Reimagining Mobility: ASPI's Data-Driven Approach to Organizational Agility

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Introduction

In recent years, *Autostrade per l'Italia*, one of Europe's leading concessionaires in the construction and management of toll motorways, has undergone significant transformations. The global macro-trends of the "twin transition" – namely digitalization and sustainability – have gained momentum in reshaping the industrial landscape, while the reconfiguration of organizational and mobility market dynamics, accelerated by the long-term impacts of the COVID-19 pandemic, has imposed new challenges. This has been compounded by escalating geopolitical tensions and the volatility of the energy market. In this complex and rapidly changing context, *Autostrade per l'Italia* has embarked on a profound organizational transformation. Driven by a complete overhaul of its operational and strategic procedures, the company has placed people and data at the center of its model, seeking to respond to new external transformations with a new organizational structure that fosters business agility. In this case study, we retrace the history of *Autostrade per l'Italia* and the current market context, highlighting its key drivers of change. Finally, this analysis explores the core pillars of *Autostrade*'s organizational transformation by investigating its strategic shifts.

1. The company

Autostrade per l'Italia S.p.A. (ASPI) is an Italian joint-stock company that manages and operates motorway sections under concession from the state, as well as related maintenance activities. Over the past seventy years, ASPI has accompanied Italy through economic, political, and social transformations, maintaining its role as a national leader in integrated infrastructure management. Currently, ASPI manages a network of over 3000 km, corresponding to about 50% of the entire national toll highway network, extending across more than 15 regions.

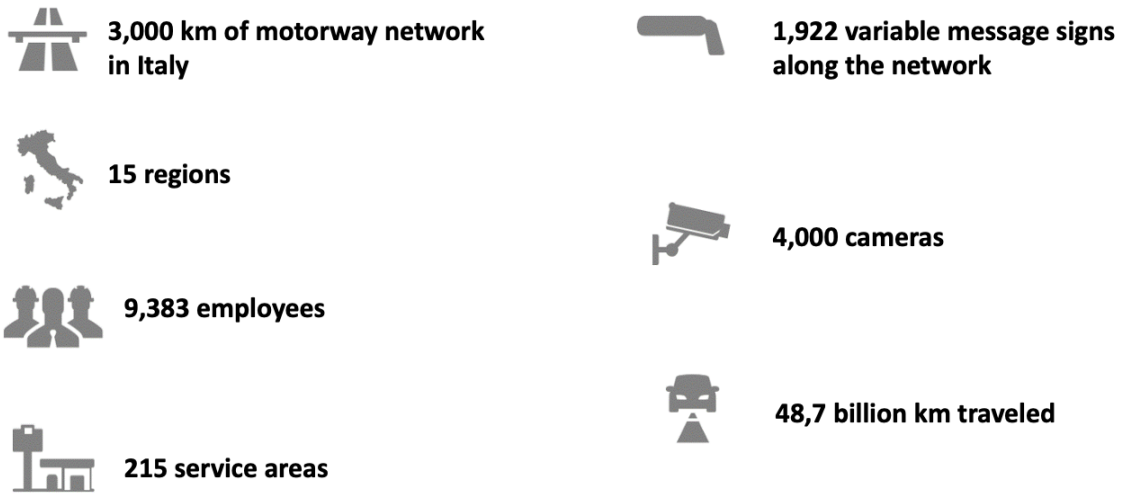


Figure 1. *Autostrade per l'Italia*'s figures. Source: ASPI.

Autostrade per l'Italia's journey started in 1950 when, in the context of the country's post-war reconstruction involving several Italian industrial groups, the Institute for Industrial Reconstruction (IRI) promoted the creation of *Società Autostrade Concessioni e Costruzioni S.p.A.* (ASCC). Following the foundation of the company, a series of agreements and conventions to build up the national highway network were established, the first one being the *Autostrada del Sole* (Motorway of the Sun, or A1) between Milan and Naples, co-financed by ANAS (*Azienda Nazionale Autonoma delle Strade*) and *Autostrade*, with an agreement signed in 1956. The construction of the *Autostrada del Sole* was far from being an isolated

event; in fact, it marked the start of a continuous series of innovations closely tied to the engineering history of Italy. Characterized as it is by unique orographic and other topographic features, Italy has been a challenging environment for the construction of communication networks over the years due to the need to build viaducts and tunnels in complex geographical settings. This consequently became a catalyst for innovation, as the *Autostrade* Group has confronted the challenge of overcoming natural barriers by developing cutting-edge engineering solutions. Additionally, the construction of the *Autostrada del Sole* set an international standard for mobility infrastructure construction. This achievement became a benchmark not only for work quality but also thanks to the completion time, as a connection over 700 km between Milan and Naples was built in just under 8 years.

During a push towards innovation and reconstruction, the *Autostrade* Group was established in 1982 by grouping other concessionary companies together. However, it was only in 1987 that *Autostrade Concessioni e Costruzioni S.p.A.* was listed on the Italian stock exchange's MIB30 index. In 1982, the second historic *Autostrade* project was launched by the Group to achieve infrastructural modernization and engineering success in the country. As part of the enactment of Law 531/82 for the "Ten-Year Plan for Major Communication Roads and Measures for the Reorganization of the Highway Sector", which authorized the completion and modernization of major transportation routes, the construction of the *Variante di Valico* (mountain pass deviation) began, which sought to strengthen the Apennine section of the A1 highway. The *Variante di Valico*, a strategic project to improve the connection between the North and South of the country, was not only crucial in facilitating the movement of people and goods between Europe and the Mediterranean, but it also laid the groundwork for innovative tunnel construction solutions. This was made possible by using the world's largest tunnel boring machine (TBM), named 'Martina,' with a diameter of over 15 meters (equivalent to a five-story building) and the ability to bore tunnels large enough to accommodate a highway with three lanes in each direction.

Indeed, the history of *Autostrade per l'Italia* is characterized by an ongoing pioneering approach to innovations in the motorway sector, and this paved the way for the modernization of the entire sector in Europe. A paradigmatic example of this vision was the introduction of the Telepass system in 1990, the first large-scale dynamic toll payment system in the world, marking a significant milestone in the management and simplification of highway transit.

In 1999, *Autostrade per l'Italia* transitioned from public to private control through the privatization of a series of assets by IRI, including the highway company. While ownership of the highway network remained public, management and maintenance were, for the first

time, entrusted to private businesses. 70% of the company was listed on the stock exchange, while 30% was acquired by a group of private shareholders represented by *Schemaventotto S.p.A.*, which, in 2003, launched a full takeover bid to acquire the majority. Also in 2003, the Group underwent organizational restructuring, separating the concession activities from the non-highway activities. This led to the creation of *Autostrade per l'Italia*, which was 100% owned by *Autostrade S.p.A.*, later known as Atlantia, a holding company listed on the Milan stock exchange. *Autostrade per l'Italia*'s leading role in the country's infrastructural modernization has been complemented by numerous international highway innovation projects, which have served as a means for ASPI to acquire advanced know-how and skills, as well as to transfer new knowledge to national and international projects, strengthening technical capabilities and integrating innovative solutions by drawing on global best practices. These projects not only solidified *Autostrade*'s reputation as an engineering leader in the sector but also helped to define new global standards in highway infrastructure.

1.1 Autostrade per l'Italia today: corporate structure and active projects

Starting in 2018, after the collapse of the Morandi Bridge, *Autostrade per l'Italia* (ASPI) undertook a process that led to the establishment of a new governance structure and internal leadership transformation. In 2021, Atlantia sold 88.06% of its shares in ASPI to *Holding Reti Autostradali S.p.A.* (HRA), an investment vehicle formed by CDP Equity, Blackstone Infrastructure Partners, and Macquarie Asset Management. The current shareholder structure of ASPI includes CDP Equity, funds managed by Blackstone and Macquarie, as well as Appia Investment and Silk Road.

ASPI operates through a structured group of subsidiaries, each specialized in distinct sectors, working together to support various aspects of infrastructure management, mobility solutions, and related services. They are the following:

- *AdMoving:* commercialization of advertising spaces and services, and event management in service areas;
- *Amplia*: construction, maintenance, restoration, and modernization of infrastructure, as well as the development of materials and technologies for road paving;
- *Elgea*: generation of clean energy by leveraging areas adjacent to the highway network, with technologies and plants capable of producing renewable energy;
- *Free To X*: innovative services related to sustainable mobility and environmental sustainability;

- *Giovia*: cleaning services for external areas, green spaces, and restrooms in about 70% of ASPI's Service Areas;
- *Movyon*: a leading firm in the development and integration of intelligent transport system solutions and a center of excellence for research and innovation within the *Autostrade per l'Italia* Group;
- *Tecne*: manages key engineering projects favoring the evolution of the network and coordinates design, construction supervision, and monitoring activities for maintenance and investment plans;
- *Youverse*: manages administrative, general, and real estate services, as well as toll collection and billing activities.

The Group, which posted operating revenue of €4.328 billion in 2023, is focusing on investments that can create an increasingly safe, green, and resilient motorway network. In 2023, ASPI spent €2.1 billion on the modernization of the network. Its target for 2024 is approximately €2.3 billion, and it plans to invest about €21 billion on modernization works between 2020 and 2038.

2. The European mobility market context

The mobility industry is undergoing dynamic evolution, shaped by global challenges such as digitalization, the green transition, the energy crisis, the COVID-19 pandemic, and geopolitical tensions. These factors are redefining the European mobility landscape, affecting both consumer habits and business models in the sector. Within this evolving context, two key macro-challenges have emerged: the digital transition and its impact on mobility infrastructures on the one hand, and the green transition, in response to environmental and sustainability goals, on the other. Environmental concerns are driving the choice of low-impact vehicles, sustainable infrastructure, and mobility solutions, while digitalization – through the integration of new technologies – continues to reshape the management of mobility systems.

As the industry adapts to these challenges, the energy crisis, the aftermath of COVID-19, and geopolitical tensions further impact consumer expectations and business strategies, compelling ASPI and its stakeholders to respond to these changes.

