

# ITALY DAY

## ABSTRACT TABLE OF PROJECT PROPOSAL

**PROJECT Nr. 27**

<b>SECTOR:</b>	Construction industry
<b>PROJECT IDEA IN A HEADLINE:</b>	Wearable Force Supportive Robotic Device: an effective innovation to actively increase the safety at work
<b>INNOVATIVE POINTS:</b>	Differently from the traditional approaches aiming at increasing the safety at work through a suitable organization of the processes, the project proposes the development of an innovative technology that actively intervenes during the execution of the operations requiring the manual complex handling of materials. The technology consists of an advanced Force Supportive Exoskeleton, wearable on the body of the worker and able to reduce the biomechanical overload, due to the manual handling of loads. In more detail the envisaged device will be able to generate supportive force during the manual operations, allowing at the meantime the full mobility of the human body. The exoskeleton will exploit a novel concept of actuating system, assuring the intrinsic safety of the device, the reduction to a minimum of the energy consumption and the minimal complexity of the device controller. The same core technologies can be exploited to support the elderly and the disabled in their Activities of Daily Life (ADL).
<b>POTENTIAL BUSINESSES AND APPLICATION FIELDS:</b>	Construction and Manufacturing Industries Military and Civil Logistics Rehabilitation and Assistive Devices for Elderly and Disabled
<b>CHARACTERISTICS OF POTENTIAL PARTNERS:</b>	Construction Companies Manufacturers of Medium and Large Size Mechanical Products Human Factors Research Centres Manufacturer of High Density Electric Energy Storage/Generation Components
<b>EU PROGRAMMES TO PARTECIPATE:</b>	Work programme: FP7 NMP 2013 Specific action: FoF.NMP.2013-7 "New hybrid production systems in advanced factory environments based on new human-robot interactive cooperation"

# ITALY DAY

## ABSTRACT TABLE OF PROJECT PROPOSAL

**PROJECT Nr. 27**

### **BRIEF PROJECT DESCRIPTION:**

The objective of the project is very ambitious, since the development of the envisaged exoskeleton is highly challenging from the technological point of view. Indeed, in order to be really effective for supporting the manual handling of materials, the device has to be powerful and compact (small encumbrances and lightweight) at the same time. Moreover it has to allow range of movements of the limbs as wide as those that are reachable by a subject with normal motor capability (natural limb range of motion). Finally the system has to be safe, simple, robust and energetically autonomous.

On the other hand, the potential impact on the health and productiveness can be very high.

Also the potential market of the envisaged device is potentially huge: a recent report of the European Agency for the Health at Work, evidenced that at least 20 Millions of workers in Europe suffer of musculoskeletal disorders, due to working activities.

The core technologies that will be developed in the project are potentially exploitable for applications different from the handling of materials, like the physical support of the elderly and the disabled in their Activities of Daily Life, to dramatically improve their quality of life.