

A new Sixth Framework Programme (FP6) project, funded under IST-FET priority (Information Society Technologies, Future and Emergent Technologies), will develop a new generation of embodied agents that are able to interact directly (i.e., without human intervention) with the physical world and to communicate between them and with other agents (including humans). This will be achieved through the development of new design principles, algorithms, and mechanisms that can extend the functionality of existing technological artefacts (mobile phone, WI-FI devices, robots and robot-like artefacts, etc.) and can lead to the development of new artefacts.

The project, called ECAGents, was launched in January and will have a duration of 48 months. It is supported by the European Commission with a contribution of nearly 4.3 million euro to a total budget of 7.1 million euro.

The project will develop concepts, tools, and models for analysing collections of both natural and artificial agents, and algorithms, definitions of dynamical systems, and performance analysis tools for designing artefacts that consist of evolving populations of interacting and communicating embodied agents

The project will investigate basic properties of different communication systems, from simple communication systems in animals to human language and technology-supported human communication, to clarify the nature of existing communications systems and to provide ideas for designing new technologies based on collections of embodied and communicating devices.

The project, which is firmly rooted in the most innovative and advanced IT-technology that will become widespread in the coming 10 years, includes partners that are already doing concrete experiments with robots, wireless devices, ubiquitous environments, and living systems including humans. However, its main focus is on the development of scientific foundations by using methods, insights, and techniques from complex systems research. An evolving communication system and its underlying adaptive ontology will be viewed as a complex adaptive system, and evolutionary theory, information theory, game theory, network theory, and dynamical systems theory will all significantly contribute to its study. There is today still a tremendous gap (with some notable counter-examples) between complex systems research and IT, but this project is determined to bridge this gap for an issue of major importance. The results of the project might trigger significant breakthroughs in many future and emergent technologies, from self-developing robots to the semantic web and ubiquitous wireless devices.

The consortium include leading scientists in the area of embodied cognition and complex systems from Italy, France, Switzerland, Belgium, Hungary, Sweden, Germany, Spain and Japan.

For more information see: <http://ecagents.istc.cnr.it>

**Category:** Programme implementation

**Programme or Service Acronym:** [FRAMEWORK 6C](#); [FP6-INTEGRATING](#); [FP6-IST](#)