pressure on the Airports' surface access systems, both to services and infrastructures; Airports needs managing increased pressure on service quality standards and engage in cooperation with territorial stakeholders to meet passengers' mobility needs.
2. **Adapting the Airports' business models to new mobility paradigms**: Airports need to match enhanced passenger surface access sustainability (and in particular the use of public and shared mobility services) with the related risk of parking revenues decrease; they need generating new revenue streams and identifying business opportunities related to passengers' surface access.
3. **Delivering and enhancing the landside Airports' infrastructure**: physical infrastructures will continue playing a key role in Airports' development and Airports will need new and enhanced surface access infrastructure to meet passengers' mobility needs in all transport modes.

SEA Milan Airports have identified three key objectives in landside accessibility to purse by 2030:

1. **Increasing public transport share to 40%**;
2. **Delivering new customer services**;
3. **Investing in landside infrastructure and equipment**.

The following Chapter presents the key actions related to each objective.

6. Actions

We present hereafter one chart for each action summarising the following information (according to the LAirA strategy template):

- Origin of the action: the section indicates if the action is transferred from partners' and international practices, if it is a new concept developed by SEA Milan Airports and/or stems from other sources; this is further described in the following bullet;
- Action description: it includes details on the origin of the action and the specific activities to deliver the action;
- Critical success factors;
- Owner of the action (responsibility) and stakeholders to engage;
- Key indicators to measure the action success;
- Time horizon: short (2021), medium (2025) and long-term (2030);
- Wider territorial vision of the action.

The action descriptions do not include details on budget; this is because each practice has multiple and complex activities with different budget sources which need discussion with and commitment by territorial stakeholders other than SEA Milan Airports.

***Objective*: INCREASING PUBLIC TRANSPORT SHARE TO 40%**	***Objective n.* 1**
***Action*: IMPROVING CUSTOMER INFORMATION ON PUBLIC TRANSPORT SERVICE SUPPLY**	***Action n.* 1.1**
Origin of the action: ● **Transfer** ○ **New Concept** ● **Other**	
Action description	
The action is not specifically related to specific other LAirA partners' experiences or practices, but it wants to consider best international practices to deliver customers information on airport surface access. The action added value is improving passenger service level and fostering the use of sustainable transport modes to/from the Airports. The action includes multiple activities / sub-actions targeted to passengers and employees, and in particular: ▪ Updating SEA Milan Airports digital channels with surface access information; ▪ Delivering "transport corners" to provide passengers surface access information at Malpensa and Linate; ▪ Improving wayfinding systems at Malpensa and Linate;	

- Delivering surface access information materials (e.g. brochures and maps) at Malpensa and Linate Airports passenger info points;
- Delivering the "Smart Mobility Area" at Linate Airport (1.500 squared metres dedicated to mobility information and mobility service provision); the area will focus on smart and innovative mobility, and in particular on shared mobility, electric mobility and active transport. It will include "info-gates" on airport access tracks, micro-mobility solutions, shared mobility services (shared bikes, scooters, cars, and electric cars). Moreover, the area will have parking slots with recharging stations and innovative technologies (e.g. intelligent posts) – open Wi-Fi, monitoring of slots occupancy. The project aims at delivering an intelligent mobility hub at Linate Airport;
- Delivering the "Milan Gateway Project" at Milan Central Railway Station: this includes Malpensa Express wayfinding and a passenger information area; more in detail the project concerns the customisation of an area at Milan Central Railway Station; the area will focus on directing passengers travelling to/from Milan Malpensa Airport thanks to an effective wayfinding system and providing information on mobility services, and in particular sustainable mobility and public / collective transport solutions;
- Preparing a specific SEA intranet section to provide SEA employees information on surface access to Linate and Malpensa (e.g. maps, timetables); in particular the section will support employees in planning work-home commuting and provide information on public / collective transport service to travel to/from/between the Airports, on eventual service changes, and on new SEA Milan Airports' initiatives for mobility management. The sub-action aims at listening to employees' mobility needs, informing their mobility decisions and optimising daily mobility patterns.

Critical Success Factors

- Considering the whole surface transit offer at the two Airports;
- Considering different type of users that could have different needs and behaviours;
- Cooperating with mobility providers to integrate transit offer information;
- Cooperating with other infrastructure managers to develop passenger information systems;
- Defining physical location where delivering information based on passenger's travel decision points;
- Considering needs of Persons with Reduced Mobility.