2.1 Megatrends: digitalization and green transition in the European mobility macro-scenario

Digital technology constitutes a crucial driver in the current transformation of the transportation sector. The digital revolution is no longer a standalone element but rather an integrated component of the future of mobility, completely renewed in its foundational aspects. The creation of the intelligent transport system (ITS) market, encompassing technologies for mobility – including services such as fleet management, public transport management, emergency services, and intelligent traffic management – demonstrates the acceleration of the ongoing transformation in the sector, with a global market value of $48.36 billion in 2022, projected to reach $98.02 billion by 2032, with a CAGR (compound

average growth rate) of 7.5% from 2023 to 2032.[1] The development of an intelligent transport systems market highlights the increasing importance of digitalization in the future of mobility. In this context, the implementation of smart roads plays a central role; in fact, the building of "intelligent roads" involves the development, implementation, and extensive use of innovative and integrated models, powered by enabling technologies such as the Internet of things (IoT) and artificial intelligence (AI). A digital mobility ecosystem is being developed on a large scale and in a multimodal approach, involving road, rail, and airport infrastructures. The "Smart Road Decree", passed in Italy in 2018, is a key pillar of this evolution; in fact, smart roads will enable connected and autonomous driving, providing advanced information on the presence of construction sites, slow or stationary vehicles, and road conditions.[2] Additionally, the mobility-as-a-service (MaaS) paradigm, supported by the European Commission, will create new integrated mobility management models to promote the spread of technological innovations and redefine the travel experience by reducing average travel times.

Sustainability is of particular importance for the future of the mobility sector. In Italy, there has been a significant growth trend in shared mobility. It is projected that by 2024, revenue from car-sharing will reach $880 million, with an annual growth rate (CAGR 2024-2029) of 3%. This trend will lead to a projected market volume of $1.02 billion by 2029. In 2022, almost 50% of all shared vehicles in Italy were electric, and by 2023, this figure had risen to 60% for station-based vehicles.[3]

Regarding electric mobility, however, and despite increases in the electric vehicle fleet, full electric car registrations in Italy actually account for less than 4% of the total fleet, equivalent to about 200,000 units (as of June 30, 2023). Italy and Spain have the lowest market share of battery electric vehicles (BEVs) among European Union countries, with the EU average standing at 19%. In contrast, the Netherlands leads in electric innovation in Europe, with 27% their total fleet being BEVs. By 2029, the car-sharing market in the EU is expected to reach 2.56 million users, with a user penetration rate of 4% in 2024 and 4.4% by 2029. The average revenue per user (ARPU) is estimated to be $372.50, with 96% of total revenue

[1] Allied Market Research (2023). Intelligent Transportation System (ITS) Market Size, Share, Competitive Landscape and Trend Analysis Report, by Component, by Application, by End User: Global Opportunity Analysis and Industry Forecast, 2023-2032. Available at: https://www.alliedmarketresearch.com/intelligent-transportation-system-market.

[2] WaveMobility (2023). Smart Roads: la rivoluzione su strada. Available at: https://www.ttsitalia.it/wp-content/uploads/2023/07/WAVE-Smart-Mobility-Magazine-n.1-Smart-roads-la-rivoluzione-su-strada-...o-2023-1.pdf.

[3] Statista (2023). Car-sharing: Market Data and Analysis. Available at: https://www.statista.com/study/121750/car-sharing-report-2023/.

generated through online sales. Furthermore, by way of an investment of around €740 million in Italy's national recovery and resilience plan (PNRR) earmarked for the installation of charging stations at existing fuel stations and initiatives like the construction of photovoltaic parks along Italian highways, Italy is bridging its current gap in electric vehicle adoption. Still, the ratio of fully electric vehicles to its total fleet is the lowest in Europe.[4]

Mobility trends in Italy – a country predominantly dependent on road transport due to its morphological characteristics – are focused on efficiency, safety, and environmental friendliness. These aspects translate into three fundamental directions: behaviors, technological innovation, and investments that go far beyond electric mobility.

The effects of climate change also impact road infrastructure. The direct economic impact from damage to road infrastructure caused by extreme weather events is on the rise. It is estimated it will reach €5.17 billion annually by 2050, an approximately 12-fold increase compared to current estimates of damage from extreme events. The OECD estimates that, without renewal and prevention measures, by 2050 damage to infrastructure due to climate change will amount to 0.33%-0.55% of Italy's GDP.[5]

Consistent with its commitment to the green transformation of infrastructures in relation to extreme climate events, the Ministry of Infrastructure and Transport (MIT) is committed to integrating environmental and climate considerations into the management of its infrastructure, which includes urban assets, public buildings, road networks, railways, water infrastructure, ports, and airports. The goal is to actively contribute to the reduction of greenhouse gas emissions by promoting infrastructure that is not only more resilient to the impact of climate change but that also helps to protect biodiversity. This entails enhancing ecological connectivity between green areas, enabling the protection and restoration of terrestrial and marine ecosystems, improving the services offered by these ecosystems, and increasing society's resilience to climate change and extreme weather events.

The development of new sustainable mobility systems and the promotion of modal shifts in Italy are becoming increasingly important. However, significant challenges remain, as

[4] Integrazione tra veicoli e reti elettriche: sfide e opportunità al 2030. Available at: https://www.motus-e.org/studi_e_ricerche/integrazione-tra-veicoli-e-reti-elettriche-sfide-e-opportunita-al-2030/.
[5] OECD (2023). Un approccio integrato alle infrastrutture verdi in Italia. Available at: http://www.rivistacorteconti.it/export/sites/rivistaweb/RepositoryPdf/2023/novita/2023_07/2_OCDE_Infrastrutture-verdi-Italia.pdf.

private road transport is still one of the means of transport most frequently used in the country; yet it is also the most expensive. Recent data from the Mobility Styles Observatory indicated that efforts to reduce the use of private cars, the costs of which have risen both in terms of purchase and fuel prices, are hindered by the limited availability of public transport and poor accessibility to local services. The lack of alternatives to private car use, due to distance from essential services and deficiencies in public transit, has often made Italians bear high transport costs and suffer from significant missed opportunities due to these shortcomings in national mobility systems. The negative consequences have affected their job opportunities, education, leisure, health, and social interactions.

The climate transition and digital technology are fueling the adoption of the mobility-as-a-service (MaaS) paradigm. The goal of MaaS is to optimize the relationship between public and private sectors through a user-centric approach that offers simplified access to various mobility alternatives, especially more sustainable options such as sharing. According to the European Commission (2024), over 90% of the initiatives in the "Sustainable and Intelligent Mobility Strategy" scheme for 2019-2024 have been completed or are currently underway, with more than €37 billion invested in over 1,500 projects.[6] MaaS (mobility-as-a-service) is designed to transform the EU transport landscape into a smart and sustainable system while also ensuring resilience, connectivity, competitiveness, and safety. In fact, MaaS platforms promote inter-territorial harmonization by ensuring the continuity of travel experiences between urban and interurban areas. They constitute an important driver of mobility transformation in a digital context, using digital intermediation platforms to diversify offerings and thereby encourage collaboration between public and private entities.[7]

2.2. New global challenges

The mobility sector has been experiencing disruptions that include the long-term effects of the COVID-19 pandemic, geopolitical tensions, and energy volatility. The pandemic restructured logistics and mobility markets, necessitating new forms of organizational balance that were the result of labor flexibility requirements and the need to maintain business continuity during the early years of the pandemic outbreak. The long-term effects of the pandemic crisis have thus reverberated throughout the economic and social

[6] European Commission (2024). EU Mobility & Transport achievements 2019-2024. Available at: https://transport.ec.europa.eu/eu-mobility-transport-achievements-2019-2024_en.

[7] Ministro per l'Innovazione Tecnologica e la Transizione Digitale, Dipartimento per la Trasformazione Digitale, Ministero delle Infrastrutture e delle Mobilità Sostenibili (2022). MaaS – Mobility as a Service. Indirizzi per l'attuazione del progetto "Maas for Italy". Available at: https://assets.innovazione.gov.it/1661781483-indirizzi-per-l-attuazione-del-progetto-maas-for-italy_29-08-22.pdf.

landscape, impacting people's lifestyles and mobility, and generating substantial uncertainty and instability, particularly in the human mobility and transportation sectors. From an organizational perspective, the rapid adoption of information and communication technologies during the pandemic accelerated the shift from conventional work practices to more flexible and hybrid formats like remote work, which has been widely adopted by companies. Remote work and the flexible management of teamwork have become common in many industries, including the mobility sector, and have led to an increased focus on employee well-being and work-life balance. In 2023, remote workers in Italy numbered 3.585 million.[8] From a mobility perspective, working from home and flexible work have led individuals to commute less frequently and for shorter distances; moreover, there is a growing preference for personalized transportation options, and public transportation has become less important.[9]

The energy crisis that arose following the onset of the war between Russia and Ukraine has highly impacted the situation, particularly given that transportation as a whole remains heavily reliant on oil. In 2022, oil-derived fuels constituted 92.7% of energy consumption in the transportation sector, including international navigation and aviation. Geopolitical tensions have disrupted supply chains and led to sanctions that further inflate energy prices. This volatility has made it increasingly difficult for companies to plan for the future, as they face fluctuating costs that can significantly impinge on their operations and competitiveness. In the EU, retail prices for corporate clients are two to three times higher than those in the US and China.[10]

The International Energy Agency (IEA) reports that European Union spending on fossil fuel imports skyrocketed from €341 billion in 2019 to €416 billion in 2023, equivalent to around 2.7% of GDP. In 2023, total EU spending on imported fossil fuels, including coal, gas, and oil, added up to €390 billion, marking a 90% increase compared to the average from 2017 to 2021, mainly due to higher prices, although the increase in volume was only around 7%.[11] The

[8] Osservatori Digitali – Politecnico di Milano (2024) Osservatorio Smartworking. Available at: https://www.osservatori.net/smart-working/.

[9] Kellermann, R., Conde, D. S., Rößler, D., Kliewer, N., & Dienel, H. L. (2022). Mobility in pandemic times: Exploring changes and long-term effects of COVID-19 on urban mobility behavior. *Transportation research interdisciplinary perspectives*, *15*, 100668.

[10] European Commission (2024). The future of European competitiveness – In-depth analysis and future recommendations. Available at: https://commission.europa.eu/topics/strengthening-european-competitiveness/eu-competitiveness-looking-ahead_en.

[11] International Energy Agency (2024). World Energy Investment 2024. Available at: https://www.iea.org/reports/world-energy-investment-2024.

energy crisis has led to an increased focus on renewable energy sources in the EU, especially in the mobility sector, and paved the way for experimentation with clean technologies.[12]

2.3 External disruptions meet ASPI's organizational crisis

Autostrade per l'Italia has had to face significant challenges that are shaping the mobility sector, including the macrotrend of digitalization and the green transition, the new global challenges posed by the energy crisis, geopolitical tensions, and the long-term effects of COVID-19. These factors have put the organization at the center of a complex and ever-evolving context, which calls for a proactive response to maintain competitiveness and relevance. The rapid pace of digital transformation has required ASPI to adapt its infrastructure and services to meet the changing expectations of customers, while the green transition calls for a fundamental rethinking of operational practices to align them with sustainability goals.

