AUTOMOTIVE INNOVATION PROGRAMME

2017
AUTOMOTIVE SUPPLY CHAIN
AUTOMOTIVE: The Italian national context

Source: Confindustria – Internal data
AUTOMOTIVE: The Abruzzo regional context

Local Automotive Supply Chain is a strong reality constituted of a group of companies operating in the engineering and automotive sector starting from LEs up to sub-suppliers of small parts.

The industry employs more than 24,000 workers in total, 20,000 only in the province of Chieti and has a turnover of more than EUR 7bn, equal to a 20% of the whole manufacturing industry’s turnover and 50% of the regional export activities.
AUTOMOTIVE SUPPLY CHAIN IN ABRUZZO

• Industrialization rate higher than the Italian average.

• Industry contributes to the 27.5% of Chieti added value and to the 28% of employment.

• The weight of service sector is lower than the national and regional rate.

• The 40% of employee works in SEs; the 45% works in MEs and the 20% in LEs.
ABRUZZO, A DYNAMIC AUTOMOTIVE ECOSYSTEM

The Region of Abruzzo identified the focuses of its Automotive and Mechatronic Smart Specialisation Strategy in:

a) INVESTING ON NEW ECO-FRIENDLY / CONNECTED BUSINESS VEHICLES

b) DESIGNING ARCHETYPES and INNOVATIVE MANUFACTURING PROCESSES of VEHICLES AND COMPONENTS

c) IMPROVING ENVIRONMENTAL AND ENERGY EFFICIENCY

d) REAL-TIME QUALITY CHECK OF PRODUCTS AND PROCEDURES

Strengths and Goals

A large number of businesses have widened the international reach of their Abruzzo-based plants. Despite both employment rate and incomes have increased, the sites still do not host any R&D departments. Planning, designing and innovative projecting is centralised in headquarters or specialised sites.

In Abruzzo, SMEs work in close contact with larger industries; given their limited capacity and resources, those cannot undertake long-term testing, researches and studies.

Inside an ecosystem of this type, a number of challenges and opportunity open up for SMEs: re-organising productive processes, innovating technologies and, most importantly, looking differently at cooperation between suppliers and producers is key.
AUTOMOTIVE INNOVATION PROGRAMME
Shortening product life cycle and globalization increased the competition with other territories.

**Delocalization** is becoming a concrete risk when productivity is concerned. Plants located in this Region often do not have any R&D department in loco. Due to their limited structure, SMEs do not have resources in terms both of human capital and infrastructures to perform any R&D activity at all.

The **high level of technological and productive complexity** put a number of questions to local SMEs.

**DISSEMINATION**

It is necessary to increase competitiveness of the system, increase the competencies and foster the spread of the knowledge by changing the model of supply chain.
AUTOMOTIVE INNOVATION PROGRAMME

From dependence to COLLABORATION...

- To ensure an industrial qualified and independent R&D offer

To organize and concentrate the needs in terms of research and advanced services
- Consortium of AUTOMOTIVE COMPANIES (I.A.M. S.C.r.l.)
- AUTOMOTIVE INNOVATION Pole

To qualify competencies and organize and provide knowledge in the field of mechanics and automotive
- ITS “MADE IN ITALY TECHNOLOGY – MECHANIC SYSTEM”
- TECHNICAL AND PROFESSIONAL POLE

AUTOMOTIVE INNOVATION PROGRAMME

- RI&D
- Human Resources development
- Innovative Spin-off

Production chain

Educational chain
THE AUTOMOTIVE INNOVATION POLE
Innovation Pole are foreseen by the European Community (2006/C 323/01). A Pole is a clustering of independent enterprises (SMEs, LEs and research bodies, start up) active in a particular sector.

Its mission is to encourage the interaction between the different actors, the usage of common structure (e.g. labs) and the mutual exchange of knowledge and experiences, as well to contribute to the technological transfer, networking and dissemination of information between associates.

The Automotive Innovation Pole counts about 66 partners including enterprises of different sizes as well as research centres, the Engineering Department of the University of L’Aquila and the Polytechnic University of Marche.

