MASTER

The moderating effect of supply chain integration on the relationship between conflicts and the level of trust & commitment

de Bont, B.

Award date: 2016

Link to publication
The moderating effect of supply chain integration on the relationship between conflicts and the level of trust & commitment

by
B. (Bart) de Bont

Bsc. Industrial Engineering – TU/e (2014)
Student identity number: 0786662

In partial fulfilment of the requirements for the degree of

Master of Science
in Operations Management and Logistics

Supervisors:
dr. S. Rispens, HPM
ir. dr. J. C. Fransoo, OPAC

Company supervisor:
J. van Zwieten, Supply Value
Subject headings: conflict management, supply chain management, supply chain integration
Preface

The thesis in front of you is the result of t\ graduation project of my master Operations Management & Logistics. The project was conducted within the Human Performance Department in cooperation with Supply Value, a purchasing consultancy in Arnhem.

I would like to thank dr. Sonja Rispens for providing the guidance and help I needed to finish this thesis. She helped me to stay on track and provided valuable and useful feedback. Het enthusiastic and open approach motivated me to make the best of this project. I also would like to thank prof.dr.ir. Jan Fransoo for providing feedback on my thesis and functioning as my second assessor.

Special thanks goes to Jon van Zwieten, my company supervisor at Supply Value in Arnhem. During this project I saw him more as a partner than as a supervisor. As a great sparring partner he definitely gave this thesis a quality injection. It was a pleasure working together with Jon, who was always very positive and enthusiastic, but also critical when necessary. Furthermore I would like to thank Menno van Drunen for giving me a chance to conduct my project at his company and for giving me a look inside the consultancy business. As well as all the other employees of Supply Value, who provided a great working environment and immediately made me feel at home in Arnhem.
Abstract

In order to gain a competitive advantage and to keep up with the expectations of the modern customer buyers and suppliers increasingly have to work together. Because of the differences in needs and goals conflicts are bound to play an important role in this cooperation. This study tests the relationship between four different conflict types (i.e.: task conflict, relationship conflict, contribution conflict, and logistical conflict) and the level of trust and commitment between the buyer and supplier and the moderating effect of supply chain integration and conflict management styles on these relationships. This was tested with the use of 332 completed surveys from cross industry respondents working in either sales or purchasing. The findings show only negative relationships between all conflict types and the level of trust and commitment. This suggests that even though some authors suggest a positive link between conflicts and performance, this is not the case for the relationship quality. Supply chain integration however, does have a positive relationship with the level of trust and commitment, this is both a direct relationship as well as an indirect relationship through the effect of conflicts, because a higher level of supplier integration leads to a decreased negative effect of conflicts on the level of trust and commitment. Furthermore the results suggest that a cooperative resolution style yields the highest level of trust and commitment, however, most practitioners turn to a legalistic approach as the level of conflict rises. These results provide additional theoretical and practical insight in the field of conflict management within the buyer-supplier relationship.
Management Summary

The goal of supply chain management is the optimization and integration of business processes and information flows (Flynn, Huo, & Zhao, 2010). This is usually done through cooperation with customers and suppliers, where the relationship between buyer and supplier is of the greatest importance. Because external companies often have different cultures, interests and goals conflicts are often unavoidable (Jehn, 1994). This research studied the effect of these conflicts on the level of trust and commitment in the relationship. In order to do this four conflict types have been distinguished, namely, task conflict, relationship conflict, contribution conflict and logistical conflict Behfar et al. (2011).

Companies increasingly focus on supply chain management and extend process integration and information sharing with external partners. Therefore trust and commitment become increasingly important as investments are made and valuable information is shared (Kwon & Suh, 2004). Increased cooperation thus changes the relationship and it is hypothesized that this changes the effect conflicts have on the level of trust and commitment. On the one hand, the effect of conflicts is expected to decrease as additional tools can be used to cooperate, which could make cooperation clearer and easier. Furthermore, buyer and supplier get to know each other’s processes and cultures, which reduces differences in norms and values and makes expectations on capabilities more realistic. This makes that the benefits of conflict like increased understanding and more critical thinking can be increased (Dwyer, Schurr, & Oh, 1987). On the other hand, additional cooperation is expected to increase the effect conflicts have on the level of trust and commitment, because the parties have increased interdependence and have more to lose. In this research it was therefore hypothesized that increased cooperation decreases the negative effects of task conflicts, but increases the negative effects of all other types of conflict.

Furthermore conflicts can be managed in different ways. Five resolution styles, based on De Dreu et al. (2001) have been tested for moderation on the relationship between conflict types and the level of trust and commitment. Based on existing literature a cooperative resolution style is hypothesized to positively moderate the relationship between conflicts and the level of trust and
commitment, because this style is used to get a win-win outcome. This means there is an intention to come to a positive results for both parties, which can lead to additional trust and commitment.

All other conflict resolution styles (avoiding, yielding, competing, and using a legalistic approach) are hypothesized to increase the negative effects of all conflict types on the level of trust and commitment. The total model is visualized in the next figure.

Method

A survey was created based on existing literature and distributed with the use of the network provided by Supply Value, a purchasing consulting firm. 331 filled in surveys were eventually used to conduct the analysis. 191 surveys came from purchasing and 140 from sales professionals.

Results

Almost all respondents indicated that they experienced at least some level of conflict in their relationship with their main supply chain partner. Analysis showed that all conflict types have a negative relationship with the level of trust and the level of commitment. So even though task conflict is in past literature sometimes suggested to positively influence performance between buyers and suppliers (Ensley, Pearson, & Amason, 2002) it does not have a positive effect on the relationship quality. As both performance and relationship quality are important within a business relationship and affect each other significantly it is important to look at the effects of both.

The results further suggest a buffering effect of supplier integration. As the level of supplier integration increases the negative relationship between task and contribution conflict and the level of trust decreases. This means conflicts affect the level of conflict less in case of high supplier integration. A theoretical explanation for this result is that through improved information sharing and
process integration companies gain a better understanding of each other’s goals, processes and capabilities. This makes that companies have more realistic expectations and can manage expectations of the other party better, which decreases the level as well as the effect of conflicts.

Furthermore, it is possible that task conflict and contribution conflict less often turn into relationship conflict when the supply chain integration is higher, because of a higher level of trust between supply chain partners (Simons & Peterson, 2000). Other types of integration (customer and internal integration) did not seem to moderate this relationship.

With regard to the conflict management styles the results suggest that as the level of conflict rises practitioners are prone to fall back on forcing the other party with the use of contracts and legal action instead of cooperating to find a solution, even though the latter management technique seems to yield better results with regard to trust, commitment and performance. These positive results of a cooperating style, however, decrease as the level of conflict increases.

Lastly, this thesis shows that the four factor model used by Behfar et al. (2011) with regard to conflict measurement is also valid for measuring conflicts between buyers and suppliers of different companies. Previously this model had only been used in an intra team setting, but the factor analysis in this thesis shows that this model works better than the three factor model where logistical conflict and contribution conflict are combined as process conflict.

Advice

Effective conflict management is often named as a success factor of supply chain integration (Lam & Chin, 2005). Practitioners who want to integrate further with supply chain partners should therefore reevaluate and possibly redesign their current conflict management system. The most important aspects of an effective conflict management system seem to be communication, clarity, honesty and perspective. Therefore practitioners should be trained to effectively communicate their expectations, goals, and issues. This helps to both prevent and handle conflicts efficiently.

Handling conflict in a cooperative way yields the best results, this way the concerns of both parties are evaluated when decisions have to be made. Practitioners have to learn how to effectively use this conflict management style. This might call for a change in business culture for some companies as especially purchasers often only focus on their own outcomes.
# Table of Contents

**Preface** ........................................................................................................................................................................... 3

**Abstract** ........................................................................................................................................................................... 4

**Management Summary** ......................................................................................................................................................... 5

**Table of Contents** .................................................................................................................................................................. 8

**Table of Tables** .................................................................................................................................................................... 10

**Table of Figures** .................................................................................................................................................................. 10

**Introduction** ......................................................................................................................................................................... 11

1.  *Theoretical background* ......................................................................................................................................................... 12

   1.1. *Supply chain management* ............................................................................................................................................... 12

   1.2. *Buyer-supplier relationship* .............................................................................................................................................. 12

   1.2.1. *What is the role of trust and commitment in the buyer-seller relationship?* ......................................................... 12

   1.3. *Types of conflict* ............................................................................................................................................................. 13

      1.3.1. *Task conflict* .............................................................................................................................................................. 13

      1.3.2. *Effect of task conflict on buyer-supplier relationships* .......................................................................................... 14

      1.3.3. *Relationship conflict* ................................................................................................................................................. 15

      1.3.4. *Contribution conflict* ................................................................................................................................................. 16

      1.3.5. *Logistical conflict* ....................................................................................................................................................... 16

   1.4. *Moderating effect of supply chain integration* ............................................................................................................... 17

      1.4.1. *Supply chain integration types* .................................................................................................................................... 17

   1.5. *Moderating effect of supply chain integration* ............................................................................................................... 18

   1.6. *Conflict management styles* ........................................................................................................................................... 20

      1.6.1. *Moderating effect of management styles* .................................................................................................................. 21

2.  *Research Methodology* .......................................................................................................................................................... 23

   2.1. *Research Design* .............................................................................................................................................................. 23

   2.2. *Research Setting and Sample* ......................................................................................................................................... 23

   2.3. *Survey Instrument* ........................................................................................................................................................... 25

   2.4. *Measures* ........................................................................................................................................................................ 25

      2.4.1. *Conflicts* ....................................................................................................................................................................... 25

      2.4.2. *Supply Chain Integration* ......................................................................................................................................... 26

      2.4.3. *Conflict management* .............................................................................................................................................. 27

      2.4.4. *Trust* ............................................................................................................................................................................ 28

      2.4.5. *Commitment* ............................................................................................................................................................. 29
2.4.6. Control variables.............................................................................................................29

3. Results ..................................................................................................................................31

3.1. Correlations .......................................................................................................................31

3.2. Relationships between conflict types and trust and commitment ..................................33

3.3. Moderating effect of Supply chain integration .................................................................35

3.3.1. Relationship conflict .......................................................................................................35

3.3.2. Contribution conflict .......................................................................................................36

3.3.3. Logistical conflict ..........................................................................................................37

3.3.4. Task conflict ...................................................................................................................37