ASPI has also experienced significant internal disruption. In August 2018, the Polcevera viaduct, known as the Morandi Bridge, collapsed in Genoa, raising concerns about the safety and maintenance of highway infrastructure in Italy and putting *Autostrade per l'Italia* (ASPI) at the center of public and media attention. After the collapse, media attention focused not only on the disastrous event but also on the company's general management of infrastructure and shortcomings in maintenance, sparking heated debate over the renewal of its state concession. This event was a painful turning point for the organization, and at the same time it triggered a profound need for change. ASPI's organizational crisis, stemming from the collapse of the Morandi Bridge, activated two key factors in a break with the past. Firstly, there was a leadership change through the appointment of the new CEO Roberto Tomasi in February 2019, and secondly, there was an internal generational shift via the retirement of first-line managers who were replaced by new individuals. With its new leadership, ASPI started a transparent review of its procedures, which involved all internal functions and was extended to all its subsidiaries, in order to draw up a new organizational model and reshape its corporate vision, mission, and objectives. In 2021, Atlantia sold 88.06% of its shares in *Autostrade per l'Italia* to *Holding Reti Autostradali S.p.A.* (HRA), an investment vehicle formed by CDP Equity, Blackstone Infrastructure Partners, and Macquarie Asset Management. ASPI's current shareholder structure includes CDP Equity, funds managed by Blackstone and Macquarie, as well as Appia Investment and Silk Road. The rapid evolution of the external scenario and the internal crisis after the collapse of the

[12] European Commission (2024). Transport in the European Union. Current Trends and Issues. Available at: https://transport.ec.europa.eu/news-events/news/new-eu-transport-report-current-trends-and-issues-2024-06-27_en.

Morandi Bridge have combined as a catalyst for a transformation that has revolutionized ASPI's organizational model. Indeed, ASPI has embraced organizational change as the key to navigating external and internal disruptions.

3. The organizational transformation

The internal crisis gave rise to a reflection process at all levels, creating a sort of "organizational ground zero" that served as the starting point for reconstructing the organization's meaning, values, and vision, in order to link its past with its future projections. This process involved the entire organization, both at the corporate level and across its subsidiaries.

> *"We started with the belief that we needed to address a specific element, which was infrastructure management, and progressively we began to expand our vision to a 360-degree perspective. We realized that we had to overhaul the company comprehensively, leaving no stone unturned."*
> *Roberto Tomasi, CEO,* Autostrade per l'Italia

The roadmap for change was formalized in the ASPI Industrial Plan 2022-2023, which was presented to the market in January 2021. The Group's roadmap became the centerpiece of its delivery plan, approved for the 2020-2024 period, with a total value of €21 billion. The plan focuses on investments in new projects, upgrades to existing ones (+110%), and their maintenance (+60%). This shift in the organization was initially articulated in the "Next" project (Figure 2).

Figure 2. *The pillars of the strategic transformation plan*. Source: ASPI.

3.1 *A new strategic direction*

The Group defines its new mission as seeking "to make mobility increasingly sustainable, safe, innovative, and efficient to meet the present and future needs of the community" (see ASPI Consolidated Non-Financial Statement 2022). This is linked to four corporate macro-objectives:

1. Prioritizing the integrated management of the entire lifecycle of its transport infrastructure (research, engineering, construction, operation, maintenance, and evolution) and of its value-added services, built around customer mobility needs, by fully leveraging digital technologies;

2. Ensuring the provision of personalized services with a customer-centric logic, by utilizing innovation and digital transformation as levers to upgrade and manage infrastructure in a smart manner;

3. Transforming sustainability into a core objective to be achieved as an integral part of the value creation process for both current and future generations, ensuring the

minimization of any environmental impact in the journey towards net-zero emissions;

4. Leading the country in the strategic development of future mobility, through research, innovation, and experimentation that, while keeping the fragility and orographic complexity of Italy's geography in mind, leads to future infrastructure developments focused on safety, quality, and value for the local communities crossed by *Autostrade*.

Consequently, ASPI places customers and their safety at the center of its objectives. It is committed to effective, sustainable, and integrated infrastructure management, and to enhancing the value potential of new technologies.

3.1.1 A human-centric vision

The redefinition of ASPI's strategic orientation involves not just its mission but also its vision, which has become human-centric. At the core of this vision, alongside infrastructure management, are the workers, users, suppliers, local communities, and individuals connected to the infrastructure, who contribute to its value. ASPI's activities are now fully oriented towards promoting their safety, well-being, and talent development. Its focus on people is a necessary step for ASPI to reaffirm the values of responsibility and competence as essential elements in managing the complexity of its sector, and it wishes to do so by following an approach focused on operational excellence. ASPI's new model considers value creation to be the result of engaging people and sharing values with both the corporate community and local communities.

In defining its human-centered vision, ASPI demonstrates a renewed awareness of the role of motorway infrastructure as the "backbone" of Italy. The infrastructure managed by ASPI is capable of generating shared value and making a significant contribution to the country's growth in an interconnected system. Road infrastructure can not only provide economic returns but also collective well-being. This human-centered drive is a shift from the previous hierarchical and poorly communicative structures to a transparent and interconnected system of intelligences.

> *"Digitalization is a powerful opportunity in the organizational community for personal and collective growth. The theme of collective intelligence is fundamental, and the company must enable and empower people by providing spaces and organizational tools for co-generation, cooperation, and contamination. It must build and support processes capable of addressing complexity by equipping itself*

> *with deep and broad skills to take decisions and find tentative, reasonable, and innovative solutions at the 'frontier.' It takes more courage to abandon clichés than to invent a possible future."*
> *Gian Luca Orefice, Director of Human Capital and Organization,* Autostrade per l'Italia

This new vision refers to the Group's values, which include creating a robust corporate culture based on "us for others" and rooted in dialogue, accountability, service, and safety. From this perspective, ASPI aims to increasingly become an excellence player in the smart mobility sector, focusing on constant innovation and applied engineering research to transform infrastructure into intelligent and connected systems, while also placing people and their well-being at the center of value creation.

3.1.2 The redefinition of the Group's organizational values and culture

One of the main drivers of ASPI's organizational transformation has been the establishment of its core values. By formalizing these values, ASPI has rethought its cultural identity, creating a unifying force that builds connections between people and develops a shared and consistent organizational culture aligned with its vision and mission, thus redefining the organization as a community.

In ASPI's transformation, certain values have emerged as disruptive forces compared to the previous structures rooted in hierarchy and poor communication, and they form the basis for a shared vision in the Group.

> *"(...) we cannot disregard two factors. On the one hand, there are the values that enable the company to envision its future while rewarding its investors; on the other hand, there is the management of public infrastructure that goes far beyond corporate returns."*
> *Roberto Tomasi, CEO,* Autostrade per l'Italia

ASPI's values place ethics at the center, becoming the driving force behind the Group's actions. For ASPI, ethics are the following:

> *"The value that guides how things are done within the ASPI Group, and this is essential for a company tasked with managing one of the country's primary infrastructures."*
> *Lorenzo Rossi, CEO, Movyon*

Along with ethics, transparency is seen by ASPI as a foundational element in an open market approach, encompassing processes, information, clarity in strategic choices, and objectives shared at all levels.

> *"It was also a form of evolution from a value perspective, with integrity and transparency becoming the cornerstone principles of the transformation of a company that needed revolutionizing."*
> Roberto Tomasi, CEO, Autostrade per l'Italia

ASPI promotes safety as one of its core values. Safety is understood by ASPI as a precondition for protecting the people who use the infrastructure and those who work on it. Stating that safety is a Group value implies that ASPI aims to take all necessary steps to prevent accidents, ensuring that internal procedures are inspired by quality and operational excellence, operationalizing accident prevention in the workplace, enhancing monitoring activities to avoid fatal events, anticipating potential dangers, and reacting quickly to critical events. Safety also connects ASPI's vision with the European Union's "Vision Zero" goals for 2050 (to move as close as possible to zero fatalities in road transport by 2050) and this becomes a link between ASPI's staff and infrastructure users, reinforcing mutual trust.

ASPI's fourth core value is accountability. At ASPI, accountability means being fully responsible at all levels for the consequences of one's actions and decisions. Accountability, along with ethics, becomes a necessary condition in fully integrating social values into the organization and ensuring the creation of permanent structures to enhance a culture of responsible and sustainable actions across the organization.

The new values established at ASPI have been disseminated through listening programs, training, and information campaigns, as well as through the creation of new internal media channels to foster understanding, knowledge, and the sharing of values within the organization at all levels, while also highlighting virtuous behaviors. This has laid the groundwork for building a new shared corporate culture based on ethics, participation, and collective and responsible action.

> *"We need to both communicate what our resources do within the company and highlight virtuous behaviors outside of work, too – our sports initiatives, employee care activities, and all initiatives of interest to people. We want to tell our story about what we do, even beyond the workplace, and present ourselves as a way of being, a social dimension in addition to a work dimension. That's why both dimensions must be part of ASPI's narrative."*
> *Roberto Tomasi, CEO,* Autostrade per l'Italia

Figure 3. *Autostrade per l'Italia* core values. Source: ASPI.

3.2 The transformation of decision-making processes

3.2.1 A new participatory decision-making model

The reframing of the Group included a revision of the its organizational model and led to the redesign of its organizational structure. It was reconfigured by applying a linear framework based on a "value chain" approach. The new structure was designed to be accessible at all levels, representing a crucial step in enabling a transparent understanding of functions and fostering new internal knowledge and awareness regarding relationships between departments.

Highway concession companies and those operating in services ancillary to the core highway business (such as Free to X, Movyon, Amplia, and Tecne) were integrated into the Group's organizational framework. They were assigned a key role in implementing the organizational transformation plan by building a network of resources and distinctive competencies in tune with the market to develop non-captive business opportunities and create digital solutions to increase efficiency and streamline internal processes.

The new organizational structure emphasizes management committees that promote horizontal communication. Management committees act as coordinating bodies for key areas related to the company's core business and they can include the top executives of

subsidiary companies. Currently, ASPI has thirteen management committees, eight of which are executive, each with a strategic role, and their meetings are attended by the CEO.

