

Modeling Conflict Dynamics in Logistics System

Janez USENIK¹ and Tit TURNŠEK²

¹ BIRO 4D, d.o.o., Novo mesto, Slovenia

² Faculty of organisation studies, Novo mesto, Slovenia

Abstract—This paper presents the model of isolated conflict, accordant with definition also presented in this paper. System dynamics paradigm is often used to model dynamics of social interactions. Basic ideas which lead to conflict models in form of difference, respectively differential equations are presented. Tremendous progress in this field has been done by two groups of researchers. Gottman, Murray, et al. (Gottman et al., 2005) modeled marital interactions and set up model in form of difference equation. Coleman et al. established the model of group interaction in form of differential equations. There are many types of social interactions, conflict is just one of them. We define conflict as destructive, dysfunctional interaction between actors. According to this view, we set up conflict model, which arise from Coleman et al model, first in form of differential equations and then in form of stock-and-flow diagram, according to paradigm of system dynamics. We tried to keep the results of model understandable for a broad range of managers in logistics system. Formal modeling of conflict requires a rigorous definition of this phenomenon. There are many definitions which emphasize different aspects and/or types of conflict. Not every perception of different interests, goals, incompatible activities leads necessary to conflict. Many conflicts are solved before they escalate. If differences arise in a cooperative context conflict will probably takes a constructive course and will lead to progress. Conflict according to Deutsch could be constructive (functional) or destructive (dysfunctional). Constructive conflict solving process which lead to win-win situation is different from destructive conflict process which develops towards win-lose situation. Our standpoint is that this are two different types of social interactions. According to our understanding, we set up the following working definition of conflict. The conflict is always a destructive, dysfunctional social interaction between actors, characterized by perception of incompatibility of goals, interests, values, beliefs, preferences etc., and is mirrored in hostile emotional states of actors. The gravity of conflict can be measured as a levels of emotional states of actors. We stick to the traditional view of conflict, which consider the conflict as something negative, connected with quarrel, psychopathology, social unrest, etc., In any case, the conflict is disturbance, which has to be reconciliated, or abolished. We will limited our discussion (and modeling) to conflicts between two actors – to dyadic conflicts.

Key words—conflict, logistics system control, stock-and flow diagram, system dynamics.

AUTHORS

Janez Usenik, retired full professor, Faculty of energy technology, University of Maribor, Slovenia (e-mail: janez.usenik@guest.arnes.si).

Tit Turnšek, retired researcher, former Minister of Defence RS, Faculty of organisation studies, Novo mesto, Slovenia (e-mail: titturnsek@gmail.com).

Published as submitted by the authors.