

Chapter 63

Modeling Conflict Dynamics: System Dynamic Approach

Janez Usenik

University of Maribor, Slovenia

Tit Turnsek

Landscape Governance College Grm, Slovenia

ABSTRACT

This chapter touches the question of how to model conflict. The discussion is limited to inter- and intra- organizational conflicts. The focus is on the behavior of the conflict in time. A working definition of conflict, named starting theory, is given. The presented models are constructed by means of system dynamics tools. A short explanation of system dynamics tools is given. Moreover, fuzzy logic and fuzzy system are introduced. Fuzzy system models human reasoning and decision making, and is integrated in the model of isolated conflict. Three models are presented, namely: the qualitative model, the model of isolated conflict, and, finally, the generic model of isolated conflict with fuzzy system. At the end, the results of a few simulation runs illustrate the use of the model.

INTRODUCTION

Henning (2003) says that conflict is an inseparable characteristic of human relations and has always been present. Conflict arises anywhere in a society at every level, from inter-personal, intra- and inter-organizational to interstate levels. Until now, the conflict dynamics has been studied without the interaction with its relevant environment – stakeholders. The decision-making processes of stakeholders can be very well modeled as fuzzy inference systems. We integrated both models into a single model, which could be simulated. This is the main novelty of the proposed model. The discussion is limited to intra-organizational and inter-organizational conflicts, because the fuzzy inference system is always specific to the social level or to the branch where the conflicts arise, but the structure of the model remains the same or at least similar at all levels of society. Special in logistic, so-called ‘channel conflicts’, are not unusual, as they influence logistical efficiency and customer satisfaction. Specific for an inter-organizational

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conflict is that the managers are always trading to resolve the conflict first with mediation, before they intervene with more radical measures.

Essential to resolve a conflict is understanding the mechanisms which drive the dynamics of the conflict. This is the focus of the chapter. In the literature exist a few dynamic models of conflicts, but most of them observe the conflict between two (or several) actors in isolation, without the mutual influence between the conflict and its relevant environment, i.e. stakeholders. The conflict influences them and they react. Stakeholders usually, but not necessarily, try to resolve the conflict. When studying the dynamics of conflict, the interaction between the conflict and stakeholders should also be a part of the model.

BACKGROUND

Every model should have a sound theoretical background, in this text named ‘starting theory.’ When the model ‘runs’ as a computer program, it generates a lot of data, which gives us a better understanding of the conflict dynamics and a better inside view into the mechanism which drives the dynamic. Among others, such simulated models could be used to check different strategies to settle the conflict, and are a useful learning tool for the management dealing with conflicts.

There is a wide range of definitions and classifications of conflict. Conflict can be defined from different points of view. A great number of research papers is dealing with the causes of conflicts. There is also a lot of literature about the reconciliation, settlement and mediation of conflicts. There are many theories about different types of conflicts. The phenomenon ‘conflict’ is investigated in psychology, social psychology, organizational studies, management, as well as in political science and international relations. The various theoretical approaches and definitions of conflict reflect scientific fields from which individual scholars come from (Deutsch 1991).

Not every perception of different interests, goals, incompatibilities leads to conflict escalation. Some conflicts resolve themselves, whereas some are difficult to solve, and sometimes they appear to be also unsolvable. A widely used term for such conflicts is ‘intractable.’

There are many different reasons which can trigger a conflict. For instance, perceptions of incompatible goals, or harmful activities, unacceptable behavior, prejudices, but also different values, or beliefs. In any case, the reasons for conflicts are mostly based on the perceptions of actors. A certain situation two actors perceived as unacceptable and another two as an opportunity.

Conflict can be observed also as the system defined by elements and interconnections between them. When a certain object or phenomenon is defined as a system, the question of what should be included into the system and what in its environment arises. In other words, the definition of conflict as a system implies also the definition of its borders and its environment. Into the conflict as a system should be included also stakeholders (sometimes the term ‘interested environment’ is used). In case of intra-organizational and inter-organizational conflicts, these are managers.

There are not so many theories dealing with the dynamics of conflict. We are interested mostly in the mechanism which generates this dynamics. In this respect, the most relevant are the theoretical works of Deutsch (1973, 2006), Pruitt (1969), Rubin et al. (1994) and Pruitt and Kim (2004). On this basis, most models of conflict dynamics have been developed.

Dynamics models should give an insight view into the dynamics of conflict, i.e. the mechanism responsible for the behavior of the conflict in time. The dynamics of any human interaction is usually modeled by differential (or difference) equations. The model, as a matter of fact, is a theory in the sense

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