

# Efficient Collaborations in Supply Chains

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# Valorization

Knowledge valorization refers to the process of translating scientific knowledge into social benefits. In this addendum, I outline the knowledge valorization of the results obtained during my PhD.

The research presented in this thesis deals with selected supply chain collaboration (SCC) challenges: the identification and understanding of relevant drivers and resistors for launching an SCC, gain sharing and the selection of a suitable coalition partner. In addition, ways to overcome these SCC challenges are proposed. In this thesis, the majority of the research findings are based on data from the Dutch fast moving consumer goods (FMCG) industry. As a result, the knowledge valorization for companies in a supply chain as a target group has already been described in each chapter itself. In the following, for each chapter the knowledge valorization is again briefly outlined. This is followed by a short overview about other possible target groups of this research.

Chapter 2 discusses the challenge of identifying and understanding relevant drivers and resistors for launching SCCs. To eliminate a barrier before it leads to the breakdown of the SCC, it is essential for the collaborative party to be aware of this barrier. In Chapter 2, a comprehensive, structured and consistent framework including all potential drivers and resistors for launching an SCC for a broad range of SCC types, perspectives and industries has been developed. This framework supports parties in a supply chain to more holistically evaluate the considered SCC and thus helps to identify collaborations with high failure potential. As a result, the probability of sustainable SCCs, which are nowadays very important for every

company in a supply chain to be competitive on the dynamic market, is increased. The introduced framework provides to all collaborative parties an extensive checklist of drivers and resistors, which should be evaluated on their importance for the considered collaboration before launching the SCC. The framework further supports supply chain parties in their decision whether to launch a specific SCC or not. Only if the factors, which have a positive influence on SCC outweigh those with a negative influence, the considered SCC is advisable to launch.

Chapters 3 and 4 investigate the challenge of fairly sharing the coalition gain between the collaborative parties. If one party is not satisfied with its received gain share or if the party has the feeling that it is treated unfairly, future SCC are less likely to occur. As a result, in order to increase the probability of sustainable SCCs, the fair allocation of the coalition gain, which is also perceived as fair by all collaborative parties, is necessary.

Chapter 3 investigates the parties' acceptance of selected gain sharing methods. In order to be able to explain the cause of the acceptance or rejection of a gain sharing method, the influence of behavioral aspects, namely the availability of information and cognitive biases, on the party's acceptance of a gain sharing method has been observed. The incorporation of behavioral decision-making aspects ensure the practical validity of the results, since it is taken into account that human beings do not think rational. For a long time, the predominant assumption in economics was that human beings are rational thinking agents, which implies that decisions are made in a rational and consistent way. However, human beings are bounded due to limitations in available time, information and cognitive capabilities. We tend to rely on heuristics or cognitive biases to deal with complex problems. The main result of this chapter is that due to a different influence of information availability and diverse cognitive biases, no gain sharing method is accepted by all parties involved. As a result of the different influence of available information, one practical implication is to not provide the same amount of information to all collaborative parties, since this would lead to no preferred gain sharing method. Therefore, to each party separately an individual amount of information should be provided. Moreover, an influence of diverse cognitive biases could be identified. Cognitive biases make decisions more unpredictable, since decisions are not made in a rational and consistent way. In order to make the decisions more predictable, debiasing-techniques should be applied in practice. One example for a debiasing-technique is to provide all relevant information packaged

in an intuitively comprehensible and compelling format. A suggestion in regard to gain sharing would be to show a figure which provides information about the allocation of the coalition gain.

Chapter 4 proposes a comprehensive, fair and simple gain sharing system, which focuses on the maximization of the parties' satisfaction. By focusing on the maximization of the parties' satisfaction, the satisfaction of all collaborative parties with the coalition gain should be guaranteed and as a result the probability of having sustainable SCCs should be achieved. The proposed gain sharing system can be easily applied into practice, since it provides all key characteristics, which are appreciated in practice: mathematical simplicity, applicability and transparency. Furthermore, the gain sharing system only requires limited input data in order to provide robust output for the gain sharing decision. In addition, the gain sharing system includes the evaluation of important key performance indicators such as the optimal gain share allocation and the fairness properties, which supports managers to evaluate the performance of the gain sharing system.

In Chapter 5 an approach which supports parties in the partner selection process is proposed. Special attention is paid to the geographical coverage, which is an important aspects for companies especially in the transport and logistics industry. However, geographical coverage cannot be achieved alone, but collaborations between parties from the same supply chain level are needed. The proposed approach supports parties in their partner selection process by suggesting where the coalition partner's facilities should be preferably located in order to achieve a significant geographical coverage. Simultaneously, the approach might reduce the transport costs in the horizontal collaboration, which represents another huge challenge in the transport industry, by assigning the demand to the facilities/collaborative parties in a cost efficient manner. In addition, the approach ensures, that the geographical markets of the parties do not overlap, which avoids the competitive pressure resulting out of overlaps in the customer base.

In this thesis, the focus has been on collaborations between parties in a supply chain. However, collaborations do not just appear between parties in a supply chain, but also all around us in e.g. our everyday relationships or at work. As a result, the proposed approaches can also be applied, in an adjusted version, to other collaborations. In the following, some examples are provided in which collaborations are essential.

One example is the collaboration between researchers. The majority of researchers collaborate at a certain point in time to do research and/or to publish a paper together. Besides researchers, also students have to collaborate with each other at a certain point in time during their education. If students have to sit down together to exchange their ideas to solve a problem, the students are collaborating with each other. Recently, so-called real-life escape rooms have become popular. In these real-life escape rooms a group of people is locked in a room, where they have to solve puzzles in order to escape the room in a specific time frame. In order to successfully escape the room, the collaboration between the players is essential.

As a whole, I can summarize, that the research I performed during my PhD has the focus on collaborations between parties in a supply chain. However, since collaborations happen every day to multiple persons, the research findings are not limited to one area.