

# **Socio-Economic Analyses of the “Co-Integrative Mediation”-Model in Conflict Management Processes: Findings from a Laboratory-Based Experimental Study**

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*Conflict management has always been regarded as a major task of business management practice and as a preeminent issue of business management research. In this paper, the authors analyse the outcomes of a laboratory experiment, which was also supposed to validate an empirical field study of real world conflict solution via mediation tools in in-court and out-of-court legal cases, either with the intervention of a mediator or without. The authors conceptualise the theoretical model of “Co-Integrative Mediation (CIM)” as a comprehensive conflict management tool, based on a combination of game theory, behavioural economics, new institutional economics, and social capital theory conjectures. The application of the CIM model against the “classical” approach of conflict solution by decision of a “legitimised” institution was tested via an experimental investigation. As a result, it can be tentatively stated that “CIM” tends to show significantly superior effects concerning the economic and socio-psychological outcomes of the conflict management processes.*

Editorial note: This paper is a revised version of the paper which was previously presented and published at the WDSI 2017 Annual Conference Proceedings of the Western Decision Sciences Institute, 46<sup>th</sup> Annual Meeting, April 4-8, 2017, Vancouver, BC, Canada.

## **INTRODUCTION**

Decision making in people’s private life as well as in organisations and businesses has played a preeminent role likewise for scholars and practitioners.

In 2005, the Ministry of Justice and the Attorney General of the State of Rhineland-Palatine, Germany, characterised their notion of civil court conflict resolutions as follows: “It is all about an improved communication in family court procedures, and also about enhanced competences for the answers to questions, which are not of genuine legal origin and about the abolishment of disadvantageous consequences of court decisions” (Trossen, 2010).

Thus, he was referring to models of family court decisions known as “Altenkirchener Modell” and “Cochemer Praxis” (Trossen, 2008). Both concepts focus deliberately on Alternative Dispute Resolution (ADR) approaches, mostly including mediation tools and procedures.

In addition, the Attorney General commissioned an applied research project in order to test and evaluate the efficiency of ADR mediation models against “classical” court procedures via judge decisions. The primary objectives of this evaluation project were ultimately comprised of the following intentions:

- Sustainable enhancement of the satisfaction of all stakeholders involved (conflict parties, attorneys at law, judges, experts, etc.);
- sustainable improvement of the economic component of conflict processes, aiming at a significant reduction of input and costs for all stakeholders;
- sustainable increase of the appreciation for the input and efforts of all stakeholders involved and
- sustainably improved “climate of dispute resolution” via the implementation of constructive conflict management systems (Trossen, 2008).

As a result of this applied research project a modified conflict management model, called “Co-Integrative Mediation (CIM)”, was conceptualised and ultimately contributed to law in form of Germany’s “Mediationsgesetz” (mediation act) in 2012 (Mediationsgesetz (MediationsG), 2013).

The theoretical framework and the empirical evaluation findings of the CIM model and its application will be described and reported in the course of this paper.

### **Methodological Pluralism and Methodical Plurality from an Epistemological Perspective**

The epistemological keynote of this study is based on the notion that theories and hypotheses reflect presumptions about cause-effect-relations in reality. In this sense, theories in the empirical sciences have to be “reviewable by experience and can basically be falsified by reality” (Schröder, 2003).

Such an understanding of scientific methodology requires to set rules, which are supposed to examine the scientific character of research activities. However, so far it has to be conceded that there is no proven preference of a certain research methodology against other ones existing yet, concerning the scientific substance and validity of research projects and research findings (Findel, 2005).

This means that basically sound research findings in the empirical disciplines can and should be achieved via the utilisation of multiple sets of research methods, applied simultaneously and/or successively.

This study applies a pragmatic plural approach of scientific methods and methodology, which refers to the principles of critical rationalism on the one hand, but also takes into account that within the empirical social sciences, so far, there are no deterministic research findings existing, and stochastic theories, theorems, and hypotheses have to be accepted (Albert et al., 2005).

In our research project, the empirical design, in order to test the validity of our CIM model in comparison to “classical court decisions” (LIE), was comprised of a quasi-field experiment, conducted among real-world court cases, based on fully structured and standardised survey questionnaires. This design construct per se encompasses a mixed-method approach, including interrogation and observation methods likewise.

In order to test the external validity of the field study results, an additional laboratory experiment was conducted, aiming at finding out whether the research results remain robust under modified empirical conditions (conflict subject, differing samples) and can be transferred to various scientific disciplines (i.e. management, economics, etc.) in the context of a general conflict and mediation theory.

