ITALIA

AXIRO

HABIT OF SOLVING

AXIRO is a **leading Italian full service engineering company** providing innovative technological solutions in a wide range of **mechanical engineering disciplines** as well as **comprehensive engineering consulting service** in Italy and worldwide.

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2006

Back in 2006 Roberto Papalia and Stefano Lanzini, both experienced Mechanical Engineers, founded the associated engineering firm **"Nova"**.
After a successful career working with top tier companies from different industry sectors, Roberto and Stefano decided to incorporate their experience founding an engineering company to deliver a wide range of engineering services to companies worldwide in the **automotive, aerospace and defense, machinery, and manufacturing**.

2008

The continued growth of the company and the increasing challenges from the customers allowed Nova to become **Nova S.r.l.** and to expand founding also **Nova Solutions D.O.O. in Belgrade, Serbia**.

The aim was to **extend the company's solutions portfolio and provide a spectrum of complex engineering services and consultancy**.
The use of the latest tools, technologies, and best practices, delivered by highly specialized and experienced engineers allowed us to provide:
- design development from study
- 3D/2D CAD modeling
- reverse engineering
- large volume/high efficient 2D drawings production
- cost effective prototypes manufacturing

2020

After more than ten years of growth, in a changing and evolving world, **Nova felt the need to keep up with the times and change attire**.
The enhancement of our human resources, always very inspiring for our evolution, took us to adapt ourselves to this new world, without losing our identity.

Nova has grown up and from 2020 we're wearing new attire. With a new name and a new surname, **it evolves becoming AXIRO Italia**.

ITALIA AXIRO
HABIT OF SOLVING

Axiro aims to evolve and expand its operations and grow its team of qualified, highly skilled engineers with a rich industry experience in various areas of expertise. The diversified individual skill-set of the team enables Axiro to be a company who provides multidisciplinary and creative solutions within highly complex engineering projects. **The experience that was acquired over the years both in Italy and overseas allows Axiro to develop additional capabilities and expertise related to specific requirements in a global environments.**

Courtesy of NASA

MISSION

"We are committed to building partnerships with organizations worldwide to deliver the best-in-class multidisciplinary engineering services and solutions."

VISION

"Making the difference for our customers with intelligence."

"People are not just AXIRO's most precious capital. We as entrepreneurs and our collaborators achieve our goals and fulfill our ideals by satisfying our customers; this is the ultimate goal of our business. As a consequence, the happiness of our team is a measure of our success."

Roberto Papalia, CTO AXIRO Italia

"We give each member of the AXIRO team trust, support, and space to express themselves, and we call for enthusiasm and the will to make a difference."

Stefano Lanzini, CEO AXIRO Italia

Stefano Lanzini,
CEO AXIRO Italia

Roberto Papalia,
CTO AXIRO Italia

HABIT OF SOLVING

Our clients turn to us because they require **innovation, improved products, attainable solutions, and a professional team able to respond rapidly** to challenges to help them achieve their business goals.

AXIRO's engineering team brings a dynamic mix of skilled professionals recognized for their wide industry experience. We pride ourselves on understanding our customers needs by providing viable consultancy and effective results allowing them to deliver better products and **solutions**.

Machinery & Industrial Components

AXIRO works out machines and components designs across an extremely wide range of industrial sectors, going from the heavy engineering of the off-shore and marine equipment to the micron-scale of wafer probing devices.

MACHINERY & INDUSTRIAL COMPONENTS

Machine Tools
- Definition of machine layout
- FEM 2D/3D design and simulation of subassemblies (spindles, slides, etc.)
- 2D/3D design of accessories and handling systems
- Frequency response analysis

Special machines in various sectors
- Machines for the cable industry
- Energy production
- Lifting and transportation systems
- Machine for steel industry

Mechanical & electromechanical components
- Industrial transmission systems
- Valves
- Engineering components
- Electromechanical components

Over the years, many companies have chosen our engineering supports and services **to give value to innovative ideas and projects**.
Among these, we have worked with:

GEICO TAIKI-SHA

Automotive & Transportation

Axiro carries out the design and development of full vehicle and components for automotive and motorsport. The main competence areas include chassis (metal or composite) and powertrain (installation, intake, exhaust, cooling, fueling, base engine).

