

Press release – June 12, 2015

## Fives becomes a member of the ‘IRT Jules Verne’ to contribute to the development of factories of the future

By becoming a member of the IRT Jules Verne (a Technological Research Institute), Fives joins other key players in innovation to encourage the development of new production processes and products.

### Fives and IRT Jules Verne: projects to develop tomorrow’s solutions and equipment

Fives designs innovative, high-performance and distinctive technologies which respond to the needs of manufacturers in various sectors (steel, aluminum, aerospace, automotive, cement, energy, etc.) and contribute to the development of the factories of the future. With this objective in mind, by becoming a member of the IRT Jules Verne, Fives will collaborate on two strategic projects which relate to innovative processes (additive manufacturing) and the implementation of new materials (composites):

- The ‘FATAL’ (*Titanium & Aluminum Additive Manufacturing*) project is based on new additive manufacturing ("3D printing") processes using titanium, aluminium and steel alloys, and aims to develop new applications in the fields of aerospace, automotive and energy, which require new lightweight designs that are more effective in terms of mechanical resistance. For Fives, this project could have interesting applications in the manufacture of industrial equipment for energy applications.
- The ‘IMPACT’ (*Investigation for Manufacturing Processes Adapted to Composites*) project, which mainly targets the automotive, aerospace and energy sectors, sets out to define the most relevant technological solutions for the forming of composite materials; the setup of an industrial research facility supporting these sectors is being considered.

Each of these projects is carried out jointly by research institutes (universities, engineering schools, CETIM) and industrial groups (Airbus Group, Daher, Renault...), therefore encouraging the development of the most advanced technological solutions which are best suited to manufacturers’ needs.

### IRTs: shared research centers for industry

France’s 8 IRTs (Technological Research Institutes) concentrate academic and industrial skills from different players (companies, universities, start-ups...) allowing them to innovate in strategic fields, by working together to measure the technical and economic benefits of a given project.

IRT Jules Verne, based in Nantes, is a shared research center of excellence in advanced manufacturing technologies - Fives’ core expertise - in industrial sectors such as aerospace, energy, shipbuilding and land transport (particularly the automotive sector).

An aluminium, steel and titanium alloy additive manufacturing project

A high-speed composite materials implementation project

IRTs: Technological breakthroughs to improve competitiveness in French industry



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### **Fives, using innovation to encourage growth**

**Fives:  
R&D in  
partnership**

This agreement between Fives and IRT Jules Verne meets the Group's objective to adopt an "open innovation" approach by collaborating with other players (research, schools and businesses) in order to encourage the development of new technologies. In the same vein, a partnership was signed with CEA Tech at the end of 2014 to guide technological development programs in several areas (new materials, mobile robotics, thermal storage, etc.).

Along with international development, innovation is one of Fives' key strategic development areas; in 2014, Fives invested 33.1M€ in research & development and held, at the end of 2014, 1852 existing patents, including 53 applications filed during the year.

#### **About Fives**

Fives is an industrial engineering Group with a heritage of over 200 years of engineering excellence and expertise. Fives designs and supplies machines, process equipment and production lines for the world's largest industrial groups in various sectors such as aluminum, steel, glass, automotive, logistics, aerospace, cement and energy, in both developing and developed countries.

In all these sectors, Fives designs and manufactures equipment and innovative solutions, which better anticipate and meet the needs of its customers in terms of performance, quality, safety and respect for the environment.

In 2014, Fives achieved a turnover of 1.5 billion Euros and employed about 8,000 people in over thirty countries.



**Press contact:**  
Claire Mathieu  
+33 1 45 23 76 21  
[claire.mathieu@fivesgroup.com](mailto:claire.mathieu@fivesgroup.com)