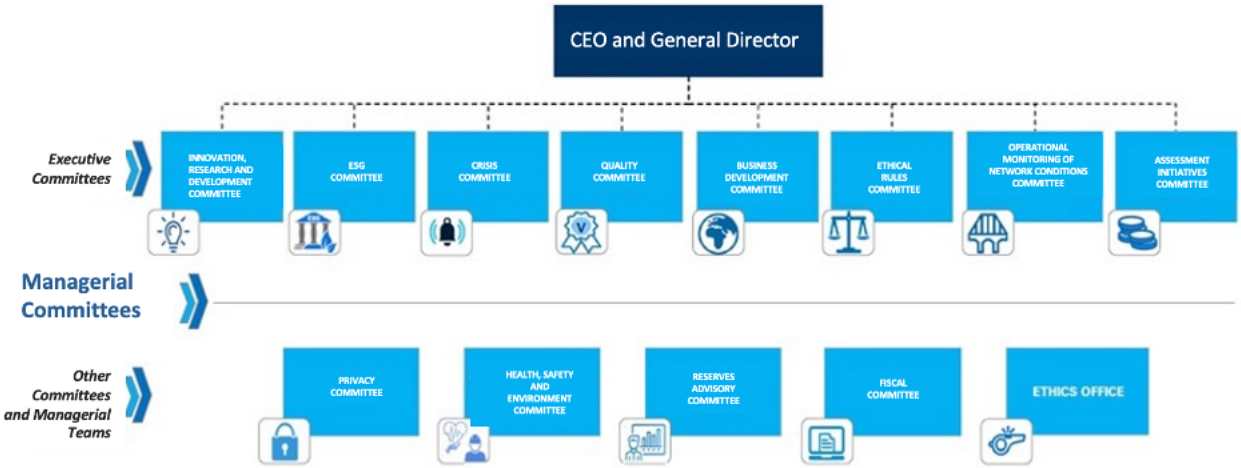


Figure 4. *Structure of management committees*. Source: ASPI.

This structure allows the company to fulfill the principle of transparent communication of information within the Group, both between different corporate functions and between the corporate center and its subsidiaries. It also creates a strong internal and external linkage and applies horizontal logic in role definition and decision-making.

In the organizational reconstruction process, these committees were a fundamental step in overcoming the predominantly hierarchical and siloed structure that was characteristic of the previous governance model. They established the groundwork for greater autonomy between different functions while simultaneously creating permanent systems for controlling and circulating knowledge and data at all levels.

To enhance its project capabilities, the new organization also established integrated project teams. These are cross-functional working groups, created by applying intra-group logic, and they exist for a predetermined period to achieve specific project goals.

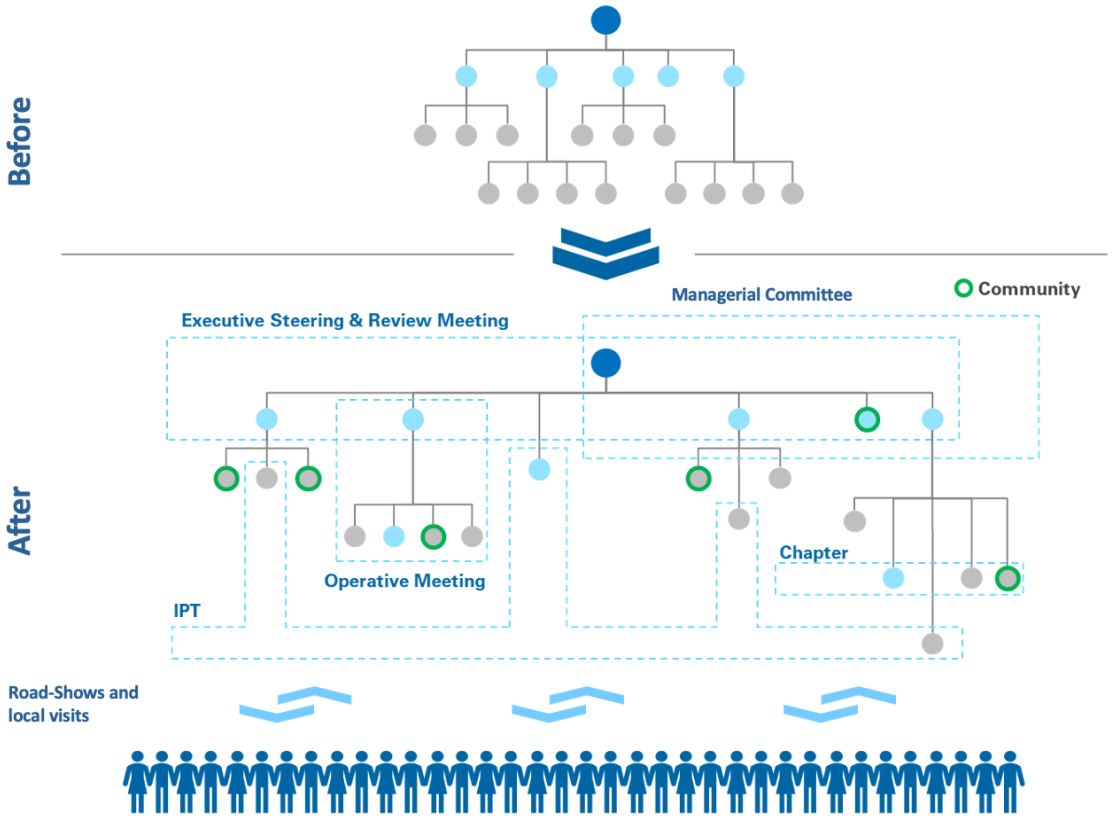


Figure 5. *Representation of organizational reframing*. Source: ASPI.

3.2.2 Communication and democratization of decision-making systems: "Dialogue for Company Value"

ASPI also institutionalized a form of dialogue between the internal functions in the corporate structure and between the corporate entity and its subsidiaries through the "Dialogue for Company Value" platform. This is a platform for exchanging ideas and a permanent space for discussion, coordination, and cross-functional problem-solving, operating through a set of regularly scheduled meetings. During these meetings, strategic and operational aspects related to ASPI's business are discussed.

The "Dialogue for Company Value" platform is thus a means to enhance the effectiveness of informational and decision-making processes and internal accountability by involving and directly empowering individuals in decision-making through the circulation of information and data.

Figure 6. *Key goals of Dialogue for Company Value*. Source: ASPI.

The structure of "Dialogue for Company Value" is based on performance review meetings conducted at two levels: executive level and operational level. The executive level consists of executive steering and review meetings, which are held monthly and involve ASPI's CEO and the CEOs of its subsidiaries. These executive steering review meetings focus on monitoring performance and discussing significant business issues, sharing major topics related to projects and activities within the Group's sphere of potential general interest, and examining items for the preparation of board of directors' meetings.

"Dialogue for Company Value" also takes place through executive performance review meetings, which include not only the CEO but also the directors and heads of the various areas or business units involved. Executive performance review meetings are responsible for analyzing strategic issues relevant to core business and monitoring the performance of the business units.

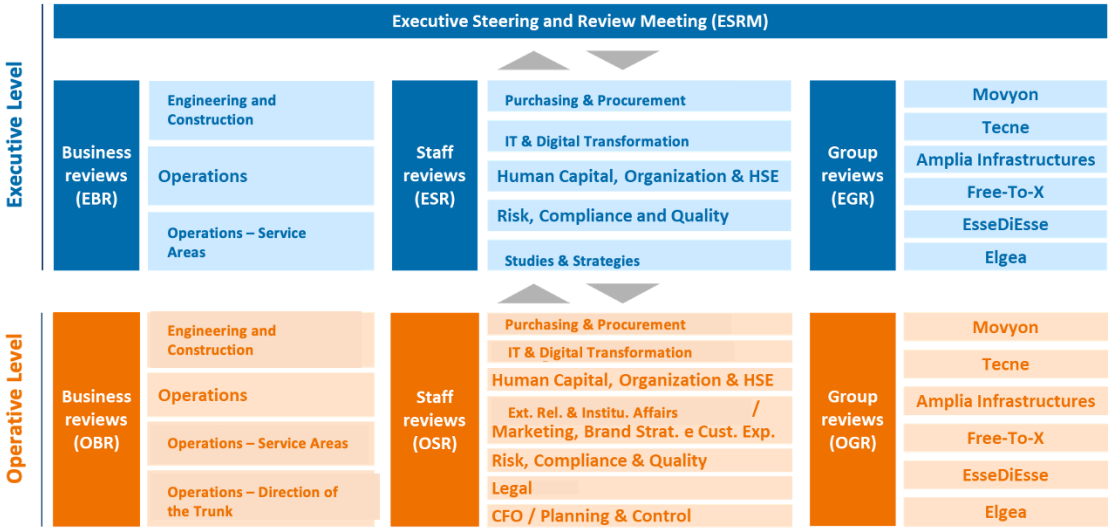


Figure 7. *Dialogue for Company Value structure*. Source: ASPI.

"Dialogue for Company Value" has an operational level called operative performance review meetings, which focus on coordinating techno-operational issues and managing potential criticalities.

3.3 Digital transformation and open innovation initiatives

3.3.1 ASPI's digital transformation

Digitalization has been a core aspect of ASPI's organizational transformation plan. The Group's digital development has been aligned with the principles established in the "Next to Digital" plan, which assigns new centrality to digital transformation across the entire Group, as an integral part of the new organizational structure based on transparency and data sharing. Activities relating to digital transformation have been organized into nine core areas, in alignment with ASPI's vision and values. These areas are structured into chapters through which digital transformation is managed operationally. Within these priority areas, 60 use cases have been identified.

Each use case is implemented through the opening of rooms, following an agile approach to project development. Each room is organized as a cross-functional team comprising IT resources and operational and business line staff. The work of these teams is guided by the principles of capacity management, accountability, assessment of the actual potential of technologies, and prioritization. Additionally, an agile working method has been adopted. Initially it applied to the IT sector but it has since been embraced by other functional areas

and become common throughout ASPI. Currently, the company manages more than 40 agile rooms in parallel, involving approximately 1,800 people from all functions within the Group, including its controlled companies.