All partner companies participate to the regional economy with:
- Turnover: EUR7 million;
- Export: 50% of the regional export activities;
- Employees: around EUR 20,000.
SUPPLY CHAIN AND PARTNERS

- Sub-suppliers
- Components/parts suppliers
- Tier 1
- OEMs
- Conversion manufacturers

SMEs

<table>
<thead>
<tr>
<th>SMEs</th>
<th>SMEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABALOG</td>
<td>ADLER EVOL</td>
</tr>
<tr>
<td>ABRAVET</td>
<td>COMETA</td>
</tr>
<tr>
<td>EM</td>
<td>EUROMEC</td>
</tr>
<tr>
<td>HONDA</td>
<td>IGEA</td>
</tr>
<tr>
<td>Leva automotive interiors</td>
<td>MAGNETI MARELLI</td>
</tr>
<tr>
<td>PROFILGLASS</td>
<td>PROMOTEC</td>
</tr>
<tr>
<td>SIA Abruzzo Srl</td>
<td>SANGRO AVENTINO</td>
</tr>
<tr>
<td>TECNOMATIC</td>
<td>TMC</td>
</tr>
</tbody>
</table>
In a logic of interoperability among the various Excellence Centers, the Automotive Program promotes the establishment of a National Cluster.

**INTELLIGENT, INTEGRATED ECO-FRIENDLY and SMART Transport System**

The aim is to encourage clustering to organize and put in common expertise, experience and facilities for research, development, design and industrialization and production of vehicles dedicated and specialized for the transport of end user products (Last Mile)

**Societal challenges:**
- Smart, eco-friendly and integrated transport;
- Actions for the climate, efficiency in terms of raw materials and resources consumption;
RESEARCH AND INNOVATION OBJECTIVES

The **Automotive Innovation Pole** acts within the framework of the Programme for Automotive Innovation, aiming at innovating the production of business and non-business vehicles (as two and four-wheel transport means for both goods and individuals) so as to strengthen the ecosystem and the industry competitiveness.

As a priority, the programme seeks to encourage the establishment of larger international companies that are successful in terms of innovation, product quality and flexibility in innovating productive processes, to the benefit of research and development, skills, education, business culture and cooperation amongst all players across the chain.

In the first place, the strategy focuses on integrating local resources and encouraging the internationalisation of businesses. Its goal is, ultimately, improving interdependency and liability as well as cooperation amongst companies, employees, educational system and institutions.
The Pole is carrying out both support and structural activities (falling under the remit of the managing entity) including:

B.1: marketing strategies for development of partnerships;

B.3: skills development and know-how sharing amongst members through conferences, seminars and workshops.

Amongst others, relevant initiatives include:
- Development of informative tools;
- Design of marketing and communication strategy;
- Organisation of workshops about entrepreneurial development;
- Organisation of networking activities with local, regional and international tech hubs;
- Development of new governance structures;
- Development of monitoring methodologies of both projects and larger initiatives.
Automotive Innovation Pole supported the development of and monitored the implementation of 8 R&D projects, financed through the ROP ERDF 2007/2013; 26 companies and the University of L’Aquila were involved, with an investment of **EUR3.5 million** and a contribute of **EUR2 million**.

The projects are:

- **SHELTER** - for the development of a new “shelter” system, made modular and interchangeable;
- **INCIPIT** - on planning and implementation of new products/industry processes;
- **TECNA4AUTO** - for encouraging the use of nanotechnologies in automotive;
- **TRACKING SYSTEM TO WELD** - Developing new control and guidance methods of welder processes;
- **RE-SEAT** - Re-engineering productive processes so as to lighten the car seats;
- **MEPROS** - Integrating moulding methodologies and innovating processes and products;
- **PREMIUMHOSES** - Producing higher-quality oleodynamic pipes;
- **MINI DISCOVERY** - Pilot project on innovative modular e-drive.

In addition, Automotive Innovation Pole realised **24 short-term projects oriented towards transferring technology**, which had immediate and notable results. Benefits for companies were relevant, being those able to borrow technologies or methodologies from other sectors or industries, so as to face unexpected challenges or meet new business needs.
Other on-going activities include support, implementation and monitoring of 11 R&D projects, financed through the Cohesion Fund 2007 – 2013, as clarified in the Regional Implementing Programme. 15 companies as well as the Universities of L’Aquila and Marche have participated. The whole investment reached a total of **EUR14.5 million** on top of a contribute of **EUR8 million**. The initiatives will be finalised in 2018.