### **Conflict Theory and Theory of Co-Integrative Mediation (CIM) in the Context of Explanatory Game Theory, Social Capital Theory, and Evidence-Based Socio-Economic Institutional Theory**

Referring to the theoretical outline above, the explanatory framework of our CIM theory is exemplified by the elements of game theory, social capital theory, and new institutional theory.

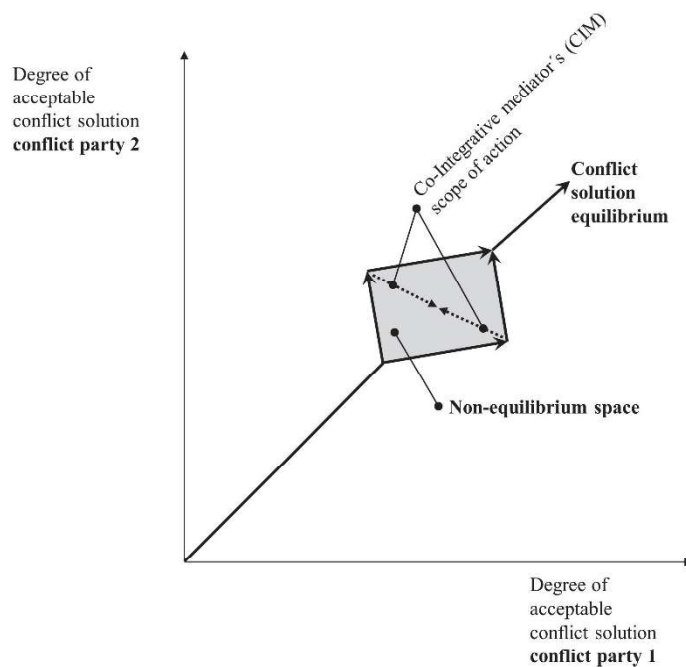
Based on those theoretical foundations, the authors developed the theorem of Co-Integrative Mediation as a comprehensive concept for general conflict management approaches. The notion of “Co-

Integration” formally refers to the so-called “Engle-Granger-Representativity-Theorem” in the area of time-series-analyses and econometrics (Engle & Granger, 1987). It describes a model of failure correction for deviations from a long-term equilibrium between two or more “integrated” variables.

The CIM-model reflects the theoretical procedure of “re-integrating” two (or more) variables (behaviour of conflict parties), which have originally shown a linear connection and have been turning into distractions from this “linearity”, due to various causes, i.e. conflicting monetary interests, induced by new circumstances (i.e. new jobs, new co-workers, new expectations) etc.

In the CIM-model, it is the mediator’s foremost task to bring back the objectives and actions of the conflicting parties to “linearity”, by trying to find a new “harmonised equilibrium” between the parties via the process of Co-Integration, applying tools of conflict solutions in a monetary and non-monetary respect, mostly by psychological “instruments”, communication, and negotiation tools. The Co-Integrative mediator’s competences to come to a new “harmonised equilibrium” between the conflicting parties play a pivotal role in the CIM-model. The following Figure 1 outlines the Co-Integrative Mediation approach in a formal structure.

**FIGURE 1**  
**CO-INTEGRATIVE MEDIATION (CIM) APPROACH**



The game-theoretical foundations of the CIM-theorem can be drafted via the following case study:

- Conflict subject: Distribution of a success bonus of 10 monetary units (MU) among a party of 2 people;
- optimal MU of each party (10/0) resp. (0/10);
- impossibility of optimal MU realisation;
- ideal distribution of MU according to the intention of the co-integrative mediator: (6/4); this ideal distribution is unknown to the conflict parties;
- exemplary probability estimate of the co-integrative mediator concerning the acceptance of the distribution  $(6/4)=0.6$  and  $(4/6)=0.4$ ;

- exemplary probability estimate of the co-integrative mediator concerning the preferred distribution function of the parties: (10/0) resp. (0/10)=0.0; (5/5)=0.5; (6/4) resp. (4/6)=0.3;
- ultimate disagreement of the parties leads to a decision of (0/0).