3.4. Conflict management styles .............................................................................................38

3.4.1. Cooperating management style ....................................................................................39

3.4.2. Competing management style ......................................................................................40

3.4.3. Avoiding management style .........................................................................................41

3.4.4. Legalistic approach to conflict management .................................................................43

4. Additional analysis ..............................................................................................................44

5. Discussion .............................................................................................................................46

5.1. Theoretical Implications .................................................................................................47

5.2. Practical Implications .......................................................................................................48

5.3. Advice ...............................................................................................................................50

5.4. Limitations .........................................................................................................................52

5.5. Future Research ...............................................................................................................53

Bibliography ................................................................................................................................55
Table of Tables

Table 1: descriptives of the respondents ................................................................. 25
Table 2: Results of factor analysis ........................................................................... 26
Table 3: Cronbach’s alphas for management style constructs ...................................... 28
Table 4: Correlation table ......................................................................................... 32
Table 5: Linear regression of conflict types on the level of trust and commitment ......... 34
Table 6: Summarized results of moderation analysis with regards to supply chain integration .......... 35
Table 7: Summarized results of moderation analysis with regards to conflict management styles ........ 39
Table 8: Summarized results testing the mediating effect of a legalistic approach ............ 45

Table of Figures

Figure 1: Types of supply chain integration ............................................................ 18
Figure 2: Conflict management styles based on Thomas & Kilman (1974) and De Dreu et al. (2001) ...... 21
Figure 3: Conceptual research model ...................................................................... 22
Figure 4: Moderating effect of supplier integration on the relationship between contribution conflict and trust .................................................................................................................. 37
Figure 5: Moderating effect of supplier integration on the relationship between task conflict and trust ... 38
Figure 6: Moderating effect of a cooperating style on the relationship between logistical conflict and trust .............................................................................................................................. 40
Figure 7: Moderating effect of competing style on the relationship between relationship conflict and commitment ................................................................................................................. 41
Figure 8: Moderation of avoiding style on the relationship between task conflict and trust .............. 42
Figure 9: Moderation of avoiding style on the relationship between task conflict and commitment .......... 42
Figure 10: Moderation of legalistic approach on the relationship between logistical conflict and commitment .................................................................................................................. 43
Figure 11: Research model for mediation analysis ...................................................... 44
Introduction

More and more companies increase focus on supply chain performance in order to increase customer satisfaction, transparency (Carter & Rogers, 2008), sustainability (Seuring & Müller, 2008) and overall performance (van der Vaart & van Donk, 2008). This involves further process integration and information sharing with supply chain partners (Flynn, Huo, & Zhao, 2010). The connectors of a company to external partners (i.e.: the buyer and seller) therefore play an increasingly important and crucial role.

Two key success factors for a healthy and high performing buyer-supplier relationship are the level of commitment and the level of trust (Kwon & Suh, 2004). Without either trust or commitment companies will not be able to integrate their processes and share information efficiently with external parties, thereby limiting the performance (Kannan & Tan, 2010; Kumar, 1996).

Factors affecting the level of trust and commitment have often been studied and conflicts between buyers and suppliers and the management of these conflicts often are indicated as essential aspects (Lam & Chin, 2005). Bradford and Weitz (2009) even found that 17% of the time spend with customers is used for conflict handling. However, even though many authors found conflicts and conflict management to be essential part of the buyer-supplier relationship, research focused on this specific subject is scarce (Bradford & Weitz, 2009; Coote, Forrest, & Tam, 2003). Therefore the focus of this research is on the effects of different conflict types between the buyer and supplier (i.e.: task conflict, relationship conflict, contribution conflict, and logistical conflict) on the level of trust and commitment of the buyer and supplier.

Because companies start to integrate further and increase cooperation with each other it was also examined whether the effects of these conflicts change as the level of integration increases. This provides additional insight in how a relationship between a buyer and supplier changes as companies start to work closer together. Furthermore, as the management of conflicts is of great importance as well, five different resolution styles (i.e.: cooperative, yielding, avoiding, competing, legalistic) were tested on how they influence the effect of different conflicts. This will show practitioners which management styles increase and decrease the effects of conflicts on the level of trust and commitment. With this insight buyers and suppliers can be better trained to handle conflicts.
1. Theoretical background

1.1. Supply chain management

Mentzer et al. (2002) define a supply chain as all companies and persons involved in producing products and services and bringing them to market, which means the gathering of raw materials, the end user and every person and company in between are part of one and the same chain. With regard to supply chain integration definitions differ among authors (Chen & Paulraj, 2004; Naslund & Williamson, 2010; Tan, 2001). However, they all seem to agree that supply chain management involves the coordination of business activities across different organizations, with the goal to improve financial and organizational performance for the individual companies and for the chain as a whole. Stock and Boyer (2009) conclude after a qualitative study that the important activities in supply chain management are material, finance, service and information flows and relationship networks. The main benefits can be summarized as value creation, efficiency, and customer satisfaction (Stock & Boyer, 2009).

1.2. Buyer-seller relationship

Because the main objective of supply chain management is to balance customer requirements, inventory management and unit cost (Stevens, 1989) the relationships with external companies are essential (La Londe & Masters, 1994). This means the buyer and seller play a pivotal role in supply chain management (Handfield & Bechtel, 2002). The buyer, as part of the purchasing department functions as the connection between the suppliers and the focal company, and the seller, as part of the sales department connects the focal company with the customers.

1.2.1. What is the role of trust and commitment in the buyer-seller relationship?

According to La Londe and Masters (1994) one of the main aspects of supply chain management is the development of trust and commitment between the different parties. This is needed in order to establish and maintain a successful partnership (Delbufalo, 2012; Kwon & Suh, 2004). Trust is in this case defined as the belief that the other party carries out its obligations and keeps its word (Mohr & Spekman, 1994). Commitment is defined as the willingness to put effort into a long term relationship (Mowday, Steers, & Porter, 1979). By keeping in mind the beneficial long
term goals, short term problems are often easier resolved in case of high commitment levels (Jap & Ganesan, 2000).

Both trust and commitment play a pivotal role in the establishment of cooperation between organizations in a supply chain (Delbufalo, 2012; Kumar, 1996; Kwon & Suh, 2004; Morgan & Hunt, 1996). With low levels of either one of them cooperation has only a small chance of success (Kwon & Suh, 2004). Also after the establishment of cooperation, trust and commitment are needed to maintain a certain level of cooperation and reap the positive results the cooperation has to offer (Kumar, 1996).

There are different ways to establish trust and commitment in a relationship. For example through consistent high performance (Selnes, 1998) and by sharing valuable and vital information with supply chain partners (Sahay, 2003). Furthermore, trust and commitment are affected among others, by the phase of the relationship, relationship benefits, shared values, communication and conflicts and conflict management (Lam & Chin, 2005; Morgan & Hunt, 1996; Sahay, 2003). As research on the latter subject in this field is often undervalued (Bradford & Weitz, 2009) this paper will focus on conflicts and conflict management between buyers and suppliers.

1.3. Types of conflict

Conflicts can be defined as perceived incompatibilities in goals, wishes, or desires between two or more parties (Boulding, 1963; Jehn, 1994). Usually they are linked to lower levels of trust and commitment (Simons & Peterson, 2000).

According to Behfar, Mannix, Peterson, and Trochim (2011) four types of conflicts can be distinguished: Task conflict, relationship conflict, contribution conflict and logistical conflict. This is more than commonly used in previous studies, where the latter two conflict types are combined as process conflict (De Wit, Greer, & Jehn, 2012) or not measured at all (De Dreu & Weingart, 2003). This distinction is made in order to distinguish task conflict better from process conflict (Behfar et al., 2011).

1.3.1. Task conflict

This type of conflict is purely about the task at hand. It is defined by Jehn (1995) as differences in viewpoints, opinions and ideas about a task. Empirical findings about the effect task conflict has on performance are contradictory. Originally it was assumed to have a negative effect,
which has been confirmed by later empirical research (De Dreu & Weingart, 2003). However, Jehn (1994) showed that in certain situations this is not the case and that task conflict can actually have a positive impact. In her research she showed that task conflict negatively impacts performance in case of routine tasks, but the effect is positive with non-routine tasks. Also others found a positive link between task conflict and group performance (e.g., Ensley, Pearson, & Amason, 2002; Liang, Liu, Lin, & Lin, 2007). On the other hand, other studies, including meta analyses by De Dreu and Weingart (2003) and De Wit et al. (2012) show that even with the consideration of task type task conflict generally does not positively affect performance.

Authors that found a positive link typically provide three theoretical rationales for these results. The first explanation is that increased discussion about the task at hand increases the level of understanding and evaluation of possibilities (Amason, Thompson, Hochwarter, & Harrison, 1995; De Wit et al., 2012). Second, people are generally more critical, increasing the level of constructive criticism and critical questioning of ideas (Amason et al., 1995; De Wit et al., 2012), which leads to a better mutual understanding resulting in higher levels of trust (Lewicki & Bunker, 1996). Lastly, researchers suggest that commitment and satisfaction can be increased by task conflict, because some participants are motivated to voice their concerns (Behfar et al., 2011). The opportunity to voice ones opinion and a higher level of understanding of the task not only lead to a higher level of group decision quality, but also to a higher level of acceptance of these decisions (Amason et al., 1995), which could mean the level of trust is higher.

Negative results are theorized to be the result of distraction and reduced commitment and satisfaction. De Dreu and Weingart (2003) explain that too much discussion about the task can distract from finishing the actual task and reaching a decision, and when this process takes too long team members can get frustrated, which leads to a decreased level of satisfaction and commitment (Simons & Peterson, 2000).

**1.3.2. Effect of task conflict on buyer-supplier relationships**

In general inter-organizational conflicts are considered to negatively affect the level of trust and commitment of the involved persons and should be minimized as much as possible (Bradford, Stringfellow, & Weitz, 2004). Examples of task conflict given by practitioners are disagreements on
product specifications and on the level of information sharing. They arise because of different perspectives that are the result of different cultures, capabilities and resources (Bradford et al., 2004). Bradford et al. (2004) studied the effect of task conflict on satisfaction and commitment with the use of 81 simulated networks and found that task conflict negatively affected both. They reasoned that this is because dealing with task related conflicts takes time and other resources that otherwise could have been spend better. This leads not only to lower performance but also lower levels of commitment. Because of the results in both intra-organizational and inter-organizational literature it is hypothesized that task conflict will have a negative relationship with the level of both trust and commitment.