> *"In my opinion, adopting an agile working model was very significant for the success of the digital transformation plan. Without it, ASPI would not have been able to achieve what it did in three years."*
> *Danilo Gismondi, IT & Digital Transformation Director,* Autostrade per l'Italia

The process of developing and validating technological innovations within ASPI is supported by the controlled company Movyon (founded in 2009 as *Autostrade Tech*). Movyon focuses on managing development projects and integrating intelligent transport system solutions. It is also a center of excellence in research and innovation in this field. The company bases its activities on research and applied engineering innovation and on sustainability as an approach to value creation, including in the management and maintenance of mobility infrastructures. Movyon oversees the research and development process and concept validation for frontier technologies in mobility (such as computer vision, AI, IoT, and sensor technology), thereby indicating the trajectory that the Group intends to follow regarding the adoption of these technologies. The product portfolio includes consolidated solutions for toll collection and traffic management, which is the more stable part, as well as highly innovative solutions for infrastructure management and urban mobility. At Movyon, innovation focuses on the practical implementation of ideas, after the necessary experimental phase for proof of concept (POC). Movyon's added value lies in implementing these ideas in a real-world context, having access to the broad testing environment of the motorway network, which is a significant asset for the country. The company thus acts as a facilitator for implementing innovations within ASPI.

Another key organizational lever for the Group's digital transformation is Free to X, a company launched in March 2021 and dedicated to creating advanced solutions, services, and products for sustainable and integrated mobility. These designed solutions aim to enhance the final customer's travel experience by leveraging the Group's infrastructure to offer reliable, value-added services and updated, safety-oriented information. As part of promoting electric mobility, ASPI has entrusted Free to X, as a charging point operator (CPO), with the project of installing high-power charging stations with 300 KW electric charging points, known as HPC (high power charging). The first 100 stations, which allow current electric vehicles to charge in 10-15 minutes, are already operational in a corresponding number of motorway service areas.

Free to X plays a crucial role as a digital solutions and tools provider for ASPI, designed to guide customers during their journey. For example, the "Cashback" platform offers toll refunds for delays caused by construction sites along the motorway infrastructure, while the "Conto Targa" service allows toll payments to be made via license plate readings, and it is currently being implemented on the *Tangenziale di Napoli* (the Naples beltway road). Additionally, since the Italian motorway network is an integral part of the national multimodal mobility ecosystem, Free to X seeks to integrate cutting-edge technological solutions such as MaaS (mobility as a service), smart logistics, and smart city services. In this respect, Free to X is the Group's leading company in the "Smart City Genova" project, which focuses on developing and implementing solutions for urban interconnection in the city of Genoa through an ecosystem that facilitates sustainable and innovative forms of mobility. With its focus on the external, non-captive market, Free to X actively collaborates on defining innovative, sustainable, and multimodal mobility solutions, involving numerous external stakeholders and also collaborating with other Group companies as part of the Mercury program.

> *"The contribution we are making to ASPI includes the awareness that, at an infrastructure company, very innovative things can be done, and these can also be valuable outside the motorway context."*
> *Giorgio Moroni, CEO, Free to X*

3.3.2 The role of data

ASPI has achieved a balance between infrastructure, people, sustainability, and innovation by making data central to its decision-making processes, supporting a new data-driven organizational model.

A data-driven decision-making model entails a new perspective on asset and internal process management, based on the collection, processing, and sharing of data at all levels to guide decisions. Data thus becomes a tool for both monitoring and forecasting market trends and observing the performance of all functions in real time. In this way, organizations develop resilience to systemic shocks and become capable of responding dynamically to mobility megatrends. In this data-driven organizational transformation, digital technology has acted as an enabler of change by creating organic connective ties between people and infrastructure, based on the following five key principles:

- Centrality of data: enhancing our ability to interpret data and speed of access to information to guide business decisions through digital means.

- Safety: advanced monitoring of network and asset status and the development of safety technologies through asset organization and the creation of a digital twin of physical assets.
- Execution speed: designing processes and their automation and simplification through digital technology.
- Internal connectivity and transparency: promoting, through digital means, an inclusive culture that can leverage technology to create constant dialogue with stakeholders.
- Research: focusing on dialogue with external innovation partners and scouting activities to identify new solutions for business improvement.

This has allowed ASPI to expand the sharing and democratization of data throughout the organization, by way of increasingly widespread adoption of data analytics (DA) and artificial intelligence (AI) solutions, thereby breaking down information silos (Figure 8).

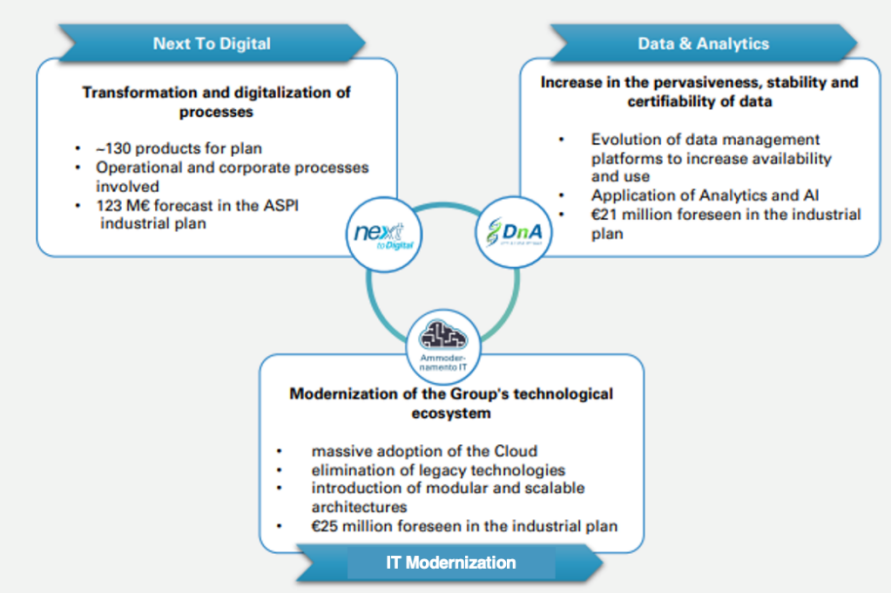


Figure 8. *The pillars of digital transformation*. Source: ASPI.

Digitalization has laid the groundwork for a profound modernization of the IT ecosystem within ASPI, to create a data-driven organization capable of accessing and utilizing all necessary data to make informed decisions, fully develop innovation, and capitalize on emerging opportunities. Key aspects of data management within the Group include migration to the cloud, application optimization, and automation through DevOps-based software to implement an open data model.

In the 2020-2023 period, by leveraging an agile business approach, ASPI achieved 80% of the digital and organizational transformation goals set out in the 2020 strategic plan, including the development of over 100 digital solutions and experimentation with over 320 projects. The centrality of digital technology in the organization is evidenced by its digital coverage index – a model shared across the organization to assess the current (and projected) level of digitalization of all business processes – which increased from 25% pre-plan to 75% in 2023.

At the organizational level, the result of digitalization has been the coordination and spontaneous adaptation of organizational functions through transparent and accessible information flows. Datasets are no longer the domain of a single function or of the work area that generated them. Instead, they are stored in repositories and shared publicly. Moreover, data has become an activator of internal and collective dialogue, facilitated by structures created to manage decision-making processes collaboratively and informatively, particularly the committees and the meeting structure of the "Dialogue for Company Value" platform.

In this respect, data has not only become a collective asset for the organization but it has also been transformed into a tool for widespread performance monitoring, enhancing the organization's strategic decision-making capabilities and its constant adaptation to market changes.

> *"For some years now, we have defined a digital coverage index for business processes. This index was below 25% in 2020, around 30% at the beginning of 2021, and we closed 2023 with an average digital coverage of 75%."*
> *Danilo Gismondi, IT & Digital Transformation Director,* Autostrade per l'Italia

The enhancement of transparency and data at ASPI was achieved through the re-engineering of internal processes and the mapping of assets. Indeed, the mapping of business processes aims to make them accessible and consultable, and thus actionable, measurable, and improvable. This activity was carried out through the PWAY project, a program that involved over two years of mapping work and over 200 individuals from the Group. The mapping of business processes followed a value chain approach and the logic of standardization, with the goal being to ensure clarity regarding the tasks to be performed by each area.

Each activity was mapped by constructing input and output flow diagrams using levels. Activities were mapped using process hierarchy, from level 0 to level 3. In this way, 38 level-

0 processes were mapped. Each process was then assigned an owner, and further sub-processes were identified in a tree-like structure down to the most detailed level. This has led to the creation of over 2,300 process flow diagrams to date.

All flow diagrams are accessible on the company intranet through a process repository tool that is easily consultable in interactive mode. This allows the entire organization to be aware of each process and ensures that workflows survive organizational turnover, while improving the means to measure and enhance them, especially those related to infrastructure management. Defining processes has thus provided an additional way to standardize the organization in accordance with the principles of transparent information flow and clarity in internal communication across all lines. It has also increased the speed of executing operational activities, which adds a significant piece of operational excellence, including a lean perspective.

> *"... it was time to structure, digitalize, and standardize; only after that did it become time to also make processes more efficient. Although some processes are still in the course of being structured, we can say that we have built a complete map of business processes. Only at this point can we think in terms of improvement, reduction of lead times, and waste reduction."*
> *Angelo Perica, Head of Organization, Talent Management, and People Development,* Autostrade per l'Italia

Alongside process mapping, asset mapping was also deemed strategic to ensure the optimization of monitoring activities for concession works, to improve data governance of assets, and to optimize inspection and maintenance processes. Asset mapping was carried out through a digitalization process using Argo, a unique digital platform in Europe that is based on artificial intelligence tools and that was developed with the support of IBM and ASPI subsidiary Movyon. Argo can thus be a digital inventory that collects and manages structural data on bridges, overpasses, viaducts, and tunnels, and can be consulted and updated in real time.

This digital asset mapping process has enhanced the value and transparency of data. In the corporate digital archive, infrastructure is defined by its attributes, classifications, and locations. The installation of IoT sensors also makes it possible to collect data on the condition of mapped works. Building information modeling, created from database data, further supports operators during the inspection phase. Through geo-referencing technologies, it is also possible to perform three-dimensional scans of the infrastructure, while the integration of AI assists operators in detailed analyses of drone photographs and when identifying specific defects associated with infrastructure components.

Data is also a fundamental element for the evolution of ASPI's processes and control systems. Data collection and analysis makes it viable to identify potential risks and monitor business performance, as well as promote high-quality standards in business process management. The timeliness of information directly impacts the predictive capability of control systems, ensuring better management of information flows.