Passenger cars and industrial vehicles
- Modeling bodywork or cab
- Modeling interior and exterior trim
- FEM design/simulation of chassis and suspension systems
- Crash simulation (Radioss and LS-DYNA)
- Metal forming simulation

Powertrain
- Engine assembly modeling
- Intake and exhaust design
- Cast parts prototyping
- FEM simulation of structure/vibrations

Motorsport
- CFD analysis of external aerodynamics
- Bodywork prototyping
- FEM design and simulation of chassis in composite materials
- Crash box design and simulation
- Suspension and steering design and simulation

Over the years, many companies have chosen our engineering supports and services **to give value to innovative ideas and projects**.
Among these, we have worked with:

dallara

Aerospace

AXIRO props its customers with **design and multi-physics simulation of aerostructures and mechanisms**, either from metal and composite materials.

Design
- Primary structure
- Secondary structure
- Mechanisms
- System installation
- Test rigs (Static and fatigue)

Stress analysis
- Structural analysis and sizing (static, fatigue and damage tolerance)
- Mechanisms kinematics and dynamic simulation
- Crash, impact, fluid-structure interaction simulation
- Thermal & thermo-mechanical simulation

Over the years, many companies have chosen our engineering supports and services **to give value to innovative ideas and projects**.
Among these, we have worked with:

LEONARDO

Consumer & Sports Equipment

AXIRO is the perfect partner from concept to the industrialization of all those goods that require a technological and scientific approach for their development.

Examples include biomedical devices, helmets, consumer electronics outer shell and internal mechanisms, plastic molded components.

- Modeling of folded metal and plastic injection molded parts
- Mold and die design
- Molding simulation
- Design/simulation of sports equipment in composite materials

CONSUMER & SPORTS EQUIPMENT

Over the years, many companies have chosen our engineering supports and services **to give value to innovative ideas and projects**.
Among these, we have worked with:

GEWISS

Our tools

CAD

- CREO Parametric (PRO | Engineer)
- CREO Elements Direct (Co Create)

- NX
- SolidEdge

- CATIA | Version 4
- CATIA | Version 5
- SolidWorks

- Inventor
- AutoCAD

- MicroStation

CAE

Pre - Post processing

- Hypermesh / Hypercrash / Hyperview
- Abaqus CAE
- Patran

Solvers

- Nastran
- Ls-Dyna
- Optistruct
- Radioss
- CREO Simulate (ProMechanica)
- Open FOAM

Computer aided engineering (CAE) has progressed within the major market industries to became a fundamental part of the **Product Development methodology**.

AXIRO Italia applies **CAD** and **CAE** in **every phase of the product development process** and regards it as a dependable tool for **engineering decision-making** as of all major elements and characteristics.

AXIRO QUALITY FACTOR

The *AXIRO Quality Factor* is based on these method values.

TEAMING UP
We are able to team up with our clients' engineers and work with them using their standards.

ACCOUNTABILITY
We take responsibility for what we do, we participate in the satisfaction of our clients' expectations, who can rely on our persistence towards the solution.

CROSS-SECTOR EXPERIENCE
We know how the very same problem is dealt with in different industrial sectors and applications.

QUALITY
We work for a long-lasting solution and for the best possible outcome.

PROMPTNESS
We are quick and effective about the requests of clients in no time.

SKILLS ASSEMBLY
We can build up the perfect working team for any specific requirement, with all the necessary expertise, with as many engineers as needed.

ENGINEERING MINDSET
All our work is made thinking the way engineers do, using ingenious solutions, thinking out of the box.

SOLUTIONS
We use our ability to identify and suggest alternative solutions.

KNOWLEDGE
We count tens of engineers with many different skills and abilities. Consequently, a high quantity of quality knowledge is on hand.

UNSTOPPABLE
We persist until the right solution is found; we try always going one step beyond.

DISCOVER SOME OF OUR SUCCESS CASE STUDIES »

SPII new Manoeuvring Bench

SPII, a leading company specialising in the design and production of integrated manoeuvring and railway components, part of the Schaltbau Group, has recently selected AXIRO to support their new design activity.

SPII has developed, with AXIRO standing behind, a test bench for the new series of regional trains. AXIRO's role has been to **support and assist SPII in updating and introducing new solutions to improve commands accessibility and ergonomics**.

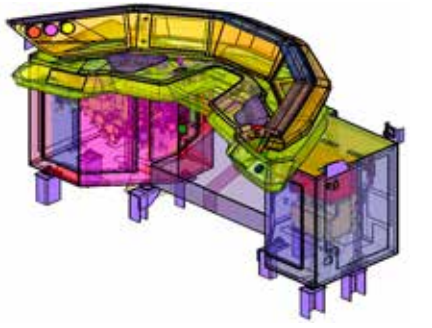
All the proposed solutions have been structurally and dynamically verified to ensure an excellent usability and the availability of a robust solution which provides the appropriate stiffness and it is not the source of undesirable vibrations.

