

INNOVATION CASE

INNOVATION STRATEGY AT FIAT AUTOMÓVEIS

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THE COMPANY



The Fiat Plant in Betim/MG
Source: Fiat Release

An Italian company headquartered in Torino, Italy, Fiat landed in Brazil in 1976 and installed its plant in the city of Betim/MG. Their first car, an ethanol-fueled Model 147, was a great innovation at the time. Today, at 35, the Betim automaker is Fiat's largest plant in the world, surpassing the company's headquarters plant in size and production numbers. The plant is rated at 3,200 units per day, running three shifts around the clock, for a grand total of nearly 800,000 units. The plant sits on a 2.25 million-m2 tract of land and offers 25,000 job opportunities, both direct and indirect.



Fiat 147.
Source: Fiat Release

In 2010, the Fiat Betim plant scored the highest production among all Fiat units, delivering 750,000 units, or one every 20 seconds. The company's consumer market is Brazil, where 90% of production is sold, and a few Latin American countries, notably Argentina. The Betim unit is today regarded by the Group as more than a branch – a developer. Headquarters counts on the Brazilian operation to devise differentiated vehicles, boasting cutting-edge features.

In Brazil, the Fiat Group – split into FIAT S.p.A (Società per Azioni, or Corporation) and Fiat Industrial – includes 16 companies, 16 plants, offers 38,500 direct job opportunities and controls 8 Research and Development Centers. Included in the group are the automakers Fiat, Iveco, Case Construction, Case Agriculture, New Holland Construction and New Holland Agriculture; component plants Magnetti Marelli, Teksid, Fiat Powertrain and Comau; financial services Banco Fidis, CNH Capital and

Fiat Finanças; plus the services units Fundação Fiat, Fiat Services, FIDES and Isvor – the Group's corporate university. To promote education and culture, the group maintains Fundação Torino and Casa Fiat de Cultura. The Fiat Group earned net revenues to the tune of R\$36.6 billion in 2010.

For the period 2011-2014, Fiat investments in the State of Minas Gerais will reach R\$7 billion. Fiat is in the process of erecting a new plant in the State of Pernambuco, rated at 200,000 units per year. Investments in this three-year period will be R\$3 billion.

Fiat has been a leader in the Brazilian market for ten years, commanding a 10% share of the domestic automobile and LCV (Light Commercial Vehicles) market.

RESEARCH & DEVELOPMENT CENTER

More than simply a replicator of the Torino headquarters creations, the Fiat Betim unit is becoming a developer unit, meaning that Brazil is increasingly important in Fiat's innovation process.

The automaker's innovation trajectory was consolidated by the creation of the Giovanni Agnelli Product Development Pole in 2003. This site is regarded as the company's most complete development center outside Italy and is equipped with cutting-edge laboratories and resources, capable of real-scale simulations and dynamic tests.



Fiat Style Center.
Source: Fiat Release

Totaling approximately 1,000 professionals, the Development Pole structure enables full development of a vehicle in Brazil and has the following areas:

- Style Center – where automotive design solutions are developed.
- Chassis, Body, Interior and Electrical and Electronics Engineering – developing the project and the simulation of automotive components and systems.
- Experimental and Materials Engineering – in charge of prototype bench & track testing.
- Engineering Planning and Cost Control – handling the planning of activities and monitoring of cost involved.
- Homologation and Standards.

The Pole is also fully structured to manage projects under a cost optimization, quality and development time view.

Fiat's Product engineering, young but consolidated, has been investing in the past few years in capacity building its professionals via development programs such as Master's and specialization programs in the automotive area, focused upon employee profiles.

Other important investments were made in the procurement of new, computerized systems and equipment, such as the modern, newly inaugurated virtual reality room. This is where automotive style assessments are virtually made, with the aid of equipment that enables a real-scale view of a model.



Virtual Room.
Source: Fiat Release

Experimental Engineering has available the most modern equipment such as the electromagnetic compatibility laboratory, a pioneer in the country, climatic chambers and road simulations that allow the bench simulation of several conditions of vehicle use, include road type and weather conditions.