This scenario represents the following game theory matrices (Table 1 resp. Table 2):

**TABLE 1**  
**GAME MATRIX 1** (Neuert, 2009)

	Conflict Party 1			Co-Integrative Mediator	
	maximal	suboptimal			
Conflict Party 2	(10/0) x 0.0	(6/4) x 0.3	(5/5) x 0.5	(6/4) x 0.6	(5/5) x 0,5
	(0/10) x 0.0	(4/6) x 0.3	(5/5) x 0.5	(4/6) x 0,4	(5/5) x 0.5

**TABLE 2**  
**GAME MATRIX 2 (CUMULATIVE)** (Neuert, 2009)

Conflict Party 2	Conflict Party 1		Co-Integrative Mediator	
	(1.8/1.2)	(2.5/2.5)	(3,6/2.4)	(2.5/2.5)
(1.2/1.8)	(2.5/2.5)	(1,6/2.4)	(2.5/2.5)	

Under the above mentioned assumptions the expected MU distributions of all stakeholders involved leads to an acceptance solution of (2.5/2.5), reflecting an egalitarian distribution of the MU's of (5/5).

All stakeholders, conflict parties 1 and 2 and the co-integrative mediator, will consider the distribution (2.5/2.5) as “dominant” against all other alternatives. This is also the case with the distribution estimate of the co-integrative mediator of (3.6/2.4), because this distribution will be “corrected” by the probability estimate of conflict party 1 to (2.5/2.5).

A substantial element of conflict parties' behaviour can be seen in the trust relations, individually and collectively, of all stakeholders among each other and in mutual interdependency. Trust in interaction processes is at least basically required in order to create interaction between individuals and/or collectives at all. “Without trust there is no cooperation, no negation ..., no trade, no relationship ..., human togetherness would be simply impossible” (Jiménez, 2011).

Riemer characterises trust as an essential element of social capital, which is the prerequisite to establish and facilitate sound conflict resolutions at all (Riemer, 2005).

Concerning our theoretical construct of CIM, trust resp. social capital decisively determine the outcomes of conflict management processes.

Finally, the approaches of principal agent theory can also be integrated into a CIM model of efficient conflict management strategy. The principal agent theory basically examines and explains the exchange relations between actors, designed by potential information and power asymmetries among the conflict parties. Those asymmetries can cause inefficient conflict resolutions (Jost & Backes-Gellner, 2001). In order to avoid those asymmetries, the co-integrative mediator has to search for acceptable solutions for both parties, and thus facilitate the conflict management process by aiming at consensual agreements (Hehenkamp, 2007).

Our above outlined efficiency theory of Co-Integrative Mediation (CIM) is supposed to create a set of rules and a “constitutional framework” which allows for general “welfare” bonuses for the conflict parties (i.e. sustainable satisfaction with the conflict solution), as well as for the co-integrative mediator as the representative of the “society in general” (Neuert, 2009). In this sense, the combination of game theory elements, social capital theory elements, and new institutional socio-economic elements immediately contributes to the theoretical outline of Co-Integrative Mediation (CIM) as a concept of conflict management mechanism design. The central paradigm of this CIM mechanism design is comprised of the

so-called “social welfare function”, representing “generally desired behaviour” resp. “generally desired solutions of socio-economic interaction processes” (Albert et al., 2005).

The conflict management mechanism of Co-Integrative Mediation (CIM) aims at the optimisation of this “immanent social welfare function”, as its foremost objective.

### **Laboratory Experimental Research Design for Critical Validation of the Set of Hypotheses**

The empirical theory of Co-Integrative Mediation (CIM) as a general theory of conflict management is represented by the following set of basic hypotheses:

- H<sub>1</sub>: The degree of effect of CIM depends on the conflict subject, the competence of the integrative mediator, and the degree of utilisation of the CIM-mechanism elements.
- H<sub>2</sub>: The utilisation of the CIM-model resp. the CIM-model-elements increase the economic and socio-psychological efficiency of the conflict solution in a procedural as well as in an outcomes-based evaluation in comparison to “classical” conflict management procedures by “legitimised institutional decision” (LIE).

