

**Special Issue on Multi-Agent Simulation as a Novel Decision Support  
Tool for Innovation and Technology Management**

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**Guest Editors**

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**Motivation**

Organisations and markets can both be seen as complex phenomena whose aggregate dynamics can not often be inferred from their microscopic building blocks. Different modelling methods exist to support the analyst to understand and predict the behaviour of such complex systems. However, most of these models are developed under the assumption of a state of stability, equilibrium and linearity, whereas real world organisations and markets are considered to be dynamic, non-linear and complex. Furthermore, such models are usually input-output models and therefore do not give insight into the process of getting to a state of equilibrium.

Agent-Based Modelling (ABM) and simulation, with its intrinsic multidisciplinary approach, is gaining increasing attention as a problem-solving tool in the social sciences (particularly in economics, business, finance, and politics) as well as in operations research. It is a bottom-up modelling approach where aggregate dynamics emerge from the interactions of constituent components and between components and the environment. It provides a powerful tool to study the dynamics of equilibrium and non equilibrium systems over time and its outputs offer the potential to be used for explanatory, exploratory and predictive purposes.

**Research Questions**

The development of ABM technology has been enormous in the last couple of years; however real world ABM applications found in innovation and technology management are still very sparse. This is despite the recognition of the usefulness of simulation as a decision support tool for business analysts and managers.

The transfer of knowledge, concepts, frameworks, and technologies between disciplines (i.e. between theoretical and applied sciences) represents the main barriers for ABM. A gap in the literature exists for describing how newly developed formal approaches can be

utilised by practitioners. This would bridge the gap between theoretical abstractions, where the focus is mainly on the decision making process to case based models, where the focus is mainly on representing the decisions made.

We are interested in contributions that can help to close this gap. Issues of interest include, but are not limited to:

- ABMs studying the impact of innovation and technology management practices
- ABMs studying innovation diffusion, market dynamics and consumer/organisational behaviour
- ABMs studying the dynamics of innovation collaborations and networks
- ABMs studying technical change and growth
- ABMs studying complex socio-economic systems
- ABMs using empirical data at the micro and macro level
- Validation, calibration, and sensitivity analysis of ABMs
- Other methodological issues

### **Deadlines and Submission Instructions**

The deadline for submission of papers is January 30<sup>th</sup>, 2010. Please submit your papers to the special issue editors directly.

### **Review Process and Special Issue Conference**

Papers will be reviewed following the regular International Journal of Innovation and Technology Management double-blind review process. It takes an average of four weeks to obtain the first round of reviews.

### **More Information**

For additional information, please contact the special issue editors:

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