Virtual simulation is an activity into which substantial investments are made, with the procurement of software and development of specialized personnel. Simulations are made today that reach from the structural area to thermal fluid dynamics, passing through the vehicle dynamics and electrical-electronics architectural simulation of the models.

THE NEW INNOVATION CONTEXT AT FIAT

Until shortly ago, the Product Development Pole was responsible for the entire Fiat innovation background in Brazil. Technology-focused innovation and new products brought along the greatest successes for Fiat (the Adventure line and Mille on-line, among other examples) and a good recognition, mainly by the external audience, that the company does cutting-edge innovation. However, upon looking inwards, Fiat did not see itself as an innovative company. At least not as it would like to be.

DIAGNOSTIC

In 2009, Fiat partnered with the Strategos consultancy company to begin a research and diagnostic effort. Involving in excess of 300 persons, including plant employees, suppliers and dealers, the investigation sought to understand what innovation is and how it was done at Fiat. The ensuing result was the recognition of a creative plant, capable of yielding substantial novelty – such as the Fiat Mio concept car – but scantily processual with a non-systematized innovation culture. Most of the innovation conducted at Fiat was technological and incremental, developed in a system typical to the automotive industry.

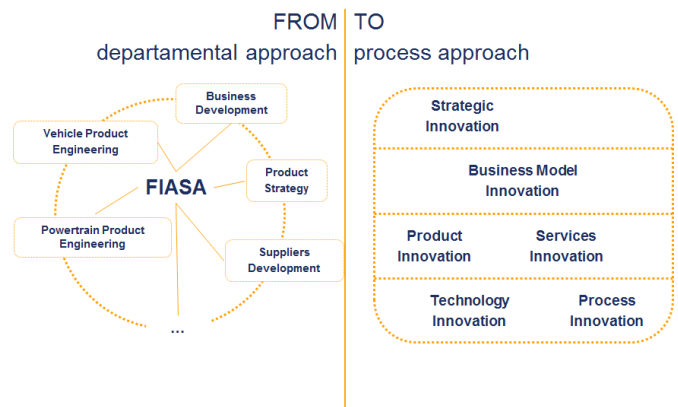
Most of an automobile’s components are outsourced, prompting the automotive industry to be, as seen from this viewpoint, an open industry. Thus, some innovation practices are developed together with suppliers. However, Fiat does not think it does Open Innovation as it would like, and should still trek along centralization, conduction and orchestration of an innovation network. The Open Innovation management found, in this sense, a major success case with Fiat Mio, which involved consumers in an open platform, sending suggestions for the development of a new car. The experience was deemed interesting and yielded good results, albeit having been done for a concept-car only and not for a product that would begin its production line and conquer a market.

STRATEGIC LINES

Having the current innovation scenario outlined in 2011, Fiat began to draw the strategic lines and

the objectives it pursues seeking the organization’s innovation.

Part of Product Engineering, previously being an “innovation sector”, was shifted to become a new work area, linked to the Business Development directorate. The new positioning of the team that would work directly with innovation was important, because the subject gained strategic and vital status in the company.

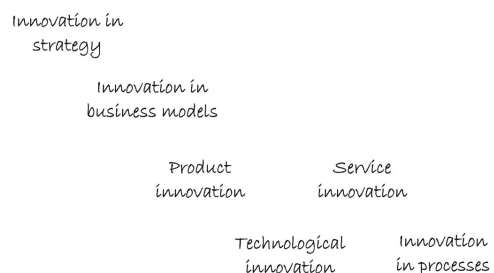


Innovation management change at Fiat Automóveis. Source: Paulo Matos, Fiat (2011)

Fiat seeks growth that has innovation as its main support. The company seeks to exit the product and service technological innovation level and raise innovation management to other dimensions, new business models, at the corporate strategic level and transversally, that is, innovation should reach all company levels and areas. Thus, the strategic objectives and a new innovation management methodology were defined.

Fiat's innovation dimensions

To raise innovation management to other dimensions other than just processes and technologies, products and services.



