

Chapter xx. Tytuł

Imię i nazwisko

Abstract Thanks to continually developing information technology.

Keywords: słowa kluczowe

1 tytuł podrozdziału

Tresc

- wypunktowanie,
- wypunktowanie,
- wypunktowanie.

Tresc.

2 tytuł podrozdziału

Tresc.

Tabela:

Table 11.1. General characteristics of properties of selected computer simulation methods (source: based on (Behdani 2012))

System dynamics	Discrete event simulation	Multi-agent simulation
System-oriented, focused on modelling aggregates.	Process-oriented, focused on details of a modelled system.	Agent-oriented, focused on modelling agents and their interactions.
Homogeneous system elements; assumed similar char-	Heterogeneous elements.	Heterogeneous objects (agents)

5th International Conference “Modern Economics”
 Springer Template: “Problems, Methods and Tools in Experimental
 and Behavioral Economics”

System dynamics	Discrete event simulation	Multi-agent simulation
acteristics of system elements; averaging of values.		
No representation on micro level.	Elements on micro level are passive objects running through a system in an imitated process (they are attributed neither with intelligence nor with decision-making capacity).	Objects on micro level are active agents that cooperate with one another as well as with their environment and make autonomous decisions.
Imitation of dynamic behaviour by means of feedback loops.	Imitation of dynamic behaviour by means of events.	Imitation of dynamic behaviour by means of agents' decisions and interactions.
Mathematical formalisation based on concept of stocks-and-flows	Mathematical formalisation based on concept of event-action-process	Mathematical formalisation based on concept of agent-environment
Continuous or quasi-continuous functions used to describe time flow	Discrete functions used to describe time flow.	Discrete functions used to describe time flow.
Experimenting through changes in system structure.	Experimenting through changes in a process structure.	Experimenting through changes in agents' behaviour rules (internal/external rules) and in system structure.
System structure is stable.	Process is stable.	System structure is not stable.

Równanie:

$$y_2 = a_{21}(b_{11}x_1 + b_{12}x_2) + b_{23}x_3 \quad (4.4)$$

Rysunek:

5th International Conference “Modern Economics”
 Springer Template: “Problems, Methods and Tools in Experimental
 and Behavioral Economics”

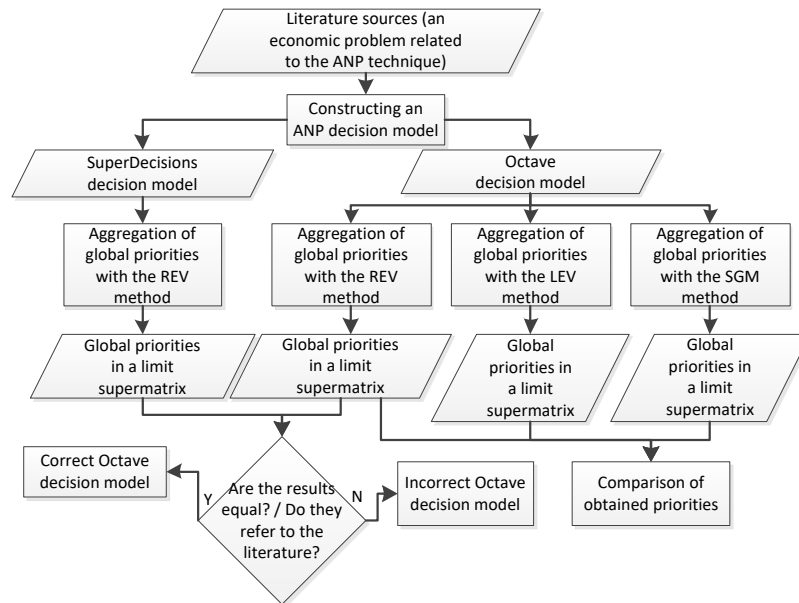


Fig. 14.1. The course of the research procedure

References

- Abrams D (2009) Learning about real economics in virtual worlds. <http://economics.rutgers.edu/dmdocuments/DavidAbrams1.pdf>. Accessed 4 March 2015
- Atlas S (2008) Inductive Metanomics: Economic Experiments in Virtual Worlds. *Journal of Virtual World Research* 1(1): 1-15
- Atlas S, Putterman L (2010) Trust among the avatars: a virtual world experiment, with and without textual and visual cues. Working Papers. Brown University. http://www.brown.edu/academics/economics/sites/brown.edu/academics/economics/files/uploads/2010-18_paper.pdf. Accessed 4 March 2015
- Axelrod R (1997) Advancing the art of simulation in social science. In: Conte R, Hegselmann R, Terna P (eds), *Simulating social phenomena*. Springer, Berlin, pp 21-40
- Bainbridge WS (2007) The Scientific Research Potential of Virtual Worlds. *Science* 317: 472–476
- Banks J, Carson J, Nelson B, Nicol D (2005) *Discrete-event system simulation*. Fourth edition. Pearson
- Barberousse A, Franceschelli S, Imbert C (2008) Computer simulations as experiments. *Synthese* 169(3): 557–574
- Behdani B (2012) Evaluation of paradigms for modeling supply chains as complex socio-technical systems. In: *Proceedings of the 2012 Simulation Conference WSC*. Huntington, California, 9-12 December 2012, pp 1-15. doi: 10.1109/WSC.2012.6465109