**H1a:** Task conflict is negatively related to the level of trust and commitment between the buyer and supplier

1.3.3. Relationship conflict

Relationship conflict is defined as non-task related disagreements between people and is usually connected to tension, anger and annoyance (Jehn, 1995). It is generally considered negative for team performance, commitment and trust (De Dreu & Weingart, 2003; De Wit et al., 2012), because time and other resources are spend on dealing with these issues instead of on the task itself (Simons & Peterson, 2000). Relationship conflict can lead to a decrease in creativity, support for decisions, and decision quality (Amason et al., 1995). This leads to lower levels of trust and a weaker relationship overall (Panteli & Sockalingam, 2005) and decreases satisfaction and commitment (De Wit et al., 2012).

Vaaland (2004) suggests that relationship conflict can make a relationship stronger if the conflicts are handled well. This involves addressing differences in perception and revealing underlying sources for the relationship conflict. This hardly happens and still involves the reduction of relationship conflict as much as possible (Vaaland, 2004).

With regard to the buyer-supplier relationship (Bradford & Weitz, 2009) found that 85 percent of the researched salespeople experienced relationship conflict while dealing with customers and that
relationship conflict has a negative effect on both the level of trust and the level of commitment. Because of the similar research field as the research by Bradford and Weitz (2009) and a lack of literature suggesting otherwise the following is hypothesized:

\[ H1b: \quad \text{Relationship conflict is negatively related to the level of trust and commitment between the buyer and the supplier} \]

1.3.4. **Contribution conflict**

This type is defined as disagreements about the level of contribution among cooperative parties (Behfar et al., 2011). This is the case when there are discussion about the quality of products or services, or about the input and output of another party. Behfar et al. (2011) showed that contribution conflict does have a negative relationship with commitment to the task, which could lower the level of trust between the people working together (Porter & Lilly, 1996). These conflicts are often connected to feelings of annoyance and frustration, because they arise from the perception that the other party does not contribute enough, which is often seen as unfair or disrespectful. Examples of contribution conflicts between the buyer and the supplier according to practitioners are substandard product/service quality, as well as delayed payment, delayed deliveries and order cancellation (Barutçu, Doöan, Barutçu, & Kulakli, 2010). If companies cannot carry out their obligations this creates behavioral uncertainty for the other party, which likely decreases trust between the parties (Chao, Yu, Cheng, & Chuang, 2013).

Therefore it is hypothesized that:

\[ H1c: \quad \text{Contribution conflict is negatively related to the level of trust and commitment between the buyer and the supplier} \]

1.3.5. **Logistical conflict**

Logistical conflict is the strategic side of process conflict, and is defined as disagreements about the optimization, organization and division of resources in order to complete a task (Behfar et al., 2011).
Behfar et al. (2011) suggest that discussing these logistical issues prevents parties from actually doing the task, and making it less clear what exactly needs to be done. Disagreements about the use of resources also leads to decreased coordination, which in turn decreases performance. As performance is often correlated with both the level of commitment and the level of trust (Porter & Lilly, 1996) it is not unlikely that logistical conflict therefore decreases the level of trust and commitment as well. Furthermore, logistical conflicts are partly about the skills and capabilities of the other party, therefore these types of conflict easily turn personal, which turns them into relationship conflicts. This leads to negative effects on the relationship (Behfar, Peterson, Mannix, & Trochim, 2008).

As there seems to be no evidence pointing towards a positive effect of logistical conflict on the level of trust and commitment it is hypothesized that:

\[ H1d: \quad \text{Logistical conflict is negatively related to trust and commitment between the buyer and the supplier} \]

1.4. Moderating effect of supply chain integration

One way to improve business performance is further integration with supply chain partners (van der Vaart & van Donk, 2008). This so called supply chain integration is defined as collaborating on an organizational level (mainly in the field of logistics and distribution (Chiu, 1995)) and sharing information (Kulp, Lee, & Ofek, 2004) with partners both up and downstream in order to improve financial and operational performance (Flynn et al., 2010). Additionally the optimization of internal processes like inventory management, and communication channels are also included in the level of supply chain integration (Zhao, Huo, Selen, & Yeung, 2011).

1.4.1. Supply chain integration types

The level of supply chain integration can be split into three main areas (Stank, Keller, & Daugherty, 2001) as can be seen in Figure 1.
Figure 1: Types of supply chain integration

Supplier integration is defined as the cooperation with all supply chain partners upstream. This involves sharing of production schedules and inventory information, and collaboration on new product development and process optimization (Flynn et al., 2010).

Customer integration covers the other side and is defined as the cooperation and level of integrated processes with all downstream partners. These involve for example sharing demand forecasts, production schedules, and exchanging feedback, as well as integrated information and communication networks (Flynn et al., 2010; Zhao, Huo, Flynn, & Yeung, 2008).

While supplier and customer integration focus on cooperation with external parties internal integration focusses on the degree to which an organization structures and integrates its own strategies and processes, such as cross departmental information sharing and communication systems, in order to optimize the contact with both customers and suppliers (Flynn et al., 2010; Wong, Boon-itt, & Wong, 2011). As companies start to integrate further the way buyers and suppliers work (together) changes, as they can use additional tools and information.

1.5. Moderating effect of supply chain integration

Supply chain integration becomes increasingly important for companies if they want to be able to compete and deliver the performance the customer requires (Fawcett & Magnan, 2002; Flynn et al., 2010; Frohlich & Westbrook, 2001). This requires a higher level of cooperation between different organizations within the supply chain. The level of integration is suggested to positively impact performance (Flynn et al., 2010; Kim, 2009; Li, Ragu-Natan, Ragu-Nathan, & Subba Rao, 2006) as well as the level of trust and commitment between the buyer and supplier (Fawcett, Magnan, &
Besides this direct relation between the level of integration and the level of trust and commitment, it is hypothesized in this thesis that also an indirect relationship exists via the effect of conflicts between the buyer and supplier and the level of trust and commitment. This means it is hypothesized that the level of integration moderates the link between conflicts and the level of trust and commitment between the buyer and supplier. The main reasons for this hypothesis is that increased cooperation and integration between supply chain partners changes the relationship between the buyer and supplier with regard to conflicts and conflict management (Claycomb & Frankwick, 2004).

There are different theories explaining these changes. First, increased collaboration brings organizations closer to each other. Closer relationships have many upsides, but are also connected to more intense relationship conflicts, because of higher interdependence (Mohr & Spekman, 1994). The expectation therefore is that increased collaboration leads to a stronger effect of relationship conflicts on the level of trust and commitment.

Furthermore, a higher level of integration requires organizations to invest in the relationship (Das, 2005), which means they have more to lose when the relationship goes sideways. This leads to think that the negative effects of conflicts have an even bigger negative effect when there is a higher level of importance connected to them. For relationship, contribution, and logistical conflict the following is therefore hypothesized:

**H2a:** Higher levels of supplier, customer and internal integration increase the negative effect of relationship conflict on the level of trust and commitment.

**H2b:** Higher levels of supplier, customer and internal integration increase the negative effect of contribution conflict on the level of trust and commitment.

**H2c:** Higher levels of supplier, customer and internal integration increase the negative effect of logistical conflict on the level of trust and commitment.

Earlier it was hypothesized that task conflict has a negative relationship with trust and commitment, however it has also been suggested that moderate levels of task conflict can be beneficial (De Dreu,
2006). The supply chain is (because of its complexity and its non-routine tasks) a setting where some of these positive effects may be found (De Dreu, 2006; Jehn, 1995). For example, at a low level of integration the level of trust is often lower, this leads to a high correlation between task conflict and relationship conflict (Simons & Peterson, 2000), one of the reasons why task conflict is suggested to negatively impact the level of trust and commitment. In case of high levels of trust, task conflict less often leads to relationship conflict, which is positive for the level of trust and commitment (Simons & Peterson, 2000).

This means the negative effects of task conflict could decrease because of a better understanding of each other’s goals, processes and capabilities, through improved information sharing and process integration (De Dreu & Van de Vliert, 1997). At the same time higher levels of integration increases the complexity of the cooperation, and thus possibly the potential for positive results of task conflict, like more critical thinking and a better understanding of the possibilities. This is also shown by Bradford and Weitz (2009) who found that task conflict can even positively impact the level of trust and commitment between the buyer and supplier. Because of this decrease in the negative sides of task conflict, and an increase on the positive sides, the following is hypothesized:

\[ H2d: \text{Higher levels of supplier, customer and internal integration decrease the negative effect of task conflict on the level of trust and commitment.} \]

1.6. Conflict management styles

Models on conflict management often devide the management styles over two dimensions: concern for self and concern for the other party (De Dreu, Evers, Beersma, Kluwer, & Nauta, 2001; Thomas, 1992). This division is visualized in Figure 2. The different management styles as described by Thomas (1992) are as follows:

- **Avoiding**: The person does not deal with the conflict. For example to keep a diplomatic distance, or postpone the conflict resolution to another time.
- **Yielding**: This strategy focusses the solution towards satisfying the needs of the other party. The other party usually has more power and uses the competing conflict management style.
- Competing: With this strategy someone pursues his own goals, without taking the concerns of the other party into account. The most important aspect of this strategy is the use of power.

- Cooperating: Trying to get to the so called win-win situation where both parties can fulfill their own goals. This strategy requires time investments and thus high levels of commitment from both parties.

![Conflict management styles based on Thomas & Kilman (1974) and De Dreu et al. (2001)](image)

**Figure 2: Conflict management styles based on Thomas & Kilman (1974) and De Dreu et al. (2001)**

An additional style of handling conflicts is often added in an inter organizational setting, which is a legalistic approach to indicate a style of conflict management where a party points towards the agreements and the contracts. It also includes taking legal action in order to resolve the issue (Lin & Germain, 1998).

