

Company

Company **Nissan Italia**

Company Description

Nissan is a global vehicle manufacturer offering a full range of over 60 models marketed under the Nissan, INFINITI and Datsun brands. In the fiscal year 2016, the car company sold 5.63 million vehicles, generating a turnover of 11.72 trillion yen. In the fiscal year 2017, the company launched the six-year strategic plan Nissan M.O.V.E. to 2022 with a cumulative free cash flow of 2.5 trillion yen. As part of the plan, the company also intends to further strengthen its leadership in the electric vehicle market with Nissan LEAF, the world's best-selling full-electric vehicle. Nissan has its headquarters in Yokohama, Japan and manages operations in six regions: Asia & Oceania; Africa, the Middle East & India; China; Europe; Latin America; North America. Nissan, with 247,500 employees worldwide, has been a partner of Renault since 1999 and in 2016 it acquired a 34% stake in Mitsubishi Motors. The Renault-Nissan-Mitsubishi partnership is currently the world's largest automotive alliance with over 10.6 million units sold in the 2017 calendar year. 2: it aims to increase its annual turnover by 30% to 16.5 trillion yen by the end of the fiscal year 2022, with a cum.

Nissan Italia started operating in Italy in 1988. Its general management, spare parts distribution centre and training centre are all located in Capena, just outside Rome.

Relevant Business Line/ Area/Industry

Nissan and full-electric mobility. Nissan is the world leader in zero-emission mobility, with over 350,000 total units sold. Since 2010, Nissan has been designing, building and marketing the **Nissan LEAF which**, with over 300,000 units sold, is the world's most popular **full-electric vehicle**.

Nissan boasts **a wide range of electric vehicles:** besides Nissan LEAF, there's also **Nissan e-NV200**, in its various models, for commercial and public transport.

Nissan Intelligent Mobility. This is the technological roadmap for the future of mobility and redefines the way vehicles are driven, powered and integrated into society. Its three key points are:

1. **Intelligent Driving** - this grants customers greater security, control and comfort through the ProPILOT technology which is implemented in three subsequent phases: single lane management and maintenance of the safety distance; double lane management; management of intersections and city environments.
2. **Intelligent Power** - with more efficient engines for more sustainable mobility.
3. **Intelligent Integration** - for greater connectivity between vehicles, people and society. Vehicles are connected to each other and with the infrastructure for data, information and energy exchange.

Website <https://www.nissan.it/>

Case Study

Scenario The traditional automotive industry produces a great amount of waste. A study by the Ellen MacArthur Foundation, "The Circular Economy Applied to the Automotive Industry," revealed the presence of important structural waste in key sectors such as food, construction and mobility. For example, in Europe on average cars are parked 92% of the time, 86% of the energy is unused; 95% of accidents are caused by human error. In Europe transport is, however, the only sector where emissions have increased over the last 25 years. This is due to its dependence on fossil fuels, which have made it responsible for over a quarter of total CO₂ emissions. Of these emissions, 70% are connected to road transport.

According to the MacArthur Foundation study, over the next decade, at least four factors – sharing, electrification, automation, and materials – will transform personal cars, which currently account for over 80% of Europe's motorised transport on land. A fifth factor - transport intermodality - has yet to be fully implemented, but it could allow users to travel combining personal and public transport.

We will now identify the 5 factors:

1. Smart mobility

Efficient consumption. Electric engines ensure high vehicle energy efficiency in terms of the transformation of electricity into kinetic energy. Indeed, while thermal engines manage to convert only a fraction of the heat generated by combustion into kinetic energy for the vehicle - around 30% - wasting the remaining 70%, electric engines convert almost all of the electricity, about 90%, into kinetic energy for the vehicle.

Sustainable engines. Engines powered by traditional oil derivatives, such as petrol and diesel, can cause environmental damage in large urban areas. This is not only due to the production of greenhouse gases, but also of other harmful gases and particles. Being devoid of fuel, full-electric vehicles are, by definition, devoid of any type of emission. When it is in motion, a full-electric vehicle has zero emissions and does not produce polluting emissions. This compares favourably with the 124 g/km of CO₂ of the best diesel vehicles and the 86 g/km of CO₂ of a hybrid vehicle of the same type. In terms of NOx and particles, there is zero consumption (Source: Nissan).