Responsibility and stakeholders

- SEA is the key body in charge of the action;
- The "Milan Gateway Project" relies on the cooperation with Grandi Stazioni Retail (GS Retail) and Grandi Stazioni Rail (GS Rail);
- The action needs cooperation with mobility service providers.

Key indicators

- Passenger's satisfaction level with the clarity, comprehensiveness and effectiveness of physical and digital wayfinding systems and more generally with the information provided;
- Share of passengers using public transport to/from the Airports;
- Share of employees using public transport to/from the Airports.

Time horizon	
▪ Short-term (by 2021).	
Wider territorial vision of the action	
The action has a territorial scope which primarily focuses on the Airport areas, but it includes other transport nodes and more generally aims at improving surface access from Milan Functional Urban Area.	
***Objective*: INCREASING PUBLIC TRANSPORT SHARE TO 40%**	***Objective n.* 1**
***Action*: CREATING NEW PUBLIC TRANSPORT CONNECTIONS AND ENHANCING EXISTING ONES IN PARTNERSHIP WITH TRANSPORT STAKEHOLDERS**	***Action n.* 1.2**
Origin of the action: ● **Transfer** ○ **New Concept** ● **Other**	
Action description	
The action is not specifically related to specific other LAirA partners' experiences or practices but wants to consider international best practices. The action added value is improving landside rail and road services for passengers and employees. The action includes multiple activities / sub-actions and in particular: ▪ Delivering shuttle bus services for Linate and Malpensa employees, including services for shift workers; ▪ Delivering the green business trips project: the project is ongoing and focuses on employee trips between Linate and Malpensa Airports; employees use a shared electric car provided by a partner operator instead of travelling by own car; ▪ Analysing in cooperation with ATM (*Azienda Tasporti Milanesi* - public transport provider in Milan) the demand for new road public transport services within the Milan public transport plan (*Piano di bacino*). ▪ Cooperating with Trenord (rail provider) to double train capacities to Malpensa; ▪ Contributing to the working group on the connection between Milan Linate Airport and Porta Est Segrate (Milan Segrate East Gate) and to the related feasibility study.	
Critical Success Factors	
▪ Identifying demand needs; ▪ Starting-up services with high quality level; ▪ Assess rail infrastructure capacity.	

Responsibility and stakeholders
▪ SEA is the key body in charge of the sub-action on employee shuttle buses; ▪ The action needs cooperation with mobility service providers (in particular ATM and Trenord); ▪ Porta Est Segrate project is a complex and it involves multiple stakeholders (including SEA, Metropolitana Milanese, the City of Milan, the City of Segrate and Lombardy Region). ▪ SEA wants to set-up "stakeholder forums" to plan the new services.
Key indicators
▪ Public transport mode share to access the Airports; ▪ Passenger's satisfaction with public transport service level.
Time horizon
Short-term (by 2021).
Wider territorial vision of the action
The action has a wide territorial focus on Milan functional urban area and Airports' connection to regional transport hubs.

Objective: DELIVERING NEW CUSTOMER SERVICES	*Objective n.* 2
Action: DELIVERING MILAN AIRPORTS Mobility-as-a-Service (MaaS) APPLICATION	*Action n.* 2.1
Origin of the action: ● Transfer ● New Concept ○ Other	
Action description	

The action wants to transfer international best practices concerning digital channels for passengers' mobility planning and deliver the innovative concept of MaaS.

The action added value is the enhanced passenger digital experience, with reference to real-time information, smart parking functionalities, digital wayfinding at terminals, surface access planning – booking – payment, and disruption management.

The first sub-action is the delivery of Milan Airports travel planning application. The activity is supported by the LAirA project (as part of the pilot project on enhancing Milan Airports digital channels for surface access).

Future actions concern upgrading digital functionalities towards the MaaS concept (full integration of third-party mobility service and information provision).

Critical Success Factors

- Cooperating with mobility providers;
- Raising the profile of dynamic landside multi-modal travel information;
- Identifying revenue opportunities from innovative services provision.

Responsibility and stakeholders

- SEA is the key body in charge of the action;
- The action requires cooperation with mobility service providers and technology providers.

Key indicators

- Public transport mode share to access the Airports;
- Share of passengers using the travel planner and Maas Application;
- Customer satisfaction with Application use.