1.6.1. Moderating effect of management styles

The effect of these strategies is dependent on the circumstances. Bradford et al. (2004) found with the use of simulated networks that the cooperative conflict management style has positive effects on network satisfaction and commitment, while the effects of yielding or avoiding conflicts depend on the level of conflict. They point out the importance of choosing the right strategy for the situation, otherwise the negative effects of conflict might increase. A possible explanation for these results is that avoiding conflicts and yielding to the opponent do not really provide a structural solution to the problem, while cooperative handling does.
Lin and Germain (1998) found two of the styles to have a significant effect on satisfaction of joint venture relationships: problem-solving (which is similar to cooperating) was found to have a positive effect while a legalistic approach had a negative effect. Similarly, Bradford and Weitz (2009) found that a competing and a yielding management style negatively moderated the relationship between task and relationship conflict and the level of trust and commitment, while a cooperative style positively moderated this relationship. This means high use of the competing or yielding management style increases the negative relationship between conflict and the level of trust and commitment. The use of a cooperative style decreases the negative relationship between conflict and the level of trust and commitment.

Based on previous findings the hypotheses with respect to the moderation of conflict management styles used by buyers and suppliers on the relationship between conflict and the level of trust and commitment are defined as follows:

\[
\text{H3a. A collaborating management style decreases the negative effects of conflict on trust and commitment.}
\]

\[
\text{H3b. Avoiding, accommodating, competing management styles and a legalistic approach with regard to conflict management increase the negative effects of conflict on trust and commitment.}
\]

These hypotheses are summarized visually in the conceptual model shown in Figure 3.
2. Research Methodology

In order to test the hypotheses a survey instrument was developed based on existing literature and adapted to fit this thesis. With this instrument data were gathered from buyers and suppliers of different companies from the Netherlands and Belgium in both the private and public sector. This data has been analyzed from which conclusions have been drawn and directions for future research have been specified.

2.1. Research Design

Most researchers in the field of supply chain integration indicate that a dyadic or triadic survey design would be best (van der Vaart & van Donk, 2008). In that case for every buyer at least one supplier from another, or the same company, would have to fill in the survey, and the other way around. This, however, takes a lot of resources and lowers the response rate. Therefore only a few studies use a multiple-respondent survey design (e.g. Johnston, McCutcheon, Stuart, & Kerwood, 2004). When a single-respondent design is used often a supply chain manager of someone in a similar function fills in the survey, because they usually have the best overview of both the sales and the purchasing side of a company. This is not useful for the current study, because here supply chain integration is combined with conflict management and for conflict management the relationship between people who work together is the focus point. This means that the respondents should be on the sales team or the purchasing team. In this study both have been asked to fill in the survey individually. This makes it a single respondent research design with two separate parts: the buyer’s perspective and the supplier’s perspective.

A second thing to consider in supply chain integration research is the use of either a single buyer-supplier relationship or the relationship with all customers or suppliers. Van Der Vaart and Van Donk (2008) suggest that the first option is preferable. Especially in case of this study (the combination with conflict management) this seems necessary, because the level of trust and commitment is measured per single relationship.

2.2. Research Setting and Sample

The respondents for the survey were selected from a database provided by Supply Value, a purchasing consulting firm in Arnhem, The Netherlands. This database includes 1590 purchasing
professionals. The database turned out to be a little outdated, which meant that 175 mail addresses bounced. The usable database therefore consisted of 1415 purchasing professionals. Out of 1415, 190 people opened the survey of whom 113 completed it. This is a response rate of 8%, which is consistent with past research using the same database. According to van der Vaart and van Donk (2008) a response rate like this is not uncommon in this type of research.

Furthermore, purchasing and sales associations and networks in the Netherlands and Belgium were asked to distribute the survey to their network. The associations who cooperated were:

- NEVI (purchasing network in the Netherlands)
- VIB (purchasing network in Belgium)
- SME (Sales and account management network in both Belgium and the Netherlands)
- Verkopersonline.nl (Sales network in the Netherlands)

Both NEVI and Verkopersonline.nl distributed the survey through their newsletter. It is difficult to say the response rate, but it can be concluded that less than 1% of the people who received the newsletter answered the survey. VIB and SME distributed the survey to their members via email, which yielded better response rates, however they are still quite low. In total 219 respondents filled in the survey through these networks.

The survey was sent accompanied by an explanation of the subject and the purpose of the study. Possible respondents were encouraged to participate by providing a summary report. Data were gathered for 7 weeks in the months July and August.

In total 332 respondents filled in the survey completely for either purchasing or sales. 192 respondents filled in the survey on the purchasing side, while the sales side got to a total of 140. One respondent was flagged as an outlier with the use of Mahalanobis Distance, who was a purchasing manager working for a large company in the Netherlands. After checking the answers of this respondent it has been decided to take this response out of the database, which leaves 331 usable responses.

In the next table more statistics can be found about the sample.
2.3. Survey Instrument

The survey consisted of different constructs that are described in more detail below. The questions that are part of these constructs are based on existing literature in the relevant areas and adapted for the purposes of this study. After selecting the questions the survey was translated to Dutch. Afterwards the content of the survey was discussed with both academics and purchasing consultants who provided feedback on content and clarity of the survey.

2.4. Measures

The survey was distributed to both buyers and suppliers, thus two different surveys were made, however, most constructs were similar in both surveys. The measures are explained in more detail below.

2.4.1. Conflicts

Four different types of conflict have been measured: task, relationship, contribution, and logistical. All of these conflict types measured the level of conflict between the buyer and supplier, thus between two individuals of different companies.

Both task conflict and relationship conflict have been adopted from research by Plank and Newell (2007), who in turn based their constructs on Jehn (1995) and changed them to fit the buyer-seller relationship. For task conflict this is done with the use of 3 items (e.g.: How many disagreements about the content of the decision were there between you and the supplier?). The Cronbach’s alpha for this construct is 0.86. For relationship conflict there were 4 items (e.g.: How much personal
friction was there between you and the supplier?), with a Cronbach’s alpha of 0.86. For the translation of the items an earlier translation of the conflict type constructs was used (Rispens & Jehn, 2012).

The constructs for logistical and contribution conflict are based on the constructs defined by Behfar et al. (2011). These constructs have been adjusted to fit the buyer-supplier relationship and translated with the use of the article by (Rispens & Jehn, 2012). Logistical conflict (Cronbach’s alpha = 0.88) is measured with 3 items (e.g.: How often do you and your customer/supplier disagree about the delegation of tasks?). Also contribution conflict (Cronbach’s alpha = 0.87) uses a 3 item measurement (e.g.: How often is there tension between you and your customer caused by one or more persons not performing as well as expected?)

With the use of confirmatory factor analysis three models have been compared: A four factor model with the distinction given above, a three factor model where contribution conflict and logistical conflict have been combined as process conflict, and a one factor model combining all items. The results of this factor analysis (Table 1) show a relatively good fit (Hu & Bentler, 1999) and that conflict is correctly divided in four different factors instead of three or only one.

<table>
<thead>
<tr>
<th>Model</th>
<th>Chi square</th>
<th>degrees of freedom</th>
<th>cfi</th>
<th>rmsea</th>
<th>Confidence interval rmsea</th>
<th>srmr</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 factor</td>
<td>172.982</td>
<td>59</td>
<td>0.958</td>
<td>0.076</td>
<td>0.063 to 0.090</td>
<td>0.042</td>
</tr>
<tr>
<td>3 factor</td>
<td>407.808</td>
<td>62</td>
<td>0.873</td>
<td>0.130</td>
<td>0.118 to 0.142</td>
<td>0.060</td>
</tr>
<tr>
<td>1 factor</td>
<td>807.436</td>
<td>65</td>
<td>0.728</td>
<td>0.186</td>
<td>0.174 to 0.197</td>
<td>0.093</td>
</tr>
</tbody>
</table>

Table 2: Results of factor analysis

All four types of conflict use the same measurement scale, namely a 7 point scale (1: none, to 7: a lot)

2.4.2. Supply Chain Integration

There seems to be no standardized measure for supply chain integration, different constructs have been defined. For this paper it has been decided that only the three main dimensions (internal, customer, and supplier integration) will be measured. This is done because the relationship between buyers and suppliers is tested from both the buyers viewpoint as well as from the suppliers viewpoint. Besides, the expectation is that there are substantial differences between the different types of integration with
respect to the effect of conflict on the level of trust and commitment. The items previously used to measure internal integration, supplier integration and customer integration (Flynn, Huo, & Zhao, 2010; Lau, Tang, & Yam, 2010; Lee, Kwon, & Severance, 2007; Morgan & Hunt, 1996; Schoenherr & Swink, 2012; Wong, Boon-itt, & Wong, 2011; Yeung, Selen, Zhang, & Huo, 2009; Zhao, Huo, Flynn, & Yeung, 2008) have been analyzed and the constructs by Flynn et al. (2010) seemed to combine most of the different parts of supply chain integration and showed the most promising fit with this study. In case of supplier integration a shorter version of this construct, which was constructed by Wong et al. (2011) was used. This constructs consists of 4 items (e.g.: We have a high degree of strategic partnership with this supplier) and had a Cronbach’s alpha of 0.81. Customer integration (Cronbach’s alpha = 0.81) is also made up out of 4 items (e.g.: We follow-up with this customer for feedback), while internal integration is measured with the use of 5 different items (e.g.: We have a high level of data integration among internal functions) and had a Cronbach’s Alpha of 0.83. All three types of integration use the same 7-point Likert scale (1: strongly disagree, to 7: strongly agree).

2.4.3. Conflict management

The measures used for the different types of conflict management styles are adapted from the model made by De Dreu, Evers, Beersma, Kluwer, and Nauta (2001), who developed a measure for conflict management based on available theory. The lean version of their instrument is used which includes the sub constructs: Yielding, competing, cooperating, and Avoiding. Each of the sub constructs have been measured with 3 items with a 5-point scale (1:Never, to 5:(almost) always). This is one item per measure less than used in the research by De Dreu et al. (2001). This is done in order to shorten the total survey. Examples of the items for all sub constructs are:

- **Yielding**: When I have a conflict with my major supplier I give in to the wishes of the supplier.
- **Competing**: When I have a conflict with my major supplier I do everything to win
- **Cooperating**: When I have a conflict with my major supplier I examine ideas from both sides to find a mutually optimal solution.
- **Avoiding**: When I have a conflict with my major supplier I avoid differences of opinion as much as possible.
In addition to the four management styles 3 items related to a legalistic conflict management style were added. These statements (e.g.: We will remind the partner of its obligations stipulated in contracts) have been adopted from the construct used by Lin and Germain (1998), because of the inter-organizational nature of both studies. These statements have been mixed with the other statements of this construct and use the same 5-point scale.

The Cronbach’s alphas of these constructs can be found in table 1 below.