Source: Paulo Matos, Fiat (2011)

MANAGING FOR INNOVATION

The new management was assembled upon eight pillars, called building blocks:

1. Strategy and objectives
2. Processes and methodologies
3. Metrics
4. Support platforms
5. Organization
6. Communication
7. Training
8. Network

The pillars are also the base of the three macro-processes also called *Plants*:

Strategic Planning Process, or Exploratory Plant

Linked to the company's strategic plan, the exploratory innovation process will work upon trend analyses, growth spaces and strategic innovation morphing into corporate strategies. This process is directly related to the highest corporate level.

New Business Model Creation Process or the Disruptive Plant

Having a strategy, objectives, a view of opportunities and space for growth, the Disruptive Plant began to work on innovation seeking to establish new businesses. The challenges are stated by the company and tackled with a series of tools until such time as three or four new manners to solve the issue appear. What is important in this process is not doing better, but doing new. That is, the process is not designed to correct already existing process errors, but to devise entirely different ways of doing. This process does not seek, for example, new manners of reducing fuel consumption, but new fuels to be alternatively consumed.

Incremental innovation process or the Incremental Plant

Although the disruptive process may seem more interesting, incremental innovation is vital for the company. It is related to the plant's daily

operations, to the culture of innovation, to the DNA, it corresponds to quality, to programs such as WCM – World Class Manufacturing, and the BIS – an employee idea creation program – processes already crystallized in the company.

INTERNAL NETWORK

For optimal operations, each one of the Plants should secure a network of people in the organization who may contribute with the necessary content and analyses necessary for the process to move along. While the **Exploratory Plant** is linked to strategic planning and therefore related to a network of the highest level in the organization, the **Incremental Plant** seeks to include in its network the employees who handle the task of building an automobile on a daily basis.

To set up the innovation strategic planning, a network structure was established with 70 network nodes and a platform counting on almost 600 participants. When the new strategy was launched, people directly related to the process met there, and became also responsible for the routes the company was following.

INNOVATION PLANT ELEMENTS

Core team: leads the process and organizes information. Commands the necessary methodology.

Network: produces contents and contributes towards the dynamics. These are the people with greatest adherence and proximity to the methodology.

Involvement: of all levels, at different intensities. From senior management, involved in the innovation's strategic planning, through the workers with whom the modus operandi is explored, passing through all plant sectors.

Process: dictates the linking of the actions, such that innovation can proceed systematically.

Cycle: dictates periodicity and intensity. For innovation to be seen within the strategic plan, processes require a beginning, middle and end such that they can be measured and reorganized in the best manner.

Results: represent the innovation created. It is important that the company be clear concerning what it is that it seeks, what its objectives are and where it intends to arrive.

CONCEPT CARS: TECHNOLOGY AND DESIGN

Some of Fiat do Brasil's innovation projects and new technologies are being applied to vehicles fully developed in this country by the company. The so-called "concept cars" are windows into the research that the automaker is conducting. Shown in major events, they bring along new materials, new fuels, connectivity possibilities and differentiated design, showing automobile market trends.

One of the innovations brought by the Fiat Concept Cars is the application of natural fibers investigated in the Brazilian flora – which possesses a vast diversity and a lot of potential for this type of material. The Fiat Concept Car II is one such example. The buggy-type vehicle, introduced to the public in 2008, is electrical and its body was produced with natural fiber-reinforced materials, however, there logistic challenges for the innovative material to be put on-line, including supply chain concerns.



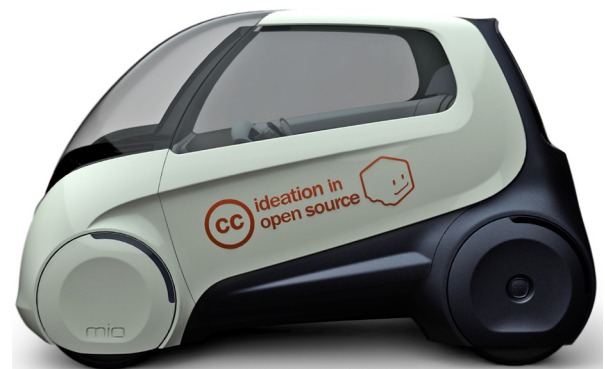
Fiat Concept Car II.
Source: Fiat Release.