A number of projects, as the ones below, have interested the regional production of FIAT Ducato trucks:

- **CLIC** - Chassis Lightweight Innovative Components: innovating material and technologies for new-generation front suspensions;
- **INSTANT** - Innovative Solution for Tubolar Axle multiThickness: realised through combining advanced technologies and new materials;
- **NanoPrePaint**: usage of nanotechnologies for creating eco-friendly painting and complying with new standard requirements;
- **SAPERE** - Soluzioni Alleggerite PER Porte Laterali Scorrevoli Elettricate: designing of lighter electric sliding doors;
- **STEVE** - Sistemi Termici ad alta Efficienza per Veicoli commerciali di nuova generazione - High-efficiency thermal technologies for new-generation business vehicles;
- **TEMPRA** - TEcnoLogie e MateriaLi innovatiVi PeR l’Alleggerimento di strutture primarie veicolo: Weight reduction of the vehicle’s basic structure;
- **TUR** - Telaio Ultra Ribassato: archetype of downsized and lightened back looms.

Other projects include:

- **DOOR RING** - development of both the moulding process and the production cells, in order to industrialise the production of certain components: specifically, it aims to design an archetype of a «door ring»;
- **PREMIUMHELMET** - development of composite material including reinforcing fibres;
- **SMART ROLL** - application of “Smart Roll Technology” applicable to e-engines;
- **WTEC4HOSES** - New technologies for hydraulic hose assemblies.
PROJECTS AND RESEARCH FOR TECHNOLOGY TRANSFER

Other projects, aiming at the same objectives, have been already implemented and finalised:

- Industria 2015 - progetto Mobilità sostenibile MS01_00006 “AUTOBUS ECO-COMPATIBILE OTTIMIZZATO PER LA MOBILITÀ URBANA SOSTENIBILE” (2015 project - MS01_00006: eco-friendly busses for sustainable mobility)

- Industria 2015 progetto “Made In Italy: DEFCOM” (concluded)

- Progetto Ministero dell’Ambiente “VEICOLI INNOVATIVI A RIDOTTE EMISSIONI PER IL TRASPORTO URBANO MERCI & PERSONE” (Ministry for Environment – Project “Innovative low-emissions vehicles for transportation of goods/individuals”)

- Progetto MATRECO - processi di funzionalizzazione dei materiali estetici e strutturali per interni nell’ambito del Programma Operativo Nazionale “Ricerca e Competitività 2007-2013” Regioni Convergenza. (Concerning: functionalization of automotive interior materials – developed within the Programme “Competitiveness and Research 2007 – 2013”)

With a total investment of EUR2.8million
In relation to the Pole’s activities at the EU level, the projects below have been implemented within the VII Framework Programme (and already finalised):

**Factory of the Future:**

- **ENEPLAN** (PRIMA INDUSTRIE) - Decreasing weight of car seats through applying cheaper techniques: specifically, related to hydroforming, moulding and welding;

- **Know4Car** (VOLVO) - Improving seller-consumer relationship during the planning stage.

**Green Car Initiative:**

- **EVOLUTION** (PININFARINA) - Components for ultra-light modular vehicles made with light alloys and composite materials;

- **CONVENIENT** (CRF) - Efficient industrial vehicles, recovery of kinetic energy from trailers and development of systems for active aerodynamics.

With a total investment of **EUR2.4 million**

**Other initiatives, beneficial for automotive innovation:**

- Participation in national technology clusters, such as the one focussing on “Mezzi e sistemi per la mobilità di superficie terrestre e marina” *(which is leading the development of innovative techniques for road and sea transport)* and to the managing body of the National Cluster “Trasporti Italia 2020”;

- Pooling resources and improving collaboration, so as to boost competitiveness and innovation through know-how sharing.
PROGRAMMING PERIOD 2014/2020: ACTIVITIES

After the publication of the new ROP ERDF, several other initiatives oriented towards enhancing innovation and focussing on technology transfer have been mapped out; the Pole is one of the service providers.

Further to the Programme Agreement, currently under evaluation, the Pole is going to be involved in promotional activities of the National Cluster “Trasporti Italia 2020” (Italy for Transport 2020).

In addition, the Pole committed to supporting the planning of few R&D projects within the call for projects “MISE Horizon 2020” and ROP ERDF 2014-20, as well as other calls.

In 2017, two additional projects will be embarked upon:

- **H2020 FreeWheel** (call H2020-IND-CE-2016-17 – Industry 2020 in the Circular Economy): currently, the European Commission and the partners are in the phase of signing the Grant Agreement. The official kick-off should take place in September/October 2017.