3.3.3 Open innovation

One of the areas most impacted by the transformation of *Autostrade per l'Italia* is the restructured network of external relationships, which are fostered through its subsidiary companies, such as Free to X, Movyon, Amplia, and Tecne. They constitute a network of resources and distinctive competencies for the development of non-captive business and the creation of digital solutions to continuously increase speed, operational excellence, and process optimization.

ASPI's open innovation orientation manifests itself through numerous collaborations with research institutions, universities, and other companies in the sector. This approach enables the organization to understand and embrace the best of innovation, turning ideas into experiments and research results into shared value while constantly interacting with its core business.

The organization is also deeply interested in innovations developed by startups and in the promotion of projects and ideas coming from researchers, to support technology transfer processes.

> *"The ASPI Group aspires to play a leading role in the revolution of sustainable mobility affecting transportation. This is a challenge in which collaboration with universities and research entities and participation in dedicated events and conferences have become central elements in our transformation journey. We have partnerships with national and European entities that include various motorway concessionaires and/or sector operators. Participation in conferences and seminars inspires us to imagine and find solutions that can be implemented and pushes us to think of new ideas, which we now share internally much more than in the past."*
> *Gianluigi Iacobone, Director of Studies and Strategies and CEO Office,* Autostrade per l'Italia

In this regard, one of the research projects that brought together experts from academia, research, and leading industry operators for a collective contribution on strategic issues was

the publication of the book "The Revolution of Sustainable Mobility Starts with Motorways: Safe, Digital, Decarbonized". The publication focuses on motorway infrastructure and seeks to spark debate on projects and investments to support the energy transition and modernization of Italian motorways.

3.4 Green transformation initiatives

Sustainable mobility is identified as a distinctive element of the Group's mission and it is one of the pillars of the ASPI transformation plan, which is in line with the green mega-trend driving the development of a new framework in the mobility sector.

ASPI has set strategic objectives based on integrating ESG (environmental, social and governance) pillars into its business strategy, linking them to the NEXT transformation program. This strategic orientation is vital in a transition towards connected and digital infrastructure that enables the sustainable mobility of the future.

> *"The Group has embarked on a profound transformation process since 2020, with sustainability at its core. Creating economic and social value for the country, investing in cutting-edge infrastructure, and providing mobility services that enable territorial development are the company's main vision. It aims to make mobility more sustainable to address the current and future needs of society and its communities. Based on these elements,* Autostrade *has founded its strategic plan to make sustainability not just a narrative but something tangible."*
> *Concetta Testa, Head of Sustainability,* Autostrade per l'Italia

ASPI's sustainability initiatives involve the following:

- Environmental dimension (E) – minimizing the environmental impact of constructing and managing the infrastructure network, ensuring sustainability throughout its lifecycle. ASPI, through its net-zero program, aims to completely decarbonize its activities by 2050 using increasingly advanced network management and offering new services, including digital ones, to limit emissions caused by motorway mobility.

- Social dimension (S) – Ensuring the highest standards of quality, safety, and resilience on the network to protect customers using the infrastructure and all those who work on the network, while strengthening its strategy of people development with a clear focus on the values of diversity, inclusion, and equity.

- Governance dimension (G) – adopting a responsible business model, preventing any breaches of the Group's code of ethics throughout the company and with its suppliers. ASPI is committed to implementing a robust governance system that integrates sustainability into business operations and ensures and promotes the values of legality, transparency, and respect for individuals, reinforcing steps to prevent violations of its principles and values. Additionally, ASPI's governance system promotes various change factors, including innovation, digitalization, and sustainable finance. These elements encompass and strengthen all aspects of the sustainability strategy, accelerating its implementation.

For ASPI, sustainability also means making a tangible contribution towards achieving the sustainable development goals (SDGs) of the UN 2030 Agenda; this is why ASPI has joined the Italian chapter of the United Nations Global Compact initiative.

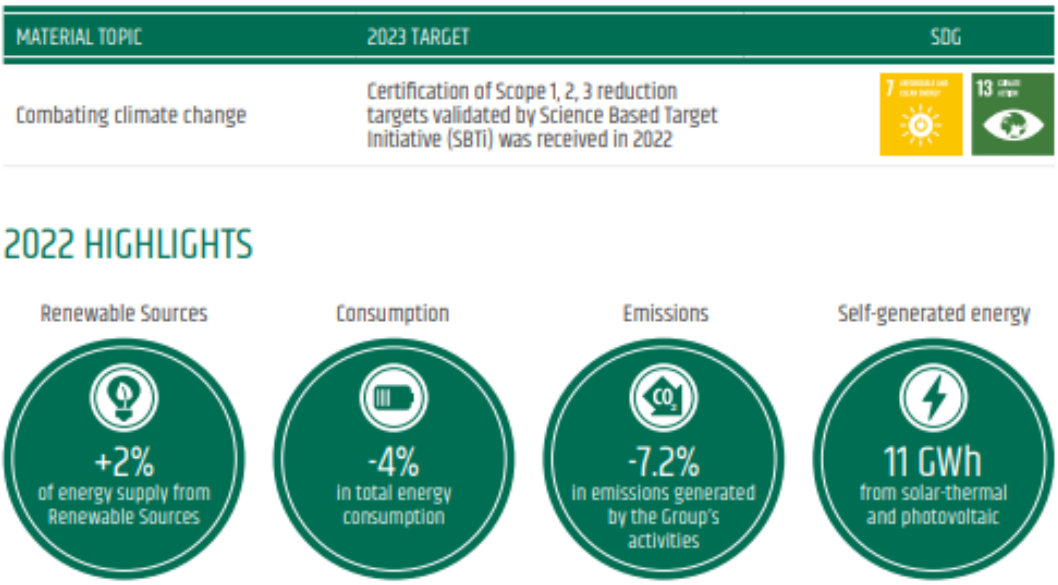
Figure 9. *ASPI's commitment to achieving the Sustainable Development Goals (SDGs) of the UN 2030 Agenda.* Source: ASPI.

ASPI's ESG strategy has already led to higher ESG ratings from internationally recognized agencies (e.g., Moody's – ESG Solutions, CDP – Disclosure Insight Actions, Sustainalytics, and MSCI). Clear initial proof of the company's commitment to integrating environmental and social issues into its development strategy and governance structure came in the form of its first sustainable bond issuances, launched at the beginning of 2023, worth approximately €1.5 billion in value.

3.4.1 The net-zero program

Respect for the environment, the sustainable use of natural resources, and the reduction of greenhouse gas emissions are integral parts of ASPI's business model and a fundamental element of its strategic vision. To this end, its NET ZERO program aims to help limit global warming to 1.5°C by reducing greenhouse gas emissions by 2050, following a decarbonization pathway. The program involves emissions from Scope 1 sources (directly controlled by the Group – 68% target reduction), Scope 2 (not directly controlled but imported and consumed by the Group – 68% target reduction), and Scope 3 (indirectly related to Group activities – target reduction of 52% from investments related to the modernization of concession infrastructure and 55% from purchased goods and services), along with periodic certification of decarbonization targets by the SBTi (Science Based Target Initiative) organization.

Figure 10 shows ASPI results up to 2022, on the path towards net zero, in relation to climate change mitigation and the protection of natural resources.



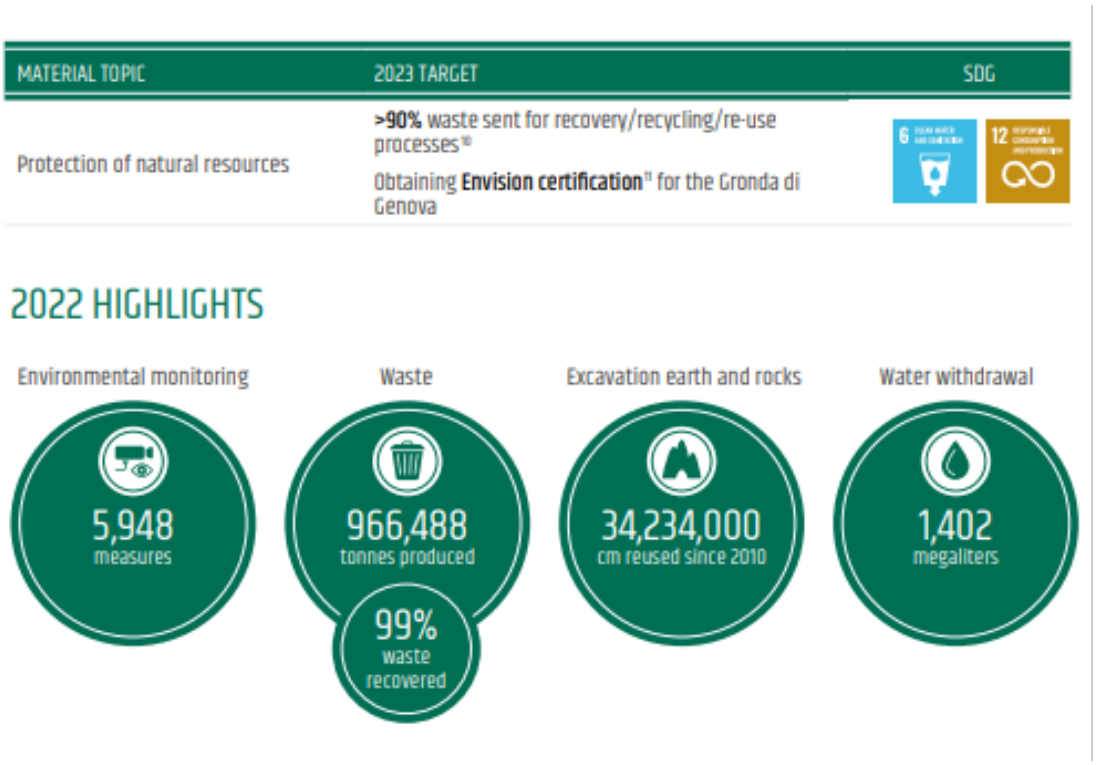


Figure 10. *NET Zero results*. Source: ASPI.

ASPI's pursuit of these net-zero targets is having a significant impact on the Group's operations. This includes the electrification of its vehicle fleet, the production and procurement of renewable energy sources, the provision of charging services at service stations, energy efficiency across all business processes, the use of low-emission construction materials, the protection of natural resources, and the maintenance of sustainable relationships with all suppliers (primarily Italian SMEs) along the value chain.