<table>
<thead>
<tr>
<th>Construct</th>
<th>yielding</th>
<th>competing</th>
<th>cooperating</th>
<th>avoiding</th>
<th>legalistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach’s alpha</td>
<td>0.68</td>
<td>0.35</td>
<td>0.63</td>
<td>0.55</td>
<td>0.69</td>
</tr>
</tbody>
</table>

Table 3: Cronbach’s alphas for management style constructs

As can be seen in table 1 the Cronbach’s alphas of these constructs are significantly lower than those of the other constructs. After analysis of the constructs it was concluded that the Cronbach’s alpha for the legalistic management style could significantly be improved by deleting one item, which makes the final Cronbach’s alpha 0.79.

A Cronbach’s alpha of 0.35 is extremely low. However, because the constructs are based on proven scales all constructs will be included in the analysis. This will, however, be taken into account when conclusions about the results will be drawn.

2.4.4. Trust

Many instruments exist to measure trust. Some studies measure trust with one item, other studies use an elaborate list. In this study trust is an important factor, so a 1-item measure is not preferred, however, longer surveys decrease the response rate, therefore it has been decided to use a 3 item measurement. The 3 statements:

- In our relationship this customer/supplier cannot be trusted at times
- In our relationship this customer/supplier can be counted on to do what is right
- In our relationship this customer/supplier has high integrity

The items are based on the construct of Morgan and Hunt (1996), because of the similarities in research context and have a 7-point Likert scale (1 = strongly disagree, to 7 = strongly agree) and a Cronbach’s alpha of 0.72. The items were recoded in such a way that a higher score corresponds
with a higher level of conflict. After analysis of the items it was found that the Cronbach’s alpha could be significantly improved to 0.82 by dropping the first item.

2.4.5. Commitment

In order to measure commitment it is important to consider both the importance of the relationship and the will to continue the relationship (Morgan & Hunt, 1996). For this reason and the similarities in research setting the instrument developed by Morgan and Hunt (1996) is used to measure relationship commitment between buyer and supplier. This construct, with a Cronbach’s alpha of 0.90 consists of 3 statements with a 7-point Likert scale (1: strongly disagree, to 7: strongly agree). The items used are:

- The relationship that my firm has with my major supplier is something we are very committed to
- The relationship that my firm has with my major supplier is something my firm intends to maintain indefinitely
- The relationship that my firm has with my major supplier deserves our firm’s maximum effort to maintain

These items have

2.4.6. Control variables

There are many factors that influence the level of integration, conflict, trust, and commitment and it is impossible to control for these factors. After careful evaluation of past literature some important control variables have been selected that are likely to influence the results if they are left out. The first control variable is size of the company. In this study size is expressed in the number of employees. This control variable is often used in research with a similar context (Kim, 2009; Lau et al., 2010; Schoenherr & Swink, 2012) and is logical to include, because bigger sized and more complex companies operate different from smaller companies and have to be managed accordingly (Rahim, 2001).

Another control variable often used in related articles is phase of the relationship, because different management styles are often used at different points in the relationship (Claycomb & Frankwick, 2004; Lin & Germain, 1998). This is tested with one 4 choice question based on the phases
defined by Ford (1980). These have been used extensively and are still relevant when one wants to research buyer-supplier relationships.

The survey was distributed in both the Netherlands and Belgium, country is therefore also used as a control variable. Furthermore the department of the respondent (either sales or purchasing) was taken into account whenever analysis was done on the total database. With regard to the hypotheses on supplier integration and customer integration this control variable was superfluous as this was measured within one department.

Lastly, the power balance was included as a control variable. It is expected that powerful companies use different strategies to handle conflict and that these conflicts have different effects on trust and commitment (Lin & Germain, 1998), therefore it is important to use the power balance as a control variable. The power distribution can be divided into the dependence of the supplier on the customer and the dependence of the customer on the supplier. The first is measured with a variable based on the BCG matrix (Doyle, 2011), which measures the impact of the customer on the profitability of the supplier.

The dependence of the customer on the supplier is measured with two variables based on the Kraljic matrix (Kraljic, 1983), a model that is widely used in purchasing and sales management. These measures are:

- We have a big impact on the profitability of this customer
- This customer has many alternative suppliers that can deliver what we can deliver
3. Results

3.1. Correlations

The correlation table including the means and standard deviations of all dependent and independent variables can be found in Table 4. A complete correlation table including the control variables can be found in Appendix A.

With regard to the conflict types it can be seen that in general respondents rate the level of conflict quite low, with relationship conflict (mean = 1.82 on a scale of 7) as the lowest and task conflict (mean = 2.87 out of 7) as the highest level. The correlations between the conflict types are between 0.512 and 0.600. Because of this high correlation it will be difficult to show the effect of all conflict types in one model, because the high inter correlation will diminish the power of the results. Therefore the decision has been made to test the relationship between every conflict type and the level of trust and commitment individually. Looking at the correlation table one can see that all conflict types are highly negatively correlated with both trust and commitment, this was expected and this relationship will be tested in more detail later on.

It can also be seen that supplier integration, customer integration and internal integration are positively correlated with trust, commitment and performance (between 0.125 and 0.296). With regard to the conflict management styles one can see that a cooperative management style is significantly and positively correlated with trust (0.177), commitment (0.355) and performance (0.160) and negatively correlated with all conflict types (between -0.097 and -0.149).

A legalistic approach to conflict management yields the opposite results considering the correlations; this approach is negatively correlated with commitment (-0.178) and positively with all conflict types (between 0.196 and 0.305). Hence it is not surprising that a cooperative management style is negatively correlated with a legalistic approach to conflict management (-0.116).

Furthermore, the yielding management style was similar to a cooperative style positively correlated to commitment (0.274), while a competing style was negatively correlated (-0.172).
| Construct              | Mean | Std. Dev. | N  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  |
|-----------------------|------|-----------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Customer integration  | 4.69 | 1.22      | 140| 1   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Supplier integration  | 4.25 | 1.48      | 191| 1   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Internal integration  | 4.19 | 1.42      | 331| 1   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Task conflict         | 2.87 | 1.07      | 331| -0.165 | 0.02 | -0.037 | 1   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Relationship conflict | 1.82 | 0.86      | 331| -0.286** | -0.04 | -0.165** | 1   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Contribution conflict | 2.78 | 1.19      | 331| -0.15 | -0.051 | -0.076 | 580** | 512** | 1   |     |     |     |     |     |     |     |     |     |     |     |     |
| Logistical conflict   | 2.18 | 1.02      | 331| -0.046 | -0.078 | -0.066 | 600** | 576** | 599** | 1   |     |     |     |     |     |     |     |     |     |     |     |
| Trust                 | 4.92 | 1.34      | 331| 0.192* | 0.186** | -0.344** | -0.385** | -0.318** | -0.380** | 1   |     |     |     |     |     |     |     |     |     |     |     |
| Commitment            | 5.22 | 1.45      | 331| 0.175* | 0.376** | 0.179** | -0.154** | -0.208** | -0.161** | -0.209** | 0.703** | 1   |     |     |     |     |     |     |     |     |     |     |
| Performance           | 5.06 | 1.26      | 331| 0.125 | 0.296** | 0.129* | -0.131* | -0.166** | -0.212** | -0.087 | 0.255** | 0.374** | 1   |     |     |     |     |     |     |     |     |     |
| Yielding              | 3.11 | 0.6       | 331| 0.088 | 0.089 | 0.02   | -0.071 | 0   | -0.02 | -0.026 | 0.029 | 0.274** | .111* | 1   |     |     |     |     |     |     |     |
| Competing             | 3.3  | 0.68      | 331| 0.038 | -0.044 | -0.031 | 0.139* | 0.038 | 0.068 | .114* | -0.014 | -0.172** | 0 | -0.330** | 1   |     |     |     |     |     |     |
| Cooperating           | 4.14 | 0.56      | 331| 0.363** | 0.211** | 0.189** | -0.124* | -0.132* | -0.097 | -0.149** | 0.177** | 0.355** | 0.160** | 0.394** | -0.170** | 1   |     |     |     |     |     |
| Avoiding              | 2.79 | 0.7       | 331| -0.078 | -0.016 | -0.136* | 0.035 | 0.078 | -0.043 | -0.028 | -0.062 | 0.033 | 0.015 | 0.258** | 0.005 | 0.103 | 1   |     |     |     |
| Legal action          | 3.04 | 0.91      | 331| 0.082 | -0.103 | 0.006 | 0.305** | 0.196** | 0.289** | 0.297** | -0.093 | -0.178** | -0.067 | -0.276** | 0.192** | -0.116* | -0.073 | 1   |     |     |
| Purchasing side       | 0.58 | 0.49      | 331| 0.024 | 0.088 | -0.042 | 0.045 | 0.064 | 0.052 | -0.252** | -0.117* | -0.658** | 0.333** | -0.270** | -0.233** | 0.238** | 1   |     |     |
| Management layer      | .067 | .048      | .135* | -1.160** | -0.064 | -0.085 | -0.064 | .098 | .124* | .156** | .114* | -1.129* | .152** | .040 | -1.113* | -1.166** | 1   |     |     |

Note: **. p < 0.01; *. p < 0.05

**Table 4: Correlation table**
Additionally, the table shows the control variable ‘purchasing’, which indicates if the respondent is either from the purchasing or the sales department. The results show that buyers have significant lower levels of commitment. Furthermore, they use the forcing management style, including the legalistic approach significantly more often than seller, and the other management styles significantly less often.

Lastly, also the position of the respondent is looked at. As respondents filled in their position within the company they work for the management layer could be deducted. The table shows that higher management in general experience a lower level of task conflict and use the cooperating and yielding style more often and the competing style and legalistic approach less than lower level employees. This can be partly explained by the sample; including the control variables in this correlation shows that the difference in management style between management levels are not significant.

3.2. Relationships between conflict types and trust and commitment

Hypothesis 1a suggested a negative relationship between task conflict and the relationship aspects. The results in Table 5 confirm this for the level of trust ($\beta = -.347; p<0.001$). For commitment ($\beta = -.097; p<0.1$) the results also show a negative relationship, however, the significance is a lot lower, but still within a 90% confidence interval.

As expected in hypothesis 1b the results showed a negative link between relationship conflict and the level of trust ($\beta = -.357; p<0.001$) and commitment ($\beta = -.164; p<0.01$).