  The project focuses on easing the production of electric vehicles for passenger with reduced mobility by making it modular, easy to manage and easy to re-configure. IAM will involve Lazzerini Srl, as third party, for all things car seats.

- **Erasmus + A.U.T.O. 4.0** - *Understanding and Achieving Automotive Training Outcomes 4.0*: is about skills and long-learning for employers, in an effort to achieve a 4.0 Automotive Industry. IAM is project leader and, whilst the project has been approved in July 2017, it will start officially in October.
**PROGRAMMING PERIOD 2014/2020: ACTIVITIES**

- **EMERGE Project and 5G testing in L’Aquila**

The “EMERGE” Project looks at boosting the Intelligent Transport Systems sector by identifying new solutions for improving mobility and managing mobility flows, based on the outcomes of analytics of online interactions.

Smart vehicles could produce a huge amount of data and would potentially be able to receive and elaborate data emitted by other sources. Aggregated big data could be either improve each single vehicle’s performance or benefit the whole network of smart transport means (amongst others: designing routes, improving safety, clarifying liability, enhance driverless transportation).

The project establishes a partnerships between the University of L’Aquila, manufacturers and research centres (RadioLabs) or IAM (Polo Innovazione Automotive – Automotive ). Additionally, the project will benefit from existing business relationships as well as the participation of FCA and Fiat Ducato (a Strategic Plan FCA-CRF is being drafted with Fondo Crescita Sostenibile).

The initiatives foresee:

- the establishment of a **Centre of Excellence** (Centro di Eccellenza), within the University of L’Aquila, in charge of promoting the research on automated and connected vehicles by using the methodology Galileo (the control centre is based in Abruzzo) and 5G technologies (MISE stated that L’Aquila should be one of the 5 Italian cities testing 5G technologies).

- The **Innovation agreement** (Accordo per l’Innovazione), aiming at the development of a navigation/ communication platform for transport systems. MISE will receive the plan as application for fundings.

- Pilot project on **5G roll-out** in L’Aquila; FCA is also a member.
THE NATIONAL CLUSTER
THE NATIONAL CLUSTER: Means and systems for road and sea mobility

Sustainable mobility can be defined, in coherence with the European strategic vision and roadmap, as

MOVING PEOPLE AND GOODS IN A ECO-FRIENDLY, ECONOMIC, ERGONOMIC, SAFE AND INTERCONNECTED WAY

The Transportation 2020 Cluster has the main goal of creating a network between the different supply chains operating in the road, sea and rail transportation industry with the aim of generating for research and innovation in these sectors:

- Guidelines and new systematic approaches focused on
- The recovery of competitiveness of «Made in Italy» solutions

The Cluster will foster the strategies which aim at

- enhance complementarities
- facilitate solutions to common problems
- expand the supply chain network following an intermodality approach
ITS – MECHANICS AND TECHNICAL-PROFESSIONAL POLE
ITS – Mechanics and Technical-Professional Pole

- Two-years course with final Diploma
- 4 semesters (1800/2000 hours)
- About the 30% of the total hours amount spent into a company
- 50% of teacher coming from industrial world
- Immediate assignment of each student to the reference company

**Six different professional courses**

The Innovation Pole foresees an inter-connected offer between the educational and productive supply chain and sets up important challenges for the Automotive Program.

Fields of activity are:

- Training on the job
- Continuous learning
- Refresher courses
- Cooperative learning
EXPECTED IMPACT
EXPECTED IMPACT

For the automotive supply-chain operators

- To increase of the scientific and technical competences (companies-employees-educational supply chain) to specialize and characterize the regional reality
- To increase of the competitiveness of the local supply-chain
- To reinforce the establishment of multi-national firms in the regional environment
- To develop scientific and technical competences of local SMEs
- To stabilize the level of regional employment

For the territory

- To control and contain the effects of the economic crisis on the Gross Regional Product
- To low the level of emissions and the impact on the environment
- To improve the efficiency of mobility system to reduce transportation costs
- To foster the diffusion of the culture of scientific research and of its social value in all the sectors
CONTACTS

- Website: [www.innovazioneautomotive.eu/en](http://www.innovazioneautomotive.eu/en)

- E-mail polo@innovazioneautomotive.eu

- **Contact person**
  Raffaele Trivilino
  rtrivilino@innovazioneautomotive.eu
  Tel. 0039 0872 660305