The design activity lasted a few months and evolved with different iterations, which led to an excellent final result. For the first prototype, few modifications have been required and it has been realized in a very short time. **This has allowed considerable economic savings.**

Thanks to the contribution of AXIRO's design team, SPII's Project Manager was able to test different solutions experimenting with new improved ideas.

Furthermore, on account of AXIRO's team of designers, it was possible to evaluate different solutions encouraging SPII to experiment with new improvement ideas.

The organizational structure performed very well and the product development, although remotely carried out, did not suffer from any particular slowdowns and has benefited from the support of the entire AXIRO's back-office structure, thanks to a rapid data communication.



All the assembly was also kept under real-time control: in fact, **all involved designers were considered by SPII as the desk colleagues alongside**.

Each step has been simulated using the most suitable Software CAEs, depending on the type of calculation. Simulation indications were therefore used to improve the solution and to meet the requirements.

Eng. Silvio Zuffetti, SPII responsible of the R & D division, said: *"The activity of the AXIRO design team has allowed SPII to realize the manoeuvring bench for the Caravaggio regional train in time for the eighth edition of Expo Ferroviaria in Milan and has been greatly appreciated by the customer Hitachi Rail and also by the Railways Italy Managing Director. Also for the future SPII considers AXIRO as a partner suitable for the development of new activities to support the important international projects in which SPII is a center of competence".*

SPII Comment

Eng. Roberto Papalia, AXIRO Technical Director and coordinator of the AXIRO team devoted to support the SPII project, said: *"I am very proud we have contributed to the success of this project. I was sure of the quality of the provided design, and I never doubt the possibility of carrying out the first operational prototype in a very short time".*

AXIRO Comment

Geico Taikisha

Since over fifty years, Geico Taikisha is being recognised as one of the leading companies worldwide in the design and construction of turnkey automated auto body paintshops.

The alliance of AXIRO with Geico Taikisha started in the spring of 2019, when AXIRO was asked to carry out **resistance checks for existing plants using the FEM calculation tools that it normally used for this kind of work**.

Although Geico Taikisha is able to offer its customers fully customized plants, the company strategy wants to standardise the different parts of the plant **to pursue clear economic and realization time benefits; AXIRO's role was fundamental**.

Such plants are particularly **long, sometimes reaching hundreds of metres**, so it became essential to take a modular approach to minimise the time required for system placement and any set up works such as welding.

Among the benefits of these modular structures, AXIRO focussed mainly on the **coupling** methods, analysing them in detail **in order to optimise their functionality and facilitate assembly**.

This allowed Geico Taikisha to compose its plants from single modules, **simplifying the realization and achieving its goal of satisfying its customers**, with a special focus on their needs. In fact this even made the plant's customization process easier and simpler.

AXIRO's use of FEM calculation tools meant ad hoc solutions could be studied for each individual plant, from resistance checks, reticular structures, choice of materials to use, and above all fatigue checks of the various structural steelwork elements and commercial components (such as bearings, drive shafts, splines, etc.).

This global approach made it possible to establish the life cycle of the plant.

Eng. Giambattista Gabrione Conveyor Engineering Manager, Geico Taikisha, said: *"Geico Taikisha considers AXIRO to be a suitable partner for the development of new processes to support important international projects in which Geico Taikisha is a centre of excellence".*

Geico Taikisha Comment

Eng. Stefano Lanzini, CEO, AXIRO Italia, said: *"I am very proud to have contributed to the success of this partnership, and I am confident in AXIRO's ability to continue providing creative and innovative solutions as one of Geico Taikisha's strategic partners".*

AXIRO Comment

10 years of growth.
From 2009 to 2019.

229
CLIENTS

+160%
ASSOCIATES

612
PRODUCTION ORDERS

+218%
REVENUE

AXIRO Italia

+39 035 315 165
www.axirogroup.com
corporate@axirogroup.com

Via Ignazio Silone 81 -
24059 Urgnano BG, Italy

Axiro Srl
P.IVA e C.F. 03510670163

SCAN ME

Francesco Agostoni
+39 348 750 2880
f.agostoni@axirogroup.com

SCAN ME

Ivan Gualtieri
+39 346 729 4405
i.gualtieri@axirogroup.com

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