



## School of Social Sciences

### 2013 EM Seminar series on Innovation

ref. Alessandro Rossi [alessandro.rossi@unitn.it](mailto:alessandro.rossi@unitn.it)

30 January 2013

2.30 PM - DISA seminar room - Department of Economics and Management

### “Evolutionary frameworks in innovation: exaptation and modular systems”

**Pierpaolo Andriani**

Euromed Management

#### *Abstract*

Exaptation is one of the most important and yet little studied evolutionary mechanisms in the history of species, ecosystems and technologies. Exaptation is defined as “*characters, evolved for other usages (or for no function at all), and later “coopted” for their current role... .*” (Gould and Vrba 1982). Hence, exaptation is a non-adaptive mechanism. Feathers were selected for thermal insulation and were later coopted for flight; microwave ovens started life as radar magnetrons. It follows that many technologies that today we take for granted were never invented but were instead ‘borrowed’ from other technological/market sectors. This observation poses two challenges: first, we need to understand how the leap to the new unintended function –prior to the adaptational trajectory– can be conceptualized other than as accident or contingency. At the heart of the exaptation is the indefinite, but rarely explicit, range of potential functions of existing objects/ideas. Second, we need to ascertain whether probing into exaptation and its dynamics can enhance our understanding of creativity and innovation. This talk will cover the following aspects:

1. What exaptation is: quick historical review of the concept and distinction between adaptive and nonadaptive mechanisms in technological evolution; problems and ambiguities with the current definition of exaptation in technological innovation.
2. Exaptation and modular systems: definition and characteristics of exaptation in modular systems; relationship between the process of exaptation and the multilevel dynamics of innovation in modular systems.

School of Social Sciences - Via Verdi 26 – 38122 Trento – IT

Phone: + 39 0461 282290 - Fax: + 39 0461 282335

Email: [school.socialsciences@unitn.it](mailto:school.socialsciences@unitn.it) - Website: <http://www.unitn.it/en/drss>