3.4.2 The Mercury program

At the beginning of 2022, to effectively support its transformation journey, the Group launched a technological innovation program called Mercury, a platform designed to drive the sustainable modernization of assets through the use of advanced infrastructure monitoring and safety solutions for highways. The program is built around five main action areas:

1. The digitization and connection of infrastructure for the collection, transport, storage, processing, and analysis of data, as well as the provision of innovative information and services.
2. The development of ITS solutions and smart roads to improve highway traffic management.

3. The integration of digital systems for automatic billing, which enables flexible pricing and encourages more sustainable behavior on the part of citizens.
4. The creation of green solutions for sustainable mobility and renewable energy sources for the highway network.
5. The development of solutions for integrated urban mobility and MaaS (mobility-as-a-service) for individuals, municipalities, and public transport companies, including integrated control rooms with real-time monitoring (as in the "Smart City Genova" project).

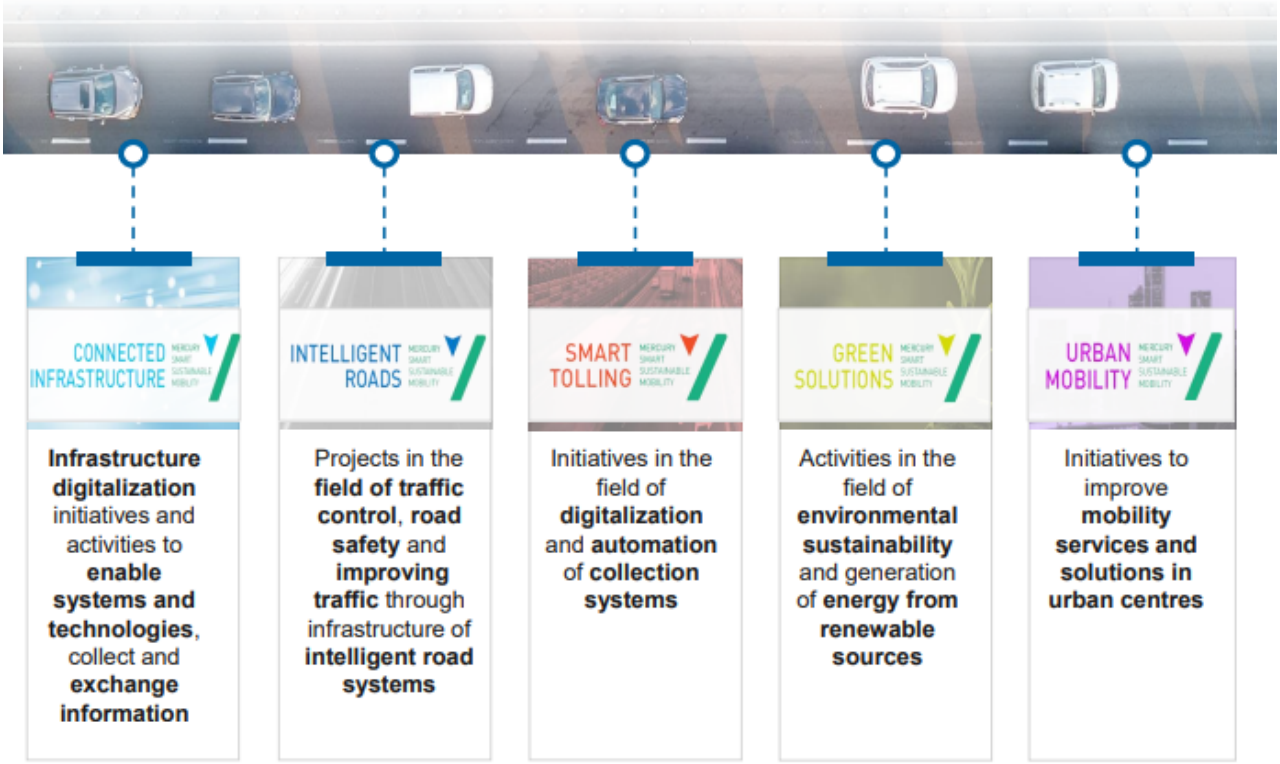


Figure 11. *Mercury Program action guidelines*. Source: ASPI.

Mercury is a platform designed to catalyze the sustainable modernization of assets, using advanced monitoring and safety solutions for both highway and urban infrastructure. In the medium to long term, Mercury will enable ASPI to generate value for the community by building the backbone of connected, smart, and sustainable infrastructure, offering innovative solutions for traffic services and integrated mobility systems. This will help reduce congestion, even in scenarios of increased national traffic volumes, while expanding the range of value-added services for all of the Group's stakeholders, not just for end users. This sustainable evolution will allow ASPI to make a significant contribution to mitigating the effects of climate change.

Furthermore, this sustainable transition will further facilitate the development of ASPI's digitalization plan, enabling the achievement of goals related to combating the effects of climate change and extending value-added services to all of the Group's stakeholders.

> *"Everything related to connected infrastructures and smart roads has been implemented in terms of pilot projects. We are not yet in the deployment and large-scale rollout phase, but we have initiated discussions with the state grantor. As of today, we have about 110 km of network equipped to allow vehicle-to-infrastructure and infrastructure-to-vehicle communication and on which we have conducted many tests, with very interesting and positive results. For us, this is a feasible technology, and we are ready to move forward."*
> *Danilo Gismondi, IT & Digital Transformation Director,* Autostrade per l'Italia

3.4.3 The "Smart Genova" project

As part of the Mercury project, in 2022 ASPI launched the "Smart Genova" project, which focuses on the following:

1. Implementing "smart city" services, which entails the execution of infrastructure projects in urban areas to provide innovative solutions that make traffic and access monitoring possible, improve citizens' quality of life, and to foster the development of services.

2. Developing "mobility-as-a-service (MaaS)", which entails creating an integrated platform and mobility apps that offer value-added services directly to citizens, with applications for information on, the booking of, and payment for the various "smart solutions" designed.

3. "Smart logistics" solutions, which aim to optimize the flow of heavy vehicles to ease urban congestion through active logistics control between road and highway access points to the city, and between these and port districts, as well as assessing the feasibility of using dynamic pricing to rationalize urban traffic flows.

This project not only demonstrates ASPI's contribution to economic, social, and environmental sustainability, but it also holds symbolic value, being concentrated in a region of great significance for the Group, namely the city of Genoa:

"'Smart Genova' is a project with an extremely important sustainability dimension. In addition to being a 'smart city' project, where actions are taken to improve traffic and better manage the flow of goods and people, it is also targets decarbonized management and a reduced CO2 impact. Furthermore, there is the fundamental issue of territorial impact, since some of our main stakeholders are the territories crossed by Autostrade per l'Italia*'s network, and relationships with local communities are crucial to achieving a project of this scale."*
Concetta Testa, Head of Sustainability, Autostrade per l'Italia

3.5 *Valuing people*

ASPI's organizational reframing has placed a strong emphasis on initiatives to enhance organizational well-being at all levels by making diversity and inclusion an institutional feature. The promotion of diversity and inclusion within the organization draws from the contribution of employee resource groups (ERGs), which are teams of ASPI staff volunteers with specific ideas and expertise who actively promote inclusivity initiatives and projects. The main areas of focus for these ERG groups include gender equality, LGBTQ+ rights, intergenerational relations, and disability inclusion. Complementing the ERGs is the "Ability Garden Project", which is directed at young people with disabilities from local communities, offering them the opportunity to train directly during trade workshops with the support of ASPI teams. This on-the-job training method is conducive to the development of young talents with disabilities based on their aptitudes.

Initiatives to enhance organizational well-being have also led to the systematic introduction of remote work. ASPI's remote working model is based on a flexible system that allows department heads to oversee the balance between in-office and remote work, ensuring harmonization between productivity and work-life balance while reducing environmental impact. ASPI's new organizational model envisaged the creation of internal institutions called "communities" that encourage employee engagement and community participation. Each institutional community is focused on specific business areas or projects. Members share a collective purpose, which fosters collaboration and mutual support to achieve the community's common goal.

Currently, ASPI has eight active "communities" that not only enhance individual contributions but also serve as points of personal growth for their members. They are like instruments for the internal and external sharing of the Group's values and culture. One example is the "Alumni Community", which brings together those who have completed training or development programs at one of the Group's companies. Its goal is to facilitate

the exchange of experiences and knowledge, maintain professional and cultural relationships, and offer new learning opportunities.

Figure 12. ASPI Communities. Source: ASPI.

3.5.1 Talent enhancement

ASPI's organizational transformation included the enhancement of internal policies to attract and nurture talent. On the one hand, ASPI focuses on attracting new talent from outside the organization by establishing strong relationships with universities and professional schools. On the other hand, it promotes reskilling, upskilling, and leadership development activities for internal resources.

The functional growth of resources within the organization has been achieved using a systematic model that identifies high-performing young and senior individuals within the company to enhance their skills. These individuals are divided into three clusters:

- Executives: included in the program without limitations on age, function, or specific specialization.
- Middle management: managers who demonstrate above-average performance in performance management processes.
- Young talents: recent graduates under 35 who exhibit above-average performance and high growth potential in performance management assessments.

This pool of individuals participates in leadership development and training activities through specially designed talent programs that are managed in partnership with universities and external training institutions.

“Young Talents” are also included in the LED (“Lead, Excel, Develop”) project, an 18-month program to develop behaviors and attitudes aligned with ASPI’s leadership model. LED is an operational tool to create the leaders of tomorrow by fostering knowledge, engagement, and informal networks that promote leadership guided by the Group’s values, innovation, and continuous transformation.

In addition to the LED project, induction and shadow management programs (e.g., the “New Generation Board”) have been introduced. These programs pair young, high-potential employees with senior figures, to facilitate the constant alignment of leadership and organizational values and to provide on-the-job training that actively develops leadership and accountability in the organization. This talent development model also fosters intergenerational connections within the Group, improving the transfer of knowledge and dialogue between newer and older generations.

Since 2021, more than 250 individuals have participated in internal managerial development programs, compared to 10 in the 2019-2020 period. Over 360 participants have taken part in postgraduate programs organized in collaboration with partner universities.

Additionally, the onboarding process has been institutionalized through the assignment of a “buddy” for each new hire. This “buddy” is a more experienced colleague responsible for facilitating the integration and orientation of a new employee in the organization. This relationship continues beyond the induction period, as the buddy becomes a mentor and point of reference through regular meetings.

