

Decision making and enterprise simulation with jES and Swarm.

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ABSTRACT

jES, java Enterprise Simulator (formerly jVE, java Virtual Enterprise), is a large Swarm-based package¹ aimed at building simulation models both of actual enterprises and of virtual ones.

On the first side, the simulation of actual enterprises, i.e. the creation of computational models of those realities, is useful for the understanding of their behavior, mainly in order to optimize the related decisional processes. On the other side, through virtual enterprises we can investigate how firms originate and how they interact in social networks (Burt, 1992; Walker et al., 1997) of production units and structures, also in “would be” situations.

In both cases, following Gibbons (2000), we have to overcome the basic economic model of the firm, i.e. a black box with labor and physical inputs in one end and output on the other, operating under the hypothesis of minimum cost and maximum profit. Simulation models – such as jES – represent the most appropriate tool to be used in this direction.

Agents, in jES, are objects like the orders to be produced and the production units able to deal with the orders. In the same context, there are also agents representing the decision nodes, where rules and algorithms (like GA or CS), or *avatars*² of actual people, act. Avatars’ decisions are taken asking actual people what to do: in this way we can simulate the effects of actual choices; we can also use the simulator as a training tool and, simultaneously, as a way to run economic experiments to understand how people behave and decide in organizations. This is the big Simon’s (1997) question.

Finally, some recent improvements of jES are outlined in the presentation.

REFERENCES

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¹ Download last version from <http://web.econ.unito.it/terna/jes>.

² From www.babylon.com: s. avatar (Hindu mythology) earthly incarnation of a god, human embodiment of a deity; (Internet) online image that represents a user in chat rooms or in a virtual “space”.