ITALIAN DESIGNS

Formed to help with product development programs, From Concept to Car continues to go from strength-to-strength.

Piemonte, the cradle of the Italian automotive industry, is home to 1,400 companies and more than 75,000 employees. This region offers business and competence – from the concept of the vehicle to its final delivery, including project planning, prototyping, styling, robotics and automation, components and mass production, industrialization of the product, and test driving. Some 40% of Italy's suppliers are located in this region, with a peak of 75% of module and systems suppliers. Studies show that around 100 million vehicles launched in global markets have been designed in the Piemonte region.

In the last few years, the From Concept to Car project has been established with the Torino Chamber of Commerce, which promotes skills and capabilities abroad, and searches for automotive suppliers looking to outsource valuable support activities. As well as being Torino's Chamber of Commerce's project, From Concept to Car is also partly financed by the Piemonte Region Authority, the Italian Ministry of Economy and the European Union (EU).

Due to the technical and logistic assistance within the project team, purchasing managers from vehicle makers, system developers and module suppliers can seize the opportunity to check the supplying offer of the 150 From Concept to Car member companies, which when grouped together have the capacity to manufacture a vehicle from the drawing board through to engineering, prototyping, automation of components and systems, manufacturing and logistics.

Since 2002, over 30 international brands have benefited from assistance from the project – free-of-charge due to public financial backing. The project has helped customers find first-class suppliers for products and services, as well as reliable partners for joint venture projects.

Outstanding features of the From Concept to Car member companies include the capacity to innovate and conduct R&D activities. Some 45% of the companies have their own R&D facilities, and over 30% have registered patents in the last five years. A further 25% have participated in national or European research projects.

International buyers can have a closer look at the Piemonte companies' innovation skills at Engine Expo 2007, the prominent event dedicated to the presentation of new products and technologies in the auto powertrain field. Engine Expo takes place on 8, 9 and 10 May at the Stuttgart Messe in Stuttgart, Germany.

From Concept to Car plans to use Engine Expo 2007 to show the testimonial product of Piemonte – the new A-TRIX – a three-wheeled hydrogen-powered vehicle that has been entirely developed within the Piemonte regional borders due to the cooperation between a From Concept to Car member company and the Research Institute Environment Park, which was founded in 1996 by the Piemonte Regional Authority, the Province and the City of Torino with the support of the EU.

The A-TRIX is a prototype three-wheeled electric scooter developed by AUTOSTUDI in Italy. It has been conceived as a new vehicle devoted to urban mobility. A-TRIX boasts vehicle dynamics that are intended for people looking for a new and fresh way to enjoy driving.

Due to its three-wheeled engineering design, the scooter allows the driver to operate the vehicle in a standing position. The driver tilts his/her body from left to right to turn the vehicle, a motion that's similar to skiing. The tilting mechanism is one of the major innovations on the A-TRIX.

The power system is based on a hybrid architecture developed by HySyLab, which is part of the Environment Park Institute. The fuel-cell (300W and 20 cells) is connected in parallel with a battery pack

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The engine power demand. The A-Trix endurance is more than one hour in normal driving conditions. Performance capabilities at Engine Expo 2007 will also be represented by companies presenting papers at the Open Technology Forum.

Also on show at Engine Expo will be the Sinauto Engine Simulator—the first low-cost, portable and flexible engine simulator system on the market, which promises to be the ultimate device to setup and test electronic control units.

Empowered with a built-in library, which is used to reproduce any kind of sensor or actuator, Sinauto is able to perform onboard pre-recorded tests. It can also be used to detect software bugs and to increase ECU performance through engine power and low fuel consumption. A key feature of the system is its high flexibility levels. Sinauto can be applied to most ECUs, even next-generation derivatives, due to the option for users to define new peripheral devices on its software interface.

In a separate development, in 2005, Iveco asked Fonderie 2a to develop the aluminum component flywheel housing for the Cursor 13 engine. The reason for this was a technology change from gravity to die-casting in order to obtain a weight reduction and an economic gain in cost. The flywheel housing is an aluminum case that holds the flywheel function, a piece of equipment that takes oil away from the air in the engine. Specified by Iveco, Fonderie 2a specialized in the production of small, medium and large die-cast components. Fonderie 2a engineered the part, taking into consideration Iveco's specifications, especially in the fields of mechanical strength. In order to ensure such demands were met, Fonderie 2a engineered the part following the die-casting requirements. They then conducted fatigue analysis and behavior testing. Once the engineers found the best design, FEM calculations began. According to the results, modifications were implemented in order to satisfy a safety factor of two, which would grant stable behavior on the off-highway applications. Following these results, Iveco decided to use such technology on an additional engine.