The development of talent enables the company to adapt to external changes and foster a collective sharing of its culture and values while keeping pace with market demands. In this way, the organization has turned itself into a training ground where talent and leadership are nurtured through knowledge development. As a matter of fact, human resources development is central to ASPI’s strategic direction, given a rapidly evolving sector driven by technology, where skills are critical to the organization’s ability to adapt to business changes.

3.5.2 Talent attraction

Attracting talent is a key lever for ASPI's future growth in terms of skills, quality support, and operational excellence. Starting in 2019, ASPI undertook a resource renewal process through a recruiting plan that led to the hiring of nearly 1,700 new individuals from 2019 to 2023, averaging around 330 new hires per year. This also facilitated a generational transition, reducing the average age of Group employees from 51 in 2019 to 48 in 2023.

Talent attraction is based on a proactive model centered on knowledge sharing through the "*Autostrade del Sapere*" ('knowledge highways') program. This program encompasses a coordinated set of activities to create lasting connections with external educational institutions at both university and professional levels. Its goal is to integrate new resources into the organization in terms of job profiles and skills and to keep pace with business and technological developments.

As part of the "*Autostrade del Sapere*" project, various advanced training programs relating to engineering and construction have been launched. These programs have been developed in partnership with major national universities, including Federico II University in Naples. The "Smart Infrastructures and Construction Academy" (SIC Academy) was established and a teaching collaboration plan was formalized with leading digital technology providers such as Apple Academy and Cisco Academy. To implement these initiatives, ASPI leverages its subsidiaries Amplia and Tecne, through the Amplia Academy and Tecne Academy, which act as bridges between the corporate group, academic communities, and technical-professional institutes, facilitating the flow of corporate know-how and creating specialized job profiles for the Group.

ASPI has also promoted the "Distretto Italia" ('Italy District') project, a collaboration with ELIS that comprises 34 entities, including companies, employment agencies, and other organizations. This program aims to position ASPI as an active participant in society as a whole, especially the effort to reduce early school dropouts. It seeks to contribute to the development of new skills and young talent to counter social marginalization, including steps to address the NEET phenomenon ("Not in Education, Employment, or Training"). The project founded the "Accademia dei Mestieri" (academy of crafts and trades), which harnesses the expertise of Amplia Academy to train young people for jobs that are currently lacking but deemed essential for the future.

ASPI is also involved in the "Scuola per la Scuola" ('School for Schools') program, which seeks to establish school-to-work tracks. Promoted jointly with schools and universities, the program focuses on enhancing cross-disciplinary skills and understanding of various

professions. Additionally, ASPI has joined the "Officine Futuro" ('Future Workshops') program, in collaboration with ELIS, which is dedicated to secondary school students. This program helps to guide young people in the discovery and development of their talents and skills as they approach the world of work.

4. Business and financial highlights

ASPI's outlook on the future is to continue modernizing and innovating by focusing on enhancing the quality and safety of its infrastructure, extending its lifespan, and increasing its resilience, including the ability to withstand adverse weather conditions. It will also contribute to the creation of a more sustainable future for mobility. These commitments will demand substantial investment that will benefit all stakeholders, including travelers, in the areas served by the highway network.

In 2024, ASPI is planning a significant increase in investment and maintenance activities, with an estimated expenditure of about €2.3 billion. Additionally, 2024 marks the end of *Autostrade per l'Italia*'s five-year regulatory period. The process of reviewing this regulatory framework for the next five-year period, from 2025 to 2029, will be crucial, as it identifies the investments required to meet the country's mobility needs.

% change in kilometres travelled 2023 vs 2022

Total	13.1%	3.7%	7.6%	5.9%	0.4%	3.0%	4.2%	0.0%	2.1%	1.5%	2.2%	3.4%	3.6%
2 axles	15.3%	4.8%	9.6%	7.7%	0.3%	3.2%	4.4%	-0.0%	2.6%	0.6%	2.2%	4.2%	4.1%
3 axles	2.2%	-1.1%	-1.2%	-5.1%	1.1%	1.6%	2.4%	0.5%	-0.8%	6.6%	2.2%	-2.0%	0.6%

Figure 13. *Monthly traffic trends on the Group's network in 2023*. Source: ASPI.

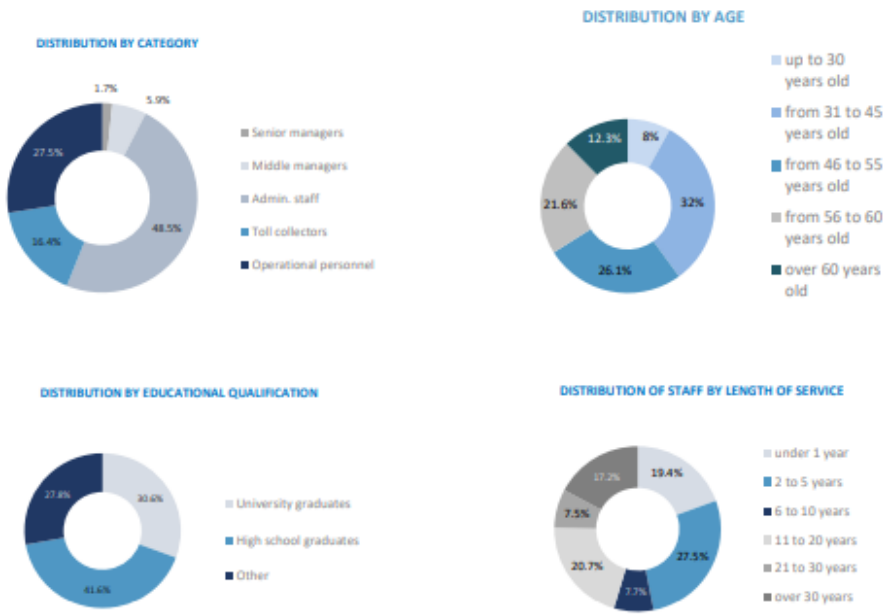


Figure 14. *Breakdown of the Group's workforce*. Source: ASPI.

€m	OPERATING REVENUE		
	2023	2022	Increase/ (Decrease)
			Absolute
ITALIAN MOTORWAYS			
Autostrade per l'Italia	3,943	3,756	187
Autostrade Meridionali	8	32	(24)
Tangenziale di Napoli	70	69	1
Società Italiana per il Traforo del Monte Bianco	60	58	2
Società Autostrada Tirrenica	48	46	2
Raccordo Autostradale Valle d'Aosta	29	30	(1)
Intrasegment adjustments	*(2)*	*(2)*	-
TOTAL ITALIAN MOTORWAYS	**4,156**	**3,989**	**167**
ENGINEERING AND CONSTRUCTION			
Amplia Infrastructures	619	485	134
C.I.E.L. Costruzioni Impianti	20	4	16
Pavimental Polska	37	16	21
Tecne Gruppo Autostrade per l'Italia	169	124	45
Intrasegment adjustments	*(6)*	*(2)*	*(4)*
TOTAL ENGINEERING AND CONSTRUCTION	**839**	**627**	**212**
INNOVATION AND TECHNOLOGY			
Movyon	166	129	37
Free to X	23	16	7
Infomobility	9	5	4
Control Card	5	4	1
Intrasegment adjustments	*(7)*	*(3)*	*(4)*
TOTAL INNOVATION AND TECHNOLOGY	**196**	**151**	**45**
OTHER SERVICES			
Essediesse[1]	27	26	1
Giovia	18	16	2
Ad Moving	6	4	2
Elgea	4	1	3
Intrasegment adjustments	-	*1*	*(1)*
TOTAL OTHER SERVICES	**55**	**48**	**7**
Consolidation adjustments	*(918)*	*(640)*	*(278)*
TOTAL AUTOSTRADE PER L'ITALIA GROUP	**4,328**	**4,175**	**153**

(1) L'Ebitda negativo di Essediesse risente della sopracitata rilevazione, nel costo del lavoro, degli effetti connessi al piano straordinario di uscite attivato mediante lo strumento contrattuale dell'isopensione (24 million).

Figure 15. *Key performance indicators by operating segment*. Source: ASPI.

€m	MOTORWAYS			ENGINEERING & CONSTRUCTION			INNOVATION & TECHNOLOGY			OTHER SERVICES			CONSOLIDATION ADJUSTMENTS		TOTAL AUTOSTRADE PER L'ITALIA GROUP	
	2023	2022	Var.	2023	2022	Var.	2023	2022	Var.	2023	2022	Var.	2023	2022	2023	2022
REPORTED AMOUNTS																
Operating revenue	4,156	3,989	167	839	627	212	196	151	45	55	48	7	(918)	(640)	4,328	4,175
EBITDA	2,353	2,428	(75)	51	25	26	17	6	11	(20)	2	(22)	-	(2)	2,401	2,459
Operating cash flow	1,666	1,222	444	35	23	12	16	4	12	3	1	2	-	-	1,720	1,250
Capital expenditure	1,504	1,058	446	24	16	8	28	33	(5)	-	-	-	74	(13)	1,630	1,094
Average workforce	5,526	5,519	7	2,619	2,229	390	340	252	88	632	608	24	-	-	9,117	8,608

Figure 16. *Segment information*. Source: ASPI.

EBITDA			CAPEX		
2023	2022	Increase/ (Decrease)	2023	2022	Increase/ (Decrease)
		Absolute			Absolute
2,274	2,293	(19)	1,426	1,017	409
3	20	(17)	-	-	-
26	25	1	43	19	24
10	36	(26)	14	8	6
27	27	-	4	5	(1)
13	27	(14)	17	9	8
-	-	-	-	-	-
2,353	**2,428**	**- (75)**	**1,504**	**1,058**	**- 446**
20	11	9	21	12	9
-	-	-	-	-	-
11	2	9	-	1	(1)
20	12	8	3	3	-
-	-	-	-	-	-
51	**25**	**26**	**24**	**16**	**8**
13	9	4	10	8	2
-	(5)	5	18	25	(7)
2	-	2	-	-	-
2	2	-	-	-	-
-	-	-	-	-	-
17	**6**	**11**	**28**	**33**	**(5)**
(22)	1	(23)	-	-	-
2	1	1	-	-	-
-	1	(1)	-	-	-
-	(1)	1	-	-	-
-	-	-	-	-	-
(20)	**2**	**- (22)**	**-**	**-**	**-**
(0)	***(2)***	***2***	***74***	***(13)***	***87***
2,401	**2,459**	**(58)**	**1,630**	**1,094**	**536**

Figure 17. *EBTDA and CAPEX overview*. Source: ASPI.

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