Savings: reduced operating costs. Electric mobility can ensure:

- a reduction in maintenance costs of around 40% compared to a diesel vehicle of the same type (Source: Nissan).
- a reduction in energy costs, from 25% in the case of use of domestic electricity at market price, up to 100% when the energy used is from renewable sources (Source: Nissan).
- energy and consumption efficiency

2. Evolution in materials

Recycling materials and integration. Investments in improved material management are fully integrated into a system designed for frequent use, where electric and self-driving vehicles tackle the issues of CO₂ emissions and safety standards, two characteristics that currently determine the life cycle of a vehicle. The use of expensive and capital-intensive materials such as aluminium, high-quality steel and carbon fibre is a strong incentive for recycling vehicle components. This is a field that also includes studies on the second life of batteries.

3. Service sharing

Shared mobility services are thriving thanks to smartphones, big data and the growing popularity of sharing-economy. Car-sharing in Europe increased by 40% per year between 2010 and 2013.

4. System intermodality **The last mile.** The technological and digital revolution can lead to the integration of forms of transport that will allow people to alternate personal, shared and public transport in an efficient mobility system. Some European cities are moving in this direction by introducing policies that impose limits on the movement of vehicles or grant preferential access to public transport and electric vehicles.

5. Self-driving **Increased safety. Self-driving is becoming a reality.** Self-driving vehicles provide many benefits for mobility: they have excellent acceleration and deceleration systems, they communicate with other autonomously driven vehicles, they reduce road congestion by over 50%, and they reduce space between vehicles (1.5 metres, as opposed to the current 3-4 metres), significantly improving energy efficiency (Source Nissan).

Despite the obvious benefits, self-driving still struggles to take hold due to regulatory barriers and consumer habits.

Company position

Nissan started shifting its business model towards a strategy focused on electric mobility, self-driving and integration several years ago. Underlying this strategy is the key concept of Nissan Intelligent Mobility, which consists of three branches:

- **Intelligent Driving**, Nissan's self-driving technology, which grants customers greater safety, control and comfort, and is already available in the case of the new Nissan LEAF and, as of spring 2018, the Nissan Qashqai;
- **Intelligent Power**, consisting of more sustainable and efficient engines, such as the new electric car with new design and greater driving range;
- **Intelligent Integration**, which provides customers with greater connectivity between vehicles, people and companies. Nissan's vision of the mobility of the future, which integrates the concepts of sustainability and innovation, is therefore perfectly in line with the principles of the circular economy. It is thanks to this approach and to the various partnerships launched with companies like Enel, which share these principles, that tangible circular economy solutions are being put into practice.

Electric mobility – Intelligent Power

Nissan is a leader in electric car sales, with over 300,000 vehicles sold internationally since 2010. This has led to savings of 370 thousand tonnes of CO₂, the equivalent of 28 million trees Nissan already offers a range of up to 378 km NEDC, with a 40kWh increased battery, 150 HP of power and 320 Nm of torque.

All-round benefits

The all-round benefits of the new Nissan LEAF are as follows:

- Noise pollution reduction: 56%
- Energy efficiency: 60% more than thermal engines
- No engine oil
- Zero local emissions: 0% CO₂, NOx and PM10
- Lower operating costs: 3 euros per 100 km and a 50% reduction in maintenance costs (Source Nissan)
- Disposal of parts: 99% of internal and external parts are recyclable and reusable (Source Nissan).

Evolution in materials – Intelligent Integration

Nissan has also made significant investments in materials: 60% of the plastic used for the interior of the new LEAF is made from recycled materials (including used water bottles) and 99% of the vehicle's 1500 kg is made from recoverable and reusable materials (Source Nissan).

Integration also means energy efficiency and integration into the ecosystem. The development of electric mobility will activate new industrial chains, starting with the reuse of motor vehicle materials and the recycling of electric batteries ("second life"). They can be used for energy storage solutions for stationary use or else be reinstalled in new vehicles. When the battery of the Nissan LEAF reaches the end of its life, either it can provide recycled materials or it can be reused for electricity storage in smart houses and offices, following the model 4 - Reuse, Refabricate, Resell, Recycle.