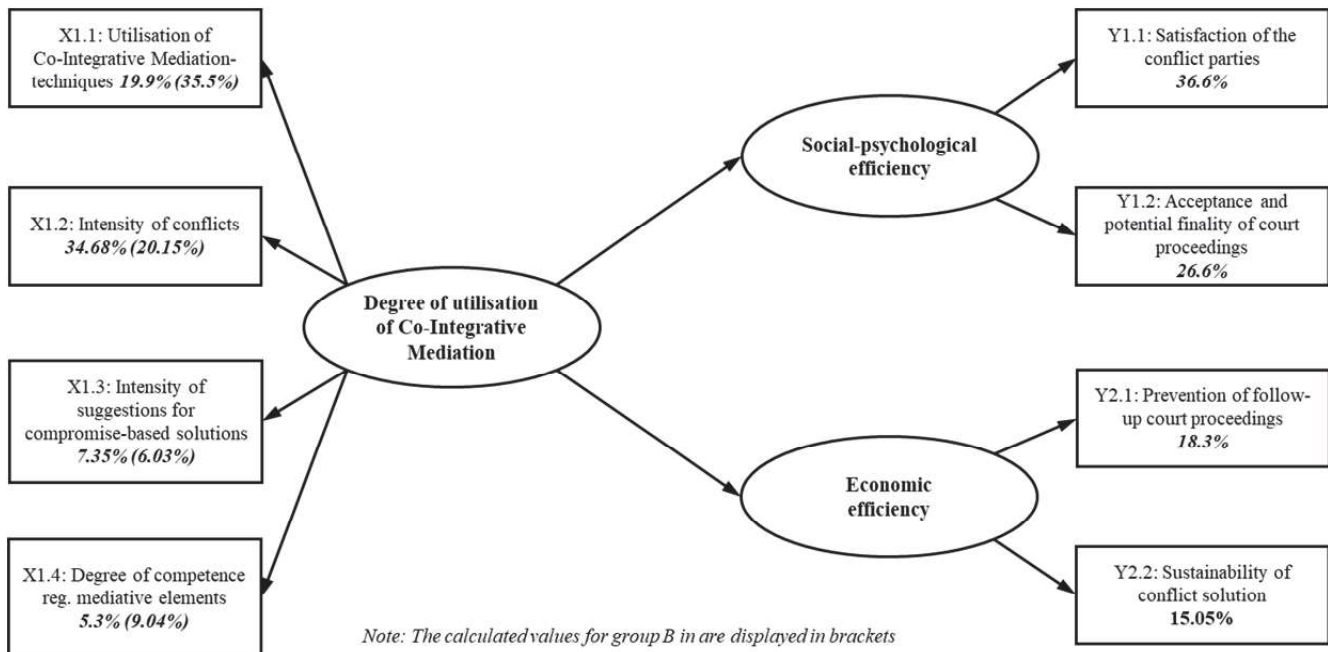
Both hypotheses will be operationalised in the course of the laboratory research design outline.

Whereas the field experiment is “characterised by the authenticity of the survey situation” (Friedrichs, 1980), the laboratory experiment is a research method, “within which the researcher creates a situation with exactly the conditions he wants to possess, and within which he controls and modifies the variables” (Festinger & Katz, 1953).

Bolton and Ockenfels, among others, try to find out about the potential external validity of lab and field experiments – vice versa –, by conducting a controlled field experiment on Ebay with the research question “Does Laboratory Trading mirror Behaviour in Real-World Markets?” (Bolton & Ockenfels, 2014). By and large, they conclude that trading behaviour in the field resembles the observations in the lab and, moreover, behavioural patterns in the field experiments represent in total the trading patterns in the real-world market (Bolton & Ockenfels, 2014).

The field experimental design of our applied research project Co-Integrative Mediation (CIM) is based on real-world court procedures about family issues, applying “integrative mediation” tools in the project group, in contrast to “classical” court decision procedures in the control sample. After the finalisation of each of the 456 court cases, all of the stakeholders (conflict parties, attorneys, judges, and experts) had to fill in a fully standardised and structured questionnaire concerning the procedure and the outcomes of the conflict processes. In sum, the findings of that quasi-field experiment can be outlined as follows, based on a comprehensive factor and regression analysis of the underlying causal model (Figure 2):

**FIGURE 2**  
**CO-INTEGRATIVE MEDIATION (CIM) MODEL** (Neuert, 2009)



The research results can be interpreted as follows: 35% of the total variance in the project group Co-Integrative Mediation (CIM) can be explained by the degree of mediation mechanism utilisation, whereas in the control group a significantly higher part of the total variance can be explained by the degree of conflict intensity. Moreover, the utilisation of Co-Integrative Mediation (CIM) mechanism explains to a large extent the variance of the socio-psychological and the economic efficiency of the conflict management procedures.

