

The context and development of operational management

Operations in Italy

In Italy, the network managed by ATM guarantees a comprehensive coverage of the territory of the city of Milan and of the municipalities in the urban area.

The Milan metro network consists of four lines with a total extension of about 97 km and 113 stations.

Line	Route	Year	Length	Stations
M1	Sesto 1 Maggio FS ↔ Rho Fieramilano / Bisceglie	1964	26.70 km	38
M2	P.za Abbiategrasso Chiesa Rossa / Assago Milanofiori Forum ↔ Cologno Nord / Gessate	1969	39.88 km	35
M3	San Donato ↔ Comasina	1990	17.31 km	21
M5	Bignami Parco Nord ↔ San Siro Stadio	2013	12.88 km	19
TOTAL			96.77 km	113

The current configuration of the surface net is structured as follows:

Type	Number of lines	Notes
Vehicle network	81 city 51 suburban 27 provincial	Including local Radiobus services (operating in 15 local areas) and 3 lines for the replacement night service of the metro
Tram network	17 city 2 inter-city	One metro line is currently suspended and replaced by buses
Trolley bus network	4 city	

The transport service in Italy was characterized by a drastic drop in passengers carried (-57.1% compared to 2019), as a result of restrictions on the mobility of persons and limitations on the capacity of the means imposed by the Italian Government in the light of the evolution of the COVID-19 pandemic. Passengers transported in 2020 amounted to 351.9 million (820.4 million in 2019), interrupting the continuing growth trend observed in previous years, where the average volume of passengers transported in the last three years stood at about 800 million passengers.

The operational activity in 2020 was conditioned by the evolution of the COVID-19 pandemic, which determined the complete revisiting of the public service both in order to comply with the provisions issued by the Italian Government regarding crowding and distancing on public transport and in order to meet the requirements of passengers in terms of frequency service, punctuality and security.

The ATM Group has responded promptly to new needs, ensuring continuity of service in all stages of emergency evolution. In March and April 2020, during lockdown, ATM maintained and continued the operation of the service at 75% despite a 95% drop in passengers compared to normal operating conditions. ATM was the first operator in Europe to face such a crisis and became a European benchmark for other public transport companies. Wide-ranging measures have been taken since the beginning of the pandemic, such as: guaranteed service in all times with upgrading in the peak bands in

order to avoid possible situations of crowding, sanitation of stations and means, adaptation of all work areas and operating rooms to the new security measures, constant action of awareness and information to customers.

In May, in conjunction with phase 2 of the emergency, which saw the gradual restart of economic and social activities, ATM immediately planned a 100% service, by putting all the means on the surface and on the subway and by deploying all the staff in the different business areas. It was necessary to adjust the load capacities of the means in order to comply with the safety measures imposed by the authorities, starting with a distance of one meter. Therefore, contingent access and capacity limits of 25%. By metro, to regulate the flow of passengers to the stations, ATM has provided, as necessary, the closure of turnstiles according to the number of users who were already inside the docks waiting for the trains. On the surface, passengers were only invited to board if the space inside the vehicle allowed the necessary distance. Vehicle filling monitoring was carried out through a direct link between drivers and operating rooms to assess any actions to be taken in the event of crowding.

In phase 2 of the emergency, with the reopening also of the commercial activities, there is a progressive increase of the passengers with respect to *the period of lockdown*, however conditioned by the security measures provided by the authorities that impose the interpersonal distance of one meter and the maximum capacity of the vehicles to 25%. To support the management of the new volume of traffic, ATM invests in a system that allows the automatic counting of travellers to turnstiles in order to limit the influx and the permanence of persons inside the stations of the subway lines. Guided routes are also set up for entry and exit from the underground network and are placed on the ground on every means of the markers with the words “*stay here*” in order to favor the correct interpersonal distance. In order to facilitate passengers, in the more than 200 beverage and snack dispensers in most metro stations, personal protective equipment, sanitizing gel and protective kits consisting of mask and gloves are available for purchase.

During the summer months the mobility system is still undergoing major changes, the DPCM of 14 July 2020 confirms the possibility of derogation from the distance meter measurement under certain conditions within the means; this innovation allows to increase the capacity of the cars up to 60% compatible with the type of vehicle. ATM continues in any case the campaign of communication and awareness toward the users on the regular basis to be respected to travel in safety through communication messages spread on all the company channels.

In August, ATM offers a series of initiatives aimed at customers, such as the possibility to request online on the institutional site or through the ATM App the compensation for subscriptions not enjoyed during *lockdown* and the free distribution of hand sanitizing gel through specific distributors installed at underground stations.

On September 14, 2020, with the resumption of school activities in Lombardy, ATM put in place a system of structured measures to guarantee and raise the level of safety and cleanliness of the common means and spaces, guaranteeing the service to 100% on the whole network. In fact, the DPCM of 7 September had established the new maximum coefficient for the filling of the vehicles at 80 %, this limit has entailed intensive simulation work to recalibrate the maximum number of passengers that can be transported and great efforts also to adapt the signs and awareness campaign in the use of public transport services and social rules to travel safely.

In the autumn, as a result of the resumption of the infections during the second epidemiological wave, the Italian Government will issue further measures that affect the mobility and movement of persons. As a result of the DPCM of 3 November, the capacity to fill the vehicles allowed falls from 80% to 50%, resulting in a new calibration of the quota for access to public transport. In December 2020, ATM set

up a service enhancement plan to provide maximum support for student mobility with a view to the restart of activities in the presence of high schools scheduled for January 2021. The enhancement is part of the “Milan School Pact”, signed by the Municipality of Milan and the Milan Prefecture and shared by all social partners, public institutions, transport managers, trade, companies and professional orders, which is designed to reorganize the movements in the most congested morning time zone of public transport, with the consequent re-modulation of the times of the activities of the city, in the priority objective of getting the school to go again.