Contribution conflict (trust: $\beta = -.299; p<0.001$, commitment: $\beta = -.104; p<0.05$) and logistical conflict (trust: $\beta = -.367; p<0.001$, commitment: $\beta = -.155; p<0.01$) also showed negative relationships to both relationship outcomes, which confirms hypotheses 1c and 1d.

This means that in general any type of conflict has a negative relationship with the level of trust and commitment. The negative effects of all conflict types are twice as high on the level of trust than on the level of commitment.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Power of the supplier (profitability)</td>
<td>0.024</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.106</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power of the supplier (availability)</td>
<td>0.024</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.030</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power of the customer</td>
<td>0.180 **</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.237 ***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dutch</td>
<td>-0.051</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.015</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middel sized companies</td>
<td>-0.006</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.008</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large companies</td>
<td>-0.062</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.075</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long term relationship</td>
<td>0.108</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.132 **</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purchasing side</td>
<td>0.029</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.270 ***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task conflict</td>
<td>-0.347 ***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.097</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship conflict</td>
<td>-0.357 ***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.164 **</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contribution conflict</td>
<td>-0.299 ***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.104 *</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Logistical conflict</td>
<td>-0.367 ***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.155 **</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R Square</td>
<td>0.061 0.172 0.182</td>
<td>0.145 0.190</td>
<td>0.178 0.187</td>
<td>0.203 0.188</td>
<td>0.201</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R Square Change</td>
<td>0.061 ** 0.112 *** 0.121 ***</td>
<td>0.084 *** 0.129 ***</td>
<td>0.178 *** 0.009</td>
<td>0.025 ** 0.010 *</td>
<td>0.023 **</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: N = 331. **. p < 0.001; *. p < 0.01; * . p < 0.05; . . p < 0.1.

Table 5: Linear regression of conflict types on the level of trust and commitment
### 3.3. Moderating effect of Supply chain integration

In this study supply chain integration is split into three different groups: Supplier integration (SI), Customer integration (CI) and internal integration (II). Respondents filled in the questionnaire from either the sales or the purchasing point of view and therefore analysis on the moderating effect of supply chain integration is split into three separate analyses per conflict type. Thus, for the analysis with regard to supplier integration the purchasing respondents were considered, for the analysis with regard to customer integration the sales respondents were considered, and for the analysis of internal integration both were used. A summary of the results of the hierarchical linear regression can be found in Table 6, for the complete models one can take a look at appendices C, D and E.

<table>
<thead>
<tr>
<th>Task conflict</th>
<th>Relationship conflict</th>
<th>Contribution conflict</th>
<th>Logistical conflict</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beta p-value</td>
<td>Beta p-value</td>
<td>Beta p-value</td>
<td>Beta p-value</td>
</tr>
<tr>
<td>Customer integration</td>
<td>-0.054 0.878</td>
<td>0.04 0.902</td>
<td>0.208 0.542</td>
</tr>
<tr>
<td>Internal integration</td>
<td>0.038 0.841</td>
<td>-0.03 0.851</td>
<td>0.186 0.31</td>
</tr>
<tr>
<td>Supplier integration</td>
<td>0.474 0.066</td>
<td>0.267 0.246</td>
<td>0.565 0.03</td>
</tr>
<tr>
<td>Task conflict</td>
<td>Relationship conflict</td>
<td>Contribution conflict</td>
<td>Logistical conflict</td>
</tr>
<tr>
<td>Beta p-value</td>
<td>Beta p-value</td>
<td>Beta p-value</td>
<td>Beta p-value</td>
</tr>
<tr>
<td>Customer integration</td>
<td>0.132 0.718</td>
<td>0.332 0.329</td>
<td>0.385 0.277</td>
</tr>
<tr>
<td>Internal integration</td>
<td>-0.168 0.371</td>
<td>-0.166 0.291</td>
<td>-0.025 0.887</td>
</tr>
<tr>
<td>Supplier integration</td>
<td>0.24 0.35</td>
<td>0.03 0.896</td>
<td>0.205 0.417</td>
</tr>
</tbody>
</table>

Note: 1: N = 140. 2: N = 331. 3: N = 190.

Table 6: summarized results of moderation analysis with regards to supply chain integration

#### 3.3.1. Relationship conflict

Hypothesis 2a focuses on relationship conflict and predicted an increase of the negative relationship between relationship conflict and the level of trust and commitment in case of higher levels of integration. The results show that higher levels of customer integration do not have a significant effect on the relationship between relationship conflict and trust ($\beta = 0.040; p = 0.902$). In case of internal integration ($\beta = 0.030; p = 0.851$) and supplier integration ($\beta = 0.267; p = 0.246$) the results are also non-significant.
With regard to the relationship between relationship conflict and commitment the same results were found. The moderating effect of customer integration ($\beta = .332; p = .329$), internal integration ($\beta = -.166; p = .291$), and supplier integration ($\beta = .030; p = .896$) were all non-significant.

This means hypothesis 2a is rejected. None of the supply chain integration types moderate the relationship between relationship conflict and the level of trust and commitment.

### 3.3.2. Contribution conflict

Hypothesis 2b predicted that all types of integration are negative moderators on the relationship between contribution conflict and the level of trust and commitment. There was no significant moderation of customer integration on the relationships between contribution conflict and either trust ($\beta = .208; p = .542$) and commitment ($\beta = .385; p = .277$). Similarly, there was no significant moderating effect of internal integration on the relationships between contribution conflict and either trust ($\beta = .186; p = .310$) or commitment ($\beta = -.025; p = .887$).

Supplier integration however, was found to significantly moderate the relationship between contribution conflict and trust ($\beta = .565; p = .030$). This is visually shown in Figure 4. In the figure one can see that in all cases an increased level of contribution conflict leads to a lower level of trust. However, the negative effect of contribution conflicts is much lower in cases where the level of integration with suppliers is higher. This is the opposite of what was hypothesized, because the expectation was that a higher level of integration would increases the negative effect of contribution conflict on trust.

No significant moderation of supplier integration on the relationship between contribution conflict and commitment ($\beta = .205; p = .417$) was found. This means hypothesis 2b is also rejected.
3.3.3. Logistical conflict

As shown earlier logistical conflict has a negative relationship with both trust and commitment. Hypothesis 2c predicted that all types of supply chain integration moderate this relationship, which means an increase in the level of integration increases the negative effect of logistical conflict on both trust and commitment. The results show that all three moderators (CI, II, and SI) are not significant on either trust or commitment (see Table 6). Therefore hypothesis 2c is not confirmed.

3.3.4. Task conflict

Hypothesis 2d suggests that the relationship between task conflict and trust is moderated by the level of integration. The results showed that both internal integration (β = .038; p = .841) and customer integration (β = -.054; p = .878) did not significantly moderate this relationship. Supplier integration (β = .474; p = .066), however, (almost significantly) moderates the relationship between task conflict and trust. This is visualized in Figure 5. This figure shows a similar effect as the same moderator had on the

Figure 4: Moderating effect of supplier integration on the relationship between contribution conflict and trust

37
relationship between contribution conflict and trust. This means that a higher level of supplier integration decreases the negative effect of task conflict on trust.

Because supplier integration does moderate the relationship between task conflict and trust in the way that was hypothesized, hypothesis 2d is partially confirmed.

Hypothesis 2e focusses on the same moderator, but in this case on the relationship between task conflict and commitment. Customer integration, internal integration and supplier integration do not significantly moderate this relationship, as can be found in the results in Table 6.

Figure 5: Moderating effect of supplier integration on the relationship between task conflict and trust

3.4. Conflict management styles

Five different management styles for conflicts have been defined based on the conflict management model by De Dreu et al. (2001). It was hypothesized that a cooperative conflict management style moderates the relationship between conflict and the level of trust and commitment in such a way that an increased use of this management style decreases the negative effects of conflicts and increases the positive effects of conflicts on trust and commitment. This was tested for all four conflict types. The
results of this analysis are summarized in Table 7, the complete hierarchical linear regression results can be found in Appendix H.

3.4.1. Cooperating management style

Table 7 shows that the moderator was only significant on the relationship between logistical conflict and trust. The effect of this moderator is visualized in Figure 6. This figure shows that the slope for high use of this management style is much steeper than the slope of low use of a cooperative management style. This is the opposite as to what was hypothesized. However, it has to be noted that the level of trust overall is higher in situations with a high use of a cooperative management style than situations with a low use of a cooperative management style, even at high levels of logistical conflict.

<table>
<thead>
<tr>
<th></th>
<th>Cooperation</th>
<th>Competing</th>
<th>Yielding</th>
<th>Avoiding</th>
<th>Legal approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task conflict</td>
<td>0.166</td>
<td>0.047</td>
<td>-0.188</td>
<td>0.438</td>
<td>.</td>
</tr>
<tr>
<td>Relationship conflict</td>
<td>-0.591</td>
<td>0.393</td>
<td>-0.286</td>
<td>0.342</td>
<td>-0.136</td>
</tr>
<tr>
<td>Contribution conflict</td>
<td>-0.154</td>
<td>0.010</td>
<td>-0.343</td>
<td>-0.011</td>
<td>-0.095</td>
</tr>
<tr>
<td>Logistical conflict</td>
<td>-0.965 **</td>
<td>0.015</td>
<td>-0.192</td>
<td>-0.192</td>
<td>-0.423</td>
</tr>
</tbody>
</table>

*Note: ***. p < 0.001; **. p < 0.01; *. p < 0.05; . p < 0.1*

<table>
<thead>
<tr>
<th></th>
<th>Cooperation</th>
<th>Competing</th>
<th>Yielding</th>
<th>Avoiding</th>
<th>Legal approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task conflict</td>
<td>0.170</td>
<td>0.385</td>
<td>-0.043</td>
<td>0.467</td>
<td>-0.070</td>
</tr>
<tr>
<td>Relationship conflict</td>
<td>0.314</td>
<td>0.543</td>
<td>.</td>
<td>0.005</td>
<td>-0.245</td>
</tr>
<tr>
<td>Contribution conflict</td>
<td>0.437</td>
<td>0.072</td>
<td>-0.022</td>
<td>-0.106</td>
<td>-0.171</td>
</tr>
<tr>
<td>Logistical conflict</td>
<td>-0.300</td>
<td>0.222</td>
<td>0.106</td>
<td>-0.246</td>
<td>-0.440</td>
</tr>
</tbody>
</table>

*Note: N = 331 ***. p < 0.001; **. p < 0.01; *. p < 0.05; . p < 0.1*

Table 7: Summarized results of moderation analysis with regards to conflict management styles
Hypothesis 3b suggested that all other conflict management styles are moderating the relationship between the level of conflict and the level of trust and commitment in such a way that the negative effect of the conflict increases as the use of the management style increases.