Time horizon

Short-term (by 2021).

Wider territorial vision of the action

The action has a wide territorial focus as it aims at integrating into one Application the surface access supply.

Objective: DELIVERING NEW CUSTOMER SERVICES	*Objective n.* 2
Action: EXTENDING SHARED MOBILITY SERVICES	*Action n.* 2.2

Origin of the action:

○ Transfer ● New Concept ● Other

Action description

The action focuses on:

- extending car-sharing services and other sustainable and innovative mobility services;
- starting-up new "collective taxi" services (shared taxies);
- delivering a car-pooling service for employees at the airport systems (pilot test in the LAirA project).

The action added value is extending shared mobility services for passengers and employees.

Critical Success Factors

- Assessing demand for car-sharing services;
- Engaging employees in the car-pooling scheme and foster behavioural change;
- Agreeing with taxi association the start-up of the "collective taxi" new service and assessing the potential impact on taxis' revenues.

Responsibility and stakeholders

- SEA is the key body in charge of the action, in cooperation with car-sharing providers, the car-poll provider (jojob) and taxi associations.
- Car-pooling services need communication and engagement with other employers at the Airports.

Key indicators

- Share of passengers using car-sharing services;
- Customer satisfaction with the new services;
- N. of employees using the car-pooling services and related emission savings.

Time horizon

Short-term (by 2021).

Wider territorial vision of the action
The action focuses on the wider territorial level and in particular on employees' commuting areas and passengers' origins/destinations.

Objective: INVESTING IN LANDSIDE INFRASTRUCTURE AND EQUIPMENT	*Objective n.* 3
Action: EXPANDING THE E-CHARGING INFRASTRUCTURE	*Action n.* 3.1

Origin of the action:

○ Transfer ○ New Concept ● Other

Action description
The action focuses on extending the electric charging infrastructure up to 108 recharging points at Malpensa and 38 at Linate. The action is not a new concept, nor a transfer of other specific experiences. The action added value is delivering low-carbon solutions to access the Airports.

Critical Success Factors
▪ Providing an adequate mix of charging types for different parking needs; ▪ Considering incentives to foster e-mobility use to travel to/from the Airports.

Responsibility and stakeholders
▪ SEA is the key body in charge of the action in cooperation with SEA *Energia* (service providing company producing electric, heating and cooling energy). ▪ Cooperation with Lombardy Region is an opportunity to link the action to the Regional Strategy to develop electric mobility (*Strategia regionale per lo sviluppo della mobilità elettrica)*.

Key indicators
▪ N. of e-charging points; ▪ E-charging points saturation level; ▪ SEA revenues increase.

Time horizon
Short-term (by 2021).

Wider territorial vision of the action
The action primarily focuses SEA parking areas, but it is part of the wider regional strategy on electric mobility.

Objective: INVESTING IN LANDSIDE INFRASTRUCTURE AND EQUIPMENT	*Objective n.* 3
Action: BUILDING THE MALPENSA NORTH RAIL ACCESS	*Action n.* 3.2

Origin of the action:

○ Transfer ○ New Concept ● Other

Action description
The action focuses on connecting Malpensa Terminal 2 and the Simplon rail line (to Switzerland). The added value is further integrating Milan Malpensa into its catchment area. The project follows-up the completed project concerning the rail connection between Terminal 1 and Terminal 2. The project design is in progress (EU-funded). The project investment is 211 million € and its delivery is expected in 2023.
Critical Success Factors
We have not identified specific critical success factors, except the need for risk management, including contingency planning should it be needed, as in all complex infrastructure projects.
Responsibility and stakeholders
SEA is the key body in charge of the action in cooperation with FNM Group, Lombardy Region and the Italian Ministry of Transport.
Key indicators
Date of works completion.
Time horizon
Medium-term (by 2025).

Wider territorial vision of the action
The action has the scope to enhance the Airport accessibility from northern Italy and Switzerland.