In addition to the fact mentions above, in coordination with the Municipal Administration, modifications and improvements have been implemented on the ground lines to improve the frequency of the means and routes of the city as well as to create new connections. The service has also continued to be adapted in relation to the necessary road changes linked to the yards of the new M4 line and connections to the areas affected by the works have been ensured, while minimizing the inconvenience to the citizens.

During 2020, the planned works continued in the context of the restoration of the tunnel between the Lambrate and Piola stations of the M2 underground line, which had been suspended during *the lockdown phase during the year*, with a consequent slowdown compared to the timetable of the works.

In the context of operations on installations and infrastructure, ATM has carried out the program to improve the accessibility of M1 and M2 underground stations to overcome architectural barriers. The first 3 escalators were installed, of the total 14, which will be open to the public in 2021. In addition, extraordinary maintenance was carried out on 45 escalators of the M3 metro line, which allowed to extend the useful technical life.

In 2020 the installation and opening to the public of 65 new stairlifts was completed. The investment program, which began in 2019, provided for the total replacement of 68 plants, the last 3 at the M1 Rovereto underground station will be installed in the early months of 2021, thus increasing access to the line.

Moreover, on the request of the Municipality of Milan and in the context of overcoming the architectural barriers, the works of modernization of the external section of the M2 underground line (Cascina Gobba-Gessate) continue for a total of 6 stations, of which 3 provide for complete restyling.

The city tram network, as part of its work for the Municipality of Milan, continued the renewal and technological updating of the infrastructure, including the application of a remote monitoring system on exchanges and switches and a preventive maintenance program, to reduce noise emissions and reduce wear. In 2020 work continued on the upgrading of some “Forza” tram lines to make the service faster. The measures concern the adjustment of stops and the improvement of accessibility for passengers. The retraining project will be completed in 2021.

Significant interventions in the “*decoration project*” were also noteworthy, which concerned the restructuring of specific areas of some deposits (Giambellino, Gallarate, Sarca, Zara, Palmanova, NET offices in Monza, offices in the Cadorna and Cairoli underground). Extraordinary maintenance work continues, at the warehouses of Leoncavallo, Giambellino and Ticinese and for the adaptation of fire protection systems at the warehouses of Molise, Leoncavallo and Ticinese.

It should be noted that in the field of maintenance a significant change in the management of maintenance and engineering processes has been taking place for some years, in line with the progressive renewal of the fleet and the commissioning of trains more technologically advanced than

traditional trains, whose first supply lots went back to the 1960s. The internalization of the maintenance activities for the 46 trains of the Menegino fleet is now consolidated and makes even greater use of the know-how developed over the years by ATM workshops in the field of train maintenance. The activities on patented technologies or structural interventions on cash-boxes remain, on the other hand, the responsibility of third-party suppliers; activities for which there are no particular returns of experience for the company's core business.

In 2020 the complete renewal program of the “4900” series of tram cars was completed with the delivery of the last two vehicles to complete the 51 involved in *the program of revamping*, which since 2020 are all in service.

In relation to the progressive introduction into service of the electric buses, it has become necessary to adapt the operating plan to make it coherent with the specific requirements of such vehicles, whose productivity is linked to the batteries or to the possibility of having recharging points.

It should be mentioned that during 2020 the first 3 trains of the M4 underground line were put on line, necessary for the imminent entry into operation of the first Linate-Forlanini route. Regarding to the opening of the new line, activities concerning the development of the entire logistic apparatus with regard to the resources, the management of the first materials in loan of use that the client has delivered to ATM were also started in 2020 as well as the preparation of technical and directional locations.

As part of the above-mentioned information on know-how, training courses for workers and technicians for maintenance work on the M4 line trains have also started since October 2020.

Operations abroad - Copenhagen

In Denmark, the Copenhagen underground network, managed by the subsidiary Metro Service A/S, consists of four lines with a total extension of approximately 38.7 km and 113 stations. The M4 line is currently operative with 8 stations out of 13 stations.

Line	Route	Year	Length	Stations
M1	Vanløse ↔ Vestamager	2008	21 km	15
M2	Vanløse ↔ Lufthavnen			16
M3	København H ↔ Enghave Plads	2019	15.5 km	17
M4	OrientKaj ↔ København H	2020	2.2 km	13*
TOTALE			38.7 km	48
* 8 station operating and 5 still under construction				

The transport service in Denmark was not particularly criticized, since 63.7 million users were transported in 2020, compared with 64.8 million in 2019, down 1.7%. The results for the management of the M1, M2 and M3 lines of the Copenhagen metro were of major importance. *Service availability* was 99.5% with a frequency of one train every 104 seconds at peak times for M1 and M2 lines and 98.6% for M3 line with a frequency of one train every 93 seconds between Østerport and La Copenhagen Central Station.

Within the framework of the contract entrusted to Metro Service in 2019 with the aim of managing the M1 and M2 lines, the various important investment programs by the owner continue, including an

investment in 8 new trains which entered into service during the second half of 2020, The expansion of the depots and a Midlife modernization program of the current fleet of 34 trains.

The opening of the Cityringen business started in September 2019 and continued with the opening of the Nordhavn branch in May. In addition to the Nordhavn branch, a further extension (of Sydhavn) is planned for 2024. This will add a total of 24 stations to the current 22 stations.

During 2020, the Company continued its investment program in the improvement of ERP systems, while in 2021 it will continue its program of investments in actions aimed at further reducing carbon dioxide emissions also through the replacement of the remaining fleet of fuel-powered service cars fossils with electric vehicles.