With the analysis no results were found that had a p-value lower than 0.05. However, there were four relationships that were moderated by one of the remaining conflict management styles with a p-value below 0.1. To investigate these further a visual representation is shown in Figure 7 to Figure 10.

3.4.2. Competing management style

The competing management style only moderated the link between relationship conflict and commitment. Figure 7 shows that the slope is steeper for low levels of the use of the competing management style. This is the opposite of what was hypothesized. It has to be noted that in most cases the level of commitment is higher in case of low use of this management style. Only at high levels of relationship conflict this management style seems to yield better results.
3.4.3. Avoiding management style

The avoiding management style moderates the relationship between task conflict and both the level of trust and the level of commitment. Figure 8 and Figure 9 show that this moderator works in the same way as the competing management style. This means that an increased use of this management style decreases the negative effect of task conflict on both the level of trust and the level of commitment. Similar to the moderating effect of the competing management style at low levels of task conflict the mean level of trust and commitment is higher when there is a low use of the avoiding management style. However, at higher levels of task conflict this changes and using the avoiding management style yields higher levels of trust and commitment.
Figure 8: Moderation of avoiding style on the relationship between task conflict and trust

Figure 9: Moderation of avoiding style on the relationship between task conflict and commitment
3.4.4. Legalistic approach to conflict management

The use of a legalistic approach only moderates the link between logistical conflict and commitment. Figure 10 shows that the slope for high usage of this management style is much steeper than the slope for low usage of this style.

Figure 10: Moderation of legalistic approach on the relationship between logistical conflict and commitment
4. Additional analysis

Looking at the correlation table in Table 4 we found a significant positive correlation between every conflict type and the use of a legalistic approach regarding conflict management. As well as a negative correlation between the conflict types and the use of a cooperative management style. This leads to think that buyers and sellers do not try to find a solution for their conflicts but straight away point towards the agreements that were made and the contracts that were signed when conflicts arise.

Furthermore the moderation analysis showed that high use of this conflict handling style yields worse results than low use of this method of handling conflict. Besides, the correlation table shows that the use of this method is negatively correlated with the level of commitment.

As an increase in the legalistic approach and an increase in the level of conflict both lead to a lower level of commitment and both are positively correlated with each other, it is possible that the use of a legalistic approach mediates the negative relationship between conflict types and the level of commitment. This means that possibly the before mentioned conflict types do not negatively affect the level of commitment, but that the negative effects result from an increase in the legal approach that is used to handle the conflicts. This mediation is visualized in Figure 11.

![Figure 11: Research model for mediation analysis](image)

To test this additional analysis has been done in the form of mediation analysis based on the method by Baron and Kenny (1986). This analysis includes several regressions. The first regression includes the control variables and the dependent variable (level of commitment), second the relationship between the dependent variable and the mediator will be tested. Third, the dependent variable (conflict type) will be added to the control variables to test its effect on the independent variable (level of commitment). Fourth and lastly, the independent variable and the mediator are both included. If the
dependent variable is significant in the third analysis, but not in the fourth, while the mediator does have a significant relationship with the level of commitment there is full mediation. If the dependent variable is still significant, but the beta value has decreased, then there is partial mediation.

A summary of the results of this analysis can be found in Table 8, the complete results can be found in Appendix K. The results show that there is no mediation. The additional hypothesis was therefore rejected.

<table>
<thead>
<tr>
<th>Step 2: conflict on commitment</th>
<th>Step 3: conflict on legal approach</th>
<th>Step 4: both variables on commitment</th>
<th>F</th>
<th>R Square</th>
<th>R square change</th>
</tr>
</thead>
<tbody>
<tr>
<td>step 2 Task conflict</td>
<td>-0.097</td>
<td></td>
<td>8.189</td>
<td>0.187</td>
<td>0.029</td>
</tr>
<tr>
<td>step 3 Task conflict</td>
<td>0.259***</td>
<td></td>
<td>7.713</td>
<td>0.178</td>
<td>0.117</td>
</tr>
<tr>
<td>step 4 Task conflict</td>
<td>-0.079</td>
<td>7.524</td>
<td>0.190</td>
<td>0.013</td>
<td></td>
</tr>
<tr>
<td>Legalistic approach</td>
<td>-0.067</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 2: conflict on commitment</th>
<th>Step 3: conflict on legal approach</th>
<th>Step 4: both variables on commitment</th>
<th>F</th>
<th>R Square</th>
<th>R square change</th>
</tr>
</thead>
<tbody>
<tr>
<td>step 2 Relationship conflict</td>
<td>-0.164***</td>
<td></td>
<td>9.112</td>
<td>0.203</td>
<td>0.046</td>
</tr>
<tr>
<td>step 3 Relationship conflict</td>
<td>0.192***</td>
<td></td>
<td>6.314</td>
<td>0.150</td>
<td>0.090</td>
</tr>
<tr>
<td>step 4 Relationship conflict</td>
<td>-0.153**</td>
<td>8.314</td>
<td>0.206</td>
<td>0.056</td>
<td></td>
</tr>
<tr>
<td>Legalistic approach</td>
<td>-0.057</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 2: conflict on commitment</th>
<th>Step 3: conflict on legal approach</th>
<th>Step 4: both variables on commitment</th>
<th>F</th>
<th>R Square</th>
<th>R square change</th>
</tr>
</thead>
<tbody>
<tr>
<td>step 2 Contribution conflict</td>
<td>-0.104*</td>
<td></td>
<td>8.270</td>
<td>0.188</td>
<td>0.031</td>
</tr>
<tr>
<td>step 3 Contribution conflict</td>
<td>0.263***</td>
<td></td>
<td>7.861</td>
<td>0.181</td>
<td>0.12</td>
</tr>
<tr>
<td>step 4 Contribution conflict</td>
<td>-0.087</td>
<td>7.582</td>
<td>0.191</td>
<td>0.011</td>
<td></td>
</tr>
<tr>
<td>Legalistic approach</td>
<td>-0.064</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 2: conflict on commitment</th>
<th>Step 3: conflict on legal approach</th>
<th>Step 4: both variables on commitment</th>
<th>F</th>
<th>R Square</th>
<th>R square change</th>
</tr>
</thead>
<tbody>
<tr>
<td>step 2 Logistical conflict</td>
<td>-0.155**</td>
<td></td>
<td>8.970</td>
<td>0.201</td>
<td>0.043</td>
</tr>
<tr>
<td>step 3 Logistical conflict</td>
<td>0.257***</td>
<td></td>
<td>7.775</td>
<td>0.179</td>
<td>0.118</td>
</tr>
<tr>
<td>step 4 Logistical conflict</td>
<td>-0.142**</td>
<td>8.146</td>
<td>0.203</td>
<td>0.024</td>
<td></td>
</tr>
<tr>
<td>Legalistic approach</td>
<td>-0.049</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 8: Summarized results testing the mediating effect of a legalistic approach
5. Discussion

Even though many authors suggest that conflicts and conflict management are essential aspects of the buyer-supplier relationship, research focused on this specific subject is scarce (Bradford & Weitz, 2009; Coote et al., 2003). Therefore, this study aimed to broaden the theoretical knowledge on the subject and provide practitioners with valuable information on ways to handle different types of conflict. This was done by testing the relationship between different conflict types and the level of trust and commitment within a buyer-supplier relationship and by testing the moderating role of supply chain integration and different conflict management styles on this relationship.

The results of this study suggest that all conflict types, as expected, have a negative relationship with the level of trust and commitment between the buyer and the supplier. Our results further suggest a buffering effect of supplier integration. As increasing the level of supplier integration decreases the negative relationship between task and contribution conflict and the level of trust. This means conflicts affect the level of conflict less in case of high supplier integration.

Furthermore, the negative effects of task conflict also decrease when buyers and suppliers use an avoiding conflict management style, while the effects of logistical conflict on respectively trust and commitment increase as the cooperative management style or a legalistic approach is used. Lastly, the negative effect of relationship conflict on commitment seems to decrease when a competing management style is used.

Additionally, a legalistic approach was tested for mediating the relationship between conflict types and the level of commitment. This was done because the results showed that increased levels of conflict were connected to an increase in the use of a legalistic approach in conflict management. At the same time the use of a legalistic approach in conflict handling is negatively correlated with the level of commitment. This made us wonder if it was actually the conflicts themselves that have a negative effect on the level of trust and commitment or if this is the result of an increase in the use of a legalistic approach. Therefore, additional analysis was performed with the use of a mediation test. The results of this test show that the relationship between conflict and the level of trust and commitment was not mediated by the use of a legalistic approach regarding conflict handling.

The theoretical and practical implications of these results will be discussed in this chapter.
5.1. Theoretical Implications

The results have several theoretical implications. The first implication comes from the analysis on the effect of different conflict types on the level of trust and commitment. This study found negative effects for all types of conflict on both trust and commitment, which is in line with findings by Plank and Newell (2007). These results suggest that even though task conflict is sometimes suggested to positively influence performance between buyers and suppliers it does not have a positive effect on the relationship quality. As both performance and relationship quality are important within a business relationship and affect each other significantly it is important to look at the effects of both, current literature focusses too much on the effects of conflict on performance. In contrast with these results, Bradford and Weitz (2009) found a positive link between task conflict and the level of trust and commitment. This seems to be an exception, because in general a negative relationship was found by researchers (De Wit et al., 2012).

Secondly, as various results have been found on the effects of different conflict types on the level of trust and commitment the relationship is likely to be moderated by external factors. In order to investigate this relationship further, the moderating role of supply chain integration on the relationship between conflict types and the level of trust and commitment was tested. The results suggest that increased integration with the supplier decreased the negative effect of task conflict and contribution conflict on the level of trust. A theoretical explanation for this result is that through improved information sharing and process integration companies gain a better understanding of each other’s goals, processes and capabilities. This makes that companies have more realistic expectations and can manage expectations of the other party better, which decreases the level as well as the negative effect of conflicts. Furthermore, it is possible that task conflict and contribution conflict less often turn into relationship conflict when the supply chain integration is higher, because of a higher level of trust between supply chain partners (Simons & Peterson, 2000).