Objective: INVESTING IN LANDSIDE INFRASTRUCTURE AND EQUIPMENT	*Objective n.* 3
Action: ENHANCING ROAD INFRASTRUCTURE	*Action n.* 3.3

Origin of the action:

○ Transfer ○ New Concept ● Other

Action description
Despite the action is not focussed on sustainable mobility modes, road transport will remain an important mode to access the Airports. For this reason, it needs careful consideration with the aim of optimising and streamlining road traffics. The action includes the following sub-actions: ▪ Developing technical and economic feasibilities on enhancing the main road corridor infrastructures to the Malpensa Airport; ▪ Supporting the design and delivery of new road infrastructures complementing the existing road network; ▪ Defining actions to manage road access to Malpensa Airport and cooperate with local and regional stakeholders in initiatives which contribute to reducing the Airports' access road congestion; ▪ Better analysing and modelling vehicular flows at Linate Airport to understand optimisation measures.
Critical Success Factors
We have not identified specific critical success factors.
Responsibility and stakeholders
SEA in cooperation with road concessionaries and infrastructure managers, as well as public authorities.
Key indicators
We have not identified specific indicators as the action focus on analytical activities.

Time horizon
Short-term (by 2021).
Wider territorial vision of the action
The action focuses on road axes at the wider urban and regional level.

7. Summary

The LAirA strategy for sustainable surface access at Linate and Malpensa Airports includes actions focussed on public transport services, technology and infrastructure enhancement. It aims at matching the Airports' environmental sustainability, competitiveness and growth, and has at its heart passenger needs and the Airports' mobility integration within their catchment areas.

The strategy has a long-term time horizon (2030), but it focuses on short-term actions to deliver the vision to make Malpensa and Linate Airports smart mobility hubs. It aims at exploiting the forecasted increased in public transport demand to access the airports and technology potentials, and at developing synergies with territorial projects in infrastructure enhancement.

Actions (as reported in the following Figure) both focus on specific Airports' investments and on the wider cooperation with territorial stakeholders in charge of mobility planning, mobility service provision and transport infrastructure delivery. This is a key point to coordinate mobility planning efforts of the different local regional and stakeholders and foster the Airports' mobility integration into local and regional transport systems.

The following tables summarises Milan Airports sustainable surface access strategy.

Figure 12. Summary of Milan Airports sustainable surface access strategy

Vision: „making Malpensa and Linate Airports smart mobility hubs"			
Objective	**Action**	**Responsible / main stakeholders**	**Timeline**
1. Increasing public transport share to 40%	1.1 Improving customer information on public transport service supply	▪ SEA ▪ Rete Ferroviaria Italiana (RFI) ▪ Grandi Stazioni Retail (GS Retail) ▪ Grandi Stazioni Rail (GS Rail) ▪ Mobility service providers	Short-term (by 2021)
	1.2 Creating new public transport connections and enhancing existing ones in partnership with transport stakeholders	▪ SEA ▪ ATM ▪ Trenord ▪ Metropolitana Milanese ▪ City of Milan ▪ City of Segrate ▪ Lombardy Region	Short-term (by 2021)

Vision: „making Malpensa and Linate Airports smart mobility hubs“			
Objective	**Action**	**Responsible / main stakeholders**	**Timeline**
2. Delivering new customer services	2.1 Delivering Milan Airports Mobility-as-a-Service (MaaS) application	▪ SEA ▪ Mobility service providers ▪ Technology providers	Short-term (by 2021)
	2.2 Extending shared mobility services	▪ SEA ▪ Car-sharing providers ▪ Taxi associations ▪ jojob (car-pooling provider) ▪ Employers at the Airports	Short-term (by 2021)
3. Investing in landside infrastructure and equipment	3.1 Expanding the e-charging infrastructure	▪ SEA ▪ SEA Energia	Short-term (by 2021)
	3.2 Building the Malpensa north rail access	▪ SEA ▪ FNM Group (in particular Ferrovienord – rail infrastructure manager) ▪ Lombardy Region ▪ Italian Ministry of Transport	Medium-term (by 2025)
	3.3 Enhancing road infrastructure	▪ SEA ▪ Road concessionaries and infrastructure managers ▪ Public authorities	Short-term (by 2021)

Source: SEA Milan Airports

Finally, SEA expects follow-up actions related to the LAirA strategy. In particular further than the investments to deliver the airports sustainable surface strategy, SEA estimates that in the next five years about € 2 million will be leveraged by the activities that SEA delivered in LAirA, and more generally by SEA's commitment to sustainable surface access; this budget refers to:

- additional European funding focussed on the LAirA topics and more generally on the Airports' carbon footprint;
- generation of new regional projects thanks to the stakeholder cooperation that LAirA consolidated.