Another item that is present in the Brazilian innovation list is biofuel and alternatives such as the electric motor. Fiat was the first Brazilian automaker to provide an electric car solution in the country when it offered the Electric Palio Weekend. Electro-electronics is another Fiat innovation front in the country, with the purpose of developing technologies that will provide cars with greater connectivity.



Electric Palio Weekend
Source: Fiat Release.

Fiat Mio is a concept car, introduced to the public in 2010, and accumulating all these innovations. It also represents a unique example of project management, executed upon an open platform, with intense consumer participation that yielded 1.5 million visits to the project site, over 17,000 of which related to the power train, materials, safety, ergonomics and design.



Fiat Mio
Source: Fiat Release.

INNOVATION FOR SUSTAINABILITY

Muitos dos projetos de inovação da Fiat têm oMany Fiat innovation projects have the purpose of preparing the cars for an inevitable, increasingly near future: that of sustainability and connectivity. Therefore, concept cars are using some innovative,

“green” elements, such as some new types of biofuels or electric motors.

The Electric Palio Weekend was built within this perspective, more real than a concept car, but still unavailable in the market. Fifty units were made for electric power utilities in Brazil.

Before the electric car project became real, Flex Fuel cars began to overcome those that are exclusively gasoline-powered. Today, 99% of the cars sold by Fiat are Flex-fueled, using a technology that is a precursor of new biofuels and an important alternative to the market, as a less polluting solution.

As a plant, Fiat also resorts to research & development to innovate and make its internal processes more sustainable. It was the first automaker to certify its Environmental Management System, in 1998. This entailed a reduction of the entire volume of waste and pollutants produced by the company. Power consumption dropped to 346 kWh from 795 kWh. Waste created per vehicle was 400 kg. It dropped to 231 kg. Domestic waste was 440 t/month and dropped to 106 t/month. Water consumption per vehicle made dropped from 8.0 m³ to 2.19 m³, and water recirculation is now 99%, from 60% previously. Gases produced in the painting, drying and welding processes are collected, filtered and purified, eliminating pollutants. Fiat was the first automaker in Brazil to eliminate solvent air emissions. Today, 100% of all plant waste is recycled.

THE AUTOMOTIVE SCENARIO AND CHALLENGES FOR THE FUTURE

Automobiles today stand for a dichotomy in society. While still regarded as one of the great dream of consumerism of all social classes, it is also a villain in other fronts: traffic, accidents, air pollution, high household spending with fuel, insurance, taxes, etc. On the other hand, the automotive industry is one of the great drivers of the Brazilian economy, accounting for a substantial share of the domestic GDP. Cars are important in people’s lives from mobility to macroeconomic issues that will eventually affect their lives.

Fiat has been striving to envision the current and future scenario and anticipate the market. Will we stop using automobiles for our mobility some day? Alternatively, will we simply change the manner by

which we consume the automobile product? Will the vehicle of the future have a brand?

To answer these questions, to which there are no ready-made answers, either wrong or correct, Fiat understands that it increasingly needs innovation, especially business model innovation. Today it is no longer possible to do product or service or customer relations innovation alone. Answers and new business will sprout out of the articulation among all these factors.

To innovate, some competences are required. Technological, scientific, engineering and technical competences will tell what can be done. Marketing competences will tell what can be sold. With these two competences, any company can do innovation and market the result. However, the difference lays in a third competence: the competence to prompt people to desire the product.

Fiat understood that it could survive and thrive in a scenario rife with uncertainty in the intersection of these three competences. Moreover, an especially cloudy scenario, considering the massive entry of Chinese automobiles in the Brazilian market. The automaker is betting its stakes in the fact that the Chinese may imitate technology and garner sales, but would lose in the brand desirability issue.

For brand desirability to become increasingly latent, responding to the future scenario’s issues and uncertainties, innovation should be strategic, more than ever.

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