A third implication is the result of the moderation analysis with regard to conflict management styles, building on the research by Bradford and Weitz (2009). The results suggest that as the level of conflict rises practitioners prone to fall back on forcing the other party with the use of contracts and legal action instead of cooperating to find a solution, even though the latter management technique seems to yield better results with regard to trust, commitment and performance. The additional analysis, however,
showed that the use of a legalistic approach does not negatively affect the level of trust and commitment by itself. However, no positive relationship was found either.

Somewhat in contrast with the findings by Bradford and Weitz (2009), who found that a cooperative style positively moderated the link between conflict and the level of trust and commitment, I found that a cooperative style negatively moderates the link between logistical conflict and the level of trust. It has to be noted however, that high use of a cooperative style resulted in higher levels of trust and commitment, but as the level of conflict increases the difference starts to get smaller. This means the management style yields better results for the relationship, but these positive results decrease as the level of conflict increases.

Lastly, the four factor model used by Behfar et al. (2011) with regard to conflict measurement is also valid for measuring conflicts between buyers and suppliers of different companies. Previously this model had only been used in an intra-team setting, but the factor analysis in this paper shows that this model works better than the three factor model where logistical conflict and contribution conflict are combined as process conflict. The results also show that contribution conflict and logistical conflict are quite different and important to include, especially contribution conflict was rated relatively high, compared to the other types of conflict.

By using a four factor model that includes contribution conflict and logistical conflict instead of the commonly used process conflict the distinction between task conflict and process conflict can be increased, and therefore providing a more focused scale of conflict measurement with lower correlations (Behfar et al., 2011). This can lead to more precise theoretical insights into the effects of different types of conflict and give practitioners better ways to target specific problems.

5.2. Practical Implications

All conflict types were found to have a negative relationship with both the level of trust and the level of commitment. This means practitioners who want to build or keep a good relationship with the other party should minimize the level of conflict as much as possible. It is therefore important that managers know how to handle conflict well, and find a structural solution for issues, so that the conflict will not keep lingering on.

The following success factors for conflict management were named most often by respondents:
Keeping perspective: By keeping the perspective of the other party in mind more
understanding can be created between the buyer and supplier, which can lead to lower levels
of conflict and better conflict handling.

Honesty: By being dishonest the other party often feels cheated when it is discovered, this
has a big effect on the level of trust, which in turn increases the level of conflict.

Communication: By communicating ones goals and abilities a better perspective and more
understanding can be created and expectations can be managed better. At the same time open
communication about conflicts can lead to faster and better managements, because of a
better understanding of the problem itself and its urgency and importance.

Practitioners should be trained to use the above effectively and agreements can be made in order
to ensure good communication practices.

When conflicts do arise it is important that practitioners use the right conflict management style
to ensure that the conflict has a minimal impact on the quality of the relationship. The results suggest that
a cooperative management style yields the best results. This means that parties should not only take care
of their own concerns, but keep in mind the concerns of the other parties (De Dreu et al., 2001). By doing
this a higher level of trust and commitment as well as a higher performance can be realized. However, at
higher levels of conflict an avoiding style can also be used to minimize the effect of conflict on the level
of trust and commitment. Because the management style moderates the relationship between conflict and
trust and commitment differently for different conflict types is it important that the people involved are
trained to identify the type of conflict and handle accordingly, which is also suggested by Bradford and
Weitz (2009).

Furthermore, different types of conflict management styles are used by respectively the buyer and
the supplier. The supplier is much more likely to use a cooperative, yielding or avoiding strategy, while
buyers are more likely to use a forcing style or use a legalistic approach. As relationship conflict is often
considered the most destructive conflict type it is important that buyers and suppliers learn to focus on the
issue instead of the person. The cooperative style yields the best results, therefore both should also be
trained to solve conflicts together and agreements should be made with regard to conflict management.
This can lead to smoother and faster management processes. However, they should also be trained to
know how to handle the other conflict management styles as they are likely to come across them eventually, as well as learn when to bring in a mediator to help resolve a conflict. This is especially important when conflicts turn personal or when the buyer and supplier reach a deadlock.

5.3. Advice

Partly based on the results of this thesis Supply Value, the company where this project was conducted will advise practitioners to focus not only on performance but also on the relationship quality, by taking the other parties concerns into account and clearly communicating expectations, goals and issues instead of forcing the other party through contracts and agreements. As companies nowadays focus increasingly on working together with a few partners on a strategic level this becomes increasingly important. One of the most important parts of this relationship is the conflict management. Conflicts lead to a lower relationship quality, which in turn could lead to a lower performance. This is especially the case when conflicts are not handled effectively or not at all. Therefore the advice would be to reevaluate the relationships with supply chain partners and possibly redesign the conflict management strategy. This advice includes the following components:

- Training employees to use the right tools and information
- Changing the customer and supplier evaluation
- Changing the business culture

5.3.1 Training employees

Employees can be trained to effectively communicate with the other party. This leads to a better understanding of the other parties capabilities, concerns and ideas. With a good communication system in place conflicts can be discussed easier and faster. Furthermore, employees can be trained with regard to conflict management in order to be able to recognize different conflict types and making them aware of their own conflict management style. With this knowledge they can act accordingly to the other party, make adjustments to their own practices and this also makes it easier to separate personal and task-related conflicts.

5.3.2 Changing customer and supplier evaluation

Many companies seem to disregard the quality of the relationship to some extent. This can also be seen from the way they handle conflicts; when the level of conflict rises practitioners tend to
immediately fall back on contracts. In order to shift the focus towards a combination of performance and relationship quality it is important that relationships are also evaluated this way. Therefore I designed the following matrix.

![Partner evaluation matrix]

*Figure 12: Partner evaluation matrix*

This matrix can be used to classify supply chain partners. The steps after classification depend on other factors as well, like the power balance, but in general the directions from the different quarters is indicated by the arrows.

This means that if the relationship falls in the ‘Opponents’ quarter it might be best to look for an alternative partner as indicated by the downward arrow. However, this is not always possible. In that case the performance has to improve as well as the relationship quality. Relationships classified as ‘Professionals’ should increase focus on the relationship quality in order to bind the supply chain partner longer to the organization and increase performance even further, while relationships in the ‘Friends’ quarter should focus on improving the performance. For example by renegotiating agreements and contracts. If the performance is not likely to be changed alternatives for this supply chain partner should be evaluated. If an alternative partner can deliver better performance it might be necessary to let the original partner go. When both the performance and the relationship quality are good parties can grow together through continuous improvement and further integration.

By using relationship quality as part of the evaluation practitioners are more inclined to pay attention to ways they can improve the relationship quality, of which conflict management is a big part.
5.3.3 Changing the business culture

The results suggest that a cooperative strategy works best when handling conflicts. This means practitioners need to start taking the other parties concerns into account when they make decisions. In order to do this often a change in business culture is needed. This means top management has to lead the change and show their support and commitment. They also need to provide the resources that are needed to realize a change towards a cooperative conflict management style as the norm, because practitioners have to move towards a point where the concerns of both parties are considered and where communication is the first step in dealing with conflicts, which takes more time and energy.

5.4. Limitations

Besides the theoretical and practical implications some limitations of this study have to be pointed out. The causality of the results is an important point to keep in mind. Most of the relationships explored in this study can be explained in either direction. For example higher levels of conflict may lead to lower levels of trust, but at the same time it is not unlikely that lower levels of trust lead to higher levels of conflict (Curseu & Schruijer, 2010). The same holds for other constructs as well. Based on the literature I assumed a specific causal order in this study.

This study has a sample size around 330. This includes both the purchasing and the sales professionals. This does not seem to be a small sample size. However, some analyses were done with only a part of the data and the study covers many sectors. This means it has a big effect on the significance and it makes it difficult to say something about a specific situation. In this study there were also quite a few constructs and many of these constructs had high correlations with each other (e.g. the different conflict types). Combining constructs into the same regression model also lowers the power of the result, which makes it difficult to find statistically significant results. For that reason the hypotheses were tested individually.

As commented on earlier the Cronbach’s alpha of some constructs were very low, especially the Cronbach’s alpha of the competing construct (0.35). One therefore has to wonder if this model was the right model to use in this context. The fact that a three item construct was used might contribute to the low value. It will be useful to evaluate the model by De Dreu et al. (2001) in this context in future research. Most of the other constructs yielded good results with Cronbach’s alphas around 0.9, even
though the constructs were in some cases highly correlated. This was to be expected in this type of research and comparable to other studies in this field.

Furthermore, the results show that an avoiding style positively moderates the relationship between task conflict and the level of trust and commitment, at the same time it is negatively correlated with the level of trust and commitment. A possible explanation is that an avoiding style can be useful when the conflict is of low importance. This is a factor that was not taken into account and could provide additional insight in the field of conflict management.

Lastly, only the most important relationship of every respondent was investigated. Therefore the results could be different when tested for all relationships at once. This means these results provide a somewhat simplified version of the reality.

5.5. Future Research

Longitudinal studies can be used to see the development of the constructs over time, which will help explain the causality of the relationships. This will also be a way to see how a relationship changes over time. Especially companies who are in the transition from low supply chain integration towards higher supply chain integration are interesting for these kind of studies, as companies in different levels of integration seem to use different conflict management strategies.

The respondents country has been taken into account, but as pointed out in the survey by one of the respondents the country of the partner is also of importance. Dealing with a client from china for example, often requires a different management style than dealing with a European. A theoretical explanation for this is that cultural dissimilarity leads to an increase in behavioral uncertainty, while high similarity leads to a better mutual understanding (Lin & Germain, 1998). In cases of low cultural similarity people tend to go for written agreements and contracts instead of a cooperative management style. This is an interesting construct to add in future research.

Besides people from different countries the results of this study suggest that buyer and supplier also use different management styles when handling conflict. Future research could focus on this in order to see the effect of this asymmetry in management style by researching the dyadic relationship between buyer and supplier, instead of focusing on individuals.

In summary, the findings in this paper suggest that conflicts between buyer and suppliers should
be minimized as much as possible. However, some conflicts seem to be inevitable. In that case the buyer and supplier should focus on finding a solution in a cooperative way. The findings also suggest that increased cooperation with external parties as a company decreases the negative effect of conflicts between the buyer and supplier, as well as the level of conflict. Which provides an additional reason to further integrate processes with supply chain partners.
Bibliography