In order to create a valid and reliable situational and conditional context for a laboratory simulation model, a realistic conflict situation as an identical treatment task for both, the project group and the control group, was developed and applied in both subsamples. The experimental treatment referred to a 2 party teamwork in order to solve a classical business problem in form of the recruitment of personnel, based on a relevant job description and potential applicants' documents. The work teams had to solve this task jointly in view of the relevant questions and requirements for this decision making process. The parties were supposed to come to a unanimous decision with the "help" of the Co-Integrative Mediator in sample 1. In sample 2, in the case of contrary decision suggestions by the parties, the decision was made by a neutral "judge" (LIE). Again, the impact of the Co-Integrative Mediation (CIM) model in comparison to the classical LIE (Legitimised Institution's Decision) model was investigated.

**Recapitulatory Research Findings**

The main objective of the laboratory experiment was to review the findings provided by the field experiment. The research question, whether the empirical results of the field study would be validated by the lab experiment, was supposed to be answered. If the results of both research approaches are similar to a certain extent, the external validity of the findings would be mutually corroborated.

Both studies – lab and field – were based on a double step hypothetical procedure. Firstly, it is examined which factors resp. variables determine the degree of mediation in conflict management

processes, and secondly, to which extent different degrees of mediative behaviour have an impact on the socio-psychological and economic efficiency of the final conflict solutions.

The research outcomes can be reported as follows, representing the statistical findings of the structural equation modelling, including a series of regression analyses:

- In the field study, the effect-degrees of CIM are explained with an  $R^2$  of 0.67 (that means to 67%) by the variation of the independent variables strength of conflict, conflict subject, competence of the integrative mediator and the degree of utilisation of the CIM-mechanism elements in the project group, and with an  $R^2$  of 0.70 in the control group.
- In the lab experiment the  $R^2$  for this function was 0.684 for the project group (CIM) and 0.745 for the control group (LIE).
- The findings for the field study and the lab experiment can thus be described as nearly identical.
- In the field study, the impact of the CIM mechanism on the socio-psychological efficiency of the conflict solution is represented by an  $R^2$  of 0.63, meaning that 63% of the variation of the socio-psychological efficiency can be explained by CIM.
- In the field study, the impact of the CIM mechanism on the economic efficiency of the conflict solution is represented by an  $R^2$  of 0.34 (34% variation explanation).
- In the lab experiment, the impact of the CIM mechanism on the socio-psychological efficiency represents an  $R^2$  of 0.758, meaning that nearly 76% of the variation can be explained by CIM in the project group.
- In the lab experiment, the impact of the CIM mechanism on the economic efficiency represents an  $R^2$  of 0.795 (nearly 80% variation explanation) in the project group.
- In the lab experiment, for the control group of LIE conflict decision, the  $R^2$  was 0.914 for the socio-psychological efficiency and 0.779 for the economic efficiency (explaining 91% resp. 78% of the efficiency variation by the mediative methods' impact).

Summing up, it can be stated that the tendency of the research findings for our hypotheses testing shows a nearly uniform cause-effect-relation between the CIM determining variables and the CIM effects as well as the impact of CIM on the socio-psychological and economic efficiency in the field study, in comparison to the laboratory experiment. Conspicuously, the explanatory power of the underlying causal model between conflict management concept and conflict management efficiency is significantly more evident in the laboratory study than in the field experiment. In all likelihood, this "phenomenon" can be explained by the fact that in the lab experiment the causal variables can be more precisely extracted and operationalised than in the field study. In contrast, the external validity of the field survey might be assessed as superior in comparison to the laboratory experiment.

### **Tentative Conclusions**

Our basic research question is aiming at the identification of tools, concepts, and models for the viable management of conflicts in various societal and economic contexts. It is derived from the general notion that consensual conflict solutions resp. solution attempts are in any case superior to confrontative behaviour, at least on the long run, in view of sustainability (Dahrendorf, 1963).

The Co-Integrative Mediation (CIM) model as a general theoretical framework of conflict management refers to that very notion by providing a cause-effect-design-approach from an analytical as well as from an empirical perspective.

It was empirically confirmed that the utilisability of the CIM model, on the one hand, depends on situational and context variables like conflict subject, conflict strength, and especially on the competence of the conflict mediator and his conflict management tools. In particular, the role and the impact of the mediator were pointed out, at first theoretically and analytically. In addition, it turned indeed out as tremendously evident, based on the empirical examination studies, that the co-integrative mediator had a significantly positive impact on the sustainability and the viability of the conflict solutions.

So far, the basic ideas and convictions of ADR models were confirmed, particularly when comparing mediative conflict management approaches to “dictatorship-like” conflict decision attitudes.

Finally, it can be stated that in general the findings of field studies and laboratory studies show a relatively high degree of external validity by comparing their respective research results mutually to each other.

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